



# **Wisconsin** **Rural Water** **Journal**

Summer 2022

**Leak Detection Basics**

**The Duckweed Wars**

**Understanding Electric Bills**

**Draining Your Tank**

**The Stages of  
Anaerobic Digestion**

**WRWA 2022  
Outdoor  
EXPO**

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## WRWA Outdoor Expo

August 18, 2022

*See pages 24 & 25 for agenda and registration form.*

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**Dean Bergstrom,**  
*WRWA President, Cumberland*

## Message from the President

Summertime is in full swing and it's hard to believe we are quickly approaching the Outdoor Expo which will be held on August 18th, 2022. It appears that this will be another huge event! Hopefully the weather cooperates and you are all able to attend. Recently, WRWA held their Annual Board Retreat in the Wisconsin Dells. This was the first meeting of the year and was intended as a reorganizational meeting/board retreat to learn many aspects of WRWA and to look at future goals and long-term planning of the organization. We looked through financial reports, reviewed the audit report, looked at a longevity bonus program for the employees, made changes to the board policies and elected officers again for the board, to which there was no change from the previous year. I want to thank the board members for taking time to join us at this meeting. In addition, thanks to Chris and Sue for hosting and planning this event. Unfortunately, we have an opening for a board position in District 2 which was vacated by Jim Jacobs. This will be an appointed position by the board to fill out Jim's remaining term. If you are from District 2 and can receive a letter from the governing board of your utility, please contact Chris Groh to inquire about the position. I hope all of your summer projects are going well. Keep up the good work and until next time, stay cool and stay safe!

*Dean*



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### **WRWA Mission:**

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our members in the  
Water & Wastewater  
Industries.



**Chris Groh,**  
WRWA Executive Director

## Message from the Executive Director

### Mo' Regulations-Mo' Money

There seems to be a regulation for everything. Without regulations, regulators couldn't regulate. We would have to depend on big businesses to look out for our general good. Yeah, I don't think so either. Every aspect of our lives is looked at and looked over for us, whether we want it or not. Lead and copper have been a known problem for human health pretty much since Victorian times; yet we struggle with their removal even now. Human and animal waste also present bad affects on our health, yet we strive to keep it out of our water supplies throughout the world. Our ability to manipulate chemicals have given us problem toxins such as PCBs, dioxane, hexavalent chromium, PFAS and many more that Hollywood can make a movie about. It seems we get into trouble of our own making doesn't it. No wonder governments think we need to be regulated so tightly. These regulations are rarely fully funded due to the huge cost of compliance.

If we look at who is responsible for most of these problems, we don't see individual's names, we generally see large businesses and manufacturers. These guys are regulated too, but they have lots and lots of money to get around regulations and hide the processes, but yet they give us what we want. Who wants to cook eggs in a cast iron skillet when you can get perfect over easy eggs every time in a Teflon coated pan? Can't have corn-based products without pesticides, herbicides and lots of fertilizer either so manufacture it by the megaton. Regulations don't look so bad in these cases, but it always comes down to your customer's money footing the bills. (We certainly can't have big business not making that extra 2-3 billion dollars profit per year can we.)

With more regulation comes more money from that infinitely deep pocket of the every day person trying to make ends meet and still provide for their families. This past year we have been dealing with Lead and Copper regulations and are working towards removal of these water lines so we can provide lead free water to our customers and not worry about any further lead problems. The Lead and Copper Rule Revision (LCRR) has been completed and now there are steps we are taking, incrementally, for the total removal and funding of these water lines. Right now you should be inventorying your lead lines and mapping out your results so you can get funded quicker and easier.

Nitrates, a much less sexy problem, but a bad problem none the less, is being studied now for funding and support of solving this issue. Phosphorus is now a problem that is struggling to be controlled, but we seem to have invested enough money (several millions of dollars of customer's money in a lot of cases) to control our wastewater discharges at least enough to be compliant.

As we go to press the big news is the U.S. Environmental Protection Agency (EPA) announced on June 15 that it was issuing drinking water health advisories for four PFAS.

- Perfluorooctanoic acid (PFOA): 0.004 parts per trillion (ppt)
- Perfluorooctanesulfonic acid (PFOS): 0.02 ppt
- Perfluorobutane sulfonic acid and its potassium salt (PFBS): 2,000 ppt
- Hexafluoropropylene oxide (HFPO) dimer acid and its ammonium salt (known as "GenX" chemicals): 10 ppt

Yes, you read that correctly. We are now looking at testing water down to 4 parts per quadrillion. What else do you think we'll find when we look for several thousand molecules per liter levels of chemicals?? Think it's going to be inexpensive?? Me either.

Right now the DNR is wisely legislating PFAS down to "only" 70 parts per trillion. And luckily there is a lot of funding out there to help with this issue. Maybe even after Milwaukee, Fox Valley, Madison and other metropolitan areas get their first draw on those programs.

I know these issues have not been brought on by our industry, but we're holding the bag on the fixes and funding them. I also know that everyone I have talked about are stuck in their roles without asking for it. Our roles are to work with everyone down the chain from EPA to your customers. I know that puts our operators and clerks and board members in very uncomfortable situations. Right now any questions being asked are extremely hard to answer. The best answer is "we are trying to use the latest information to make the best decisions." Please keep in contact with Rural Water, your circuit riders and your DNR engineers in each step of your work and together we'll get the best and least expensive (relatively) solutions.

*Chris*



# We get letters and emails!

*We'd love to hear from you...*

Dear WRWA Staff,

The Village of Pigeon Falls would like to thank all the staff of the WRWA for all of the training and technical support we have received over the past years!

We appreciate the loan of the testing equipment for the water and wastewater systems. We thank Kay Curtin and Chris Groh for taking time to attend our Village Board meeting to offer information on our wastewater system and for making suggestions for a business expanding in our Village. Also, for lending support to said business by offering their services for any questions & concerns. We also want to thank Jeff LaBelle for his advice and technical support for our well and distribution system.

We can tell WRWA cares for both the municipalities and businesses they deal with every day. No questions have gone unanswered! Keep up the great work you all do so well!!

Sincerely,  
The Village of Pigeon Falls

My name is Alan Upmann, and I am the operator of a small municipal water system for the Edmund Water Dept. in Edmund WI. Earlier this week, the South West Wisconsin Representative from Rural Water Association (Annetta Von Rueden) Annie, made a power tool available for closing and opening our 6" Main Valve Boxes. I also got information from her on how to update my chlorine injection system. I really appreciate the help that is given without charge. I was very impressed with Annie and just wanted you to know this. The operators credential class information is also listed through them.

Thank You,  
Alan Upmann, Operator, Tn. of Linden San. Dist #1 Edmund, WI

Chris,

Thank you for allowing Kay to serve as the OIC for the Village while our department completed testing to re-gain compliance with the DNR. We appreciated Kay's attentiveness to our questions and assistance in reviewing our permits as many of us are new to our roles in public works.

Thank you again for the help!  
John, DPW & Allison, Admin Asst., Village of Grantsburg

Dear Andrew,

Thank you for coming to our school to teach us about water and hydrogeology. I thought it was really cool to watch the red water move through the dirt. I was really surprised to find out that there are 326,000,000,000,000,000,000,000 gallons appx in the water system! I really enjoyed it the whole presentation and I am very thankful. My favorite rock you showed us was the limestone and I thought it was really cool how it absorbed the water.

Your Friend,  
Grace Anne

Dear Andrew,

I liked you talking about the rocks. I liked sandstone the best. Thank you showing us the water model. I really liked it. And I liked that you talked about saving the water on earth.

Sincerely,  
Sierra

Dear Andrew,

Thank you for coming to see us. We all enjoyed your visit. The thing that really impressed me was the well model. I woke up right away. It wasn't just the well model, it was also the rocks how one absorbed, and one the water just rolled off the rock. I really enjoyed you coming.

Sincerely,  
Mayli

Dear Andrew,

Thank you for coming to our school to show us the water presentation. I liked the water table when you put the red dye in the water table. I hope you have a good rest of your day.

Sincerely,  
Caden

Dear Andrew,

Thank you for the presentation. I learned that sandstone can soak up water like a sponge. I also learned that clay can help keep trash from entering the water through landfills. I thought the amount of water we have on earth was huge but we only have 3% that is freshwater. Thanks again for coming.

Sincerely,  
Isaiah



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# LCRR Information and Background



**Annetta Von Rueden,**  
*WRWA Water Circuit Rider*

Now is the time to get started with inventories and know what is out there in your utility.

**H**ello everyone! Now that summer is finally here, I hope all finds you well at your favorite fishing hole, golf course, or campsite.

The clock is ticking. On the Lead and Copper Rule clock that is. In December of 2021, EPA announced the revised Lead and Copper Rule (LCRR). With that, development of lead line service inventories that are necessary to achieve 100% of the removal of lead in water service lines. Accompanying the revised Lead and Copper Rule is an initial compliance date of October 16, 2024, for the lead line inventories. This includes best practices and templates to help develop lead service line inventories.

The science of lead is settled. Lead is a very toxic substance. There is no safe level of exposure to lead. Lead is very dangerous. There is no known MCL for lead. Lead pipes have a long history in the conveyance of water for drinking, cooking and bathing. Lead pipes can still be found in homes, schools, and childcare facilities creating at risk exposure to lead in the water they drink.

Statistics prove throughout the years; a lot of progress has been made in the removal of lead in many products we use reducing blood levels in the population.

**1971** - The start of removal of lead-based paint.

**1973** - The start of removal of lead in gasoline with the elimination in 1988.

**1974** - The Safe Drinking Water Act enacted.

**1986** - Lead in plumbing and plumbing products banned.

**1991** - Lead and Copper rule implementation.

**2011** - Guidelines of 100ppm in children's products toys etc. went into effect.

**2021** - Action Plan implemented by EPA to reduce lead in drinking water by the removal of water service lines containing lead.

With this progress being made, results in lead blood levels are going down.

Wisconsin is largely ahead of the rest of the nation. Early 2020 the DNR implemented a lead service line inventory for the required lead monitoring sampling sites.

All utilities must develop an inventory that will include all known lead pipes, galvanized pipes, non-lead pipes, and pipes that are unknown. There are many tools that can be used for creating the lead inventory for your utility. If you look on the DNR website under lead and copper rule, you will find a in depth template developed by the DNR with all the information you need for the data required by the LCRR inventory. Create an Excel worksheet or using a GIS mapping system of the utility is a good way to keep inventory as well. Gather all the information you can and DOCUMENT. If you need assistance with how to start or go about the inventory, call a WRWA Circuit Rider. This inventory is the basis for the ultimate removal of all lead service lines as set forth by the EPA.



**Do not fear. Funding is here!** There are a lot of grants and funding sources available for help with the LCRR. The Department of Natural Resources has the State Revolving Fund, or the Safe Drinking Water Loan. Go to the DNR website and search for environmental loans. Watch the application deadlines.

Wisconsin has received a nice amount of Federal dollars for the remediation and removal of lead service lines. Programs are available that have grants or principal forgiveness loans, subsidized loans are also available.

USDA Rural Development also have grants and loans available. The Subsidized Loan Program offers grants and loans with great flexibility. They are long term loans, with low interest rates. Reach out to R.D. early for the application process.

A WRWA Circuit Rider can help with getting in contact with a loan specialist.

Reach out to your County and local government officials. The County Health Department has resources to assist with the lead topic. A lot of money is available, as the next years become critical with the LCRR.

Now is the time to get started with inventories and know what is out there in your utility. You can see much progress has been made with the removal of lead so far. We do have a long way to go. With the help of the LCRR, EPA programs, and DNR programs, we can "get the lead out" and protect the public we serve.

Stand out - don't "go with the flow"

Enjoy the rest of your Summer!! *Annie*

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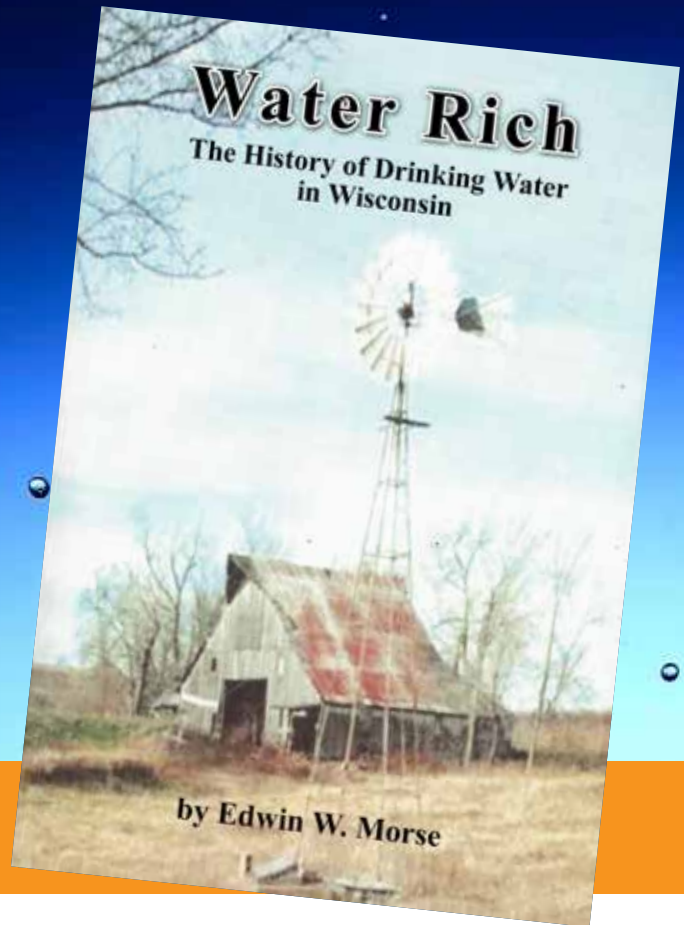
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# BOOK REVIEW, *Water Rich, The History of Drinking Water in Wisconsin*



**Andrew Aslesen,**  
*WRWA Source Water Specialist*



The book itself is an interesting historical account of the central role that drinking water has had in our past.

**D**id you know that Wisconsin's Drinking water has its own history book? Well, it does, and the book was written by Ed Morse, former Source Water Specialist for Wisconsin Rural Water Association. Published in 2021, the book is titled *Water Rich, The History of Drinking Water in Wisconsin*; and it is dedicated specifically to the Waterworks Operators in Wisconsin.

Before working for WRWA Ed spent many years in environmental consulting, then worked for the Milwaukee Water Department. When he came to work for WRWA Ed got the opportunity to travel around the state to work with small water utilities. His experience at both a large utility and with many small utilities gave him a broad understanding of the state's water resources, and he thought it was something he could share with others. While the idea for writing a book came to Ed years ago, he became more serious about doing the research and finishing the project after retiring from WRWA in 2011. For Ed, writing the book was a chance to contribute something to Wisconsin's history that someone else might not think about

The book itself is an interesting historical account of the central role that drinking water has had in our past. Additionally, it looks at many

of the technologies used and their application (and misapplication) throughout our state's history. Starting with an overview of the geology Ed builds the basis of knowledge for understanding where and how drinking water is found and procured. From there, the book provides a detailed evolution of how we in Wisconsin understand and think about our water. Starting with early misconceptions about what makes water fit to drink through the advancements in technology that allow us to better understand water quality, treatment, storage and distribution. The book is filled with detailed historical accounts from different communities around the state, both small and large. Finally, Ed reviews the current drinking water issues facing our state and considerations for the future. Overall, the book provides a broad understanding and builds an appreciation for the critical drinking water resources of our state. If you are interested in obtaining a copy of the book you can order one from the Lake Mills Aztalan Historical Society (<https://www.lakemillsaztalanhistory.com/shop>). The cost is \$22, and all proceeds go to the Lake Mills Aztalan Historical Society. Additionally, you could contact me and I would be happy to arrange for you to get a copy. **Andrew**

# LEAK DETECTION Basics - OTM/NN

**H**ello Everyone,

Today I'll be talking about water leaks and leak detection. Distribution system leaks and resulting water loss fall into two general categories: EMERGENCY LEAKS and NON-EMERGENCY LEAKS.

Emergency leaks require immediate attention. Non-Emergency leaks include known leaks that may be repaired when time permits. Large leaks are usually easy to find. The water either comes to the surface or finds its way into a crack in a sewer pipe or access hole. Water systems employees should report any unusual puddles or running water. Small leaks unfortunately do not always rise to the surface. It is absorbed into the soil, or they flow into the sewers. A small leak can pass a surprisingly large amount of water over a period of time. And many small leaks can add up to millions of gallons of wasted water.

A water utility can control leaks only by conducting a survey throughout the entire system. The two basic methods are listening surveys and combinations of listening surveys and flow rate measurements, sometimes called water audits.

Acoustic listening devices can systematically be used to locate water leaks. It can detect the sound waves created by escaping water. The sound waves can be picked up by sensitive instruments and amplified so that the technician can hear them. In the hands of experienced operators, the instruments can help locate leaks with amazing accuracy.

I personally use a Subsurface leak detection LD-12. I have also found numerous water leaks in the Northern region of Wisconsin for small systems. This is just little bit of information for everyone to read before getting out in the field. If your water system has any suspected leaks and you need any help in locating them, don't hesitate to call your WI- Water Circuit Rider. We are always here to provide any technical assistance you may need.

Thanks for Reading!!

George Taylor,  
Small Water System Circuit Rider  
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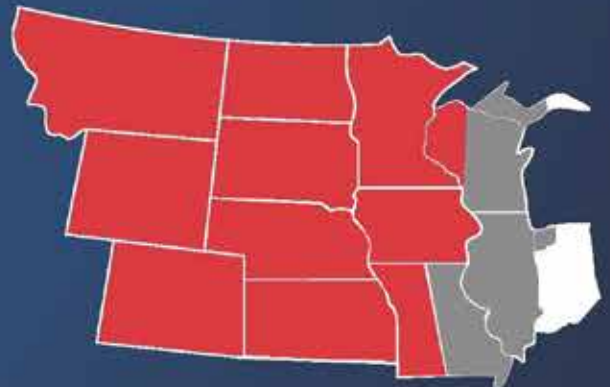
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**PSC WATER RATE INCREASE ORDERS ISSUED**

12/1/2021-3/25/2022

UTILITY NAME	ORDER ISSUED	OVERALL% INCREASE
Williams Bay Municipal Water Utility	3/4/22	15.01%
City of Weyauwega Water and Sewer Utility	3/8/22	35.93%
Platteville Water and Sewer Utility	3/16/22	7.31%
Village of Somers Water Utility	3/29/22	34.48%
City of Greenwood Water Utility	3/31/22	35.06%
Greenville Utilities	4/18/22	19.98%
Arlington Water Utility	4/29/22	70.21%
Harrison Utilities	5/2/22	-5.61%
Ashwaubenon Water and Sewer Utility	5/9/22	29.44%
Village of Ridgeway Municipal Water Utility	5/16/22	60.25%

**PSC CONSTRUCTION AUTHORIZATIONS ISSUED**

12/1/2021-3/25/2022

UTILITY NAME	ORDER ISSUED	CONSTRUCTION COST
Village of Menomonee Falls Water Utility	3/25/22	\$552,700
Wauwatosa Water Utility	3/30/22	\$2,084,009
Oregon Municipal Water & Sewer Utility	4/7/22	\$2,079,168
Winnebago Area Sanitary District	4/28/22	\$1,097,400
Slinger Utilities	4/29/22	\$950,000
La Valle Municipal Water Utility	5/2/22	\$1,554,000
Cumberland Municipal Utility	5/9/22	\$1,211,260
Windsor Water Utility	5/16/22	\$2,700,000
Muscoda Light And Water Utility	5/19/22	\$2,000,000
Eleva Municipal Water Utility	5/19/22	\$3,200,000
Cumberland Municipal Utility	5/31/22	\$1,342,503
Winneconne Water Utility	5/31/22	\$6,500,000



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# THE DUCKWEED WARS

**Kay Curtin**  
WRWA Trainer/Technician

Don't confuse duckweed with algae or other aquatic plants. Duckweed floats on the surface of the water, and is spread by wildlife (particularly ducks, hence the name).

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It's that time of year again. You're having to deal with mosquitos, ticks, mowing, road construction and of course, DUCKWEED. Yes, good old *lemna minor*, one of the smallest flowering plants in the world. If you are a pond operator in Wisconsin, you are almost assured of having it when the weather warms up in the summer.

*Lemna* helps to keep water clean, prevents the overgrowth of algae, and generously feeds fish and wildlife. NOTE: Kay is NOT saying to put fish in your wastewater pond; you will be in trouble with the DNR if you do (although other states do). I'm just stating the fact in order to non-demonize duckweed. It does have its uses.

Don't confuse duckweed with algae or other aquatic plants. Duckweed floats on the surface of the water, and is spread by wildlife (particularly ducks, hence the name). Duckweed plants measure 1/16 to 1/8 of an inch long, and each plant has one to three light green leaves that are flat and oval in shape. Each leaf then has one hair-like root that hangs down in the water. Miniature air sacs keep the plant afloat. Common Duckweed has a short lifespan, but it carpets rapidly and can become invasive. Believe it or not, it produces flowers. Each tiny, cup-like flower measures 1mm, only visible with a magnifying glass. A sticky secretion comes from the pistol of the flower attracts flies, mites, spiders, and

bees, which then contribute to the plant's pollination, although the plant is able to self-pollinate or pollinate by the wind. Tadpoles, beavers, fish and birds are also fond of the plant. In fact, duckweed is grown in the commercial sector as a protein-packed animal feed for fish and livestock. There's even a company in Florida making protein bars out of a certain type of tropical *lemna* that can be up to 29% protein. Yum! (Disclaimer: These are not produced in wastewater ponds.) It also makes great fertilizer, since it absorbs nutrients.

So much for botany of aquatic plants. What are the pros and cons about having duckweed in your wastewater ponds?

## LET'S START WITH THE GOOD STUFF.

**1.** Duckweed takes up nutrients. Like any plant, it will use phosphorus and nitrogen compounds for its growth. According to studies, such as one in *International Journal of Scientific & Engineering Research, Volume 4, Issue 5, May 2013*, duckweed in ambient temperatures has the ability to take up between 37 and 75% of the phosphorus in pond water. A study by the Minnesota Pollution Control Agency noted similar results in wastewater ponds in the state. However, when the duckweed dies and becomes part of the sludge, it is not necessarily leaving the system. See #2 in the Bad Duckweed list below.

**2.** Duckweed will shade the algae from the sun, preventing its growth. This is both good and bad. Your primary ponds NEED algae to complete the Symbiotic Cycle with the bacteria and nutrients and sunlight. Duckweed actually competes for nutrients with the algae that you need. If you still have enormous amounts of algae in your final or polishing ponds, you have other problems such as overloading or incomplete treatment. Call Jesse or Kay at WRWA for assistance.

### NOW FOR THE BAD:

**1.** Large amounts of duckweed on stabilization ponds (no mechanical aeration) lower the dissolved oxygen by inhibiting wind action. The wind and algae are your main sources of oxygen for stabilization ponds. Although the plant produces oxygen during the day, it consumes it at night, which can exceed the amount produced and result in a drastic D.O. drop, especially in hot weather. You need at least 2.0 mg/L D.O. for efficient treatment. Yes, get a D.O. meter.

**2.** Just because duckweed takes up nutrients doesn't mean they're gone. It takes it up into its cell walls, then dies and releases those nutrients back into the pond. The dead duckweed also adds to the sludge layer in the bottom of the ponds.

**3.** If you rely on the UV light from sunlight for disinfection, which is typical of many wastewater ponds, a layer of duckweed will disrupt the process, resulting in high fecal and E.coli results.

**4.** To the common municipal resident, it looks bad. Of course, they don't quite understand the process, but will complain about the "green pond" messing up their view from the marina.

**5.** Add mechanical aeration. This may be a good idea, but it isn't cheap.

### SO, WHAT DO YOU DO ABOUT THE DUCKWEED? A FEW IDEAS:

**1.** Physically remove it with nets, booms made from pool noodles, or use a pool skimmer. Not easy or fun.

**2.** Push it to one corner of the lagoon with a firehose or power sprayer, then net it out. Not fun, either.

**3.** One of our Rural Water associates in a western state has a friend that made a cool transportable piece of equipment that can be hooked up to a trash pump on site. It pumps the duckweed up and onto a screen that dumps it onto the ground or a container. I'm searching for a couple of water-tight plastic barrels or old pontoon boat right at this moment. Seriously. Kay's Deadly Duckweed Device. Retirement Plan #31.

The DNR has studied different herbicides, but to my knowledge none are approved at this time. Please do not use anything unless you have absolute approval from the DNR, especially copper sulfate, which is assured to put you over the copper biosolids limit when you are ready to landspread the pond sludge, if not putting your effluent over your permit limit for copper and killing your beneficial algae. And keep in mind where your receiving water is going. The wrong herbicide could be the source of a fish kill. Do NOT use something just because a salesperson said it was OK, approved, or safe. You and your system are not in their best interest. If I had a dollar for every time I've heard "But the salesman said I could use it!" I'd be retired and using Retirement Plan #31.

-Kay-

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# THAT TIME OF YEAR



**Vince Matarrese,**  
Advanced Safety Technology, Inc.  
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Head injuries are common in the workplace. The proper helmet helps prevent these from happening.

## RESPONSE/RECOVERY

*It's that time of year when storms can be nasty. Safety for workers responding to storm damage and the aftermath of a tornado. Workers may be involved in a variety of hazardous conditions when responding and being part of recovery operations. This also includes workers who are part of assessing and/or cleaning up the damage to their own worksites.*

### POTENTIAL HAZARDS

Some of the specific hazards associated with working in the aftermath of tornadoes include:

- ◆ Hazardous driving conditions due to slippery and/or blocked roadways;
- ◆ Slips and falls due to slippery walkways;
- ◆ Falling and flying objects such as tree limbs and utility poles;
- ◆ Sharp objects including nails and broken glass;
- ◆ Electrical hazards from downed power lines or downed objects in contact with power lines;
- ◆ Falls from heights;
- ◆ Burns from fires caused by energized line contact or equipment failure;
- ◆ Exhaustion from working extended shifts;
- ◆ Heat and dehydration.

### ALWAYS REMEMBER

- ◆ Never assume that a downed power line is safe simply because it is on the ground or it is not sparking.

- ◆ Do not assume that any wire is a harmless telephone, television, or fiber-optic cable, and does not carry lethal current.
- ◆ Always treat everything electrical as energized until tested and proven to be de-energized from the Utility Owner.
- ◆ Never go near a downed or fallen electric power line.
- ◆ Even when clearing limbs.
- ◆ Electricity can spread outward through the ground in a circular shape from the point of contact. As you move away from the center, large differences in voltages can be created.
- ◆ Never drive over downed power lines.
  - Assume that they are energized.
- ◆ If contact is made with an energized power line while you are in a vehicle, remain calm and do not get out unless the vehicle is on fire. If possible, call for help.
  - Do not touch the outside of the vehicle.
- ◆ If you must exit any equipment because of fire or other safety reasons, try to jump completely clear, making sure that you do not touch the equipment and the ground at the same time.
  - Land with both feet together and shuffle away in small steps to minimize the path of electric current and avoid electrical shock.
  - Be careful to maintain your balance.

*Always continue to monitor your local radio or television stations for emergency information and the potential of additional storms.*



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- ◆ closeness of work area to traffic;
- ◆ day/night when cleaning debris near traffic;
- ◆ inclement weather, poor visibility due to weather;
- ◆ complexity of the background environment;
- ◆ reduced sight distances.

You want to be seen by traffic and equipment operators on site at all times. High visibility helmets are a good addition also.

*And, it's always about going home. Be safe this summer.*

*Vince*

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# The Stages of Anaerobic Digestion

By Tony Roche

In the last stage of anaerobic digestion, the soluble materials (mainly acids) are converted to methane by methanogenic bacteria.

**THE FIRST STAGE** of anaerobic digestion is comprised of two separate steps. In the first step, hydrolysis, complex organic materials are broken down into their basic components. Proteins are converted to amino acids, fats to fatty acids, and complex carbohydrates into simple sugars. Complex materials are broken down by bacteria that secrete enzymes that hydrolyze (i.e. hydrolysis) these materials into their basic components. This phase is highly affected by the heterogeneity of the feedstock used in the digester. Generally speaking, the less uniform the waste stream, the longer this process takes. Hydrolysis is followed by acidogenesis. During acidogenesis, acid-forming bacteria convert the products of hydrolysis into a mixture of acids. Of the mixture of acids formed in this stage, acetic acid, propionic acid, butyric acid, and ethanol are some of most abundant.

**THE NEXT STAGE** of anaerobic digestion is acetogenesis. Often considered to be a single stage with acidogenesis, acetate is the main

product formed here. Acetate is produced through the fermentation of carbohydrates, and this reaction also yields other byproducts, including carbon dioxide. Following acetogenesis is the final stage of anaerobic digestion, methanogenesis.

**IN THE LAST STAGE** of anaerobic digestion, the soluble materials (mainly acids) are converted to methane by methanogenic bacteria. The microorganisms that perform this step are the same bacteria that live in the guts of ruminants. These bacteria are especially sensitive to pH changes and cannot survive in an environment with a pH level of 5 or below. Since ambient environments must be maintained to ensure bacterial survival, different systems with varying reactor size and design can be implemented.

If I ever had a rock n' roll band I would consider naming it Hot Sludge. See you all at the Outdoor Expo in August!

*Tony*



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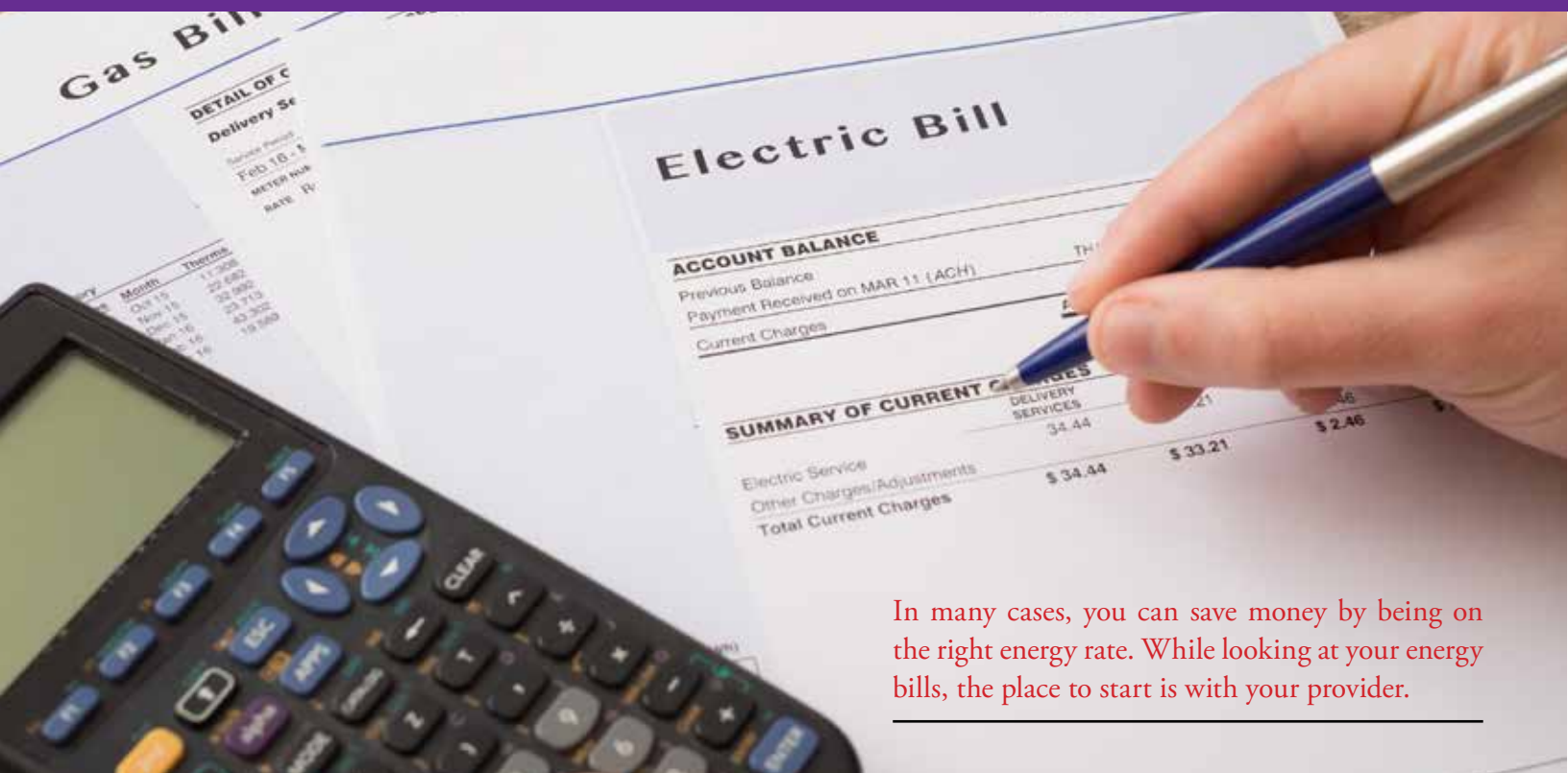
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In many cases, you can save money by being on the right energy rate. While looking at your energy bills, the place to start is with your provider.

# UNDERSTANDING ELECTRIC BILLS

By Dan Wundrow

I'm taking a small hiatus from discussing how to mitigate energy consumption and all the elements of an assessments. I've realized over the last few months that many communities are unaware of their electric bills and what your utility provider can offer. For some, if your community provides its' own electricity this article will not apply to your situation. Energy bills can be convoluted but hopefully today we can help make sense of them. Once you understand what some of the information means, we can dial in the savings.

In many cases, you can save money by being on the right energy rate. While looking at your energy bills, the place to start is with your provider. Who is it? What programs, incentives, or service rates do they offer? These programs are there to help municipalities save money. Many people are unaware of this. By the way, there are savings options for your own home as well. Explore the website and see what you can find! Many of them even have buy in programs for renewable energy. Sometimes they even offer incentives that can be used in conjunction with other programs. So, if you have the chance to double down on incentive money, I advise to take advantage of it.

Now on to the intricate subject of what your bill all means and understanding it. When looking at the service rate, or rate schedule, you should document it and look up what the rate all involves. Many times, I see a water system

on a Time-on-Demand (TOD) rate. Typically, water systems shouldn't be on this service rate. Most water systems need to be run during the TOD time frames which will cost more money. 99% of the time they would be better on a Municipal Water Pump rate, or Non-residential General Service (GS1). When systems are put on GS1 there is no demand time frames, however, you might pay more per kWh. In the long run, you save a lot of money. One of the last systems I assessed used about 7,200 kWh per month and was on a TOD rate. The average monthly bill was \$1,475. When they switched to GS1 the average monthly bill dropped to \$948. That's a pretty decent savings of \$527 monthly average and about \$6,324 annually. This was a simple phone call to make the switch. There is a caveat to all this. In most cases you will need to be under a set monthly kWh for 12 consecutive months. While looking at electrical rates, read and understand what each rate means and parameters of the rates. Once you know the information, contact the utility company, and make the switch.

There are multiple different rates that can be used. Making sure you have the right one is a big driving force to saving money. I have found waterworks systems on some pretty strange rates. One that sticks out the most in my mind is a well house on a Street Lighting rate. When I contacted the electric provider to inquire about that rate, I was shocked at why that was. The electric company didn't have a municipal water rate, but the well house fit

the description of the Street Lighting rate. This was the best rate that system could be on. It was cheap to run and provided a copious amount of water. The operator knew that this well would need to stay within the parameters of the rate. To subjugate this, the operator had a VFD running at 46 hertz and used natural gas heaters. This was the perfect strategy for energy and cost savings.

Concluding rates, it is best if you can view what the current rate is and do some research on rates that are available with the electric provider. This is very simple and if you have questions about it, or don't understand what you are looking for, that's ok. I am here with WRWA to help. Just give me a call or shoot me an email with the questions you have. We can get you set on the right path. I would rather see you save money and have no out-of-pocket expense.

Power factor (PF) is another indicator of available savings. PF indicates how much power is actually being used to perform useful work by a load and how much power is being wasted. The simplest way to explain this is with a pint of beer. When a beer is poured, the top is typically an inch or two of foam. Well, all the foam is wasted beer. So, if you think of your electrical system like beer, the foam you have, the more waste you have. The concept is incredibly simple, but when you dive into the math, the struggle can be real. I have another upcoming article that will dive into PF but, today let's keep it basic.

When looking at the PF you may see it shown in different forms. The most common way is in percent or decimals format. Now what do you need to know about the PF? That is quite simple. If the PF is 90%, or 0.9 or greater,

you will not see a surcharge. However, if it's less than 90%, or 0.9, you will see a surcharge on your bill. If you happen to be one of the unlucky ones that has a surcharge for the PF you should really call and get an assessment done with WRWA. There are simple devices that can be interspersed to correct this problem and save you money. I am going to keep this one short as we could talk about this subject for hours.

The last major thing that I look at, besides the cost and kWh, is to see if any state and local taxes are being paid. I know I have indulged in this topic before but, time after time I seem to find electric bill that have state and local taxes applied. This is overlooked. Some communities get over 20 different bills and the clerk is swimming in them, paying them without reviewing every single bill. Please don't run to your clerk and question them about the bills. Sit down and collaborate with them about the bills. Look over them over together to see what you may find. If you do see that you are paying taxes fill out a tax-exempt form and contact the electric provider. Explain to the provider what you found and to whom you should submit the tax-exempt form to. In some cases, there is a finite window for reimbursements, and in some cases, it cannot be reimbursed.

Many other items are looked at on an energy bill but these three big things I look for first. It only takes a few seconds to review but it could save a ton of money with no cost to your community. If you want to know more, contact me and I can give you a list of items.

I hope you found this article advantageous. I wish you all a great summer and hope you get a chance to enjoy some of the outdoor activities. Hunting season is coming soon! *Dan*

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# THE HISTORY *of* Water Mains

By Todd Weich

**If you are in the market for new water mains, make sure you consider the pros and cons for what's best within your municipality as each option has its ups and downs**

**H**ave you ever considered the history of what we know best? Or how water was distributed in the very beginning, well before our time?

The first known underground water mains were created by an ancient Minoan civilization in the time frame of 2200 to 1400 BC. The Place of Knossos which is in Greece near the coast of Crete used water mains constructed of terracotta which is classified as any form of fired clay (think of your clay flower pots and tiles). The level of knowledge and ability in which they were using water mains in that time of age was well over one thousand years ahead of their time. The Romans came next in 300 BC to 500 AD and were the pioneers of engineering. They created concrete by mixing water with lime and volcanic rock to form a mortar which allowed for prominent advancements. However, at this time, they also starting using the idea of utilizing gravity to get water to reach the outer perimeter of the cities via water mains which became their focus.

Let's jump ahead to the 18th century in North America where history was made in reintroducing the wooden pipes made from hollowed out logs, typically elm or hemlock trees. The trees would be cut into 7 to 9 foot lengths with trunks around 9 to 10 inches thick which they then bored out. Sometimes they even split the log, hollow it out, put it back together and then clamped it together with iron hoops or they would caulk the logs with lead. On a side note, as fire was becoming more prominent due to building constructions, firefighters would punch a hole into the wooden pipe, insert a small pipe which was pre-sized to fit that hole, and then harness the hose off their fire wagon. When the fire was extinguished, they would plug up the hole with a pre-cut conical stopper on the end of a long pole, insert it into the hole, and bang it shut keeping the wooden pole sticking out of the ground marking it readily available for the next chimney fire. This took the term of a "fireplug". Back on topic, they then ran into many problems with laying wooden pipes underground. Uneven ground would cause sags in the logs where the water would become

stagnate as well as the typical wood characteristics such as attracting bugs and rotting away. In some cases, this was the only material available. These types of water mains were installed across the United States from the East coast to the West coast. As recently as 2018, a wooden main was revealed in downtown Spokane, Washington.

Shortly behind came lead pipes due to the cost and the more reliable durability. Unfortunately, what happens when you mix water, time, and lead together? Lead poisoning. Due to the health concern, by 1920, a noticeable number of cities were banning the use of lead pipes to transport drinking water. Another type of popular material during the early 1900's was a fiber conduit known as Orangeburg pipe named after one of the manufacturing companies. It was created by mixing wood fibers with coal tar pitch until the late 1960's when PVC came along. During this time, cast iron also became popular which then started to replace the previous wooden mains. Eventually cities switched over to cast iron due to its lifespan and ability to withstand higher water pressures. Because cast iron turned out to be corrosive, ductile iron was introduced soon after and turned out to be stronger. Concrete pipe was also rising in popularity during this time however it was obviously heavier and more expensive. Although PVC was first developed in the 1860's, it really didn't take off until the 1960's when it became a more reliable product and remained popular due to having the highest corrosion resistance and long lifespan. Today, PVC may be more of an option due to the possibility of being cheaper than ductile iron and also easier to work with. However, there are drawbacks with the use of PVC in certain climates.

Present day, the best two options are ductile iron or PVC. If you are in the market for new water mains, make sure you consider the pros and cons for what's best within your municipality as each option has its ups and downs. As always, feel free to reach out to your WRWA Circuit Rider for any guidance or technical assistance.

Contact your WRWA Circuit Rider to give you technical assistance in getting compliant with the discharge report. —*Todd*



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# WRWA Outdoor Expo Agenda // August 18, 2022

(6 Municipal Water and 6 Wastewater Credits)

## TECHNOLOGY CENTER CLASSROOM

- 8am – 9am**      **Lagoon Management & Maintenance**  
The impacts of routine and cyclical maintenance in lagoon systems.  
*Ben Shakman, Triplepoint Environmental*
- 9am – 10am**      **Tips for Pump Repairs and Replacements**  
The greasy grimy details of repairing or replacing a pump.  
*Chad Kubasch and Jason Draeger, Pump Works Group*
- 10am – 11am**      **Monoform Plus Manhole Rehabilitation**  
Rehabilitation of underground utility components impacted by degradation.  
*Brenda German, HK Solutions Group (WRWA Associate Member)*
- 11am – 12pm**      **Basic Control Panel Troubleshooting**  
Troubleshooting with electric meter tracing voltage in relation to schematics.  
*Anthony Wright, Wisconsin Pump Works (WRWA Associate Member)*
- 12pm – 1pm**      **Working Lunch and Product Demonstrations (outside)**
- 1pm – 2pm**      **Computer Deep Learning Tool Influencing Infrastructure Analytics**  
Computerized learning current and future contributions for infrastructure analytics.  
*Robert Muchka, Infrastructure DL, LLC (WRWA Corporate Member)*

## OFFICE BUILDING CLASSROOM

- 8am – 9am**      **The Cost of Doing Nothing: Your Water Storage Infrastructure**  
Importance of reconditioning, inspecting, and maintaining water storage tanks.  
*Shawn Mulhern, KLM Engineering, Inc. (WRWA Corporate Gold Member)*
- 9am – 10am**      **PFAS Sampling: A Strategic Planning Process for Managing PFAS in Community Drinking Water Systems**  
Planning to decide whether to sample or not to sample for PFAS compounds.  
*Mark A. Rutkowski, P.G., Shannon & Wilson, Inc. (WRWA Corporate Member)*
- 10am – 11am**      **Using Electroscan Technology for True Condition Assessment on Pressurized Pipe Uninterrupted**  
Condition assessments for pressurized pipe covering varying diameters and materials.  
*Joe Nepras, M.E. Simpson Co. Inc. (WRWA Associate Member)*
- 11am – 12pm**      **Selecting a Phosphate for Lead & Copper Corrosion Control**  
Factors influencing corrosion and corrosion control with phosphates.  
*Darin Skutt, Martelle Water Treatment & Carus (WRWA Corporate Gold Member)*
- 12pm – 1pm**      **Working Lunch and Product Demonstrations (outside)**
- 1pm – 2pm**      **Finding the Right Funding for Capital Improvement Projects**  
Various funding options best suited for capital improvement needs.  
*Ed Maxwell, Ruekert & Mielke, Inc. (WRWA Corporate Member)*

# WRWA Outdoor Expo Agenda // August 18, 2022

## EXPO INDIVIDUAL REGISTRATION INFORMATION

August 18, 2022 - WRWA State Office/Technology Center  
350/351 Water Way, Plover, WI  
East of Highway 39/51 and north of County Highway B

## GENERAL INFORMATION

The Expo will be held Rain or Shine • Outdoor & Indoor Exhibits  
Water/Wastewater training CEC's offered • **FREE** safety T-Shirt with paid attendance

### INDIVIDUAL REGISTRATION FORM

System/Firm \_\_\_\_\_

Attendee Name \_\_\_\_\_ DNR Cert. # \_\_\_\_\_

Attendee Name \_\_\_\_\_ DNR Cert. # \_\_\_\_\_

Attendee Name \_\_\_\_\_ DNR Cert. # \_\_\_\_\_

Attendee Name \_\_\_\_\_ DNR Cert. # \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ email \_\_\_\_\_

#### Cancellation date August 5, 2022

##### Pre-Registration

# Attending \_\_\_\_ x \$85 = \_\_\_\_\_

##### Onsite Registration

# Attending \_\_\_\_ x \$95 = \_\_\_\_\_

Send payment and form to: WRWA, 350 Water Way, Plover, WI 54467

#### TO PAY BY CREDIT CARD

Go to [www.wrwa.org](http://www.wrwa.org) - **MUST** fax completed form(s) to (715) 344-5555 or email the completed form(s) to [wrwa@wrwa.org](mailto:wrwa@wrwa.org)

**Questions: 715-344-7778**

# DRAINING *your* TANK

By Erin Schmitt, technical writer/media director for Pittsburg Tank & Tower Group

How do you drain a storage tank? Where will the water need to go? Those are two key questions tank operators should ask themselves before they attempt to drain a tank.

Figuring out when to take a tank out of service comes down to logistics - what will work best for the tank owner. Tank operators should always consider their water demand. If it's a potable or process tank, what time of the year is the least busy. That's probably when you would want to schedule to have your tank down.

For potable tanks, the busiest production times are usually in the summertime when people are filling up their swimming pools, washing their cars, and watering their lawns. Agricultural areas might schedule their tanks out of service in the spring or fall to coincide with irrigating crops.

Many storage tanks aren't drained unless their interiors are being repainted or for most interior maintenance and repair work. Some tanks might go a decade or even decades in between maintenance work. That means, just because someone has worked for a municipality or company for a long time, doesn't mean they have been there for a tank draining.

Some things to consider are if you have a drain, what is your tank set up, and where will the water go if it's drained? People sometimes don't consider these things ahead of time, and then they cause a big headache.

An operator knew his tank had a six-inch valve, but he had to make plans to plumb off the line first into a drainage ditch or creek. Otherwise, the water would shoot off into a neighbor's yard and create a makeshift swimming pool.

Be mindful of where the water discharges. Some customers get by dumping the water on the ground or into a drainage ditch. Others will use fracking trucks or rent temporary mobile tanks to hold the



water, therefore conserving the water.

Water operators should locate their yard piping and valves before taking their tank out of service. A few years ago, a maintenance crew was baffled when they arrived at a worksite to find a water superintendent digging up mounds of dirt underneath an elevated tank. They learned he had been digging for days - searching for a shut-off valve.

The structure was supposed to be drained and then painted for the first time in more than 20 years. The superintendent was a long-time municipal employee, but he had not taken a tank out of service. He knew that there was a drain valve that had been buried somewhere in the yard, but he didn't know exactly where, so he grabbed a shovel and began to dig. He eventually procured a metal detector and discovered the shut-off valve used to bypass the tank. Before the maintenance crew wrapped up their work, they installed a valve pit so

that the water superintendent wouldn't have to resort to looking like you are trying to find his hidden treasure.

People's main concern is usually what to do with their water while their tank is down. Municipalities generally keep pretty good track of how much water they are using. For example, if they have a one-million-gallon tank, they might use 500,000 gallons per day. After confirming when the maintenance or inspection company will be on-site, a superintendent might kick off the systems' pumps a day and a half or two days before the tank is taken out of service. That way the water will be low, and they will only have to drain about 100,000 gallons of water.

Does your tank need a pressure relief valve? That's something that can be procured from a maintenance contractor. You never want to put too much pressure on your pipes. A pressure relief valve can help ensure you don't overpressurize your water mains as you are redirecting the water flow.

Taking a fire protection tank out of service usually poses more challenges than a potable one. For one thing, fire protection tanks are basically for emergencies – if a fire breaks out – so water is not being drawn out of the tank on a day-to-day basis. Unlike potable tanks, fire protection tanks are less likely to be part of a system so it's less likely that there's a back-up tank where the water can be shifted while maintenance is being performed. Taking a fire protection tank out of service means there's a lapse in coverage, which poses a great risk should a fire break out.

Fire protection tanks feed into sprinkler systems should a building catch fire. If the tank isn't operating, that means there's no reserve water for the sprinkler systems, creating a safety hazard.

Fire protection tank owners will often set up fire watches so that there's uninterrupted fire protection while their tank is out of service. They should also let their local fire departments and emergency services know what's happening, so they can respond accordingly should a fire occur.

Tank owners can rent portable tanks from vendors. Hydropneumatic tanks don't hold as much water as traditional tanks, but they are pressurized.

Whether draining a potable or a fire protection tank, it's good to come up with a plan before maintenance or painting crews arrive on-site.

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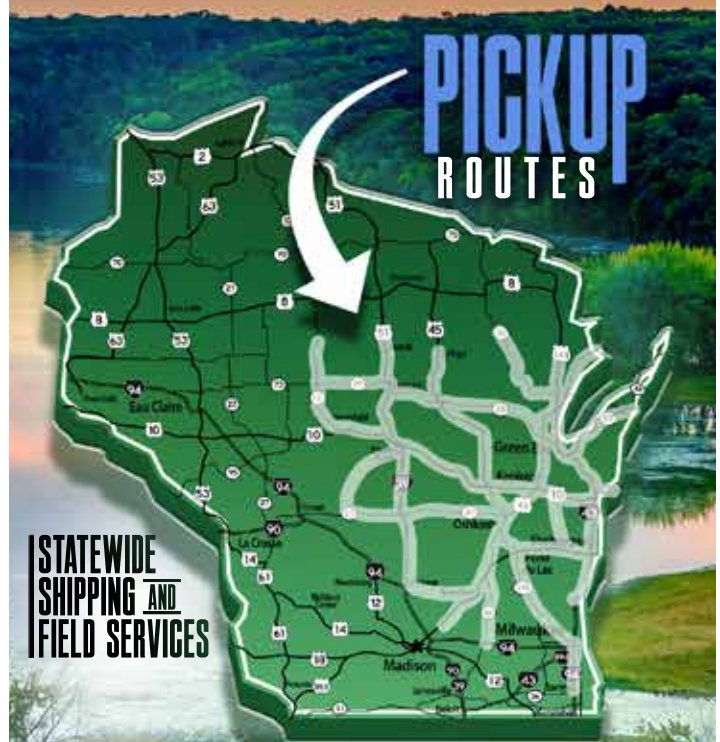


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# LEAD & COPPER RULE REVISION- INVENTORIES OF MATERIALS



**Jeff LaBelle,**  
*WRWA Technical Assistance Director*

Lead and Copper Rule Revision is here, by the time you see this, you should all have received your letters from The DNR on system inventories of laterals.

**H**ello everyone, Lead and Copper Rule Revision is here, by the time you see this, you should all have received your letters from The DNR on system inventories of laterals. The DNR has given systems until Oct 2024 to complete these inventories. The question to ask is, how are we going to gather this information and how do we save it. Each system is going to have to figure this out, the DNR has a spreadsheet for data entry.

Some systems may have done this when they installed new meter systems in the last couple of years in anticipation of these rules. Everyone with the last round of Lead and Copper sampling have done these inventories for sampling sites. Now you must complete the rest of the system. Some thoughts on this, would be to go door to door and physically inspect piping in the houses and ask for date of installation, send letter with the water bill asking for residents to respond to let system know what they have for piping at both the meter coming in and after meter plus date of installation. Maybe do something on-line that residents could respond to. However you do this, make sure to use physical addresses not homeowner names.

When I went to the DNR web site and typed in Lead & copper rule revisions in the search box, it took me to a presentation from DNR Lead & Copper

Coordinator Ann Hirekatur about timelines, different team responsibilities and so forth. The presentation under the heading of "What have we already done?" states that the DNR has developed a spreadsheet to inventory the lateral and home piping. The spreadsheet probably is linked in your letter to give you accessibility to it. The spreadsheet is very in depth and asks for a lot of information you may never get an answer to, do your best. The instructions are very well written and explanations for the why of things are very clear. The spreadsheet is not required to be used but, if you are going to make your own, you must include all the information asked for by DNR. I would probably use the DNR version than reinvent the wheel.

The presentation also talks about the Tiers for identification. Tier1; Single family with lead service line, Tier2; Multi-family with lead service line, Tier3; Single family with galvanized service line downstream from lead, Tier4; Single family with copper plumbing with lead solder, Tier5; Any structure with materials representative of system. This is just the beginning of what is to come with LCRR, take it seriously and do not wait until the last minute to start this. If you would like some help, don't hesitate to call your Circuit Rider.

*Jeff*



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## NOW IS THE TIME TO ACT

### Get Started on Your Water Utility Construction Project

Do you have a Water Utility Construction Project? Now is the time to act! Rates are at an all time low, and with the current pricing being opportunistic and taking action can result in benefits not only for yourself but for the customer as well. Consider the below items that detail positive reasons to act now that you can present to your governing body.

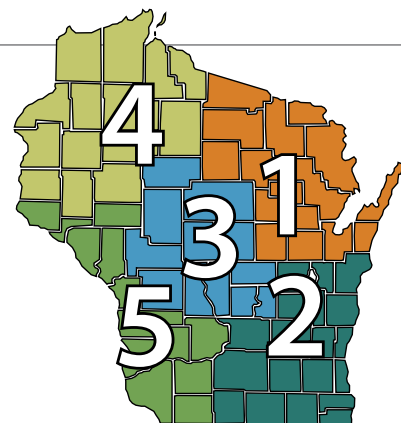
- Interest rates are at an all-time low.
- More project contractors are available, increasing the number of bids, potentially lowering project costs.
- Fuel costs are low, lowering pipe related costs.
- Most material costs for projects are down.
- Shipping costs for many have decreased.
- Road and water projects are easier to schedule due to decreased volume in traffic.
- Low construction costs and available contractors are not guaranteed to last.



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## System Member List



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Black Creek  
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Clintonville  
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Crandon  
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\*DePere  
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Embarrass  
Ephraim  
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Freedom Sanitary District #1  
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Gillett  
Goodman Sanitary District  
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Greenville Sanitary District  
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Holland Sanitary District #1  
Hortonville  
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Iola  
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Kewaunee  
Kimberly  
Lakeland Sanitary District  
\*\*Lakeland Village  
Lakewood Sanitary District #1  
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Ledgewiew  
Lena  
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Manawa  
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Pound  
Pulaski  
Rhineland  
Russell Sanitary District #1  
Scott  
Seymour  
Shawano  
Shawano Lake Sanitary District  
Shiocton  
Sister Bay  
Sturgeon Bay  
Suamico  
Suring  
Three Lakes Sanitary District  
\*\*Thunder Properties, LLC  
Tigerton  
Tomahawk  
Wabeno Sanitary District  
Waupaca  
Wausaukee  
Weyauwega  
White Lake  
\*\*Wisconsin Veterans Home  
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Wrightstown  
Wrightstown Sanitary  
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\*\*Autumn Ridge Water  
System, LLC  
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Belgium  
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\*Beloit  
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Bloomfield  
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Bristol  
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\*\*Country Aire Mobile Home  
Park  
Country Estates Sanitary District  
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\*\*Crystal Lake RV Park  
\*Cudahy  
\*\*Dakota Capital Park  
Dane  
\*\*Dairyfood USA, Inc.  
Darien  
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DeForest  
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Delavan  
Delavan Lake Sanitary District  
\*\*Don's Mobile Manor Inc  
Dousman  
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East Troy, Village of  
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Hartford  
Hartland  
\*\*HB Performance Systems Inc.  
Hilbert  
Horicon  
Hustisford  
Ixonia Sanitary District #1  
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\*Janesville  
Jefferson  
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Juneau  
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Kewaskum  
Kiel  
\*\*Kikkoman Foods Inc  
Kohler  
\*\*Lad Lake Inc  
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Lannon  
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Lodi  
Lomira  
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Marshall  
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McFarland  
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Menasha Utility District  
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\*Middleton  
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Monona  
\*Monroe  
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\*Neenah  
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Oakfield  
\*Oconomowoc  
Oostburg  
Omro  
Oregon  
Orfordville  
\*Oshkosh  
Palmyra  
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Pewaukee, Village of  
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\*\*Plymouth Joint School  
District  
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Portage  
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Randolph  
Random Lake  
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 Alma Center  
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 Berlin  
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 Brokaw  
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 Cashton  
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 Coloma  
 \*\*Community Water & Sewer  
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 Edgar  
 Elroy  
 \*\*Fox Marquette Estates  
 Friendship  
 Gilman  
 Granton  
 Green Lake  
 \*\*Green Lake Conference  
   Center  
 Green Lake Sanitary District  
 Greenwood  
 Hancock  
 Hatfield Sanitary District 1  
 Hatley  
 Hixton  
 Hustler  
 Junction City  
 Kendall

Kronenwetter  
 Little Green Lake Protection &  
   Rehab. District  
 Loyal  
 Lyndon Station  
 Marathon  
 Markesan  
 \*Marshfield  
 Mauston  
 Medford  
 Melrose  
 Merrillan  
 Milladore  
 Montello  
 Mosinee  
 Necedah  
 Neillsville  
 Nekoosa  
 Neshkoro  
 New Lisbon  
 Norwalk  
 Oakdale  
 \*\*Ocean Spray Cranberries, Inc.  
   - Tomah  
 Owen  
 \*\*Pineland Park Enterprises LTD  
 Pittsville  
 Plainfield  
 Plover  
 Port Edwards  
 Princeton  
 Redgranite  
 Rib Lake  
 Rib Mountain Sanitary District  
 Rome  
 Rosholt Sewer Commission  
 Rothschild  
 Schofield  
 Silver Lake Sanitary District  
 Sparta  
 Spencer  
 Stetsonville  
 \*Stevens Point  
 Stratford  
 Taylor  
 Thorp  
 Tomah  
 Union Center  
 Unity  
 \*\*Village Acres Mobile Home  
   Court  
 Vesper  
 Warrens  
 \*Wausau  
 Wautoma  
 Westboro Sanitary District #1  
 Westfield  
 \*Weston  
 Whiting  
 Wilton  
 Withee  
 Wonewoc

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 Ashland  
 Baldwin  
 Balsam Lake  
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 Bayfield  
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 Bloomer  
 Boyceville  
 Boyd  
 Bruce  
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 Cable Sanitary District #1  
 Cadott  
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Catawba-Kennan Joint  
   Sewage Commission  
 Centuria  
 Chetek  
 \*Chippewa Falls  
 Clayton  
 Clear Lake  
 Clover Sanitary District #1  
 Colfax  
 Cornell  
 Cumberland  
 Dallas  
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 Downsview Sanitary District #1  
 Dresser  
 Drummond Sanitary District #1  
 Elk Mound  
 Emerald – Greenwood  
 Sanitary District #1  
 Exeland  
 Fifield Sanitary District #1  
 Frederic  
 Glen Flora  
 Glenwood City  
 Glidden Sanitary District  
 Grantsburg  
 Hammond  
 Hawkins  
 Hayward  
 Hudson  
 Hurley  
 Iron River Sanitary District #1  
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   Commission of Danbury &  
   St. Croix Chippewa Indians  
   of WI  
 Knapp  
 Knight  
 Lac Courte Oreilles Public  
   Works Department  
 Ladysmith  
 Lake Hallie  
 Lake Holcombe Sanitary  
   District #1  
 Luck  
 Madeline Sanitary District  
 Manitou Falls Sanitary District #1  
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 Mellen  
 \*Menomonie  
 Mercer Sanitary District #1  
 \*\*Middle River Health & Rehab  
   Center  
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 Minong  
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 Arena  
 Argyle  
 Augusta  
 Avoca  
 Bagley  
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 Barneveld  
 Bay City  
 Belmont  
 Benton  
 Blair  
 Blanchardville  
 Bloomington  
 Blue River  
 Boscobel  
 Cassville  
 Cazenovia  
 Chaseburg  
 Cobb  
 Cochrane  
 Coon Valley  
 \*\*Coulee Region  
   Enterprises Inc  
 Cuba City  
 Darlington  
 \*\*De Soto Area School District  
 \*\*Dell Creek Estates  
 Dickevillie  
 Dodge Sanitary District #1  
 Dodgeville  
 Durand  
 Eastman  
 Eleva  
 Ellsworth  
 Elmwood  
 Ettrick  
 Fairchild  
 Fall Creek  
 Fennimore  
 Fountain City  
 Galesville  
 Gays Mills  
 Genoa  
 Gratiot  
 Hazel Green  
 Highland  
 Hillsboro  
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# Get Started With Funding Your Maintenance



**Jesse Hass,**  
*WRWA Wastewater Technician/Trainer  
Wastewater Specialist*

*This program of looking at funding, best use of funding and finding the agreement between operations and management is available to everyone in the state.*

In previous articles I have touched on sustainability and how to start thinking about funding and developing a plan for maintain your utility. Over the past few years, we have conducted classes that focus on the topic of sustainable utility management. These classes work best when operators, along with clerks, and decision makers attend so differing viewpoints are heard and discussed. What might seem important to an operator may not be at the top of the list to a board member. This workshop provides each person at the class the opportunity to assess high and low priority aspects of the utility. Once the assessment is done the group then discussing findings. This year National Rural Water wanted each Wastewater Circuit Rider to do a follow-up meeting to see how the utility was following up on topics discussed in the session. Here is my report to National Rural Water on how one small community is trying to make their utility more sustainable for the future.

The sustainable management class was held on June 17th, 2021, at Plover, WI. Six systems attended the class, which included Manawa, Iola, Amherst, Junction City, Vesper, and Pittsville. There was a mix of operators, clerks and village presidents at the class. Junction City was represented by Operations Specialist - Fred Metzler, Village President - Peter Mallek and Village Clerk - Betty Bruski-Mallek. The class provided a way for

different departments to see the Village in a new way. Everyone seemed to gain valuable knowledge and enjoyed the chance to discuss issues regarding sustainability with other communities.

The follow-up meeting took place on the afternoon of May 31st, 2022, in Junction City. The meeting lasted about 2 hours. Mr. Hass, Mr. Mallek, Mr. Metzler discussed how the Village are implementing and considering ways to practice sustainability. The Village currently is in the process of upgrading their Wastewater treatment facility to comply with lower phosphorus limits. The Village has been granted a variance from the DNR to meet phosphorus limits and is working towards a process that can maintain phosphorus levels around 0.25 mg/l in the future. The village started the process of upgrading the plant by draining down some tanks and replacing gates and valves in the summer of 2021. The Village also cleaned out the tanks and installed mixers to help with biological phosphorus removal. The Village is planning for future upgrades to the treatment facility. These upgrades include installing a generator that can handle the load to operate the entire plant in the case of an emergency.



Also, the Village is wants to add a fine screen to help with primary treatment of the influent wastewater. This will help remove debris from the influent wastewater that should improve the overall consistency of the wastewater and add life to pumps, valves and other aspects of the facility. The Village will most likely need to supplement biological phosphorus removal with chemical addition to maintain lower limits, so they are planning to build a chemical storage and feed room as well.

Along with additions to the Wastewater facility to implement a sustainable utility the Village also has their sites set on collection system, water, and street upgrades. The collection system has pipes that need replacing and rehabilitation. The Village is in the process of identifying and replacing sections of sewer main that will help reduce I & I and provide easier access to the sewer main for the operators. The water system is in the process of rehabbing the water tower and deciding whether to rehab the existing tower or build a new tower in the future. The streets are also a topic for a sustainable utility because winters are hard on Wisconsin roads, so streets need to be kept up and thought must always be given to replacing infrastructure underneath the roads as well. The Village knows these issues need to be addressed at some point, but they also do not have unlimited budget. They are working with funding agencies to the see what is available for different projects. The Village will monitor different regulations and funding sources and do what they can to operate a sustainable utility moving forward.

This program of looking at funding, best use of funding and finding the agreement between operations and management is available to everyone in the state. This follow-up report is an example of how to get your projects planned, funded and gives you a place to start. *Jesse*



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# Take a Break!

By Kelly Thomas

One of your many jobs as a municipal utility manager is to be at the beck and call of the entire community. No matter what the issue may be, you get the first call. In larger communities, you may be able to redirect the call or delegate the task to a subordinate or another department. But in most small communities, if you take the call for a complaint, request or task, you will handle the situation. There is no “passing the buck.” You are the one that has to clean up the mess, unplug the sewer, catch the dog, re-read the water meter, find the neighbors’ property lines, dig the grave, and listen to your board members suggestions. You’re dealing with a lot of stuff! And it is expected of you...right?

Who do **YOU** get to call if **YOU** have a complaint? Who can **YOU** call to air **YOUR** grievances? If you are like most, you bottle everything up, take it home with you, and unload on your family. And that is not fair to them.

## WHO TAKES CARE OF YOU?

Everyone deals with varying levels of stress, which can be particularly difficult to manage. It's easy to feel overwhelmed by your daily roles and responsibilities as a utility manager; because your responsibilities may seem endless. When you're constantly expected to perform countless duties, you can find yourself exhausted. When you feel like your stress levels have reached their peak, it might be time to take a quick break to reset.

I call it taking a “mental health day.”

A mental health day is a day off from work with minimal commitments or

responsibilities. You can use this time to focus on relieving stress, relaxing, having fun, and preventing burnout. While one day might not solve heavy underlying problems, a mental health day can provide a much-needed break to pause, regroup, and come back with less-stressed perspective.

Use your vacation time! It's given to you for a reason. Vacations are needed to help maintain sanity. Your life cannot simply revolve around your work. My advice is to never, EVER give back or lose your vacation days. You need these days to decompress, clear your mind, and do something you enjoy with people whose company you enjoy. Catch up on some needed sleep, or just rest and relax. Avoid people who will stress you out, avoid social media, and maybe catch up on some hobbies. Surround yourself with people or an environment that make you happy.

## TAKE A MINUTE AND REALLY REFLECT.

I asked before, who takes care of you? Sometimes, **YOU** need to take care of **YOU**.

Your mental health is very important. Stress can lead to physical health problems. *You need to take care of you.*

When you return to work, you may just have a better attitude or outlook on your many responsibilities, which in turn, can lower your stress levels and make you more productive.

Stay safe, stay healthy. *Kelly*

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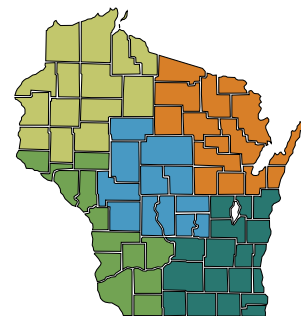


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# UP THE CREEK



**Ken Blomberg,**  
WRWA past  
Executive Director

I often reminisce of my father's love affair with boats. As a young boy, he hung out at Chicago's Belmont Harbor. One fateful day he dove off a pier and saved the Harbormaster's son from drowning. That heroic deed landed him a job. "It was the Depression and the wealthy had money to spend on their boats and outdoor recreation, even in the worst of times," my father would say. "And the tips were good."

At eighteen, he was awarded Ordinary Seaman certification from the US Bureau of Marine Inspection and Navigation - becoming the youngest licensed pilot on the Great Lakes at the time. At nineteen, Uncle Sam gave him tickets aboard ocean bound ships. He served two theaters during World War II. On the ship home from Italy, my father dreamed of the calmer waters of the Great Lakes, his new bride, his family and weekends spent at relatives near Little Bay de Noc in Escanaba. The War was over. Dad found work away from the harbor. He saved enough money to buy a small, used boat.

I recall weekends and vacations growing up that revolved around dad's boats. A chain of lakes near the Wisconsin border became one of our favorite destinations. It was there father taught me the finer points of fishing. Perch were our favorite. Bass came in second. Dad would recall, "My mother and I fished off the piers at the Chicago Harbor for perch when I was your age, and we'd walk down to the Lake and catch a pail full for supper during the Depression. On the way home we'd collect coal tossed off the trains by the engineers, who knew locals used to fuel stoves for cooking and heating."

When I was very young, weeklong vacations were spent up north in Wisconsin's Vilas County, camping on the shores of Big Muskellunge Lake. Dad would rent a wooden rowboat and we'd fish for panfish, bass and maybe, just maybe, a musky. Several times during the week, our

family drove to nearby Sayner to look at big muskies on display in glass-covered storefront freezers and at night watch scavenging black bears at the local dump.

In 1967, the company dad worked for transferred him to Wisconsin. That was the best thing that could have happened to a young boy like

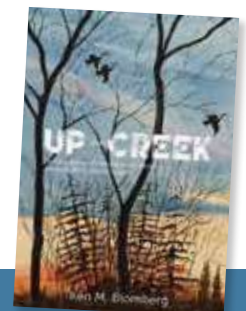
me - moving to the land of woods and waters. At 13, I was in outdoor heaven. Dad brought along his boat and rented a cabin on a lake while our new home was being built. Evenings and weekends were spent fishing and boating with dad and new friends. In time, the waters of Green Bay and Lake Michigan beckoned, and dad heeded the call. In his boat off the Door County peninsula, we'd catch stringers of smallmouth bass.

When dad retired in 1985, my mother convinced him to buy a new, bigger used boat. His dream boat. I remember father at the helm, grinning from ear to ear with pride and satisfaction. A picture of the

boat hangs in my office next to his framed 1938 seaman's pilot's license.

Dad and mom had one final wish. To be cremated and have their ashes spread along the shore of Big Muskellunge Lake. Mom passed away at 97 years old while living in Wausau. Now that the time has come, she'll join her beloved husband by the lake. Their son and two grown grandsons plan a small ceremony - including a day fishing in a rowboat for panfish, bass and maybe, just maybe, a musky.

Autographed copies of Blomberg's *Up the Creek, Letters from Art and Wisconsin Bird Hunting Tales* are available from the author at [eaupleinekennels@gmail.com](mailto:eaupleinekennels@gmail.com).



Picture by Ken M. Blomberg - "The author's father in his boat enjoying a day on Lake Dubay thirty years ago."

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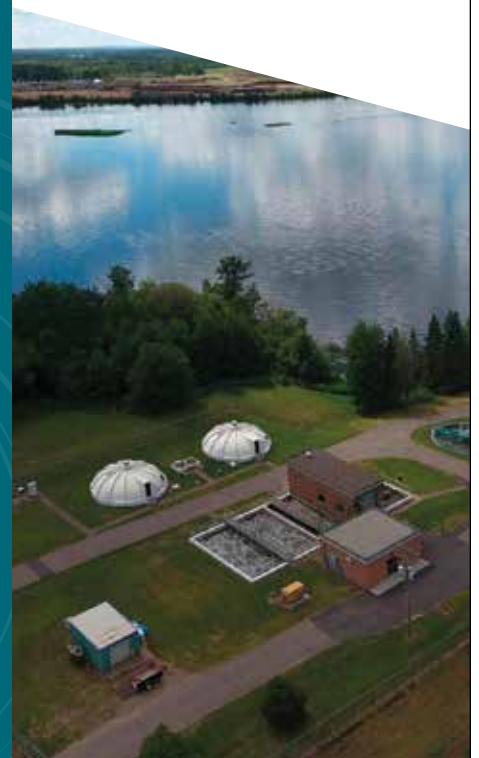
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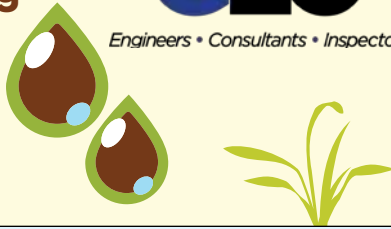
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