



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

Spring 2021

**Contamination at your  
Wastewater System**

**Hydrant Flushing**

**Expo Registration**

**The Electrical Grid**

**Unsung Heroes**



# SPECIAL ANNOUNCEMENT

## WRWA Announces new dates for Operator Expo and Technical Conference

— **WRWA ANNUAL OPERATOR EXPO** —  
Thursday June 24, 2021

— **WRWA TECHNICAL CONFERENCE** —  
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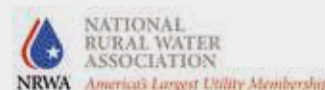
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### OFFICIAL PUBLICATION OF THE WISCONSIN RURAL WATER ASSOCIATION

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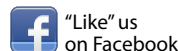
**Ramon Knudtson,**  
WRWA President, Melrose

## Message from the President

**W**elcome to all the members of WRWA. I hope a nice, warm, safe spring is coming to all! It was nice to have a fairly decent mild winter. That may have been the best part of all 2020! All that is behind us and may 2021 be a whole lot better! On that note, hopefully you have seen or heard of the changes to the Conference and Expo for 2021. If you have not, please look for these changes in this journal or at the WRWA website. With these changes, we are hoping that a lot of the health restrictions be lifted soon for meetings, training sessions and conferences. This would greatly help in bringing us back to a normal operation. I would like to thank Chris and staff for their work in the last year. Remote visits with operators are not easy, which makes for such a strange year of work.

There are elections coming up soon so if you are interested in helping to run some of the inner workings of WRWA you should consider running for some of the openings that are coming up. With that, my term will be up in district three and I will be stepping down. If you are interested in running for Board member in district 3, please let Chris know and he will help you get started with the process. I would like to thank all the board members I have worked with since 2002. It has been a great time working with members from many different size communities from my district and across the state. I would like to thank the many vendors I have met and become great friends with. Without the help of these businesses and groups it would be hard for this great organization to keep growing. Most of all it has been great to meet past and future members. I still plan to work another year or two and also will become the past president so I will be able to stay in touch. Please say hello when we meet at the Operator Expo in June. Until then, stay safe!

*Ramon*



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### **WRWA Mission:**

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**Chris Groh,**  
WRWA Executive Director

## Message from the Executive Director

**A**s I write this, I'm reminded of what I was writing a year ago. I was telling everyone that we had to cancel our Spring Conference due to the new COVID-19 virus. The state had shut everything down and we were left holding a bag quite full of work and planning. In the following weeks we were returning registrations, distributing emergency plans, arranging emergency operations and planning missing training sessions. It actually took until late June to completely catch up with all the tings that came along with cancelling the conference.

Even more important we put out emergency plans that would keep us safe and able to deliver safe, treated water and wastewater during this terrible pandemic. WRWA helped develop and distribute emergency plans to our members and provided the state's only list of volunteer operators that were willing to run systems in case the city staff went down with the COVID-19 virus. WRWA staff were on the road (virtually at first) and able to help sustain all the systems in the state. We had some operational staff go down, but you all had backup and did not fail to keep the water flowing and the treatment going this whole year. We were very, extremely lucky to have no disruption of services!

It took us until August at the Virtual Operator Expo to get back to training. Online training really took off using this new-fangled computer program called ZOOM. Before the end of the year most of you became ZOOM ninjas and were asking for some more classes in this virtual environment because it was handier to ZOOM a class than to drive to a class. Although this option is useful, it is truly the face-to-face classes we want to get back to. Maybe we will combine these two systems in the future, but we are all waiting to see each other in the classroom again.

Now, in the foreseeable future, we are planning our Annual Operator Expo in June. We are hoping that everyone has had the chance to get vaccinated against our enemy virus and can attend one of our signature events of the summer. It has been too long since we had the opportunity to see the latest technology and to receive some of the best classroom training sessions in the industry. We are planning for distancing, masks, and a second tent for eating some delicious barbeque. We're also planning an expanded raffle to make up for last year!

Finally, we are also planning to have our Annual Technical Conference in August/September at the end of Summer! Our pre-conference training day will be August 31st, and regular session Conference will be from September 1st-3rd. We are planning to offer lots of training, lots of exhibitor displays and lots of fun!

Going into the second year of this pandemic, I am starting to see a light at the end of the tunnel. It is comforting to see that all the planning we do does help us keep on keeping on. Although we were all shut ins this year, there was still time to enjoy life and be with our families, even when we're far away. Virtual Christmas was weird, but we found a way. Same with our wonderful water industry, we found a way. Even though we do want this to end, we know that we can get through this with a little help. Have a great Spring and remember we're in this together.

*Chris*

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## We get letters and emails!

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

Chris,

Just wanted to take some time to say Thank You! We (City of Tomahawk) recently had a main break and called our outside contractor to replace. Upon starting to excavate we continually chased the leak. One call to Todd Weich and he was here the following day to correlate the leak. After he was done correlating he was within inches of the break. Without the help of WRWA who know how long we would have been chasing the leak. WRWA is a great asset to the water and wastewater industry. Thank you for all that your staff does to keep the water flowing!

Glenn Hanna

City of Tomahawk

Good afternoon,

I want to thank WRWA and Todd Weich for their leak detection services they provided the Village this morning! We've had a significant leak in our system since Sunday night/Monday morning (around 250,000 gallons of loss each day).

After a failed location on Monday afternoon (by a different provider) which then lead to an unsuccessful excavation on Tuesday, Todd saved the day today!!

With his knowledge & expertise; we had the leak detected, trench opened, repair made and water back on by 11:15 this morning! WOW!

His detection of the leak compared to the actual location was spot on!!! Excellent work Todd! We can't thank you enough!

Thanks again WRWA!

Kind regards,

Erin M. Salmon, P.W.M.

Village Administrator/Director of

Public Works

Village of Pardeeville, WI

Mr. Groh,

I'm Kenneth Chambers, a Public Water Supply Engineer with the Wisconsin Department of Natural Resources. My duties within the DNR include working with municipal drinking water systems to comply with Wisconsin Administrative Code, which can be especially challenging with smaller systems.

I'm writing this letter to highlight the Wisconsin Rural Water Association's efforts in assisting small municipal water systems to return to and maintain compliance with Wisconsin Administrative Code. This includes template ordinances created by the Association that would otherwise be challenging for a municipality to create on its own, working with municipalities to create plans to protect sources of drinking water, and even time spent individually with the operators to help them correct deficiencies identified in their water system.

I'd like to express my thanks to the Association for their efforts in assisting Wisconsin's invaluable drinking water system operators and helping to protect public health.

Sincerely,

Kenneth Chambers

Public Water Supply Engineer - Bureau of Drinking Water  
and Groundwater - Northeast District

Wisconsin Department of Natural Resources

Good afternoon Chris,

Jerome and I with the Village of Randolph Water Department would like to extend our gratitude and say thank you for the help we have received from Todd Weich in locating our broken water main. Without his help I am certain it would have taken us months to locate our water leak.

Thank you,

Megan Holzem & Jerome Bashynski

Randolph Water/Sewer Dept.



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# CONTAMINATION *at your Wastewater System*



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

If you are trying to find a contaminant sometimes it can be quite difficult because a lot of contaminants are slug loaded into the facility.

---

The call to borrow a portable sampler is a request that Kay and I receive often. One reason a community calls to borrow a sampler is to pinpoint a contaminant in the wastewater collection system. If a wastewater plant starts acting up and not operating properly, sometimes it means a new chemical or toxin has been introduced into the treatment facility. I have received calls from operators where they have observed fuel smells, ammonia smells and evidence of other different contaminant that can cause damage to the average wastewater plant. While doing routine checks, if you smell abnormal smells make sure it is safe before completing your checks. No job is worth serious injury or death. Once you are safe and you are able to investigate the contaminant, first try to figure out what was dumped in your plant. Next try to figure out how much damage the chemical has done to the plant. After you have

diagnosed the treatment facility the next steps will be to figure out where the contamination is coming from. You will need to search for evidence within your collection systems and lift stations to see if you can determine what part of town the contaminant came from.

If you are trying to find a contaminant sometimes it can be quite difficult because a lot of contaminants are slug loaded into the facility. When a contaminant is not fed continuously it will be harder to find. If you checked your collection system and lift stations you may get lucky and narrow down the section to investigate. If you are not lucky enough to narrow down the area then you should focus on customers that may use chemicals at their place of business. You might have to check manholes near the suspected parties and also knock on doors and ask questions. At times, you will find out people do not realize what harm dumping things



down the drain can cause to a wastewater treatment facility. Education is a tool that operators should use as much as possible. Make sure your rate payers understand the issues associated with dumping unwanted and harmful things down the drain.

Another issue that has arisen in recent years is homeowners dumping damaging substances down the drain. Some homeowners may be dumping things without knowing the consequences of their actions. One suggestion for educating homeowners would be to send out catchy flyers that are to the point. Another way to educate your community is to meet with the school and have some classes tour your wastewater facility every year. This would allow you to teach the students who will someday be rate payers what should and should not be put down the drain. Educating the youth may also pay dividends in the future as these students may gain a greater appreciation for the job a wastewater operator performs.

There is also the problem of people using their homes for illegal purposes and dumping unwanted substances down the drain. Some of these substances can affect a wastewater plant in adverse ways. Many wastewater operators have heard of or dealt with a house in town operating a meth lab. A meth lab can produce dire consequences for a wastewater plant. If you suspect a meth lab is operating in your city, contact law enforcement. You may be able to offer some valuable information on the location of the meth lab by monitoring and sampling in the collection system.

Once you have a better understanding of where toxic chemicals may be coming from then a portable sampler may be useful. If you want to get an idea of the strength of the waste coming from a customer or cross check samples from a customer, then placing a sampler in manhole can be very useful. If you sample in the collection system make sure you talk to a certified laboratory about analyzing the samples. Once you have the samples analyzed you will need to organize your data and decide your best course of action moving forward. It is good to keep your board or council informed and discuss the issues that the toxin is having on the plant.

If you are reading this hoping you don't have to deal with something like this, you are probably not the only one. All villages and cities should have an ordinance in place to deal with excess loadings. Don't wait until you have a problem to develop an ordinance. Any industry could move into your city tomorrow or an existing customer may switch to a more harmful substance at any time. Make sure you keep an inventory of MSDS sheets so you know what things a customer is sending to your plant. Trying to develop an ordinance while dealing with a customer, may waste valuable time. So plan ahead and put some teeth in your ordinance. Make sure you charge accordingly for overages on loadings so the fine corrects behavior. I have seen a couple of villages where the ordinance is so favorable to the customer that they customer just pays the fine rather than addressing the problem.

All in all, using a portable sampler can help a city rather useful data on the type of things a customer is sending to a wastewater facility. Gathering data can greatly help a utility when discussing how a chemical is affecting your treatment facility. Data only goes so far, so once you have data use it to make meaningful change. Also, start preparing now for how you would deal with a customer that may dump some unwanted substances into your collection system. Ask yourself how you would deal with unwanted or harmful chemicals coming to your plant and start preparing a plan today.

*Jesse*

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# Knock Knock... Water Hammer?

Todd Weich,  
WRWA Water Circuit Rider

**W**ater looks and sounds harmless right? What about the pressure of water, is that still harmless? Water hammer is a surge of pressure or wave of water caused by the sudden change in direction or a stop in momentum. Water hammer can occur in multiple ways. One example is when an open valve is suddenly shut causing the water to slam into it. Since water does not compress, the momentum of the water causes a shock wave or hydraulic shock. In a water main for example, where else can this shock wave of pressure go but down the same path it traveled, back and forth, at the speed of sound?

**Hydraulic shock** occurs when a valve is closed too abruptly. When a water valve is open, a solid column of water moves from its source at the main to the valve outlet. This could be 100 pounds of water flowing at 10 feet per second, or about 7 miles per hour. Closing the valve suddenly is like trying to instantly stop a 100-pound hammer. A shockwave of about 6600 psi slams into the valve and rebounds in all directions, expanding the piping and reflecting back and forth along the length of the system until its momentum is dissipated. By closing the valve slowly, the velocity of the water is reduced before the column is stopped. Since the momentum of the water is decreased gradually, damaging water hammer will not be produced.

The main contributor to water hammer is the choice of the valve type. Valves that depend on gravity are a leading problem in preventing water hammer. Spring-assisted check valves have an internal spring that moves the valve into a closed position. Therefore, the valve in a close position before the flow is reversed results in reduced or elimination of water hammer. The most common cause of water hammer is a valve closing too quickly such as something as simple as a firefighter shutting a fire hydrant too quick.

Most water systems from household plumbing to municipal water supplies are built to withstand high levels of pressure. The sudden change in momentum of water could create pressure that can exceed ten times the working pressure of the system. The result of this could be significant damage to the water infrastructure due to either a single event or a series of events over time.

Most water systems from household plumbing to municipal water supplies are built to withstand high levels of pressure.

The following steps can be taken to control or possibly eliminate water hammer:

- Proper education and training with staff and local fire department on the dangers of water hammer and how to mitigate them through proper opening and closing of valves. **Try to do training with the fire department once a year if possible.**
- Use start-up and shut-down procedures for pumps that reduce the possibility of creating water hammer conditions. VFD's will help reduce the shock wave at start up and shut down of high service pumps.
- Reduce the velocity of the water in the pipe. To keep the possibility of water hammer low, some references recommend keeping the flow velocity at or below 5 ft./s.
- Use slow-closing valves. Anything with a wheel, such as a gate valve, is generally considered slow-closing. Valves with handles, like butterfly valves or ball valves, are considered fast-closing and have a greater risk in causing water hammer.
- Use pipe material with a higher-pressure rating. This is an option however use caution with this option because the shock wave may be diverted to the weakest connection within your distribution system.
- Install pressure relief valves to prevent excessive pressure in the pipe. Some of the pressure relief valves can be installed between the fire hydrants and the isolation valve.
- Use air chambers, surge vessels, accumulators or expansion tanks that are partially filled with air or gas and cushion possible shock. This option is limited to space and warmer climates.

With Spring right around the corner and you or your staff start flushing fire hydrants remember to open and close the hydrant slowly to reduce water hammer. —*Todd*



# ON THE ROAD

By George Taylor

**H**ello Everyone,

I just wanted to remind Water operators out there we at Wisconsin Rural Water Association are still out on the road and providing any technical assistance you may need for your water system. With things slowly getting back to normal we at Wisconsin Rural Water Association are still providing Virtual online trainings and In-Person trainings. Please don't forget to check our website for any of your training needs. Also, I wanted to remind operators that by now you should have read over all of your sampling requirements provided by the WI-DNR. Mark your calendar down for all important samples you may be taking throughout the year. I always like to inform to new operators that it is very important to utilize all your resources when it comes to maintaining your water system. **Utilizing the DWS portal is a great way to get started.** Also keeping good communication with your DNR reps and WI-Circuit Riders is key when operating your water system. Please feel free to contact your nearest WRWA-Water Circuit Rider or WI-DNR rep for any information or any technical assistance you may need for your water system. I look forward to meeting with you on my travels. We are always happy to assist you.

Thanks for reading,

George Taylor,  
Small Water System Circuit Rider  
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# PFOS PRIMER

They are not going away.



**Jeff LaBelle,**  
WRWA Technical Assistance Director

**E**PA recently announced that a MCL for PFAS is in our future. Per- and Polyfluoroalkyl Substances (PFAS) are man-made chemicals including PFOA, PFOS, Genx and other chemicals. The number of chemicals that I found for PFAS that is being looked at was 26. Even though there are many, many more. The chemicals being proposed to regulate are Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA). These chemicals as well as the rest of them may cause developmental issues (low birth rate, accelerated puberty, skeletal variations), cancer (testicular, kidney), Liver damage, immune effects, thyroid and cholesterol changes.

PFAS have been around since 1940, PFOS, PFOA were voluntarily phased out in the 1980s, but they still are in the environment, thus the tag of forever chemicals. They are not going away. PFAS chemicals have been used in the manufacture of non-stick cookware, leather and apparel, carpets, repellents, water proofing such as Gore-Tex and firefighting foams too name a few. The most likely places to have water contamination are around airports, fire fighter training facilities, PFAS manufacturing facilities or factories using PFAS chemicals in the manufacturing processes.

Further looking into EPA website stated that removal of PFAS would be expensive with three likely treatments. The three treatments they talked about were Granular Activated Carbon, Ion Exchange Resins and High Pressure Membrane Systems. I know it's out there somewhere, but I couldn't find information on disposal of the waste from these treatments.

As I was reading and looking for information I saw a lot of articles talking about PFAS in the waste water stream also. Even though this is a short article you can go to the EPA website and spend the day reading on PFAS. Its mind blowing, the extensive amount of information there is from easy reading fact sheets to in depth scientific papers.

Jeff

**Editor's Notes:** WRWA suggests that if your system is chosen to sample the water system, it should be a safe test to perform since there are approved test methods for this test. There is just as good a chance of not having PFOS or PFAS contamination as actually having this contamination. Wastewater effluent testing may be asked for from regulating authorities and WRWA would suggest complying with this testing. Although the method can be similar, the matrix and nature of the sample may indicate issues with the city system, not the actual wastewater treatment facility. {WWTFs are not sources of these contaminants but they are "pass throughs" and the sources of these contaminants are coming from outside sources.} WRWA still does not recommend testing wastewater biosolids since there is not an approved method for this matrix. EPA has not been able to officially approve a method that satisfies all the critical aspects of testing accuracy at the low levels asked for and quality control.



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DECEMBER 1, 2020 – FEBRUARY 28, 2021

UTILITY NAME	ORDER ISSUED	OVERALL% INCREASE
Augusta (City of) Municipal Water and Sewer Utility	12/04/20	66.56%
Norwalk Municipal Water Utility	12/04/20	70.90%
Barron Light and Water Utility	12/07/20	32.15%
Montfort Municipal Water Utility	12/07/20	22.25%
Harrison Utilities	12/07/20	6.61%
Shiocton Municipal Utility	12/09/20	87.49%
Spring Green Municipal Water Utility	12/10/20	72.48%
Cedarburg Light and Water Commission	12/10/20	6.42%
Nichols Municipal Water Utility	12/15/20	25.41%
Barneveld Municipal Water Utility	12/22/20	47.09%
Black Creek Municipal Water and Sewer Utility	12/22/20	30.32%
Ladysmith Municipal Water Utility	12/23/20	47.77%
Somerset (Village of) Water Utility	01/04/21	49.94%
Waukesha (City of) Water Utility	01/04/21	25.53%
Howard (Village of) Water and Sewer Dept.	01/05/21	4.91%
New Richmond Municipal Water Utility	01/27/21	25.47%
Pigeon Falls Municipal Water Utility	02/04/21	84.23%
Rockland Municipal Water and Sewer Utility	02/08/21	12.65%
Eau Claire Municipal Water Utility	02/24/21	26.46%

**PSC CONSTRUCTION AUTHORIZATIONS ISSUED**

DECEMBER 1, 2020 – FEBRUARY 28, 2021

UTILITY NAME	ORDER ISSUED	CONSTRUCTION COST
Medford Water Works	12/10/20	\$1,311,000
Grantsburg (Village of) Municipal Water Utility	12/22/20	\$733,500
Balsam Lake Municipal Water Utility	01/08/21	\$190,000
Pewaukee (City of) Water Utility	01/12/21	\$2,994,230
Green Bay Water Utility	01/15/21	\$6,000,000
Maiden Rock (Village of) Municipal Water Utility	01/20/21	\$1,162,000
Arlington Water Utility	02/04/21	\$2,040,400
Fox Crossing Utilities	02/11/21	\$2,552,588
Augusta (City of) Municipal Water and Sewer Utility	02/24/21	\$4,165,482
Lawrence (Town of) Water Utility	02/24/21	\$143,000
Eau Claire Municipal Water Utility	02/25/21	\$1,319,056
Luck Municipal Water Utility	02/19/21	\$162,465

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6,001 – 10,000	\$520
Over 10,000	\$585
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Half page	\$315	\$1,130	\$395	\$1,265
Quarter page	\$215	\$800	\$270	\$860
Business card	\$160	\$575	\$200	\$600
	MEMBER		NON-MEMBER	
	1-Time	Yearly	1-Time	Yearly
<b>Color Advertising</b>				
Inside front cover	\$670	\$2,430	NA	NA
Outside back cover	\$800	\$2,540	NA	NA
Full page	\$575	\$1,970	\$770	\$2,670
Half page	\$370	\$1,265	\$575	\$1,965
Quarter page	\$270	\$860	\$400	\$1,400
Business card	\$200	\$600	\$335	\$1,000

For information on advertising & the benefits of membership at the different levels, please contact Renee at the WRWA office: 715-344-7778 or [rkoback@wrwa.org](mailto:rkoback@wrwa.org). \*Must be employed by a WRWA system, associate, or corporate member, retired and state or federal employees

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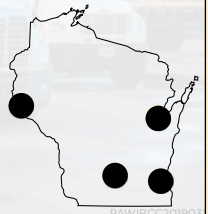


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# SWITCHING FROM Fecal Coliform to *E. coli* Testing

Kay Curtin  
WRWA Trainer/Technician

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The term “fecal coliform” is used for a wide range of bacteria that are found in the digestive tract of mammals such as you and I.

---

If you’ve received a new WPDES permit in the past few months, you’ve probably been asked to switch to *Escherichia coli* (more commonly referred to as *E. coli*) testing of your effluent, rather than fecal coliform. Why the change? This is a suggested testing strategy from the USEPA passed down to the Wisconsin DNR and other state regulatory agencies. There are some legitimate reasons for this change. The term “fecal coliform” is used for a wide range of bacteria that are found in the digestive tract of mammals such as you and I. Some are pathogenic and some are not. *E. coli* is a member of the fecal coliform group, and some of the members of this group, when lurking outside of the digestive tract and contaminating food or water, are able to produce toxins that have serious pathogenic results to humans. *E. coli* O26, *E. coli* O157 and *E. coli* O145 are three of several types of *E. coli* that can cause internal hemorrhaging, kidney failure, and other serious illness. Globally, according to the World Health Organization, at least 2 billion people use a drinking water source contaminated with feces, and contaminated drinking water is estimated to cause 485,000 diarrheal deaths each year, much of it estimated to be from *E. coli*. Thanks to you, water and wastewater operators in the U.S., outbreaks are rare in our public water systems, although private wells and other sources of drinking and recreational water still cause illness.

According to the EPA, two key factors have led to the changes in testing. First, the finding that some fecal coliforms were non-fecal in

origin, and second, the development of improved testing methods for *E. coli*. The fecal coliform definition now includes newly identified environmental species and are being referred to as thermotolerant coliforms. At present, *E. coli* appears to provide the best bacterial indication of fecal contamination in water. Happily, we now have the availability of affordable, fast, sensitive, specific and easier to perform detection methods for *E. coli*.

What are your choices for testing *E. coli* in your wastewater laboratory? Unless you have lots of staff with microbiology and chemistry degrees, tons of glassware, and much time to spare, you will want to stay away from some of the older methods. One of these is EPA Method 1603: *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using Modified membrane-Thermotolerant *Escherichia coli* Agar (Modified mTEC). I have recurring nightmares about making agars and broths from my early days of food testing.

Luckily, companies like Hach Co. have come up with a much modified, fast and easy version based on these methods. Method 10029 m-ColiBlue24 Membrane Filtration is approved for use for wastewater effluent in Wisconsin. If you already have the equipment for fecal coliform testing with membrane filtration and have an incubator that can hold a temperature of 35° C you may want to use this method, as it’s very similar to fecal coliform testing. For details, google the





method on the Hach website, or contact me and I will send it to you. You can purchase the supplies from Hach or most laboratory supply companies that deal with wastewater analysis.

The other approved method is IDEXX Colilert Quanti-Tray or Quanti-Tray/2000. For this method you will need to purchase some new equipment, but the analysis is almost fool-proof. It is based on the old Most Probable Number (MPN) methods, but without the pain. The equipment and supplies are only available directly from IDEXX. You can google this method on the IDEXX website, or once again, contact me and I'll send you the information.

As with fecal coliform testing, you are not required to be certified by the DNR or DATCP to do these analyses for your own wastewater facility.

Jesse and I will be presenting a WRWA Zoom class in May on both of these methods, so stay tuned. *Kay*

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# HYDRANT FLUSHING



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

*In order to be safe and clean for consumer use, water needs to keep flowing.*

**M**ost of us can admit this last winter in Wisconsin wasn't too bad. A good snow pack blanketed the lower two thirds of the state. Ice for the fishing season was really good in most of the state. Snowmobiling was unexpected surprise for those of us in the south. It has been a long time we have seen that much snow, let alone get good miles on the sled and "stretch the legs" a bit.

Pretty soon it will be time to get out in the streets to turn some valves and flush hydrants.

Why would a hydrant need to be flushed? The biggest reason why a fire hydrant would be flushed is to clear out any stagnant water that may be sitting in the distribution system pipes. A mis-interpreted impression of a utility worker flushing hydrants is wasting a lot of water. It seems wasteful and obnoxious, but hydrant flushing is an important job.

When water is pumped through the distribution system it is treated with chlorine to keep bacteria from thriving in it. While this works well, over time and travel through the distribution system pipes, chlorine loses its strength or degrades and becomes less effective. Flushing hydrants removes the old chlorine, iron, manganese, hardness, and other sediments out of the distribution pipe at high velocities creating a scrubbing or scouring of the distribution pipes. In order to be safe and clean for consumer use, water needs to keep flowing. Hydrant flushing allows that to happen. Flushing hydrants allows water utility workers to test for efficiency, and any operational issues, which can be addressed.

Fire hydrants are used to fight fires, and the utility need to be sure there is enough water pressure and flow when the fire department needs it.

**“A BIG THANK YOU goes out to all the utility workers who also serve on their local fire department as well. We appreciate it!!** Your WRWA Circuit Rider can come out and assist you with fire flows on your distribution system. Just give us a call.

It is important to notify the public of any flushing event. This is good for public relations. Pay special attention to high needs. For example: hospitals, dialysis patients, restaurants, etc.

Sometimes some utilities flush late at night to avoid service disruptions.

Use diffusers and hoses to avoid property damage.

Coordinate with fire department of any hydrant flushing events.

How do you flush a hydrant? Remove one cap from the hydrant. Tighten - snug the other caps.

Slowly open the hydrant by rotating the operating nut on top using a hydrant wrench. ALWAYS use a hydrant wrench. Repeated use of a pipe wrench on the 5 sided (pentagon) operating nut will round off the nut so a hydrant wrench will no longer be able to operate the hydrant. A hydrant wrench is what the fire department will be using as well. Begin flowing water flushing out any debris that are in the barrel and hydrant lead. Generally, this water will not be the prettiest. I usually wait for most of the cars and pedestrians to go by so they don't get the wrong impression this is water they drink or use. Then increase the flow until the hydrant is all the way open. The proper operation of a hydrant is all





the way open. Or all the way closed. The water will be cloudy – turbid at first until all the sediments are removed. Flush the water until it runs clear. To close the hydrant, it must be done S L O W L Y. If a hydrant is closed too fast, it creates water hammer in the mains causing main breaks. When water is flowing through the main, that flow needs to be slowly decreased. If you stop it too quickly, it will go somewhere. Usually, out a broken water main.

**Tools used:** A hydrant diffuser offers quick and efficient hydrant flow testing. They are attached to the hydrant 2 1/2" nozzle, or the 4" pumping nozzle. They have screens or metal welded in the inside to diffuse or break-up the flow. Some have dual function. A gauge which measures gallons per minute as well as psi. A diffuser also has a swivel so the water flow can be aimed in a desirable direction as not to disturb traffic or landscape, or damage objects in the waters path. Truck mount diffusers that go on the hitch of a utility truck and is connected to the hydrant with a hose to a hydrant nozzle are another option. If you look in WRWA's website, under loaner equipment, you will see a variety of flushing equipment that is available. Call a Circuit Rider, and we can get it to you.

**How long to flush?** Until there is significant reduction in turbidity, or the water runs clear, and until there is an increase in chlorine residual. Record the time of flushing to estimate the amount of water used.

Always remember hydrant safety. Number one. Wear appropriate safety vests for working in traffic. Use caution. Be aware of the force of water coming out of the hydrant. Be aware of objects that may be in the distribution pipes that can be dislodged through the hydrant such as rocks, bolts, pieces of pipe etc. Make sure all attachments are on tightly. Do not stand in front of a flowing hydrant. Be cautious of water hammer.

So far, the weather brings promising conditions for hydrant flushing this spring. Be safe, and enjoy!!

Annie

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# The Electrical Grid

As is true with water and sewer utility workers, electrical utility workers often perform a thankless job.

By Tony Roche

The recent power failures in Texas have made national news. Winter storms that brought record low temperatures to Texas stressed some parts of the electrical grid to the breaking point. While most people in the United States depend on electricity to maintain a standard of living, the electrical grid that distributes power to homes and businesses is often taken for granted. To put it simply, an electrical grid is a network used to deliver electricity from generators to consumers. Electrical grids vary in size and complexity, but most consist of generators (i.e., power plants), substations, transmission lines, and distribution lines.

Electrical generators convert forms of energy such as petroleum, coal, natural gas, nuclear fission, or renewables (e.g., wind, solar) into electricity. In the United States the primary energy source used to generate electricity varies widely from state to state. For example, 37% of electricity generated in Wisconsin comes from coal-fired power plants whereas 85% of electricity generated in West Virginia comes from coal-fired power plants. If you are interested in energy production and consumption, the U.S. Energy Information Administration is a great source of information. Regardless of the primary energy source, after electricity is generated it needs to be “transported” to consumers.

Electrical substations act as a midway point between generators and consumers. Substations can transform voltages from low to high, or from high to low, and can also perform several other functions. Substations located between the generation site and transmission lines will step up voltage to a range of 115,000 to 750,000 volts. Transmission lines carry power to areas of demand and operate at high voltages because it is easier to transport electricity at higher voltages. Power loss increases with line distance, but higher voltages help to mitigate the impact of line loss. Unless a consumer uses a very large amount of power (i.e., factories) it is not cost-effective to tie in customers directly to transmission lines. Substations located between transmission lines and distribution lines will step voltage back down to a range appropriate for local distribution, typically 2,400 volts to 33,000 volts.







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As is true with water and sewer utility workers, electrical utility workers often perform a thankless job. When the grid works without interruption (the same holds true for water and sewer utilities) it is usually not news worthy. However, the public becomes aware of the importance of the electrical grid when major power failures or interruptions occur. Power failures can be caused by damage to transmission or distribution lines, short circuits, or faults at the power generation facility. Power failures are especially critical at sites where public health can be compromised, and sites like hospitals or wastewater treatment plants typically have stand-by generators for emergency situations.

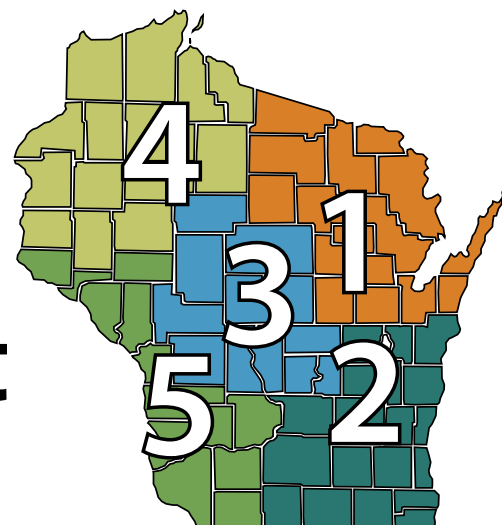
The electrical grid is a critical component of daily life in developed areas and the importance of the grid will only grow as our society becomes more dependent on technology. In addition, as more people continue to work from home there will be a need for a reliable power grid to ensure that work continues to get done.

Stay happy and healthy out there, and make some time to catch some Spring walleyes!

Stay safe out there and have a happy new year! *Tony*

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*Madison	**St. Benedict's Abby	Adams	Plainfield
Maple Bluff	St. Cloud	Alma Center	Plover
Maribel	St. Nazianz	Almond	Port Edwards
Marshall	Salem Utility District	Amherst	Princeton
Mary Hill Park Sanitary District	Saukville	Athens	Redgranite
Mayville	**School District of Beloit Turner	Berlin	Rib Lake
Mazomanie	**School Sisters of Notre Dame	Biron	Rib Mountain Sanitary District
McFarland	**Shady Hill Mobile Home Park	Black River Falls	Rome
*Menasha	Sharon	Brockway Sanitary District #1	Rosholt Sewer Commission
Menasha Utility District	Sheboygan Falls	Brokaw	Rothschild
Menomonee Falls	Sheboygan, Town of	Camp Douglas	Schofield
*Middleton	Sherwood	Cashton	Silver Lake Sanitary District
*Milwaukee	*Shorewood	**Cawley Creek Village Inc.	Sparta
Milton	Shorewood Hills	Chelsea Sanitary District	Spencer
Mishicot	Slinger	Chili Sanitary District #1	Stetsonville
Monona	**Snug Harbor Inn	**Clark Co Health Care Center	*Stevens Point
*Monroe	Somers	Colby	Stratford
Monticello	*South Milwaukee	Coloma	Taylor
Mount Horeb	Stoughton	**Community Water & Sewer	Thorp
Mukwonago	*Sun Prairie	Curtiss	Tomah
*Muskego	**Sunnyfield Acres Water Association	Dorchester	Union Center
*Neenah	**Sunnyside Estates	Edgar	Unity
New Berlin	Sussex	Elroy	**Village Acres Mobile Home Court
New Glarus	**The Knolls Water Co-Operative	**Fox Marquette Estates	Vesper
New Holstein	Theresa	Friendship	Warrens
North Fond du Lac	**Tremain Mobile Home Park	Gilman	*Wausau
Northern Moraine Utility	**Trevor – Wilmont Consolidated	Granton	Wautoma
		Green Lake	

\*Associate Members (Over 10,000 pop.)    \*\*Other Than Municipal

continued on page 22

Westboro Sanitary District #1  
Westfield  
\*Weston  
Whiting  
Wilton  
Withee  
Wonewoc

#### DISTRICT 4 (Northwest)

Almena  
Amery  
Ashland  
Baldwin  
Balsam Lake  
Barron  
Bayfield  
Birchwood  
Bloomer  
Boyceville  
Boyd  
Bruce  
Butternut  
Cable Sanitary District #1  
Cadott  
Cameron  
Catawba-Kennan Joint Sewage  
Commission  
Centuria  
Chetek  
\*Chippewa Falls  
Clayton  
Clear Lake  
Clover Sanitary District #1  
Colfax  
Cornell  
Cumberland  
Dallas  
Deer Park WWTP  
Downsville Sanitary District #1  
Dresser  
Drummond Sanitary District #1  
Elk Mound  
Exeland  
Fifield Sanitary District #1  
Frederic  
Glen Flora  
Glenwood City  
Glidden Sanitary District  
Grantsburg  
Hammond  
Hawkins  
Hayward  
Hudson  
Hurley  
Iron River Sanitary District #1  
Joint Water Quality 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  
Mason  
Mellen  
\*Menomonie  
Mercer Sanitary District #1  
\*\*Middle River Health & Rehab Center  
Milltown  
Minong  
Montreal  
New Auburn  
New Richmond  
North Hudson  
\*\*Northwood School District  
Oliver  
Osceola  
Park Falls  
Phillips  
\*\*Pleasant Valley Properties of WI, LLC  
Port Wing Sanitary District  
Prentice  
\*\*Primera Foods Corporation  
Radisson  
Red Cliff North  
Rice Lake  
\*River Falls  
Roberts  
\*\*S&J Wild River Mobile Home Park  
St. Croix Falls  
Saxon Sanitary District #1  
Sheldon  
Shell Lake  
Siren  
Solon Springs WWTF  
Somerset  
Spooner  
Spring Valley  
Stanley  
Star Prairie  
Stone Lake Sanitary District  
\*\*Stresau Lab Inc  
\*Superior  
\*\*T.A.P. Investments  
Tony  
Trade Lake  
\*\*Troy Glen Court  
Turtle Lake  
Washburn  
Webster  
Weyerhaeuser  
Wheeler  
\*\*Whitecap Mountains Resort  
Winter  
\*\*Wisconsin Structural Steel  
Woodville

#### DISTRICT 5 (Southwest)

\*\*Advanced Plumbing Systems  
Alma  
Altoona  
Arcadia  
Arena

Argyle  
Augusta  
Avoca  
Bagley  
Bangor  
Baraboo  
Barneveld  
Bay City  
Belmont  
Benton  
Blair  
Blanchardville  
Bloomington  
Blue River  
Boscobel  
\*\*Bush Brothers & Company  
Cassville  
Cazenovia  
Chaseburg  
Cobb  
Cochrane  
Coon Valley  
\*\*Coulee Region Enterprises Inc  
Cuba City  
Darlington  
\*\*De Soto Area School District  
\*\*Dell Creek Estates  
Dickeyville  
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  
Hollandale  
Holmen  
Independence  
Ironton  
Kieler Sanitary District #1  
\*La Crosse  
La Farge  
La Valle  
Lake Delton  
Lancaster  
Lincoln Sanitary District #1  
Linden  
Livingston  
Loganville  
Lone Rock  
Maiden Rock  
\*\*Marell Mobile Home Courts

Merrimac  
Mineral Point  
Mondovi  
Montfort  
Mt Hope  
Muscoda  
Nelson  
North Freedom  
\*Onalaska  
Ontario  
Osseo  
Patch Grove  
Pepin  
Pigeon Falls  
\*\*Pine Creek Water  
\*\*Pine Edge Mobile Home Park  
\*\*Pinewood Court Inc.  
Plain  
\*Platteville  
Potosi-Tennyson  
Prairie du Chien  
Prairie du Sac  
Prescott  
Readstown  
Reedsburg  
Rewey  
Richland Center  
Ridgeway  
Rockland  
Rock Springs  
\*\*Saint Bede Monastery  
Sauk City  
\*\*Sauk County Health Care Center  
\*\*School District of Alma  
\*\*School District of Mondovi  
Seneca Sanitary District #1  
Sextonville  
Shelby Sanitary District #2  
Shullsburg  
Soldiers Grove  
South Wayne  
Spring Green  
St. Joseph Sanitary District #1  
Stoddard  
Strum  
Trempealeau  
Viola  
Viroqua  
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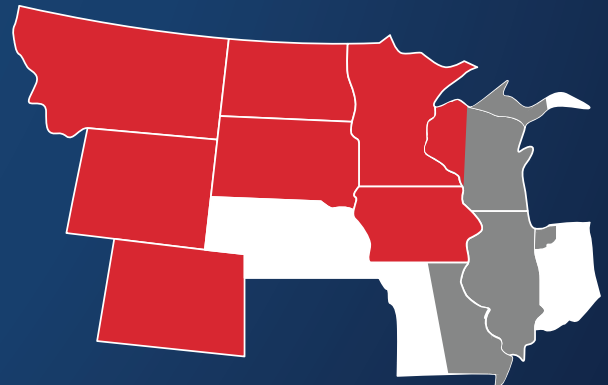
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# Protecting Municipal Wells Located Outside the Municipality



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

Cities and villages with populations less than 10,000 have been given by statute the ability to extend zoning control up to 1.5 miles beyond the municipal boundary.

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**F**or larger communities, finding a suitable location for a municipal well within the city or village is usually doable. For smaller communities, it's not uncommon to need to locate a well completely outside of the municipality in a neighboring town. This could be because of the size of the municipality or the current development within the municipality. Additionally, the aquifer below the municipality may not yield a sufficient quantity or appropriate quality of water. Regulating land use in the area surrounding a municipal well is one of the most effective means of protecting the well. Since the municipality does not have regulatory jurisdiction over the land surrounding the well, these



wells can be vulnerable to contamination from inappropriate changes in land use surrounding the well. The village of Crivitz in Marinette Wisconsin found themselves in this situation when a proposed sand mining operation near two of their municipal wells created concerns over potential water quality and quantity issues. The village found a creative solution to regulate land use around the wells that was palatable to both the Town of Stephenson and protective of the village wells.

The typical way in which a municipality regulates surrounding land use is through extraterritorial zoning (ETZ). Cities and villages with populations less than 10,000 have been given by statute the ability to extend zoning control up to 1.5 miles beyond the municipal boundary. To execute ETZ, the municipality must go through a series of cooperative steps. First, the city/village must describe by an adopted resolution the area to be zoned and its intent to expand its ordinance. Second, the city/village adopts an interim zoning ordinance which “freezes” existing zoning in the ETZ jurisdiction for two years. Then a Joint Extraterritorial Zoning committee is formed with three members from the city/village and three members from the town. The Joint Committee develops then votes on the proposed regulations. If a majority of the Joint Committee votes in favor of the proposed regulations, a public hearing is held, after which the city/village council/board may adopt the new regulations. Administrative and enforcement roles of the ETZ may be negotiated between the city/village and the town. Since the final adopted ETZ ordinance must be approved by a majority (4 of 6 members) of the Joint Committee, ETZ enactment is not possible without at least one town vote.

Crivitz initially developed a municipal well east of the village in the Town of Stephenson in 1989 at which time the village initially tried to adopt ETZ to protect their new municipal well; however, the village was not able to secure cooperation from the town and ETZ failed. The village tried again a second time after developing their second well in the Town of Stephenson in 2008. Again, the village was unable to gain cooperation with the town and ETZ failed. During both of these efforts, the village sought to regulate land use within the entire 1.5 mile radius around the village and residents in the Town of Stephenson were opposed to the idea of the village enforcing regulations on their land. In 2018 the village became aware that a company was potentially interested in developing a frac sand mine within close proximity to the village wells and several residences in the Town of Stephenson. Based on concerns over the sand mine potentially negatively impacting groundwater quality or reducing groundwater quantity, the village decided to try implementing ETZ a third time. This time however, they tried a different approach. To make the idea more acceptable to the residents of the Town of Stephenson the ETZ ordinance only relates to groundwater protection and does not separate the area into zoning districts, which is typically done by ETZ ordinances. This approach protects groundwater by regulating the actual use of properties for optimal groundwater protection and allowing for

prohibited and conditional uses for things that have a high potential to negatively impact groundwater quality. Taking this approach the village is protecting groundwater feeding the municipal wells while imposing the least amount of regulations on the town.

Based on the first two experiences trying to implement ETZ the Village Clerk Marilyn Padgett decided to start this third effort by launching a public relations campaign. This approach helped to insure accurate



information was being given about the proposed zoning ordinance and the village's desire to protect the groundwater resource without imposing more regulations than necessary. One of the key components of the PR campaign was the development of an informational “Fact Sheet” that explained the ordinance, how it would apply only to the wellhead protection area and the importance of protecting groundwater. The fact sheet was mailed to every tax payer in the village as well as land owners in the proposed ETZ district. Additionally, the

clerk recognized that many people get their information from Facebook, so she made sure to share the fact sheet on social media. Finally, the clerk made sure to include information in bill stuffers and newspaper press releases so that the demographic that still gets a majority of their information from print media would not be left out. The six member Joint Committee was formed and a series of public meetings were held to discuss the ordinance. Finally on June 18, 2020 with a 6 to 0 vote the Joint Committee adopted the ordinance creating the Extraterritorial Zoning and Groundwater Protection Overlay District.

So why did the ETZ effort finally work on the third try? It appears that there are multiple factors that helped. First, a robust PR and education campaign that provided accurate information about the ETZ and potential threats to groundwater certainly played a key role as well as knowing how people find out information and providing accurate information on those platforms. Second, applying only groundwater regulations in the ETZ kept the regulatory burden on the town to a minimum and made the ETZ ordinance acceptable to residents of the town. Another factor is the progressive and collaborative effort by both the village and town board members. This was made possible by new board members who could overcome past differences, if they even knew what those differences were in the first place, leaving no reason not to cooperate towards a common goal. This time, the village maintained the focus on the common goal of protecting groundwater, which not only benefits the village residents, but homeowners within the proposed ETZ district who have private wells. Finally, and possibly most important, the proposed sand mining operation spurred the common goal of groundwater protection which both the village and town residents could get behind. Crivitz creative and successful approach to wellhead protection for their wells located outside of the village jurisdiction can be used as a model for other communities throughout the state that are in the same situation.

*Andrew*

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# SPECIAL ANNOUNCEMENT

## — 2021 WRWA OUTDOOR EXPO — Thursday June 24, 2021

### EXPO INDIVIDUAL REGISTRATION INFORMATION

**June 24, 2021 - WRWA State Office/Technology Center**

350/351 Water Way, Plover, WI

East of Highway 39/51 and north of County Highway B

Large parking area and easy access

### GENERAL INFORMATION

The Expo will be held Rain or Shine

Blacktop, park area, field and indoor exhibits



### MEALS/REFRESHMENTS

**Lunch** – “Pig Roast” with potato salad, chips and cookies

**Refreshments** – Soda & Bottled Water



### INDIVIDUAL REGISTRATION FORM

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

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

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

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# A Day in the Life of a Circuit Rider

By Sandy Smith

**A**sk Annetta Von Rueden what she loves most about her job and the answer is quick: “Handing over knowledge.”

That becomes more and more apparent with each story she tells about her work as the southern municipal water circuit rider for Wisconsin Rural Water Association (WRWA).

One day, she arrived at a water system to help a new operator learn how to flush hydrants and his water system properly. Everything was going well until they encountered an older hydrant that would not shut off. With only one well and one tower in the village, the flushing had drawn the tower lower.

The operator had never experienced anything like this and didn’t know what to do. Annetta told him a decision needed to be made quickly. The old hydrant didn’t have an isolation valve, leaving the only option to shut down the two nearest valves—and two blocks in a residential neighborhood.

The two went back to the shop and gathered parts from a new hydrant to make the repairs. “The operator was so grateful of Wisconsin Rural Water services as he has only been on the job eight months and had no idea how to flush hydrants, let alone fix them,” Annetta said. For her part, though, “it was really just being in the right place at the right time. That’s what I enjoy most, seeing the smile of relief when they have found the leak, or the hydrant working again after being repaired. I love helping new operators learn about the complexities of the job.”

Because of budgets, systems often reach out to WRWA for loaner equipment. “There is little or no money in the budget to own the equipment,” Von Rueden said. “The equipment also comes with a circuit rider willing to show the operator how to use it and ready to help solve the issue.”

Her love of teaching a newcomer the ropes may come from her own learning curve when she joined the water and wastewater industry.

Growing up, she worked on farms before getting into the industry, first as a courier for an environmental testing lab. One day while picking up water samples at a municipal water system, she noticed a job opening and applied. She stayed at that municipal system for 17 years before joining WRWA as a circuit rider in 2019.

“I attribute my knowledge to all of my former and present colleagues and all of the operators I work with,” she said. “We learn from each other. You have to be diversified, flexible, innovative and willing to ‘roll with it.’ The operators and people we work with are what make our jobs as circuit riders so rewarding. We dig in our heels and invest in the operators and the communities, which really are the heart and soul and backbone of America.”

She is most often in the field, helping find leaks, explaining how to maintain systems or working on compliance for the state’s Department of Natural Resources regulations. She certainly knows the circuit she works, having lived in the southern part of the state for most of her life. Now, with a few years’ experience as a circuit rider, she knows which weather issues might cause challenges for which systems.

No matter the weather, however, she prefers to be out in the field. She’s never worked a desk job. “I have to be moving. Even the operators, when I come in to do site visits, will say the same thing.”

Being on the road and out in the field allows her to “appreciate the beauty that Wisconsin has to offer. We are blessed to live in a very diverse state, from the hills and drumlins (small ridges) of the southwest to the uniqueness of the rolling bluffs along the Wisconsin Riverway,” she said. “The southeastern part of the state is home to the Kettle Moraine, an abundance of lakes and quaint, charming small towns, rich with charm and history.”

And she has plenty of time traveling her region. “One day a circuit rider can be in one end of the state and the next day called to the other, wherever, whatever the need arises.”





Off hours, she's likely to be outdoors, in the woods or on trails enjoying the state's natural beauty, spending time with her husband and children, or serving in her church. "I love to stay busy; there's not much downtime."

A moonlit cross-country skiing trek is how she unwinds in the winter months. In warmer times, she may be out canoeing, camping or working in her gardens, which produce the foundation of her canning. She's likely to share that bounty with some of the operators along her route. It's proof that she is "really attached to them," she said, "and I enjoy providing good service."

*(Editor's Note: This article was taken from the National Rural Water Association Rural Water Journal, First Quarter. If you would like to see the original article, please go to [https://www.ruralwater-digital.com/nrwq/0121\\_quarter\\_1\\_\\_2021/MobilePagedArticle.action?articleId=1665349#articleId1665349](https://www.ruralwater-digital.com/nrwq/0121_quarter_1__2021/MobilePagedArticle.action?articleId=1665349#articleId1665349) which featured our Annie.)*

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# Unsung Heroes

By Kelly Thomas

**A**t an early age I was raised to not 'toot my own horn.' I was told "your actions will speak for themselves." I was taught to place others before myself. Be polite and use words like Please, Thank you, and Excuse Me. I was taught to hold the door open for others, to give up my seat for the elderly, save food in the buffet line for the next person. What I was never taught is that...some people are virtueless. Many feel that they are entitled or deserving of many things given to them in life. You know, the "important" things like internet and satellite or cable tv. But seriously, many people take for granted so many things that are essential in life until it is unavailable or gone.

Many of you who work in the municipal water or wastewater industry go about your daily routines to provide safe drinking water, a working and flowing collection system, and operate and maintain a wastewater recycling plant. In addition, you maintain streets by plowing snow, filling potholes, and painting crosswalks. Your customers expect these routine obligations to be operating at peak performance all the time. Many of your customers do not realize that routine maintenance checks can alert you that something, by no fault of your own, could be possibly be failing or already failed. Many of your customers do not see the missed family dinners, missed birthdays, anniversaries or other holidays to 'do your job.' And for most of you, that 'job' is, to as seamlessly as possible, fix the failure. Many of you believe your 'job' is to allow your customers live "life as they know it" without interruption. Once life throws a curve ball, the phone starts ringing. Your customers expect you to be at their beckon call. Then, you unselfishly go to work. Not because it can't wait until morning, not because you want the overtime pay, but because you place needs of others before your own to keep peace and harmony in your community. These

... many people take for granted so many things that are essential in life until it is unavailable or gone.

after-hour fixes are not a required part of your job. But these selfless after-hour acts do make you a respectable person.

There has been a lot of talk this past year about essential workers. Everyone wants to be labeled an essential worker. Everyone wants his or her occupation to be considered more important than the next person's occupation so he or she can keep working and paying the bills. If the government would ask the working people of this country "Who is essential?" the inner child in many would start raising hands shouting "Me..me..me!!!" I doubt that any of you had to prove that your occupation was more important than the next guy. You just knew it already. You did not have a choice of whether to come into work, right? Drinking water is always needed. It is always essential. And you probably do not feel entitled to be labeled "essential," it's just what you do.

WRWA has worked hard to get our government to recognize you all as "Essential Workers." Not for the label, but to finally be recognized as unsung heroes. You are essential to your community. You deserve to be considered a 'first responder.' You deserve the same health preserving considerations in this pandemic as any other first responder. Let's face it, no nurse, doctor, EMT, police officer or firefighter is going to respond to a water or sewer emergency (nor do we want them there), but it is an emergency just the same.

I am preaching to the choir here? ... Yes... But it is ok to give yourself a pat on the back once in a while. Keep up the good work. We at Rural Water recognize your dedication to your profession even if others still take you for granted. Congratulations on a job well done!

Stay safe and stay healthy. *Kelly*



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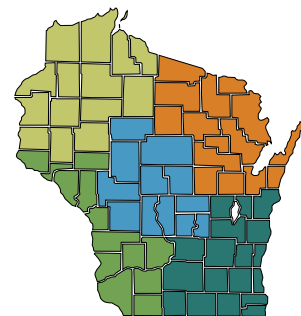


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# UP THE CREEK



**Ken Blomberg,**  
*WRWA past Executive Director*

Nearly forty Aprils ago I wrote the following words in my journal – “Was going to take a ride tonight, but decided to hang around the house. What a lucky break! Two wood ducks flew over and headed towards the woods behind the house. I kept my eye on them and what do you know? The female has a nest 200 yards from my back door in a hollow oak tree.” As I recall, I cringed as she flew into the small hole at nearly 40 miles per hour!

For years, wood ducks used that same tree cavity, until the landowner hired loggers and cut over the wooded portion of the property, including the duck’s dwelling. Without older, hollow trees, the birds went elsewhere. Subsequently, our family purchased the woods behind the house, excavated two more ponds and over the years, erected six artificial nesting boxes along our creek and above the ponds. With all the right ingredients, wood ducks returned.

At one time, the wood duck was one of the most abundant waterfowl species in North America. But, by turn of the 20th century, market hunters, combined with widespread bottomland habitat destruction nearly wiped out the species. Fortunately, the Migratory Bird Treaty Act of 1918 - spearheaded by hunters and conservationists – and later coupled with the installation of artificial nesting structures, dramatically reversed the bird’s demise and brought about a remarkable population recovery.

In 1937, employees of the U.S. Biological Survey erected hundreds of slab wood and rough-cut cypress board boxes throughout Illinois. One of those individuals was Arthur Hawkins, recognized today as a pioneer and international leader in waterfowl research and management. Art, and renowned waterfowl expert, Frank Bellore, recognized the great management potential of the boxes and as a result, helped turn the corner on the extraordinary resurgence of the species.

I had the great fortune to meet and become a friend of Art years ago while researching an article on Aldo Leopold. I visited Art several times, who lived north of Minneapolis, on his family’s wildlife refuge near Hugo, Minnesota. One of Leopold’s first graduate students, Art was a wealth of knowledge regarding his famous professor and of course, wood ducks and waterfowl in general. He was a founding father of the Minnesota based Wood Duck



Society and had a half dozen nesting boxes in his front yard. Sitting at his kitchen table, I heard first-hand, of the birth of wood duck nesting boxes. “The early slab wood boxes were so heavy, he said, that we had to use a crane to hoist them high enough up into the trees.” They soon realized a lighter version made out of half-inch pine boards would be more practical. Art passed away at age 92, while hiking at his refuge - walking stick and binoculars in hand.\*

Described by many as the most beautiful of all waterfowl, the male wood duck - in its fall and winter multi-colored plumage - sports a green head with white stripes along the face and crest, a white throat patch, chestnut breast, golden flanks and white belly. But it’s the iridescent dark green-blue back and wings, as well as his red bill and eyes that draw attention.

Each year in late March, or early April, wood ducks return to this stretch of the Wisconsin River valley to nest and rear their young. The hens lay between 9 and 14 eggs and the day after they hatch in May, the baby ducklings use their sharp claws to climb to the nest entrance and then jump to the ground. The tiny ducks can tumble from great heights without injury and make their way to water where they immediately swim and find their own food.

Four decades ago, I watched a female wood duck fly full speed into a hole in an old oak tree behind the house. These days, we watch in anticipation as another generation uses the nesting boxes we have placed near our ponds in the woods out back. Each spring, we check all the boxes, clean out old material and add new sawdust as bedding. Eggs are laid a few at a time – so it may take a week before hens begin to incubate full time. Then we’ll be watching and if we’re lucky, we’ll see what few people ever witness – baby wood ducks leaving the nest.

*\*In 2019 I wrote a book about Art Hawkins - Letters from Art - Standing Tall in the Shadow of Aldo Leopold. Autographed copies are available for purchase by emailing me at kbgsp@tds.net.*



*Ken M. Blomberg is the past Executive Director of the Wisconsin Rural Water Association. Ken has written 2 books since his retirement. Autographed copies of his first book, UP THE CREEK, are now available for \$16.33, postage paid. A portion of the sale proceeds will be donated to WRWA’s scholarship program. Send checks payable to Ken M. Blomberg, 2099 Mayflower Road, Junction City, WI 54443.*





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# Tools for AWIA Compliance

**W**ater utilities today face unprecedented threats to the security and resilience of their systems. In every state, drinking water utilities may be susceptible to a wide array of extreme weather events, such as floods, droughts, wildfires, and winter storms that can damage treatment and distribution systems, disrupt power supplies, and potentially contaminate source waters. When disasters do occur, rural water systems serve as a critical lifeline for water systems, public health and the community at large. While responding to natural disasters can be challenging, you can take steps now to prepare your utility and community for future incidents.

## AMERICA'S WATER INFRASTRUCTURE ACT – SECTION 1013

One of the first steps to prepare for disasters is to conduct a detailed assessment of your risks. The America's Water Infrastructure Act (AWIA) Section 1013 requires Community (drinking) Water Systems (CWSs) serving more than 3,300 people to develop or update a Risk and Resilience Assessment (RRA) and Emergency Response Plan (ERP). The law outlines what components must be included in the RRAs and ERPs and establishes deadlines by which water systems must send a certification of completion to the United States Environmental Protection Agency (EPA).

The certification deadlines are based on system population size reflected in the Safe Drinking Water Information System as of October 23, 2018, the date when the AWIA was enacted. Compliance deadlines depend on the system size:

SYSTEM SIZE	RISK AND RESILIENCE ASSESSMENT	EMERGENCY RESPONSE PLAN
If serving over 100,000 people	March 31, 2020	September 30, 2020
If serving 50,000 to 99,999 people	December 31, 2020	June 30, 2021
If serving 3,301 to 49,999 people	June 30, 2021	December 30, 2021

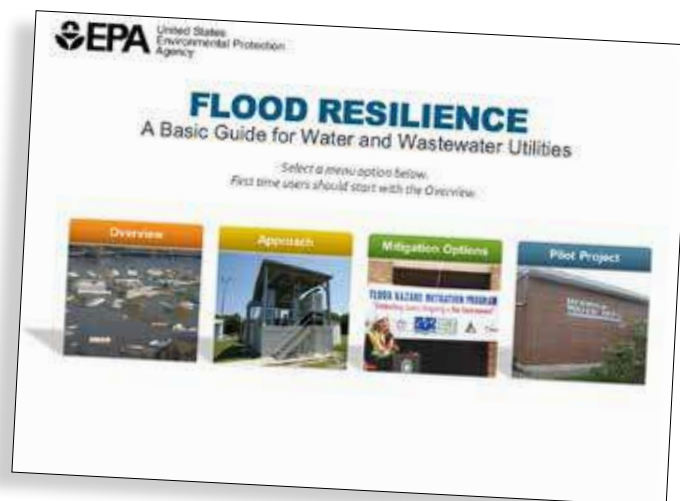


Within six months of certifying completion of the RRA, water systems must also certify completion of the ERP. The AWIA requires systems to consider factors such as monitoring practices, financial systems, chemical storage, and operations and maintenance in their RRAs. For the ERP, the AWIA requires utilities to include items such as strategies and resources to improve resilience and procedures to lessen the impact of malevolent acts or natural hazards. See the following webpage for more information and details about the AWIA - <https://www.epa.gov/waterresilience/americas-water-infrastructure-act-risk-assessments-and-emergency-response-plans>

### AWIA COMPLIANCE RESOURCES

If CWSs need help meeting these requirements, EPA has several tools available to help systems develop their RRAs and ERPs. EPA does not require water systems to use these or any designated standards, methods or tools to conduct the RRAs or to prepare the ERPs. Rather, these tools are provided as optional support during the process:

- **Baseline Information on Malevolent Acts for Community Water Systems:** The information in this document can help systems identify and assess the likelihood of malevolent acts occurring at their water system as part of their RRA.
- **Vulnerability Self-Assessment Tool (VSAT 2.0):** VSAT 2.0 is a user-friendly tool that can help drinking water utilities of all sizes conduct an RRA.
- **Small System Risk and Resilience Assessment Checklist:** This guidance is intended for small CWSs serving greater than 3,300 but less than 50,000 people to comply with the AWIA requirements for RRAs.
- **Emergency Response Plan Guidance:** This template and instructions will assist water utilities with developing or updating an ERP in accordance with the AWIA.
- **How to Certify Your Risk and Resilience Assessment or Emergency Response Plan:** This webpage explains the three options available to CWSs for submitting certification statements and includes a training video on the electronic certification option.



### OTHER RESOURCES

After completing an RRA and ERP, utilities can further explore how to lower risks and increase resiliency using EPA tools and resources. The **Flood Resilience Guide** (shown above) provides practical solutions to help drinking water utilities respond to and recover from floods. The guide presents real-world examples of flood scenarios that water utilities might face and includes information on staffing, emergency response plans, funding, water supply and demand management, communications, and partnerships.

The **Water Utility Response On-The-Go (Response OTG) Application** is an interactive tool allowing real time access to response resources to track severe weather, contact response partners, identify key response actions, and document damages.

Learn more about these and many other water utility resilience resources at: <https://www.epa.gov/waterutilityresponse>.

EPA provides regular updates on water security and resilience resources.

To learn more, visit **www.**

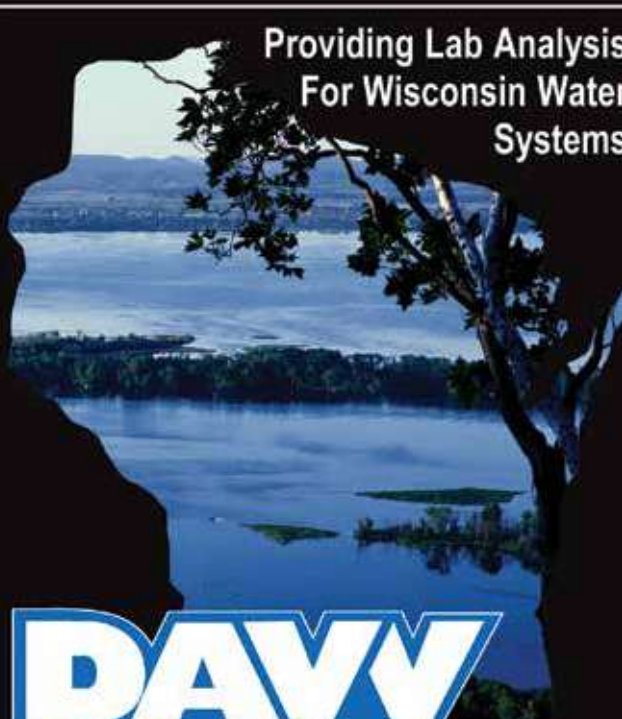
**epa.gov/waterresilience** or join the What's Going On newsletter email list by contacting **WSD-outreach@epa.gov**. Use these free water resilience resources as you continue working toward providing safe and reliable services to customers during emergencies.



**Charlene Kormondy**, U.S. Environmental Protection Agency, Office of Water, Water Security Division  
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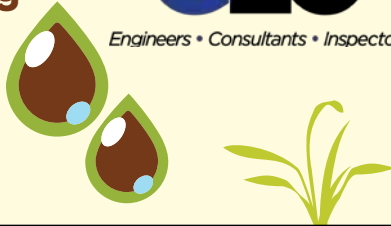
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