



Procrastination in Cyber Security is Not an Option

By: Don Craig, Executive Director

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Newsletter

Continuing the importance of reiterating action regarding the need for Cyber Security, updated information on the recent attacks on water system infrastructure facilities and operations in the Midwest, should make all water and wastewater utilities take a good hard look at their own systems' security.

Illinois Rural Water Association will continue to provide information to small and rural community water and wastewater systems, information that help operators and administrative people attain potential resolutions and safeguards to protect their utilities.

Recent cyberattacks on water utilities over the last month have made national headlines, highlighting that the water sector has become an enticing target for cybercriminals and nation-state actors who seek to exploit our vulnerabilities, disrupt water operations, undermine public confidence, and our way of life. The Director of National Intelligence's 2025 Annual Threat Assessment stated that "U.S. water infrastructure has become a more common target" for domestic and international adversaries.

Note the actual magnitude of the recent attacks by reading this excerpt below, from a news article that was recently released and broadcast on NBC-5 Chicago, from reporters; Chuck Goudie, Lisa Capitanini and Nathan Halder:

"The worst cyberattack on municipal water systems in U.S. history that started one month ago was actually worse than government officials first reported, with many more systems nationwide targeted than law enforcement let on.

From the beginning on July 26, and for weeks thereafter, federal law enforcement said approximately 30 water systems in Minnesota and a few other states had come under cyberattack, with all signs pointing toward Iranian state hackers for the mischief.

Now, the U.S. cyber security agency CISA is acknowledging that more than 100 water providers in 12 states were actually targeted.

The initial burst of computer intrusions happened in suburban Minneapolis exactly one month ago. The FBI and U.S. government agencies that monitor and investigate cyber-attacks, said at the time there were several other scattered American water suppliers targeted in a few other states.

Commercial products known as PLC devices were accessed and compromised. The controllers regulate valves, water flow and chemical treatment. Authorities said the cyberattacks were all consistent with previous Iranian state-sponsored takedowns. Now, the nation's lead cyber-defense agency CISA, says the attack was much more widespread.

The latest government alert states:

"In July 2026, CISA observed malicious cyber activity targeting over 100 internet-exposed systems in the Water and Wastewater Systems (WWS) Sector, commonly via programmable logic controllers (PLCs) connected directly to a cellular modem."

"The ability for small water utilities to detect a cyber incident and cyber threat is out of reach due to funding cuts and limited budgets," said cyber-security expert Lesley Carhart. "A lot of them didn't know for a long time, unfortunately."

A Naperville native and DePaul graduate, Carhart works for global cybersecurity firm Dragos as a critical infrastructure first responder. Carhart says the water systems attacks were predictable and preventable.

"People have had the same objectives in terms of sabotaging infrastructure for a long time, but once there's an idea out there, like these utilities are exposed, they are easy to find and tools like AI and LLM can allow you to understand how to interact with them a little," Carhart said. "People start using other people's experiences to launch their own attacks and try the same tactics. So the knowledge is out there, the genie is out of the bottle."

The hundred-plus targeted water systems are in a dozen states stretching coast-to-coast, including Wisconsin, Michigan and Minnesota. Federal cybersecurity investigators have not listed Illinois among the twelve states with local water system attacks."

IRWA'S MISSION STATEMENT

"Protecting and preserving the water and wastewater resources of Rural Illinois through education, representation and on-site technical assistance"



PFAS Monitoring Is Off and Running

By: Mary Reed, Compliance Assurance Specialist

New regulations that we heard about years ago and then forgot about seem to come around and require our attention. PFAS is one of those regulations.

As a reminder PFAS (Per- and Polyfluoroalkyl Substances) is a group of man-made chemicals that are manufactured for their oil and water-resistant properties. Think of waterproof clothing, microwave popcorn bags, and Teflon coated cookware, in addition to fire-fighting foam and industrial processes. The use of these “forever” chemicals has resulted in PFAS being released into the air, water, and soil.

In February 2026 the Illinois EPA adopted regulations for PFAS that establishes Maximum Contaminant Levels (MCLs) for five compounds that can be found in drinking water: PFOA, PFOS, PFNA, PFHxS, HFPO-DA, and a Hazard Index that is made up of one or more of these compounds: PFHxS, PFNA, HFPO-DA, and PFBS. These acronyms may sound familiar to you because the Groundwater Section of the Illinois EPA collected these samples from community water supplies (CWS) several years back, and then they also became part of the UCMR5 monitoring that your supply may have participated in.

The initial monitoring is already underway and must be completed by April 26, 2027.

All surface water, groundwater under the influence, mixed systems, and groundwater serving more than 10,000 persons must collect four consecutive quarters of samples per entry point within a 12-month period. These quarterly samples must be collected at least 2-4 months apart.

Groundwater systems serving less than 10,000 persons must collect two consecutive samples per entry point within a 12-month period with samples being collected at least 5 to 7 months apart.

If your system is a consecutive system and you purchase ALL water from another regulated water system the PFAS monitoring does not apply to you.

The regulation does allow a system to use previously collected data to meet the initial monitoring requirements if it was collected after 2019 or later. There are some strict requirements regarding the method used by your laboratory and how it was reported. The samples needed to be analyzed by method 533 or 537.1 and using reporting limits that are less than or equal to the MCLs. Fortunately, the laboratories are able to reprocess the data using the updated methods and minimum reporting limits (MRL). However, you must request that they do this.

For systems with 10K persons or less where the USEPA paid for their UCMR5 data to be reprocessed, the Illinois EPA already has the majority of the reprocessed data. However, small sys-

tems still need to submit the Previously Collected Data form and ensure that the Illinois EPA has their electronic results.

For systems greater than 10K persons it is the systems responsibility to have their UCMR5 data reprocessed down to the MRL and electronically submitted to Illinois EPA by their laboratory.

All systems that choose to use previously collected data must complete and submit the PFAS Initial Monitoring Compliance Worksheet for Previously Collected Data, with a copy of their lab results. It should be emailed to EPA.PFAS@illinois.gov.

Once the initial monitoring is completed the Illinois EPA will use those results to determine what the monitoring schedule will be for compliance monitoring that starts in April 2027.

If all initial monitoring results are less than the trigger level, the CWS will qualify for reduced (triennial) monitoring, if they are not less than the trigger levels, the system will be on quarterly monitoring.

SAMPLING PROCEDURES FOR PFAS

Samplers must wash their hands before sampling and wear nitrile gloves. Gloves should be changed between each sampling location.

Sample bottles should be made of polypropylene fitted with polypropylene screwcaps, polyethylene bottles with polypropylene screw caps, or other plastic materials that meet methods quality control requirements. Samples should not come into contact with any glass containers or pipettes.

PFAS may be present in common consumer items such as equipment, seals, caps and bottles containing Teflon, Stain-repellent and water-repellent clothing, Personal care products (sunscreen, lotions, shampoo, deodorant, cosmetics), Reusable “blue ice” packs, Writing utensils (regular ballpoint pens are recommended, not permanent markers), Waterproof paper, Food wrappers and non-stick aluminum foil.

The use of field reagent blank samples (FRB) is specified in EPA Method 533 and EPA Method 537.1, Version 2.0. The FRB sample is prepared in the field by transferring unpreserved reagent water from a sealed bottle into an empty bottle containing method preservatives.

Each sampling location will require 3 bottles per sample set:

- One for the field sample containing method preservations,
- One filled with PFAS-free reagent water from the laboratory to transfer to the FRB bottle
- One for the FRB containing method preservative.

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Duckweed - Friend or Foe?

By: Shawn Dakin, IRWA Wastewater Technician

As most lagoon operators know, you will see duckweed at some point throughout warming weather. I want to take a moment to hopefully answer the question that I run into quite a bit when I am visiting a system. I have heard many of you voice an opinion on the subject, as to whether it's good or bad. Others ask concerned questions about control and management of the unsightly mess it causes.

First off, what is it? Duckweed is a very small, free floating aquatic plant. It consists of small, flat oval leaves or fronds with rootlets that hang down freely in water to help it absorb nutrients to thrive. Duckweed is one of the fastest growing plants on earth! It is capable of doubling its biomass every 48 hrs. On an average lagoon system in the State of Illinois, under ideal conditions, the average operator lost the fight before they even knew it was happening.

Is it all bad, not really. Duckweed can be your friend or at least something you're willing to deal with occasionally. Let's take a moment to spell out the good of duckweed:

Duckweed can rapidly strip excess nitrogen and phosphorous from your lagoon, and can blanket your surface blocking most sunlight and help starve bad algae-blooms. Now, let's address why you might not appreciate our little friend.

First and foremost, it blocks sunlight, halting the much-needed photosynthesis that lagoons rely on. Indeed... the dreaded "Catch 22". It can ruin your D.O. readings. With a large enough bloom and life cycle to add to your sludge mat, it is capable of taking your D.O. readings to absolute zero. One life cycle is enough to throw your T.S.S. way over to the wrong side and attract a little attention.

So, what can operators do for management strategies?

Physical removal: Skim it off with booms. Harvest boats? Just pure physical raking it. By nature of the plant you're fighting, it is a temporary fix at best, unless you address the very root of the problem.

Biological control: some states have introduced Triploid grass carp. Triploid are sterile, non-invasive species of carp available right here in Illinois. Are they effective? Turns out they love duckweed, like I love a good steak. Long term effect; what goes in must come out. How much will that add to the nitrates we are trying to reduce? Time will tell. I will have to say I support any natural assistance to the issue at hand, if it doesn't create its very own problems.

Chemical treatment: Very touchy subject here. Only a few proven chemicals will work with duckweed. It has a very sturdy and impervious waxy coating. A quick list includes, Fluridone, Diquat, and Penoxsulam... all have a proven record with duckweed. I will always say this, rely on professionals in this area. Several chemicals used out of frustration to rid yourself of duckweed, can cause severe problems. Yes, you can kill your lagoon!!! All hazardous chemicals should be left to professional applicators in their specific field of expertise.

I know I have hurt a few feelings by saying that, but that's ok. I would rather you be safe and upset that I would say something like that, than to not warn you of the dangers or repercussions.

Now, with all this being said. Aeration is your friend! Duckweed loves stagnant waters. Think facultative lagoon with no wind across it in late July, August in the "Dog days"... or for the southern half of the state, most of September. Duckweed absolutely hates stirred water and can not thrive in it, period. It can not get a foot hold in moving water. I know funding for new equipment and/or repairs, can be a challenge these days. But, if you can just research what best suits your needs to get your lagoon moving just a little bit, you can limit the dreaded duckweed issue.

I hope this information has offered some clarity. Like most everything in life, moderation is key.

My goal is to get every operator to start thinking what works best for them and their system. It is yours to operate and manage, and find a reasonable solution that works for you and your utility.



IRWA Support Letters Are Needed

IRWA employees are dedicated in helping the water and wastewater systems throughout the state in making onsite visits and providing technical assistance in helping to ensure your systems have safe and quality water. Please take a moment to thank any or all of the IRWA employees who have helped your system by writing an appreciation letter on your letterhead and email to ilrwa@ilrwa.org or mail to:

Illinois Rural Water Association
P.O. Box 49
Taylorville, IL 62568

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The FRB is analyzed only if PFAS are detected in the field sample. A passing FRB contains PFAS at concentrations no greater than 1/3 of the minimum reporting level (MRL). If greater than this threshold, the sample result is invalidated, and arrangements must be made for a new set of samples.

The IRWA has posted on their website both the PFAS Initial Monitoring Compliance Worksheet for Previously Collected Data and a PFAS Information Sheet at <https://www.ilrwa.org/>

[PFAS.html](#). Also included are the sampling instructions for the Illinois EPA laboratory.

Keeping up to date with the regulations and the requirements has become a full-time job, but IRWA is here to help you sort everything out. Our website is a great source of information to assist you in keeping up with changes. Make sure to check there often for the Hot Topics and training opportunities.

If you have any questions or need assistance, give Mary Reed a call at 217-561-8376 or by email at reed@ilrwa.org.

FREE ENERGY EFFICIENCY ASSESSMENT

Will evaluate your energy needs, consumption and costs and recommend measures to reduce energy consumption and identify

What is Ameren's current electricity price?

As of Oct. 1, Ameren's "price to compare"—the supply rate you compare with alternative supplier offers—is: 0-800 kilowatt-hours (kWh): 12.236¢ per kWh—Above 800 kWh: 9.777¢ per kWh. For the first 800 kilowatt-hours, this represents a 126 percent increase over the price last October!

CONSIDER ...

The high cost of operating utilities has gotten to the point where the utility has to look at all options available. Keeping the operational costs to a minimum ensures that your rates are the lowest possible and still ensure safe drinking water and wastewater utilities.

What do we assess?

The Energy Conservation Circuit Rider will assess your electric bills, system assets and operational procedures. They will break it down into a usable format with options to explore which will lower costs and a projection of the time to payback.

WHY ...

Most Operators spend their time in operational issues to ensure safe drinking water and maintaining compliance. They often do not have the time to dedicate to energy savings or expertise in doing assessments. We can take the time and figure it out for you.

Key Offerings

Find where your system can save money on energy. Not only can your system be more efficient, it can outline which changes

What is requested of the system?

You Provide a Tour of the Facilities for Circuit Rider
You Provide Copies of Energy Bills for one year

What Do You Receive?

Recommendations on how to conserve and save on your energy bills with items listed on the projected cost of improvements and how quickly those investments recoup the return.



How Do I Get A Free Energy Assessment?

Contact Rodney Phillips
217-707-8101 – cell phone 217-287-2115 – IRWA office
phillips@ilrwa.org