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Volume XVIII — Summer 2021



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MISSION STATEMENT

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

On the Cover:

**This photo was taken by Jeff McCready, IRWA
Wastewater Technician, in Lostant, Illinois.**

Water Ways is the official publication of the Illinois Rural Water Association, P.O. Box 49, Taylorville, Illinois 62568, and is published quarterly for distribution to members as well as other industry associations and friends. Our website is www.ilrwa.org. Articles and photographs are encouraged. Advertising and submissions should be mailed to the above address or e-mail us at ilrwadb@ilrwa.org.



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Return to Normal?

*by Frank Dunmire,
IRWA Executive Director*

On June 11, 2021, the State of Illinois moved into Phase 5 of the Restore Illinois plan – marking the full reopening of all industries and activities. Under the Restore Illinois framework for Phase 5, all business types, large-scale events, conventions, amusement parks, seated spectator events, among others, are allowed to operate at full capacity since the beginning of the COVID-19 pandemic. Although this was GREAT news, it was a little too late for IRWA to make changes to their postponed Annual Conference which was held the following week.

On June 15th and 16th, IRWA held its annual conference in Effingham at the Keller Convention Center. This year's conference was somewhat different in that it was only a two-day event that had identical topics on each day. Attendees were asked to choose which day they would attend so that COVID-19 guidelines and restrictions that were in place at registration time could be adhered to. Even with the restrictions in place at the time, we had over 200 people the first day and about 130 on the second. Given the circumstance, IRWA was extremely pleased with the number of attendees and all exhibitors were incredibly happy with the turnout. A lot of them commented that this was the first show that they have been able to attend since the last IRWA conference that was held in February of 2020. Providing that there is no resurgence of the virus, IRWA's 2022 conference will return to February and be held on February 15th, 16th, and 17th. At this time, it is anticipated that the conference will be a full 2 ½ days with the hospitality and casino nights returning. It is also anticipated that the number of CEU hours will return to pre- COVID levels of 13 – 15 hours and we are hoping that IEPA will be allowing certification exams to be administered for both water and wastewater operators at the conclusion of the conference. In the meantime, there is a couple of other opportunities for operators to gain CEUs.

The first opportunity is at ISAWWA's WATERCON conference that will be held August 9 - 11 in Springfield at the Crowne Plaza. ISAWWA usually holds their conference during the month of March, but, due to COVID-19, this year's

conference was postponed until August. They will have a full 2 ½ days' worth of educational sessions as well as over 100 exhibitors showcasing the latest in products and technology for the water and wastewater industry. ISAWWA will be abiding by all health and safety guidelines in place by the CDC, IDPH and the Crowne Plaza at the time of the conference.

The second opportunity will be the Illinois Potable Water Supply Operators Association's fall conference also held at the Crowne Plaza. This year's IPWSOA conference will be held September 15 – 17 with the traditional Fall Golf Outing being held on Tuesday, September 14, 2021, at The Rail Golf Course in Springfield, IL. IRWA is pleased to announce that the Board of Directors for both IPWSOA and IRWA entered into an administrative agreement for this year's IPWSOA conference. IRWA has agreed to handle all administrative duties for hosting this year's conference. It is everyone's hope and desire that the fall conference begin its return to being the premier conference for the water and wastewater professionals. IRWA is NOT taking over the conference, but merely assisting the countless volunteers of the IPWSOA Board in bringing you a better conference. We hope to see you there!

As we embark into the "new normal", let us not forget what we have just endured and let down our guard. Let us remain vigilant in our efforts to conquer this virus and commit to following CDC and IDPH guidelines. Staff safe and stay Healthy! 💧



Chloride Contamination in Water Supplies

by *Jacque Plese*,
IRWA Board Member

Along with the depleting levels of water in most aquifers, another concern is coming to the forefront, and that is increasing levels of chloride in ground water. However the concern for increases in chloride is not exclusive to groundwater, as increased levels of the chemical also impact surface water supplies.

I am sharing the article below (Pu Xia, April 11, 2021) which describes in detail, the sources and impacts of chloride contamination. This is something we all need to be concerned about, for the future well-being of our water systems. The issue is more prevalent in colder climate, urban areas; but as we all know, ground and surface water reserves are not exclusive to regional areas since both can flow great distances.

Environmental Impacts of Chloride Contamination

Why should people be concerned about chloride concentrations in water?

Pu Xia, April 11, 2021

Chloride contamination of surface water and groundwater is a growing problem in northeastern Illinois. Elevated chloride concentrations can severely impact freshwater ecosystems and aquatic habitats, increase corrosivity of water, and make drinking water taste salty. We will discuss the major sources of chloride and typical patterns and pathways of chloride to the environment.

Sources of chloride inputs

Natural sources

Natural sources of chloride mainly include the oceans, atmospheric deposition, and weathering of rocks and minerals. Because the impacts of natural sources of chloride on the environment are not significant in northeastern Illinois, we will focus on three major anthropogenic sources of chloride: winter deicers, fertilizers, and water treatment.

Winter deicers

Various deicers are used to ensure safe driving in Illinois winters. Among them, rock salt (NaCl), due to its convenience, effectiveness, and low cost, is the most preferred deicing agent and is widely applied to roads, parking lots, and sidewalks. Calcium chloride (CaCl₂), which melts more quickly than NaCl but costs more, serves as an alternative for NaCl. Calcium magnesium acetate (CMA) is a more benign deicing compound, but because of its higher cost is used only in some specific cases. It's also less effective in freezing rain, drier snowstorms and light-traffic conditions. Other materials used for deicing

include aircraft deicers (primarily glycol), sand, beet juice, etc.

Fertilizer

Fertilizer applied to farmland is another source of chloride that may enter aquifers. While its contribution is not as great as winter deicers, it still serves as a very important secondary source. The primary agricultural source of chloride is potassium chloride (KCl). Other fertilizers containing chloride include: calcium chloride (CaCl₂), ammonium chloride (NH₄Cl) and magnesium chloride (MgCl₂). Scientists from a bioproducts research laboratory pointed out that nitrification inhibitors that are applied to fields is another potential agricultural chloride source.

Wastewater and water treatment

Water considered "hard" is high in dissolved minerals, specifically calcium and magnesium. Water softening used to treat hard water commonly use salt brine (NaCl solution) to regenerate resin in the treatment systems, replacing calcium and magnesium as well as some other heavy metals with sodium. The remaining brine is typically discharged into septic or wastewater systems and can potentially reach shallow groundwater. Since groundwater in many other parts of Illinois is hard, researchers from Illinois State Water Survey concluded that water treatment or housing with private septic systems can potentially provide significant amounts of chloride.

Chloride pathways to the environment

While large variability exists in sources of chloride inputs, patterns of chloride pathways to the environment are similar and can be roughly summarized as follows:

- Chloride flows into surface water through snowmelt runoff
- Chloride enters underlying aquifers through infiltration
- Chloride enters surface water through groundwater discharge

Note: based on a review conducted by researchers from University of Regina, chloride concentrations tend to be lower in large lakes compared to smaller lakes as the greater volume and larger flow rate of water in larger basins usually dilutes chloride concentrations. Many lakes in Lake County, Illinois experienced a slight drop in chloride concentrations from 2005-2010 due to



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the dilution during relatively wet summers during that period. (M. Adam, Lake Co. Health Dept. pers. comm. 2011)

Impacts of chloride contamination

USEPA water quality standards

Several water quality standards have been set by USEPA (U.S. Environmental Protection Agency) for chloride. The secondary drinking water standard (non-enforceable) for chloride in the United States is 250 milligrams per liter (mg/L). Above this level water begins to taste salty. Some other criteria focus on toxic effects of chemicals on aquatic species. USEPA recommends a chronic criterion for aquatic life of a four-day average chloride concentration of 230 mg/L (with an occurrence interval of once every three years) and a recommended acute criterion of 860 mg/L.

Impacts on surface water

Long-term chloride inputs from different sources can increase chloride concentrations. The major effect of elevated chloride in surface water is chronic toxicity, which harms aquatic organisms by interfering with their balance of body fluids. Researchers from USGS found chloride tolerance levels for some brook trout species to be as low as 3.1 mg/L. Canadian Scientists found that glochidia (mollusk larva) are more sensitive to chloride than most other aquatic organisms and hence are more likely to face risks of acute chloride toxicity. The table below shows the effects of chloride on different kinds of aquatic species:

Effects of chloride concentrations on different kinds of aquatic species

In addition to increasing chloride concentrations, the influx of runoff from deicing salt application also has two other important impacts on surface water: (1) incomplete mixing of salt ions entering lakes creates layers of different densities and can cause depletion of oxygen since dissolved oxygen is reported to

be lower in deeper waters; and (2) high sodium concentrations might increase the growth of blue-green algae, thereby triggering nuisance algal blooms.

Impacts on groundwater

While chloride is non-toxic to humans, high chloride levels can trigger aesthetic and safety concerns about drinking water

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quality, thus there is a secondary standard of 250 mg/L. While this is a non-enforceable standard, elevated chloride levels can affect taste and decrease public confidence in their water supply. Elevated sodium concentrations are commonly associated with high chloride levels. Sodium levels greater than 20 mg/L are not recommended for people with hypertension.

Dissolved chloride ions increase the corrosivity of the water, which might result in increased corrosion of pipes in water infrastructures. Several studies have shown that elevated chloride concentrations could promote the release of several metals including lead (Pb), copper (Cu) and iron (Fe). Examples include: A 2005 study stated that elevated chloride concentrations increased corrosion of iron pipes, releasing Fe and reducing the life span of plumbing. Researchers from University of Florida showed that increased chloride forms soluble lead complexes, leading to increasing lead concentration in water; Scientists from USEPA found that high chloride concentrations result in pitting corrosion of copper; Swedish scientists suggested that chloride complexation with certain metals is one of the major mechanisms of metal mobilization due to elevated salt concentrations.

While public supply wells are regularly monitored and tested, the water quality of private wells is typically not monitored. Corrosion-related damages in households are estimated to cost 2-20 times more than that of public water

supplies based on a study conducted by American Water Works Association. According to a 2018 study's testing results, both old and new houses are potentially at-risk as the impact of chloride contamination is dependent on the plumbing materials present in the drinking water infrastructure. Increased education efforts are needed to reach private well owners and residents who rely on groundwater that might be elevated in chloride. Well owners should be encouraged to monitor the water quality of their well water.

If you are curious about the chloride concentrations in your private or domestic well, look into the free private wells class offered by groundwater specialists at the Illinois State Water Survey. The Water Survey also has a public service laboratory that provides a low-cost water analysis (including chloride) for private well owners. 💧



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2021 Annual Conference Wrap-Up

by Heather McLeod,
Membership Services Assistant

While this year wasn't a "normal" year for conference and we had moved through about 4 different stages of planning, the Annual Technical Conference was held in Effingham June 15 & 16, 2021.

We were able to have 83 exhibit booths for the attendees to visit with. Instead of 2 ½ days of training sessions, this year was only 1 day of training and the attendees were allowed to choose one day to attend, and the sessions were repeated on both days.

Join us next February 15-17, 2022 where we hope to have a full conference under "normal" circumstances!

Below is a list of the winners from the conference

Congratulations!

Grand Prize –Fred Sterns, Jr.

Ruger – Jay Bell

Best Tasting Water – Lake Egypt

Scholarships: Kaden Lee Wilson – son of Aaron Wilson who is an alderman for the City of Ava

and Alyssa Marie Cummings – daughter of Jamie Cummings who is a board member for the Village of Waynesville

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2021 Wastewater System of the Year - City of Benton

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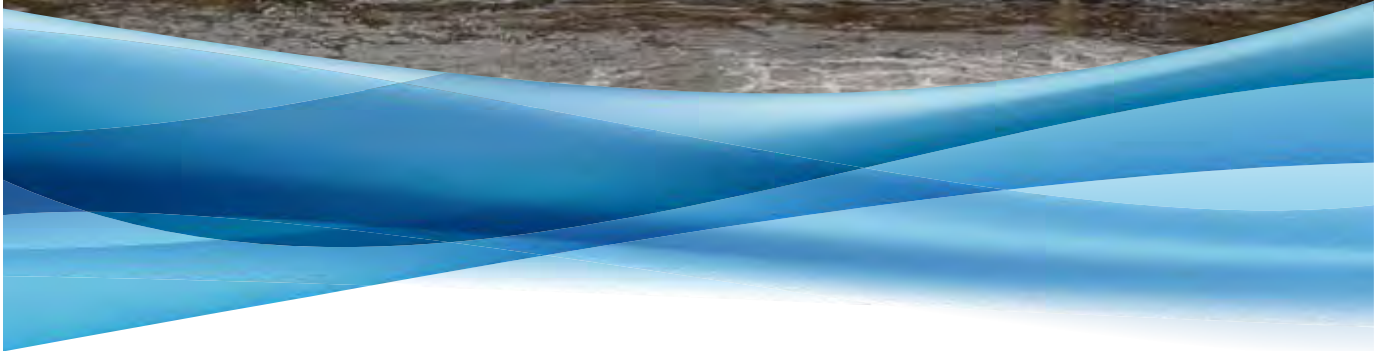
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- Disaster recovery or other emergency loans available

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For More Information:

Applications, information and forms can be downloaded from the NRWA website, www.NRWA.org/loans.

Email applications to:
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For help, please call 1.800.332.8715 or email nrwarwf@nrwa.org.



National Rural Water Association working in conjunction with US Department of Agriculture/ Rural Development



ILLINOIS RURAL WATER ASSOCIATION

18th Annual Golf Outing

The Illinois Rural Water Association (IRWA) is hosting its 18th Annual Golf Outing. This event is sponsored as a way to have a fun IRWA member activity.

The location for this event is **Piper Glen Golf Course in Springfield, Illinois**. The date for this four person scramble is **Friday, August 27, 2021**. The fee is \$65.00 which includes lunch, a gift bag, green fees and golf cart. Various prizes will be given away as well. As always, IRWA is trying to make this a fun-filled and affordable golf scramble. Your participation will ensure that this year's event will be every bit as successful as past outings. This event gives the IRWA members an opportunity to have fun and enjoy a day of golf with fellow industry professionals.

You are encouraged to submit your registration forms prior to the **Friday, August 13, 2021** deadline. Please make checks payable to Illinois Rural Water Association. You can also go online and sign up and pay by credit card at www.ilrwa.org.

This will be a four-person scramble with a **10:00 a.m. shotgun start**. Participants are encouraged to be at Piper Glen Golf Course and check in at the registration table no later than 9:45 a.m. Lunch will be served as you make your way by the club house while playing golf.

It is IRWA's hope that you will be able to attend this event. Please feel free to contact **Denise Burke** at 1-217-287-2115 with any questions you may have. We look forward to seeing you there!

Sincerely,



Board of Directors & Staff

WHAT: 18th Annual IRWA Golf Outing

WHO: Water & Wastewater Operators, Board Members, Mayors, Vendors, Others

WHEN: Friday, August 27, 2021

WHERE: Piper Glen Golf Course—Springfield, IL

FEE: \$65.00 for operators (includes lunch, gift bag, green fees & golf cart)

ILLINOIS RURAL WATER ASSOCIATION
18TH ANNUAL GOLF OUTING

The 18th Annual Illinois Rural Water Association Golf Outing will be held on Friday, August 27, 2021 at Piper Glen Golf Course located in Springfield, Illinois. Directions to the course are located on the last page. The golf format will be a shotgun start at **10:00 a.m.** Please check in at the registration table no later than 9:45 a.m. Please fill out the registration form below and send it along with your check to the address listed below. **You may also pay by credit card online at www.ilrwa.org. Registration must be received and paid by Friday, August 13, 2021 in order to reserve your spot. We are limited to 144 golfers for this event.**

Course Rules:

- Dress must be in good taste keeping with golf tradition.
- Only non metal spikes are allowed.



**PIPER GLEN GOLF COURSE— 7112 PIPER GLEN DRIVE—
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217-483-6537

www.piperglen.com

Registration Form

Friday, August 27, 2021—10:00 a.m. (Shotgun start—4 person scramble)

Single Golfers will be teamed with a foursome.

NAME(S):

SYSTEM NAME:

ADDRESS:

PHONE:

OF GOLFERS

Operators / City Officials / Guests _____ @ \$65.00 = _____

Associate Members / Vendors _____ @ \$80.00 = _____

(If Associate members are sponsoring the golf outing (please see next page), then the fee to participate will be \$65.00).

Total = _____
(includes lunch, gift bag, green fees & golf cart)

Please make all checks payable to Illinois Rural Water Association. Return your completed registration and payment to: **Illinois Rural Water Association—P.O. Box 49—Taylorville, Illinois 62568**

You may also pay by credit card online at www.ilrwa.org.

If you have any questions, please contact **Denise** at Illinois Rural Water Association at 217-287-2115 or email her at: ilrwadb@ilrwa.org.

Sponsorship Form

Lunch Sponsorship	-	\$500.00	(limited to 3 sponsors)
Beverage Cart Sponsorship	-	\$500.00	(limited to 2 sponsors)
Hole Sponsorship	-	\$150.00	(limited to 18 sponsors)
Hole in One Sponsorship	-		
\$300.00	(\$5,000 cash)	\$275.00	(2 Airplane Tickets– any destination in continental United States)
\$250.00	(Golf Clubs)	\$250.00	(\$500.00 golf shop credit)
Gift Bag & Prize Sponsorship	-	SEE BELOW	

LUNCH SPONSORSHIP: Lunch sponsors will have their sponsorship sign posted where lunch will be served reaching all of the golfers and two free registrations to participate in the golf outing.

BEVERAGE CART SPONSORSHIP: Beverage cart sponsors will have their sponsorship sign on the courtesy carts that will be on the golf course driving around with bottled water, beer and soda compliments of your company. They will also receive two free registrations to participate in the golf outing.

HOLE SPONSORSHIP: Hole sponsors will have their sponsorship sign **off the tee**. This is a great opportunity for visibility.

HOLE IN ONE SPONSORSHIP: Hole in one sponsors will have their sponsorship sign displayed off the tee and will be recognized prior to the shotgun start of the outing.

GIFT BAG SPONSORSHIP: If your company wishes to provide an item for each gift bag (approximately 144), please contact Denise to discuss.

PRIZE SPONSORSHIP: If your company wishes to bring a door prize the day of the golf outing or send it in prior to outing, please contact Denise to let her know.

Sponsorship Registration Form

Company Name: _____

Contact Name: _____

Address: _____

City: _____ State _____ Zip Code _____

Sponsorship Level: _____ Amount Enclosed: _____

Please complete and return the Sponsorship registration form and payment to:
Illinois Rural Water Association—P.O. Box 49—Taylorville, IL 62568

If you plan on participating in the golf outing, please fill out the registration form on the previous page and return with this form with your payment. If you plan to attend but not golf in the outing, please let us know on this form.

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2021 Runner Up Wastewater Systems of the Year – Village of Dwight & City of Pittsfield

2021 Runner Up Wastewater System Operations Specialist of the Year – Mike Lebschier; Village of Edinburg

2021 Associate Member of the Year

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Summer” Where’s My Chlorine?

by Roger Noe,
IRWA Circuit Rider

Summer is a great time of the year for boating, swimming, vacations, and other outdoor adventures. However, for a water operator, losing chlorine residuals in a distribution system is a huge concern. In Illinois, a 0.5 mg/l free chlorine residual is required for groundwater and 1.0 mg/l total chlorine residual is required for surface waters. Usually, the issue of losing chlorine is in surface waters compared to groundwaters. A main responsibility of a water operator running a water system is to maintain chlorine residuals through the whole distribution system. Chlorine residual die-off increases during the summer months as the temperature increases. Proper residual monitoring and operations of a storage tank will help increase the chances of chlorine residuals to be maintained. Surface water will have a higher temperature which will result in faster biological processes and chemical reactions. The process of chlorination is adding ammonia with the chlorine to form chloramines or

other words combined chlorine residual reading. Bacteria growth develops in the distribution system and combined chlorine is a food source for the bacteria. This bacteria is called nitrifying bacteria. Nitrification is the process of ammonia being eaten by the bacteria which causes the combined chlorine to be reduced. Nitrification begins when the water temperature reaches 70-76 degrees F



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What are you looking for?

The ABC's of ilrwa.org

- **Advertising in Water Ways information** (Ad agreement and links) - Publications > Advertising Information
- **Becoming a Certified Water or Wastewater Operator**—Training > Water > under table
- **Boil Order Notice**—Resources > Downloads
- **Certification Overview from IRWA**—Training > Certification
- **Certified Water Operator Contract**—Resources > Downloads
- **CEU Forms from past conferences**—Training > Conferences
- **CEU's from CD training**—Training > CD's
- **Cross Connection** (manual, survey & ordinance) - Resources > Cross Connection
- **Current hot topics and upcoming events** - Home
- **E-CCR**—Services > e-CCR Hosting
- **Energy Efficiency Assessment**—Services > Energy Efficiency
- **For Sale/Wanted**—Services > For Sale
- **Forming a new water district**—Resources > Downloads
- **GPS/GIS**—Services > GPS/GIS Mapping
- **Industry Organizations**—Resources > Links
- **Lead Testing**—Resources > Lead Information
- **Leak checklist and how much am I losing flyers**—Resources > Downloads
- **Legislative Information** – (Who is my rep?, Bills that IRWA is following)—Resources > Legislative
- **Mutual Aid**—Resources > Downloads
- **NFP Tax Forms** — Resources > Downloads
- **NRWA Fleet** - Membership > Benefits—click on the NRWA logo
- **Operator Groups**—Resources > Links
- **PFAS**—Home
- **Rate Study**— Services > Rate Study
- **Red Flag Act**—Resources > Downloads
- **Speaker Request Form for Conference** —Training > Conferences
- **Tracer Wire Specs**—Resources > Downloads
- **VA/ERP/Contingency Plans**—Resources > VA/ERP
- **Video Inspection Services**—Services > Video Inspection
- **Wastewater CEU information**—Training > Wastewater > under table
- **Water Loss Handouts**—Resources > Downloads
- **Water University**—Training > Water U



Water Loss is Water Lost

by Chuck Woodworth,
IRWA Circuit Rider

It does not really matter if your water loss is due to a water main being broken or if a semi drives over a hydrant at 11:30 pm on a Sunday night. It's still lost water.

I was at home in my recliner watching TV and half asleep on a Sunday night. My work cell phone started ringing, and at first I thought it was my alarm clock going off. By the time I got out of the recliner and walked to my office, the caller was leaving a message. I played the message and I said to my wife, I might be heading out in a couple of minutes to go find a leak.

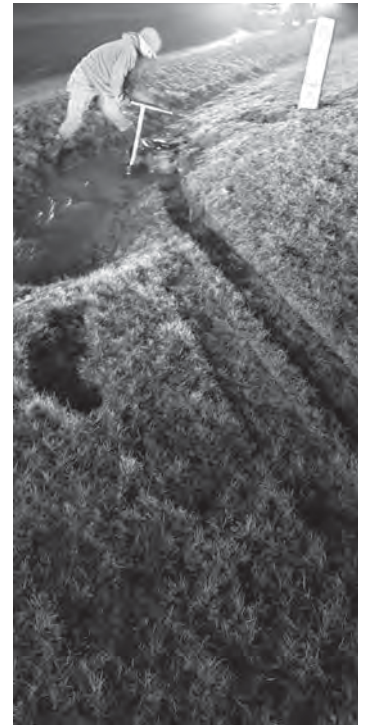
I returned the call and the operator said he had lost 3 feet of water from his tower in a little over an hour, had no idea where all the water was going but the plant was running and still losing ground on the tower. I grabbed a sandwich and headed out the door.

I had been in this town several times before doing leak locates, but never one as severe as this one. While driving I was thinking of locations it might be or which valves we could shut

off to isolate the leak.

The wildlife was out playing in the roads, deer, possums and plenty of rabbits so I thought I better focus on the driving instead where this leak might be. An hour later, as I was just pulling into the edge of town, the operator called me again. Good news this time... they found the leak. He told me where it was, so I met them at that site.

The following pictures pretty much explain what took place. The driver was nowhere to be found. He had run over the hydrant, and never stopped or called anyone. I hope the pictures show the tire tracks. 💧



and increases when the temperature increases. Water temperature determines when the nitrification increases. Usually the months of June, July, August, and September is when this occurs in Illinois. Water temperature is affected by rainfall, air/ground temperature and storage tanks. Residual loss and nitrification will develop first in the water tank than moves to the distribution system.

The water operator will first realize the residual loss in the distribution lines from routine sampling, but again most likely it started in the tank. Routine samples are taken from residences, businesses, or flush hydrants. Storage tanks are usually not routinely sampled for chlorine residuals. When I was running a water system I would sample at my tank once a month during the cooler months and weekly when the temperature increased. That gave me the ability to see what was happening in the water system and I could make changes at the treatment plant. Residual loss could also be from low-use, dead-end lines, or cast-iron lines with corrosion deposits. Moving water through the pipe with flushing hydrants could keep residuals at the required levels. Automatic flushers are a great tool for moving water during the overnight hours. However, many residuals are already lost or decreased from the storage tanks.

Water storage tanks are where nitrification first occurs from the temperature and detention times in the storage tank. The warm air temperature and sunlight on the tank increases of the water in the tank. If residual loss could be mitigated at the storage tank than the residual loss problem may not reach the

distribution system. Proper monitoring at the tank will help address the problem. Most elevated tanks and standpipes have an inlet/outlet line at the bottom of the tank. This will result in stratification of the water at the top of the tank first than it will spread to the bottom of the tank. Residual testing at the tank should be taken when the tank is at the lowest point and just before the fill cycle begins.

How can the operation of tank help mitigate the issue of nitrification and loss of chlorine residual?

One method is to fluctuate the water levels in the tank by adding more water to the tank. My experience with my old system was that it helped when I would change my set points to have a bigger spread as the tank called for water. The summer months I would drop the tank an extra 6 ft before the tank would call for water. Scada controls made that job so much easier to fluctuate the spread of when the tank called for water and when it shut off. An issue an operator may have with dropping set points is fire protection so you would want to notify the fire department. As an operator the main concern is to have good quality drinking water to the citizens. Another method would be to dump the water tower and fill it with fresh water with good chlorine residuals. The concern with that is if a system is purchasing water that could affect your bottom line, but you may not have a choice to correct the problem. I have heard and seen where some systems have altered their tank with one pipe being the inlet, pipe and another pipe being the outlet pipe. The inlet pipe will fill at the top of the tank and outlet pipe will be at the bottom

of the tank with proper connections to make that work. Tank mixers are another option which help to keep that water moving throughout the tank to help with stratification of the water. Rechlorination at the water storage can be done, but several factors must be thought of to make it work. If the water system is rechlorinating they would have to feed ammonia and chlorine to form combined chlorine. The ratio for chlorine to ammonia is around 3:1 to 4:1. Running proper test samples will help determine the ammonia results. This is where the nitrification sampling procedures come into play it consists of sampling for Total Chlorine, Monochloramine, Free Ammonia, Total, Ammonia, Nitrite, and Nitrates.

The loss of chlorine residuals can be significant in system with combined chlorine and surface water source. The loss is from nitrification and occurs first in the tank than moves to the distribution system. Good monitoring of the system will help determine when the residuals start to drop in the water system. I would recommend to sample at the tanks and multiple sights throughout the water system. Every water system is different issues that may affect the chlorine residuals. This past year I had several on-site visits where there was a tank issue causing the chlorine residual depletion in the water system. If there are any question or needs for assistance contact your circuit rider.

Have a great summer! 💧

Don't Put Off Maintenance Work

*by Erin Schmitt,
Technical Writer, Media Director for
Pittsburg Tank & Tower Group*

Lack of funding often necessitates tabling maintenance and repair work until sufficient money becomes available. That might be a year delay or several years. It could also mean pushing off major, costly projects or all work, depending on how much is set aside in the budget.

All but four states have fiscal budget years ending June 30, with the exceptions of Alabama (September 30), Michigan (September 30), New York (March 31), and Texas (August 31), according to the National Conference of State Legislatures. Most local municipalities have the same fiscal year as the state they are in, though Florida, Mississippi, New York, and Texas have staggered fiscal years.

For storage tank owners low on cash, the first thing they might push off to another fiscal year is painting projects and updating their tanks to meet OSHA standards. With more funding available for infrastructure, now might be the time to quit putting off maintenance and repair work.

The American Rescue Plan Act of 2021 passed in March. The economic stimulus legislation includes assistance for states

and communities to address water and wastewater infrastructure needs. Additionally, the Senate passed a \$35 billion water bill to address water infrastructure needs in April.

The federal funding gives local municipalities the ability to earmark money for both routine maintenance upkeep and more costly repair work that is often pushed back to lack of funding.

Painting gets put off quite a bit due to the cost of performing that type of work. Painting the exterior of a tank may require a shroud to protect the surrounding area from overspray. Painting outdoors in the breeze or wind always carries the possibility of accidentally coating nearby structures and objects. Older tanks are more likely to contain lead paint, which is hazardous, especially when disturbed. Lead paint can be coated over safely, but eventually, that won't suffice, and the lead paint will need to be safely stripped and disposed of before a new coat is applied. Removing toxic paint and disposing of it is not cheap. Exterior paint can be applied without draining a tank, but repainting the

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interior requires a dry tank. Emptying the tank and refilling it is another expense.

However, painting is the type of work that should not be put off. The conditions of interior and exterior coatings can drastically affect the lifespan of tanks. With a coating system that has failed, the tank's substrate is exposed to the elements and will continually degrade and deteriorate over time. That can lead to the tank not lasting the estimated lifespan or lead to potentially expensive repairs due to metal loss like leaks and structural concerns.

Painting a storage tank is a lot like changing the oil in your car. If you perform routine maintenance and change the oil in your car, it will cost money now and then. However, that is a lot better alternative than having the engine lock up and spend much more on repairs later.

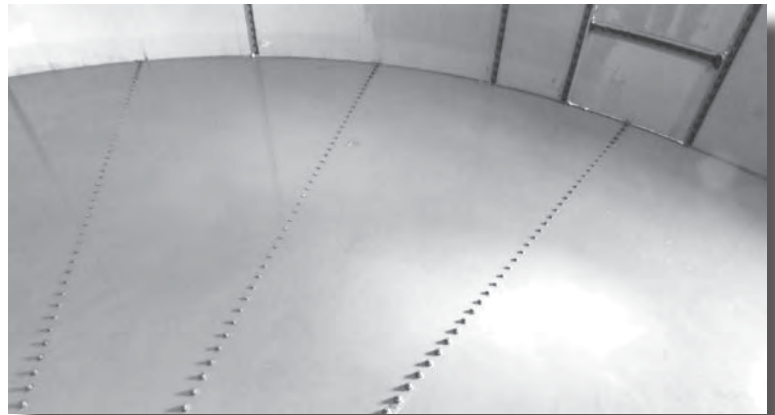
Storage tanks should be OSHA-compliant. If they aren't, tank owners run the risk of racking up OSHA fines. OSHA completes tens of thousands of inspections across the United States annually, so there's always a chance that an owner with a non-compliant tank might receive OSHA citations and incur penalties. However, if there's no

money in the budget to make a tank OSHA-compliant, that's something a tank owner accepts. Tanks should be OSHA

compliant to help provide a safe work environment for municipal workers and prevent potential accidents if people climb into the tank unauthorized.

It can be cheaper, in the long run, to bundle a few maintenance or repair items together. For example, if you need to have your tank cleaned out, painted, and new ladders installed, it would be cheaper to do this all at once since companies incorporate travel expenses into the cost of a job. If it's just one trip to do several maintenance items, then that's fewer travel expenses. If the tank needs to be out of service, it also makes sense to do everything at once to lessen the number of times the tank will need to be offline.

For example, if a customer buys a tank cleanout by itself, they might be charged the entire amount. If they purchase an interior coating, the cleanout could be built into the painting cost since a tank must be empty before the interior is painted. Since the work can be paired together, it's



possible to spread mobilization costs out over a larger scope of work.

Tank maintenance is not like buying shoes where it's "buy one get the second pair half off," but some deals can be struck. Some maintenance and repair companies offer discounts if a customer is doing a large sum of work to knock off the total price. For example, painting a tank and installing cathodic protection can be expensive, but paired together, there might be some discounts available.

Some work should never be put off. Nobody wants to drink dirty water. Potable tanks should be inspected and cleaned out at least once every three years, or sooner if sediment problems are present, according to AWWA M42 2013. Cleaning and inspecting your potable tank on a regular schedule should be budgeted accordingly.

Dry inspections and cleanouts call for drained tanks. That allows inspectors or maintenance workers to be inside the tank safely and perform their jobs. If the tank needs to remain full of water, a trained and certified diver or a remotely operated underwater vehicle can be dispatched to complete any inspection or cleanout work. 💧



What Happens When You Go To Zero

by Evan Jones,
IRWA Circuit Rider

So, way back in January I had a phone call from a system asking for assistance with a leak. I talked to the operator on a Wednesday morning, and we discussed how many gallons they were using and what he thought may be leaking. We both concluded that it was most likely a service line. NO BIG DEAL! Lots of service lines leak. I tell him that I will put him on the schedule. Little did I know.....

Thursday morning, I leave home early to head to the eastern part of the state only to get a phone call forty-five minutes later from this operator. It is like six o'clock in the morning and when my phone rings I think well this is not good. Nobody ever calls before seven with good news. I was correct, the operator says, "Evan could you move us up on your schedule if we lost water?" I replied that I am kind of booked with previous requests and I already know you are losing water. It is at this point he informs me "No, we are OUT OF WATER!" I hit the brakes and let him know that I will be there in two hours – you just zoomed to the top of my list. Overnight, this system had lost all the water in their water tower and were down to zero pounds of pressure in most of the distribution system.

I turned around to head in the opposite direction - little did I know I just started a job that would not finish until Saturday night. During the drive to the system I had plenty of time to make several phone calls – the first was to the system I had originally scheduled for the day – the second call was to Don Craig to let him know what was going on since my logs would now show that it took me three hours to make what would normally be only an hour from my house and the final call was to my wife to let her know I did not have a clue when I would be home.

So, I arrive onsite met the operator and a board member of the system and they explain to me what happened and when and what they have been doing. This system buys water from a parent supply and then provides water to just over 2000 customers plus another system that has a population of almost five hundred and it all travels through just under a thousand miles of pipe. That's right folks, we have a system with almost a thousand miles of pipe in the ground not counting miles of service lines in the ground and it has hole somewhere that nobody could find for almost twenty-four hours. Now to give you a better idea of how far a thousand mile is, if you drove from Springfield Illinois to Orlando Florida, google maps says that is 1058 miles!!!!

After the initial shock of the magnitude of the situation subsides, we get down to business. Since they were still taking water from the parent supply, we were hopeful that the water leaking out could be tracked down using listening devices. We worked the rest of that day trying to track it down with no luck.

Crews were out turning valves then cracking them back open in an effort to start pressurizing parts of the system. The operator was also able to enlist a customer of the system that had a small airplane to fly low and slow over the system looking for the leak. That did not result in locating the leak either.

Friday morning bright and early we met at the water tower and then moved on to opening an emergency interconnect with a neighboring system as well as running fire hose to them in another area to try and get water to some parts of the system. We then started to isolate and shut the system down into four different areas so we could restore water to hopefully most of the system. We worked on this and started to see tower levels rise. We watched tower levels until nine PM and called it a night. At eleven-thirty PM I received a call that we had again lost all the water in the tower.

Saturday morning, I arrived onsite at the tower, and we quickly moved our base of operations to a local contractors shop due to heating issues and space. I was able to stay at the new command center and dispatch the six different crews that were comprised of volunteers from the system, board members of the system and about 10 guys from the local contracting company whose shop we were using. Those crews were put out into the system to turn valves, installing pressure gauges and flushing hydrants. I and one of the contractors stayed in the command center recording everything on two maps of the system so that we would both know what valves were closed and which ones were open. We also recorded system pressures and the locations of the pressure gauges and the crews.

By one in the afternoon, we finally had built up enough pressure in the system to start once again looking for the leak which was found about two hours later. As system personnel and their contractor excavated the leak, I stayed in the command center to work with the other crews still out in the system to make sure that all the distribution valves were returned to the open position, all hydrants were shut off, and that all pressure



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What Happens When You Go To Zero

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gauges were removed so that they did not freeze and break to cause yet another issue. This process lasted until about nine PM that evening while the crew at the leak site worked until about ten PM excavating and repairing a joint on an 8-inch water main that looked like Swiss cheese and had blown apart.

This was a crazy end of the week and a crazier start to a weekend. As you may have noticed I have purposely left out the names and actual locations of this incident, but I do want to thank

everyone that was involved and if they read this or you are in the area in which this took place, I would encourage you to thank the people that helped. The last count I had was that we had roughly 10-12 employees from the local contractor, at least 2 from the local telephone co-op, 2 from the power company, 3 personnel from 3 different neighboring systems, and pretty much the entire Board of the system, all helping in some way, shape, or form.

This system has been chasing air in their system for several months and flushing hydrants to get all the air out of the system. System personnel also did find one hydrant that was still on and had a pressure gauge on it. (Oops! I missed one. Thank goodness it didn't freeze.) System personnel is still chasing a leak out there in the system and have a leak detection company performing a system wide leak survey trying to find it.

Again, I just really want to thank everyone that helped in any way with this and those that offered their assistance because I had a lot of calls offering help. This was a massive learning experience for myself personally and if it ever happens again, I think I am much better equipped with the knowledge and the know-how to do it more efficiently. See you in the field and have a wonderful summer!!!!!!!!!!!!!! 💧



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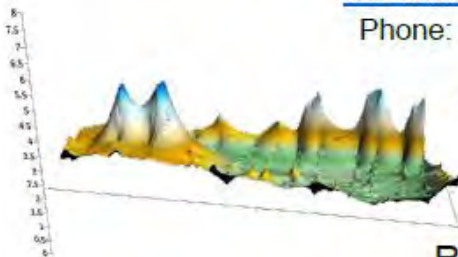


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