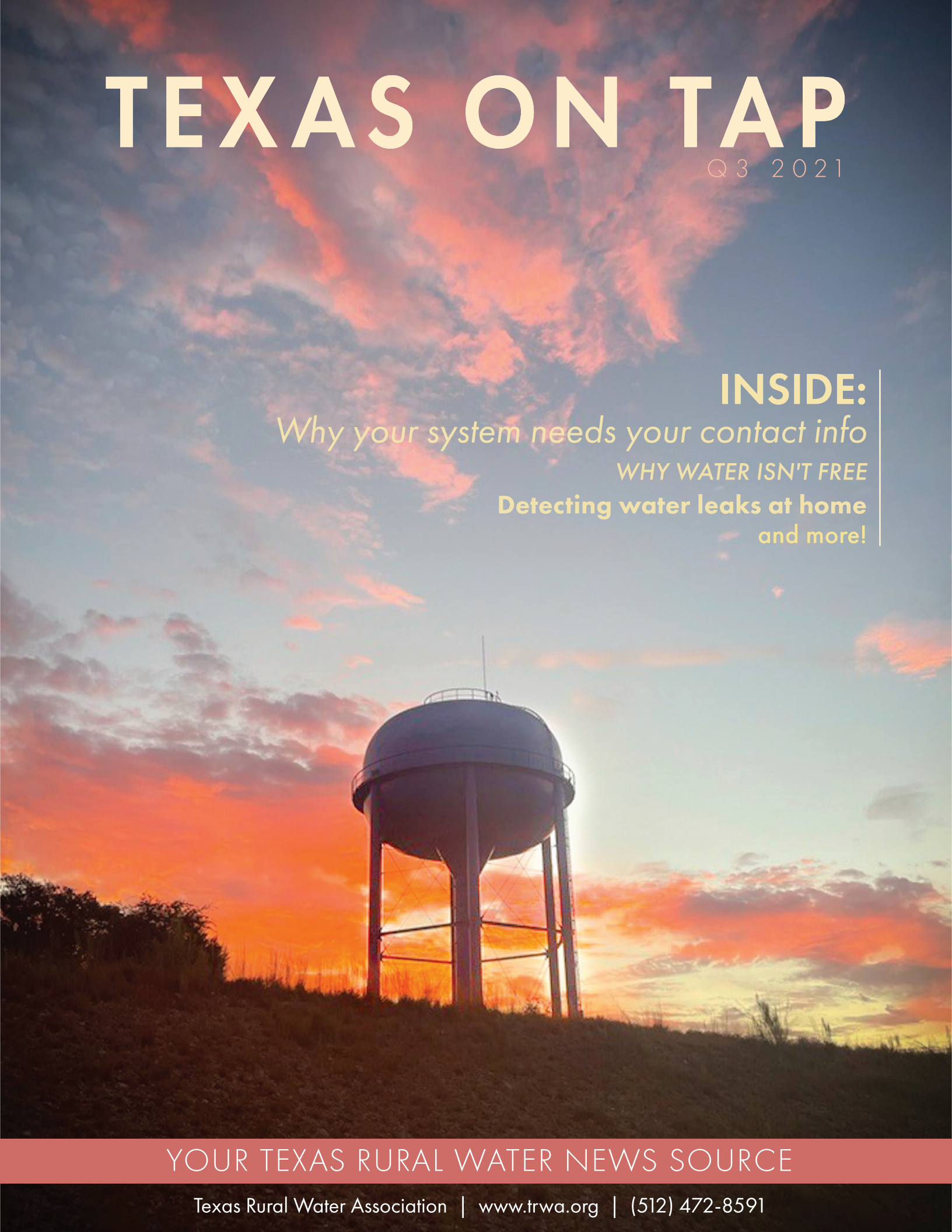
TEXAS ON TAP

Q3 2021



INSIDE:

Why your system needs your contact info

WHY WATER ISN'T FREE

Detecting water leaks at home

and more!

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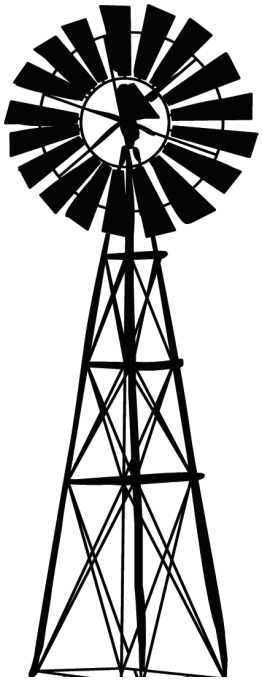

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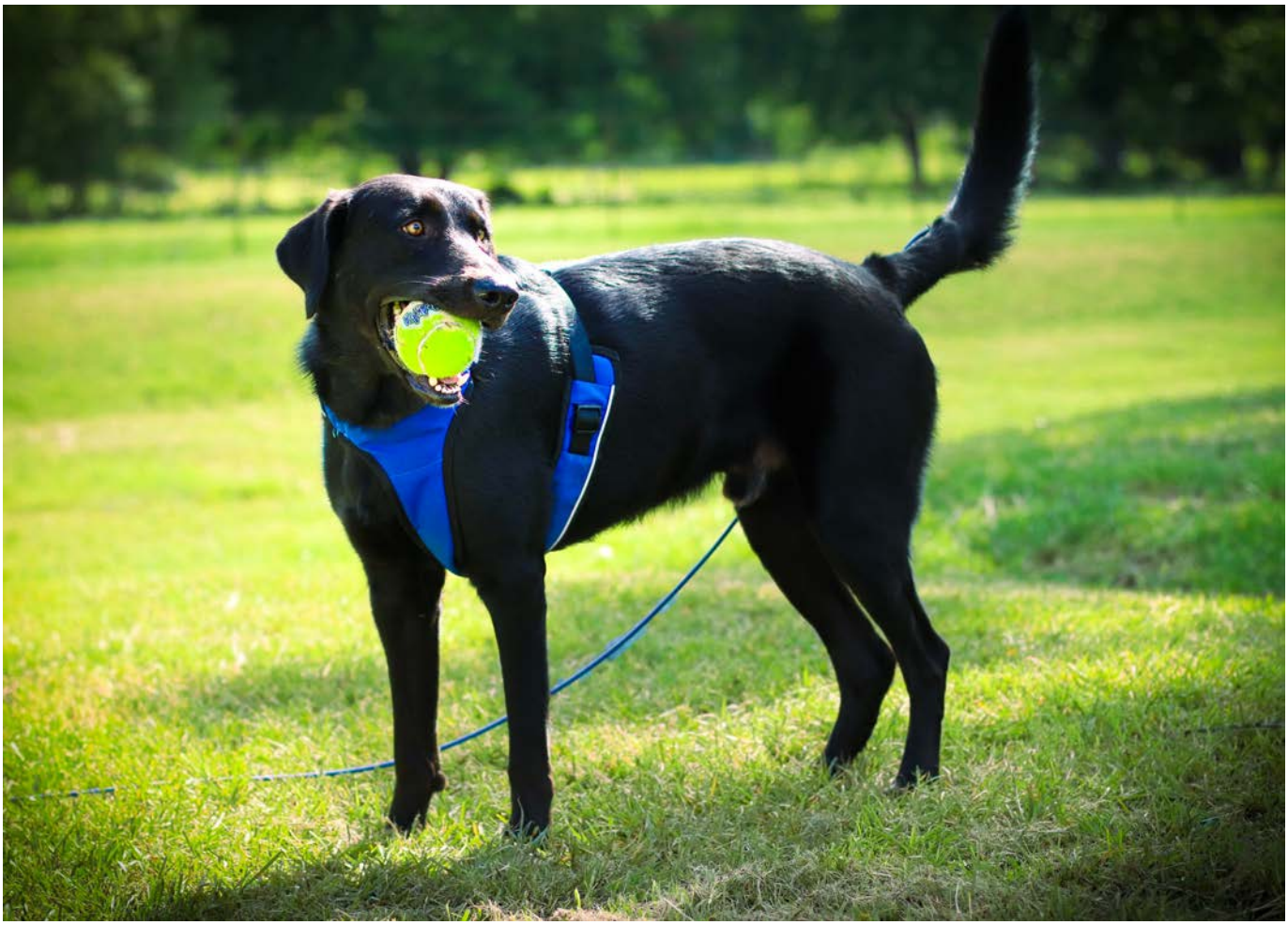
CHARLIE'S NOSE KNOWS

How a leak detection dog is changing the game at Aqua WSC



By TRWA Communications Specialist Madie Leon Riley

Charlie, the leak detection dog, is a being of humble beginnings. As a shelter pup, he was matched with the Arkansas Paws in Prison program when his trainer noticed his intense drive for reward. The trait was highly sought after by a partner of the Paws in Prison program, On the Nose Detection Dogs. Carrie Kessler and Tracie Owens, the trainers behind On the Nose, recognized Charlie as a match for their one-of-a-kind training program: leak detection dogs. The match would eventually lead Charlie to TRWA member Aqua Water Supply Corporation in Bastrop, Texas.

Charlie is the second dog employed by a water system in the new frontier of leak detection canines in America. The first, Vessel, has earned some notoriety in the states, even receiving Congressional recognition. The General Manager at Central Arkansas Water (CAW), Tad Bohannon, started Vessel's path when he called Kessler, then a professional trainer working to facilitate Paws in Prisons programs. Bohannon had read about successfully-deployed leak detection canines in the United Kingdom — did Kessler think that was something Paws in Prison could do? At the time, Owens was working with Kessler to train a different dog with a high fixation on reward in the form of a ball. The fixation made her a bad fit for a service dog (Owens' specialty at the time), but a potentially perfect fit for a dog meant to detect chlorine gas. Owens Charlie, the leak detection dog, is a being of humble beginnings. As a shelter pup, he was matched with the Arkansas Paws in Prison program when his trainer noticed his intense drive for reward. The trait was highly sought after by a partner of the Paws in Prison program, On the Nose Detection Dogs. Carrie Kessler and Tracie Owens, the trainers behind On the Nose, recognized Charlie as a match for their one-of-a-kind training program: leak detection dogs. The match would eventually lead Charlie to TRWA member Aqua Water Supply Corporation in Bastrop, Texas.

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Vessel's success was a welcome, if surprising, boon to the leak detection program CAW was deploying for lines serving 450,000 customers. Her nose could help crews uncover huge leaks in a single dig, often at sites close to — but not exactly — where experienced operators had suspected a leak originated. Her precision saved money in the dig process and repeatedly led to several small leaks being found years before a human would have detected a problem.

Kessler and Owens were joining forces to form On the Nose and soon there would be more leak detection dogs trained and ready to be deployed. The unique solution wasn't something Bohannon could keep quiet about. By chance, one of the people listening closely was a fellow member on a board Bohannon served on, Aqua WSC's General Manager Dave McMurry.

On previous page: Charlie celebrates finding his water source by chewing on his tennis ball. On this page, Top: Charlie alerts his handler, Clifton Smith, to a water source. Bottom: Smith and Charlie pose by their patrol car. Photos by Madie Leon Riley.

Aqua WSC Board Members and staff were more skeptical of the idea than McMurry seemed to be. Taking on Charlie would mean devoting an operator to be Charlie's handler. Leak detection and maintenance is a position requiring experience and a feel for the water lines that can only be developed by time. Clifton Smith, an operator with 18 years of experience at Aqua WSC, applied for the job and turned out to be the perfect fit. However, putting Smith on Charlie duty meant taking one of the most-qualified field staff out of his normal rotation and literally putting him at the end of a leash.

Despite the doubts, for McMurry and his team there were obvious upsides if this worked. New constantly evolving leak detection equipment can come with huge price tags. Bringing outside leak detection services was another expensive option. Buying a leak detection dog would be an upfront investment of only $12,000. Aqua WSC decided to take the plunge.

Smith flew to Arkansas for a week of intensive training with Vessel and Tim, Vessel's handler. He met with Charlie and another dog named Flo, but a better relationship seemed to form immediately between Charlie and Smith. The new team set out to learn from the experienced hands at CAW before getting back to Bastrop, where Aqua WSC is headquartered.

The transition for Charlie from the program to the real world was difficult.

The lab moved in with Smith and his family, where he was the only working dog in a house with dogs already settled in their routines. He has his own feeding schedule, his own training schedule, and his own kennel that remains his safe place.

"He came from one world of distractions to another world of distractions on top of what we were trying to teach him," Aqua Administrative Assistant Heather Tucker said of the adjustment period.

Smith also had to learn his new position and adjust with Charlie to their new environment. "Just the focus wasn't what it had been when I was in Arkansas. I was never a dog handler before. I was learning on the fly," Smith explained.

The fact that Charlie didn't immediately slip into the routine made the team nervous. They had gone out on a limb and the doubt was fresh. If their new leak detection dog couldn't perform, there would be plenty of I told you so's to go around.

One day as the pair wandered around a subdivision, Smith watched as Charlie's attention drifted and his pace slowed. It suddenly dawned on the Smith that Charlie needed breaks and he needed a win. Charlie, like Vessel, is a dog trained to seek the reward of his ball above all else. The fact that they hadn't found a leak

meant he hadn't earned his tennis ball. His morale was slipping, too. So, Smith changed their routine. The areas they searched before a break got smaller. One detection led to another, which led to another, and the confidence grew.

An Aqua WSC operator team called Charlie and Smith one day to check out a leak. It was obvious there was a problem; there was enough water to cause a puddle around the broken line. Testing Charlie's skills, Smith sent his partner to see if he could find the leaks in the sloshing water around them. He put a flag on the spots where Charlie signaled. The first alert was obvious even to the human eye. Another few seemed like an error caused by the presence of chlorinated water all around. Smith put a flag down anyway. When the crew dug later to start repairs, they all realized the dog trained to smell chlorine gas had found three separate leaks at the bottom of a chlorinated pond.

"After that, one of the guys said: If Charlie alerts on a leak, I'm not questioning it, I'm just digging," Smith said as he smiled with pride and looked down at Charlie, asleep on the floor as we all chatted about him.

The murmurs of Charlie being a gimmick died down as he and Smith changed the ground game of leak detection for Aqua WSC. McMurry reminds me that Smith has been fixing leaks for 18 years. That experience combined with Charlie's nose means leaks that could have gone undetected for years are being found earlier than ever before. "We're much more proactive now," Smith adds. He points at the huge, quickly developing service area Aqua WSC maintains. He and Charlie are covering more ground, more quickly, meaning more water is saved for the growing number of customers in the Bastrop area.

Months into Charlie's tenure at Aqua WSC, I made the drive out to see him in action. He and Smith have a dedicated vehicle (which once got pulled over because a sheriff thought Aqua WSC K-9 Unit was a bad joke). Before they begin their trek across the patch of grass behind Aqua WSC, Smith gives Charlie a drink of distilled water — the only type Charlie is allowed to drink. He then puts him into his working vest and Charlie's demeanor changes. When his working gear goes on, Charlie knows it's time to get down to business.

If Charlie alerts on a leak, I'm not questioning it, I'm just digging.

The humans watching the demonstration know there's a water hose buried and spraying chlorinated water somewhere for Charlie to find. Watching Charlie tug on Smith's 30 ft long leash and search, it's easy to see this is a routine the pair knows well. I asked Smith if he ever lets Charlie go to places a human couldn't get to. He seemed caught off guard by the question. "There are places I won't let him go just for safety. I would never send him if I couldn't be right there; I wouldn't want him to get hurt."

As I watch them in the field, I understand why Smith was taken aback by the implication that he'd let Charlie wander off into the unknown. Charlie is a working dog, but he is still beloved in a way only animals can be to us humans. He sniffs the field and Smith watches him. When he gets near the hose, the sniffing gets intense and then Charlie alerts (by looking up at Smith) right by the hidden water source. He's done his job. The humans erupt in cheers. Smith's eyes light up as Charlie chases the ball he's just earned. It's a tiny snapshot of the work they're doing out in the field.

We go back inside, and I pet Charlie's soft, warm fur — I am, after all, a sucker for very good pups. I ask Smith why he decided to become a leak detection dog handler after 18 years as an operator.

"I have always loved dogs and water loss I know is a big deal. I wanted to be a part of making this company better and I know we can be a lot better. It's something I was interested in before, but then you put the dog on top of it and…." He trails off.

"It's icing on the cake?" I ask.

"Yeah, exactly."

I look up at the system's map and see the areas where I know developments are going up. People are turning on their taps, filling their glasses and taking water for granted the way so many of us do. The team at Aqua WSC has taken a leap to make their system work better for the customers they serve. Charlie may not understand it, but he is a part of getting that safe water to those newly built homes and to the customers who have been with Aqua WSC since the beginning. He was trained to find chlorine gas and lives for the thrill of his ball reward with a handler who cares for him and helps him reach his full potential. Leak detection is Charlie's job, but it's also what he loves to do.

Special thanks to Dave McMurry, Heather Tucker and Clifton Smith at Aqua WSC for their help on this story.

My water bill is how much?!

Checking your personal water lines for leaks

By David Strauss, Water Operator, East Medina County SUD

Most people have either dealt with or know someone who dealt with a high water bill due to a water leak on their personal water lines. The headache and hassle of a leak often results in stress on the customer and his/her wallet as well as on field personnel and office staff at the local water utility. Fortunately, home water leaks are a problem that, with some simple maintenance, can be mitigated and in some cases avoided all together. Here are some pointers on how to look for signs of a leak on your water line:

PERFORM MAINTENANCE ON YOUR METER BOX

Regular cleaning of the meter box can help you find leaks before they become a major problem. A clean water meter box will help keep the shut off valve accessible in the event of a leak requiring a water shut off to complete repairs.

If you see water in the box and you are not sure what to do, you should remove the water from the box and look at the face of the meter to see if the meter is showing any water flow. Turn off all water in your house and any water running through outside faucets before checking the meter. After everything is turned off, if there is still flow on the meter you can safely assume that you have a leak on your water line somewhere.

If there is no flow shown on the meter face, then the water in the box could be from a leak on the water utility's side. In this case, call them as soon as possible for the required repairs.

IF YOU SUSPECT A LEAK, IT'S TIME TO INVESTIGATE

There are some signs to look for to help you locate where the leak is coming from.

First, look for tall or abnormally green grass along the path from the meter to your house as this could be an indication of a small water leak. A green patch of green grass in a dead lawn can sometimes point you directly to the problem, especially in our hot climate.

Next, look for any puddles of water that are unexplainable. An example of this might be a puddle in the front yard even though it hasn't rained and you haven't run sprinklers. Another way to look for wet spots in your yard is by watching the insects. Butterflies, wasps, and bees tend to congregate around water sources. If you see a group of insects in a single spot on your lawn, you may have a leak in that area.

CONTINUED ON NEXT PAGE

INVESTIGATING LEAKS, CONTINUED

After checking the yard, you may need to check all your inside appliances and faucets. Many noticeable water bill spikes come from a leaking toilet caused by a failed flapper valve or leaky faucet a customer hasn't noticed or completed repairs on. Constant use means the small leaks in these areas add up to a big difference in water consumption, resulting in a higher water bill.

Next, if you have a crawl space under your house, you need to check for any standing water or leaking pipes. Before crawling under the house take a few seconds to listen for water spraying. Sometimes you can hear the water hitting the floor or wall of the house after a water leak has started. Walls that start to deteriorate and "bubble" out may be an indication of a leak from your interior plumbing system inside the walls.

IF YOU FIND A LEAK, GET IT FIXED RIGHT AWAY

It is important that both water utilities and customers fix any water leaks as soon as possible. We all need to do our best to protect our water as a precious resource so there will be plenty of supply in the near future and for future generations.

An unrepaired leak may have a major or minor effect on your water bill, depending on how bad or how long the leak has been there. Most minor leaks can be repaired with various parts found at the local hardware store and the help of a YouTube video. However, there are some situations that require a professional plumber, such as re-plumbing the house or dealing with outdated lead or copper lines used years ago in many homes.

We hope these tips help you solve the mystery of a big water bill! Water leaks are a headache and a hassle, but with a little work and some diligence they can be mitigated. Knowing how to identify leaks will save water, money, and hopefully make a stressful situation much more bearable.

Can we get your number?

Why your water utility needs your current contact information

Your water utility does such a great job providing safe, clean drinking water, it might not occur to you that there are times when the water supply becomes compromised and is NOT safe to drink. Whether it is a water line break, a natural disaster, or a chemical treatment issue, your water utility must promptly inform you so that you know about it in a timely manner.

Your water utility needs to be able to communicate with you at a moment's notice to ensure you are drinking safe water and offer alternative suggestions such as a boil water notice. *This communication is only effective if they have up-to-date phone numbers (land or cell) and a current email address.*

How can you help?
Advances in technology allow communication in a water emergency to be lightning fast. Many water systems now have alerting systems that can instantly send text messages and emails to their customers should problems arise. Some also offer a messaging system that will dial landlines with pre-recorded voice messages.

The best way to stay informed is to make sure your water utility has your most current contact information. You can help by reaching out to them today and double checking! If they have a link to an alert system on their website, subscribe the members in your household or office.

Making sure your water utility has current, up to date contact information is vital and helps keep everyone safe and healthy in emergency situations. Make sure you've supplied your utility with your information today!

— Shelly Howay, Co-Founder, Rural Water Impact, Smart Websites for Smart Water Systems

Why Water Isn't Free

By Emily Davis, PR Assistant, Mustang SUD

You may have asked yourself, "Water is a basic human necessity, so why isn't it free?"

It's a fair question. The answer is that customers aren't paying for the water itself; they're paying for the infrastructure and resources required to get that water from its source to their tap.

In addition, the water that we drink, cook with, bathe in, and use daily is often unsafe for human consumption in its natural form. It may contain naturally occurring bacteria, inorganic materials, and man-made contaminants such as pesticides and other pollutants that would be harmful to humans if left untreated. For these reasons, water must be purified before consumption.

A crew works on a line repair after a storm. Their work in the heat and mud is an example of the "invisible" work that goes into clean drinking water. Photo by Michael Beadnell.

Taking water from source to tap

Operating a water utility requires a host of resources, but the process can be broken down into the following main categories:

• People are required to maintain a water system and carry out its processes, which is the largest cost for most utilities. Every utility needs specialized professionals trained to treat the water, manage the system, and provide the public with customer service.

• Power is needed to run the pumps and operate the required treatment processes. Because systems need to be able to produce water at all times, plants are paying for electricity to keep systems running 24 hours a day, 7 days a week, 365 days a year.

• Chemicals are essential in transforming source water into clean drinking water. There are several approved treatment methods, most of which require some chemical intervention to kill harmful bacteria. The treatment methods your utility employs will depend on several factors, such as the system's geographic location and the type and location of the water being sourced and treated. The methods used during treatment are highly regulated by state primacy agencies, such as the Texas Commission on Environmental Quality, to ensure the treated water is safe to drink.

• Infrastructure is the term used to describe the buildings, pipes, filters, tanks, and all other equipment used throughout the process of extracting water from its source, purifying it for consumption, and delivering that water to homes and businesses. A utility must maintain this infrastructure, replace it as it ages, and add new infrastructure components to meet area growth and demand.

The people, power, chemicals, and infrastructure used to provide safe drinking water are all very costly and require continual training and upkeep. The overall cost for these ongoing investments is largely paid for by between customers when they pay their water bills.

In many cases, the effort and resources behind getting water to homes is largely invisible to the consumer, especially in the ready-built developments that are driving Texas's growth. Unfortunately, that means many of us take quality and accessible water for granted. The reality is that a lot of work and money goes into making the process appear seamless.

(Continued on next page)

What's driving the cost of your water?

Water travels through an underground water distribution system made up of hundreds of thousands of miles of water lines in Texas alone. Upkeep for this gigantic network of delivery pipes includes the cost of maintaining and replacing these existing lines, as well as the investment of installing new ones. New delivery routes cost between $50-$250 per linear foot of water lines to install, depending on materials required in an area.

When new subdivisions are built, municipalities, water systems or developers are required to install water lines throughout the neighborhood. These lines connect residents' homes to a water tower, pump station, or well. At each individual home, water meters are installed to track individual water usage.

The financial strains created by booming growth are largely offset by developers' payments for the initial installation of this infrastructure required to support new homes. However, as systems get larger, new materials with better quality technology like upgraded filters may be installed and more system employees may need to be hired to keep up with maintenance. These improvements lead to higher quality, more reliable water delivery for everyone in a service area. Since the benefits are shared, those costs are then shared by all utility customers, too.

Based on the total expenses for people, power, chemicals, and infrastructure in a system, a price for the customer is determined. This price usually includes a base rate for service to be provided to a home or business as well as the cost of water usage each month. When setting prices, the water provider usually conducts a rate study to ensure their prices are comparable to other area utilities so customers are not over- or undercharged. The next time you turn on your faucet or fill a glass from your fridge, you'll know more about the work and the resources it took to deliver that clean, safe water.

Heavy equipment and materials required for building a sewage trench in a new neighborhood.

Introducing the TRWF Veteran Career

As part of the the **Veteran Employment Program**, Texas Rural Water Foundation (TRWF) began the process of creating a job board specifically devoted to veteran employment earlier this year. The new TRWF Veteran Career Center is the resource resulting from those efforts. Available at **vet-career.trwa.org**, the job board is now live and accepting postings for jobs in the Texas rural water and wastewater utility industry.

What can veterans expect?

Veterans can create a profile, upload a resume and search through current job listings. Also included in this service is a free, one-time resume evaluation through TopResume. Creating a profile with the Veteran Career Center is completely free of charge.

In addition to the profile itself, veterans can also access resources on the site including information on career paths available in both English and Spanish. More resources are being created so that veterans can use the site as a vital portal for getting their foot into the rural water and wastewater industry.

What can employers expect?

Employers can list job postings and search through profiles and resumes on the Veteran Career Center. In order to encourage employers to hire and train veterans, TRWF offers access to this job board free of charge. Utility hiring managers can create job listings and contact candidates after creating an employer profile on the site. Additional resources for employers wanting to participate in this program are available at **trwa.org/veterans.**

What is the Veteran Employment Program?

The Texas Rural Water Foundation's Veteran Employment Program (VEP) was created to inspire and mobilize new interest and talent to work in the water and wastewater industry.

The goals of the VEP are to attract veterans to the water and wastewater utility industry and assist them in entering the career field to foster their successful transition into civilian life, and to help rural utilities match job openings with veterans.

What is the Veteran On-The-Job Training Program?

The Texas Veterans Commission's (TVC) On-The-Job Training program is an alternative way for veterans to use their GI Bill. This program allows veterans to learn a trade or skill on the job rather than attending formal classroom instruction.

Once the veteran is hired by a water or wastewater utility that is approved as a TVC On-The-Job Training facility, he or she is eligible for a monthly stipend from the U.S. Veteran's Administration. This stipend is in addition to his or her regular salary. The TVC is responsible for approving OJT programs in Texas. The approval process may take a few months before it is finished, and the veteran is eligible for the benefits retroactively from the date their employment began.

The Rural Water and Wastewater Industry is a place for Texans to build their next career.

If you have an aptitude for basic math, science and mechanical work, like to work with your hands and work outside, consider a future as a Water or Wastewater Operator. Every day is different—from locating and repairing system leaks, to testing and treating water, to using cutting-edge technologies, to performing collection system and plant operations duties.

A career in the water and wastewater utility industry gives you the opportunity to:

- Serve your community
- Join a growing industry
- Build a career

37% estimated percentage of water utility workers expected to retire by 2027.

31% estimated percentage of wastewater utility workers expected to retire by 2027*

*Based on EPA survey conducted in 2017.

Lifelong Opportunities:

There are many opportunities for advancement in the utility industry. Beginning with entry level positions as operators or meter readers, many utility workers build experience and take advantage of on-the-job training to advance their careers. Management positions, as well as higher-level operator licenses (Class C, B, or A licenses), are all attainable with a combination of experience, training, and determination.

To explore job openings in the rural water industry visit **trwa.org/jobs** today.

Veterans can learn more about our Veteran Career Center at **trwa.org/veterans.**

Lifelong Learning:

Class A License
- 4-8 Years Experience
- 164 Training Credit Hours

Class B License
- 2.5-5 Years Experience
- 100-124 Training Credit Hours

Class C License
- 2 Years Experience
- 60 Training Credit Hours

Class D License
- No Experience Necessary
- 20 Training Credit Hours

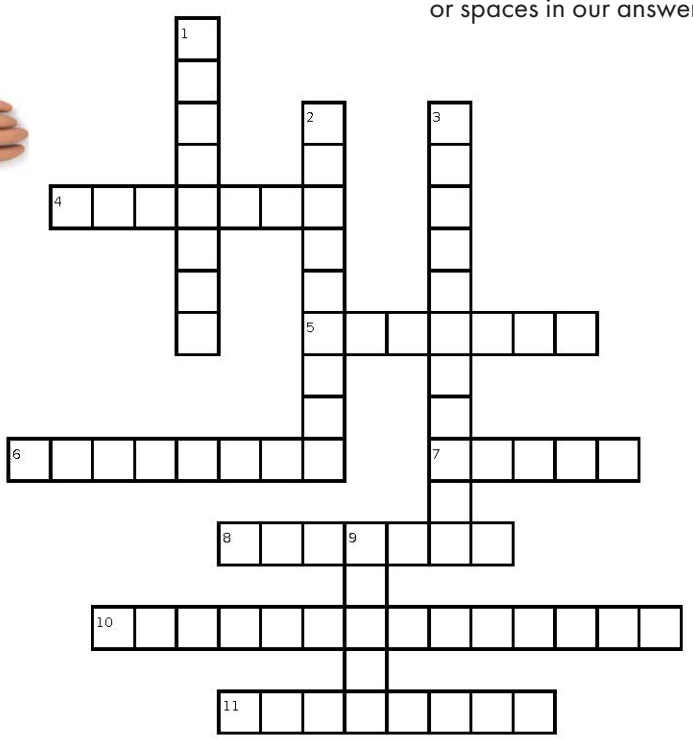
As you gain skills and experience working at a water or wastewater utility, you also can take continuing education credits to work towards the next level license. You can continue your education and gain higher licensure all the way up to Class A Water or Wastewater Operator Licenses.

TEXAS RURAL WATER FOUNDATION
Empowering Utilities. Cultivating Progress.

TEST WHAT YOU LEARNED THIS ISSUE!

The answers for this issue are pulled directly from our articles.
Fill this out from memory, or go back and dig for some clues!

*Hint - some answers in this puzzle include two words or are hyphenated. We don't use punctuation or spaces in our answers.



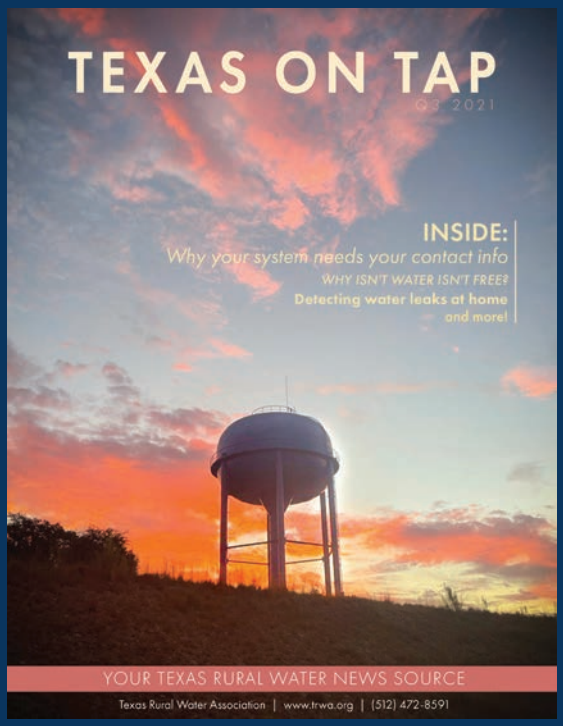
Down:

1. The type of gas leak detection dogs are trained to sniff out
2. Essential in transforming source water into clean water
3. The next step after you suspect a leak.
9. Type of box you need to perform maintenance on regularly.

Across:

4. The name for the leak detection dog at Aqua WSC
5. The type of information your utility needs in an emergency.
6. Who can use the new TRWF Career Site for free
7. Type of system used to notify customers in an emergency.
8. Professional who can come to fix leaks.
10. Term used to describe the buildings, pipes, filters, tanks & other equipment used in extracting water from its source
11. Career step after meter reader in a typical water utility career

1616 Rio Grande | Austin, TX 78701-1122
Telephone: (512) 472-8591 | Fax: (512) 472-5186
www.trwa.org



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Texas Rural Water Association
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www.trwa.org

TRWA Editorial Staff

Lara Zent, Editor in Chief
Allison Kaminsky, Managing Editor
Madie Leon Riley, Art Director

Questions?

General correspondence should be directed to your utility office.

Editorial inquiries may be directed TRWA Communications Staff at (512) 472-8591 or editor@trwa.org