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**Meet Charlie, Texas'
first leak detection dog.**

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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



and Kessler agreed to train Vessel for CAW.

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.

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



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.

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.

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

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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.

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