



# HOST

Tom Hickmann, PE, Chief Executive Officer

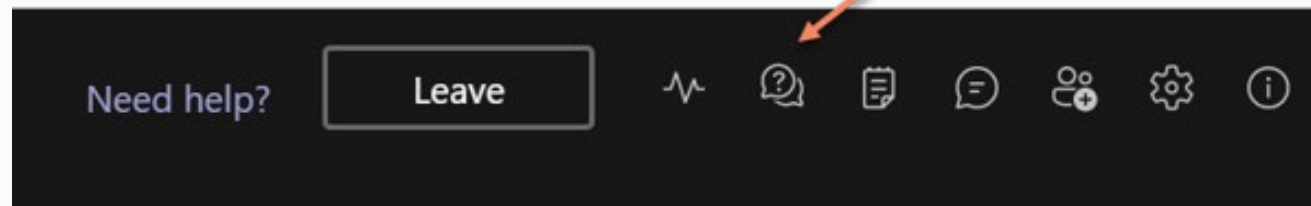
## Municipal Water

- Tualatin Valley Water District since August 1, 2019
- City of Bend – 14 years

## Engineering Consultant

- David Evans and Associates
- MBK Engineers

# PLEASE TYPE QUESTIONS IN CHAT



# TODAY'S EXPERTS



**Presenter**

Kahlil Howell

Senior Water Quality Inspector



**Water Expert**

Carrie Pak, PE

Chief Executive Officer



**Water Expert**

Bill Richmond

Senior Water Quality Specialist



TUALATIN VALLEY  
WATER DISTRICT



# **CROSS CONNECTION CONTROL: PREVENTING BACKFLOW INCIDENTS**

**Kahlil Howell – TVWD Senior Water Quality Inspector**

June 2, 2021

# Presentation Outline

- Cross connection and backflow basics
- Types of risk and the ways we protect our water quality
- Examples of recent backflow incidents
- TVWD's Program – It's pretty cool actually!



# CROSS CONNECTION CONTROL PROGRAM

What does the term 'cross connection' even mean?



# WHAT CAUSES WATER TO FLOW BACKWARDS?

There are multiple reasons why water can unintentionally flow backwards



- Examples: Large fires or water main breaks resulting in significant pressure changes, pumps within plumbing systems, and thermal expansion from water heating equipment.

# WATER QUALITY RISKS COME IN ALL FORMS

Here are some of examples of what constitutes a risk to our water quality



## Microbiological

- From irrigation systems – fecal contamination and other pathogens which can enter through sprinkler heads



## Chemical

- Manufacturing facilities, car washes, fertilizers, and even commercial facilities with janitorial equipment



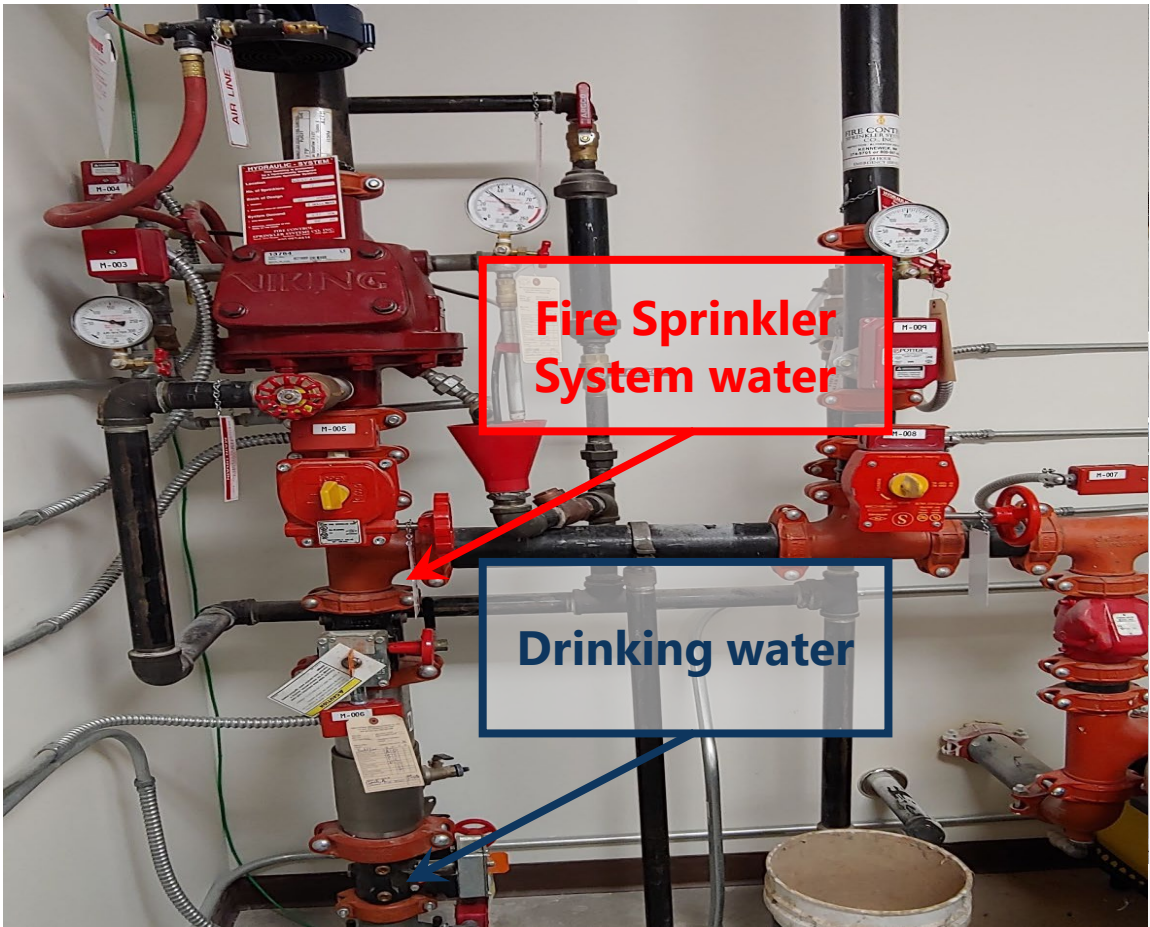
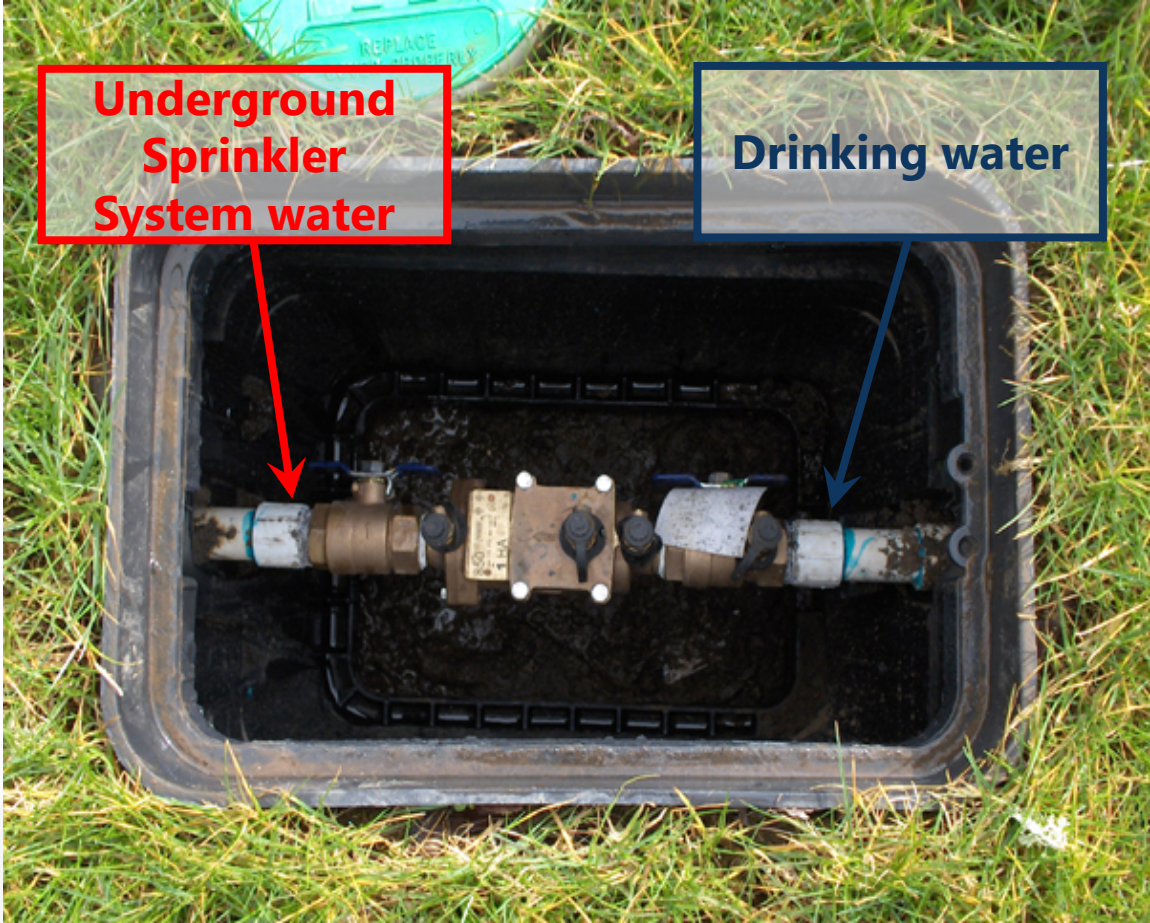
## Physical

- Pressurized systems using air or carbon dioxide



# SIMPLE TO COMPLEX

From the simple to complex, ALL cross-connections require backflow protection



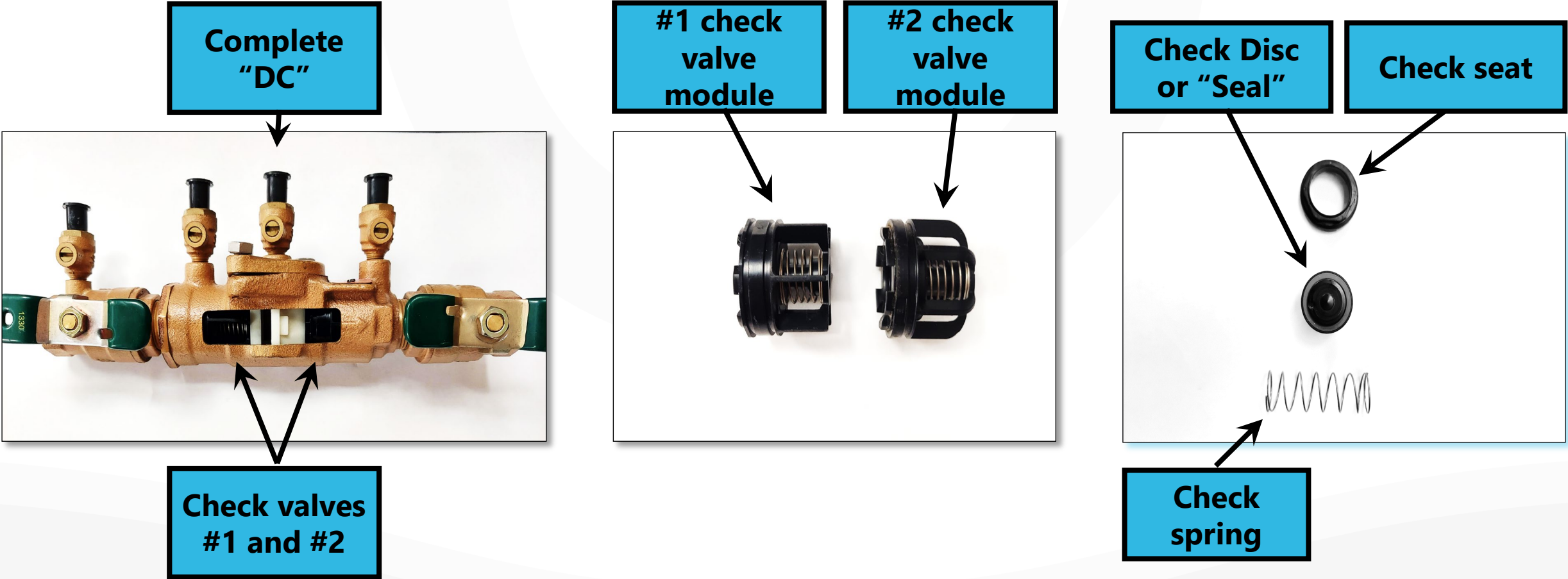
# TYPES OF BACKFLOW PROTECTION

Backflow assemblies, portable hydrant meters, and air gaps – all designed to protect water quality



# COMMON RESIDENTIAL BACKFLOW PREVENTER

The double check valve assembly “DC” is most common on underground sprinkler systems and residential fire systems



# AIR GAPS – THE RIGHT AND WRONG WAY

Inspection, reinspection, and enforcement are critical to this process



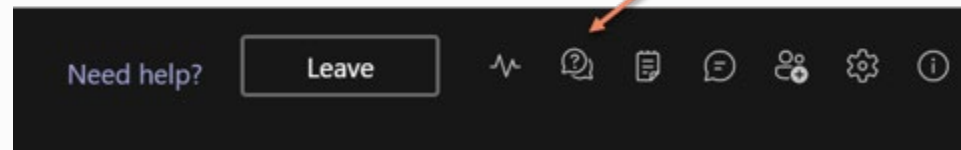
# BACKFLOW PREVENTION

Wednesday, June 2, 2021

Kahlil Howell

Senior Water Quality Inspector

**Remember to type questions in the chat**



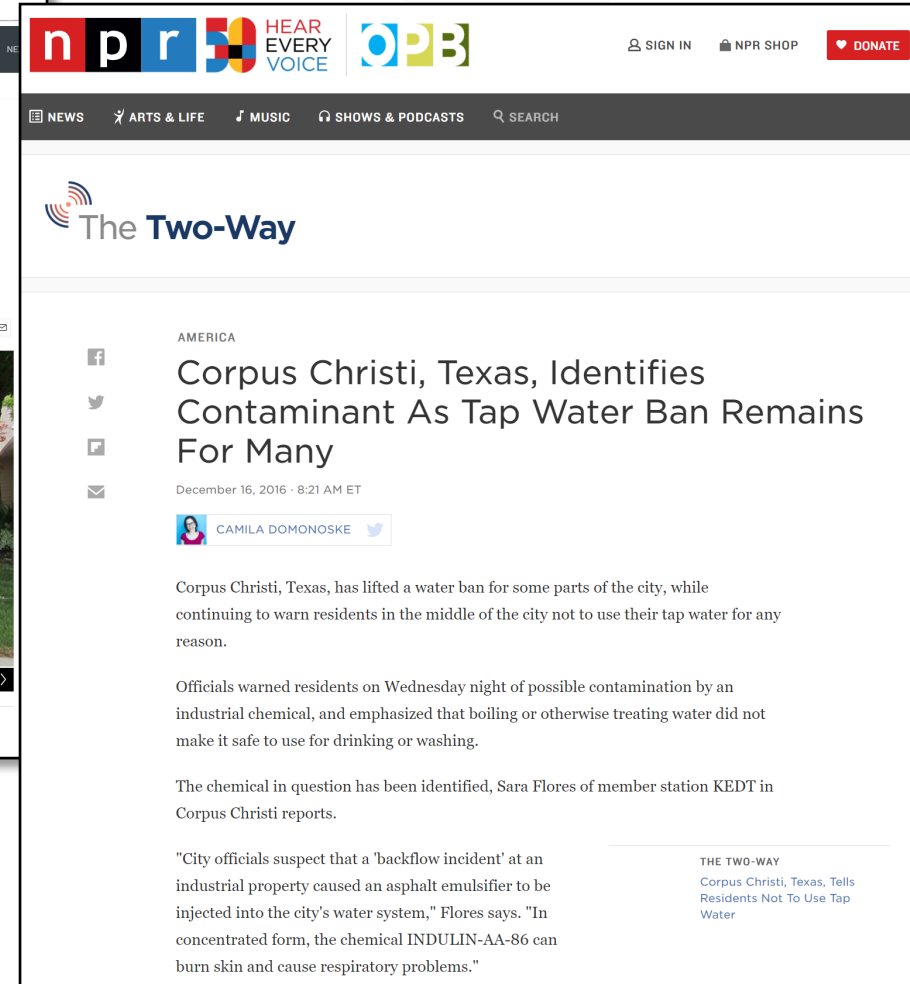
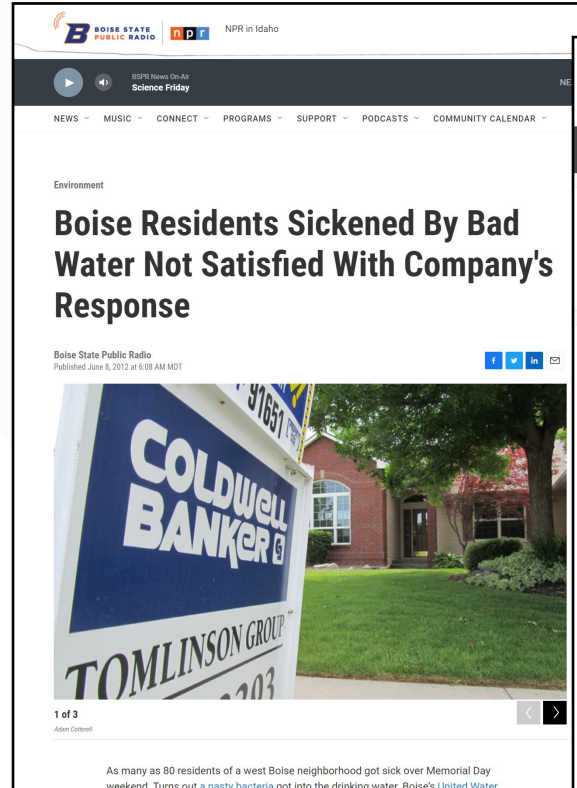
# Regional and National Incidents

While less frequent now because of decades of outreach and enforcement, backflow events can still happen, often with major consequences



# TWO INCIDENTS WITH DIFFERENT CAUSES AND RISKS

- [Microbiological \(\*Campylobacter\*\): Boise, ID, 2012](#)
- [Chemical \(asphalt emulsifier\): Corpus Christi, Texas, 2016](#)
- Both with public health impacts to residents



# TVWD's Program

Cross connection control in our water system, designed to protect customers and businesses in the community.





# RESIDENTIAL TESTING PROGRAM – GOLD PLAN

Since 2009, we've offered contract testing for our customers, called the "Gold Plan"

- **TVWD Gold Plan is an optional service for all residential customers**
- **To subscribe to the Gold Plan please visit our website at [www.TVWD.org/GoldPlan](http://www.TVWD.org/GoldPlan)**
- **The Gold Plan subscription is \$35 per backflow assembly, added annually to your water bill**
- **TVWD will arrange your backflow assembly test with our certified contracted testers**
- **TVWD will credit up to \$50 toward assembly repairs when using our certified contracted testers**

# OVER 9,000 GOLD PLAN CUSTOMERS

“

Switching to the Gold Plan has been a great decision. TVWD has incredible customer service, and they really care about the consumers and water quality! Knowing that they pick the best backflow inspection companies, we are confident about the annual inspection. Plus, we get the \$50 credit if repairs are needed!

-Jane Rhomberg

# RESIDENTIAL TESTING – NON GOLD CUSTOMERS

Many customers prefer hiring their own tester, and that is OK!

- **Backflow assembly test(s) are due before September 1<sup>st</sup> each year**
- **To find a certified tester, ask around! Your neighbors may have great recommendations, or your landscape company may even be certified**
- **Certified testers are required to submit test results electronically within 10 business days of the completed test through TVWD's tracking software web portal**
- **Assemblies not tested by September 1<sup>st</sup> will be assigned to our certified contracted testers and a \$50 enforcement fee is applied to the customers water bill**



# TVWD'S PROGRAM – TECHNOLOGY LEADER

We successfully implemented a web-based, mobile friendly data entry application in 2017 for test report submission and program management



- **100% controlled access** – Only up-to date testers can access the system
- **Allocation of staff time** – No more paper records or time-consuming data entry, more IT resources freed up
- **Accuracy** – Improvements in data going in, reduction in submitting reports to wrong agency
- **Progress** – One of the first in the industry nationally to make this change

# TVWD'S PROGRAM – IT'S A TEAM EFFORT

Multiple disciplines across the District help make this program effective including your participation

- **Certified Contract Testing**
- **Tracking 25,000 assemblies**
- **Tank truck inspections**
- **Hydrant assembly deployments**
- **Plan reviews and daily sampling**
- **YOUR help makes a difference!**

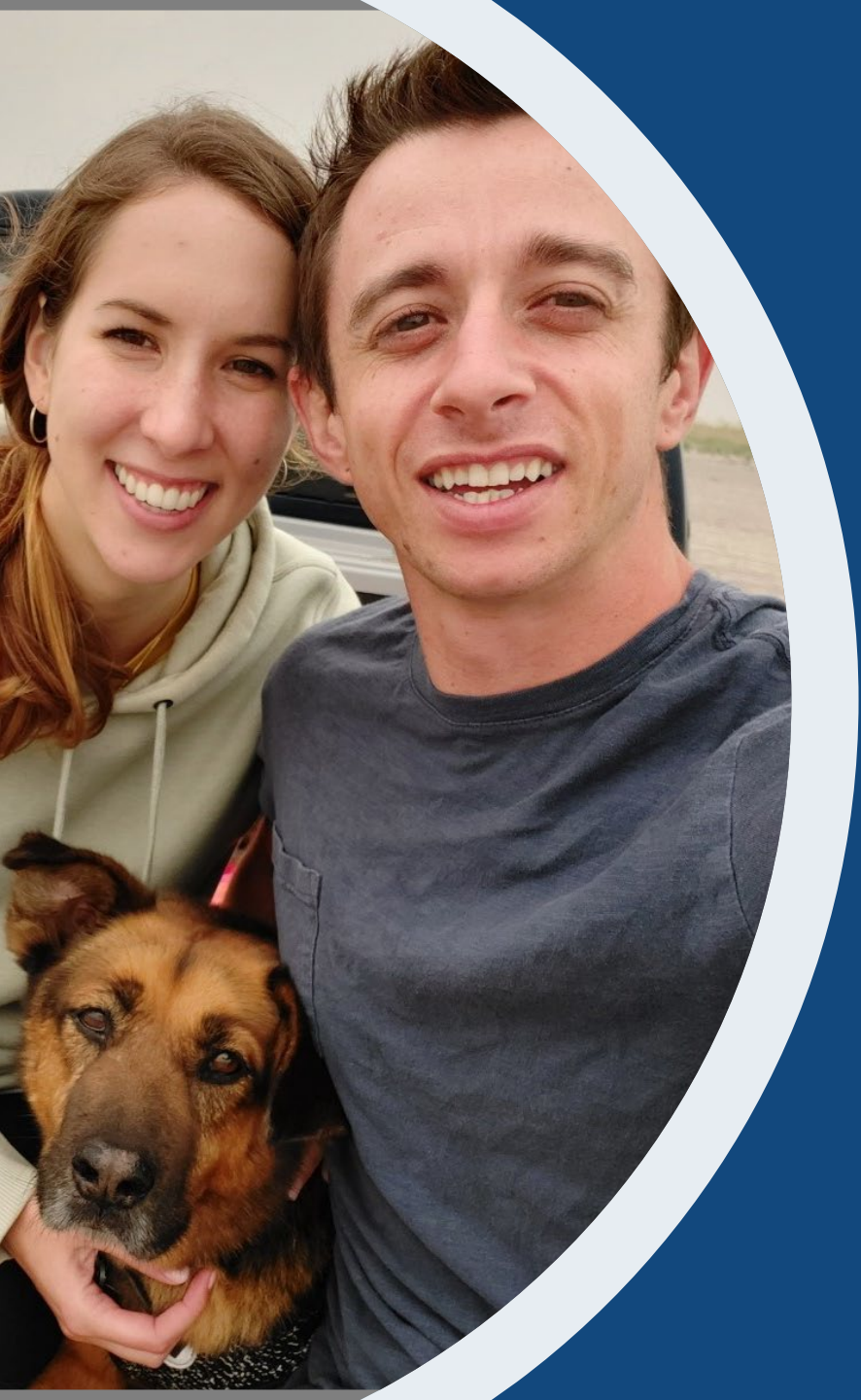


# TVWD'S PROGRAM – PROACTIVE

We prioritize communications and we're enhancing our on-site survey work to continually protect water quality for our community

- **Active survey/inspection schedules to discover and correct unprotected cross-connections**
- **Utilizing backflow software to prioritize critical inspections needed**
- **Quick response to customer concerns**
- **Although enforcement may be necessary, our goal is to work with our customers**





**TUALATIN VALLEY**  
WATER DISTRICT

**Kahlil Howell**

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[tvwd.org/TalkinWater](https://tvwd.org/TalkinWater)

# YOUR TURN! ANY QUESTIONS?



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