Water/Wastewater Emergency Management

Tabletop exercise - wildland urban interface fire

2024 ANNUAL CONFERENCE
LOVELAND · COLORADO

Presented by Kyra Gregory CDPHE

COLORADO MUNICIPAL LEAGUE

Who are we?

- Colorado Department of Public Health and Environment
- Water Quality Control Division
- Local Assistance Unit

Jess Morgan

Kyra Gregory

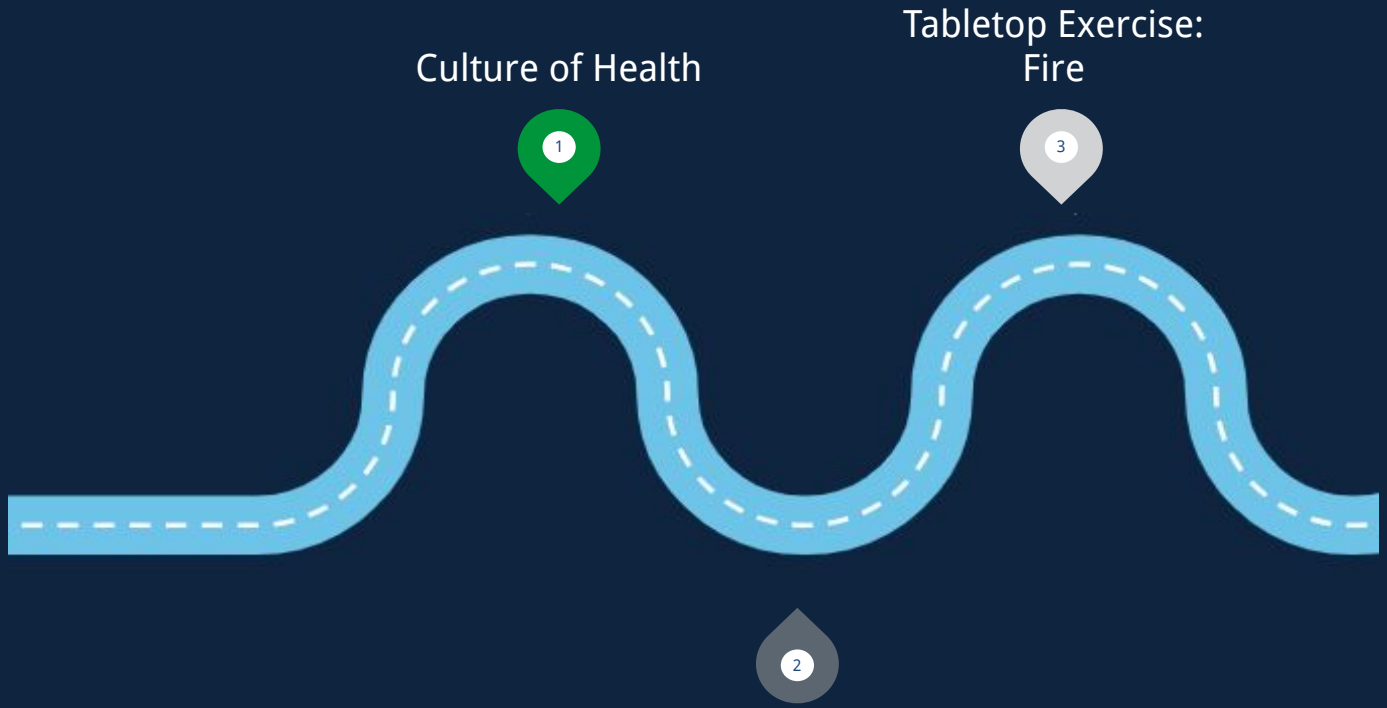
Angela Green Garcia

Nicholas Griffin

Margaret Bauer

Why are we here?

- Create resilience in your utility and community
- Prepare you for your next emergency situation
- Leave with tools, templates, resources
- Identify and connect with your partners
- Identify areas needing improvement
- Develop a plan of action to move your utility closer to its EM goals


Culture of Health
1
Tabletop Exercise:
Fire
3
2
Special focus:
Security and
Cybersecurity

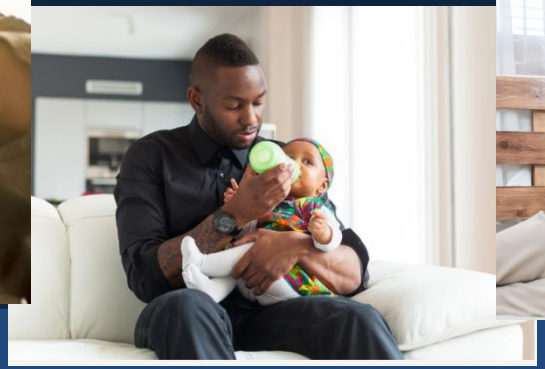
Who are you?

- How do you interact with your water/wastewater system?
- Population

Thank you!

Our Common Goal?

- Protect and restore Colorado's water quality for public health, the environment, and future generations
  - Protect all Coloradans - especially our most vulnerable



Acute Reporting

★ 24-hour CDPHE report line 1-877-518-5608 or 303-692-3308

If monitoring results:

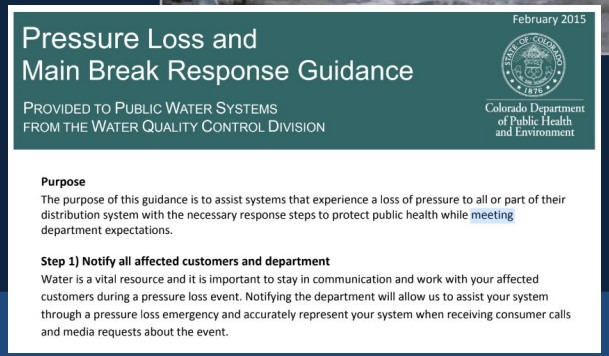
- Nitrite > 1.0 mg/L as N
- Nitrate > 10.0 mg/L as N
- Positive Total Coliform result
- Positive E. coli result
- Surface water: high turbidity/ failure to meet microbial removal at entry point

Acute Reporting

★ 24-hour CDPHE report line 1-877-518-5608 or 303-692-3308

If pressure loss affects

- >50% of the distribution system or
- >100 service connections
- When in doubt, call!



February 2015

Pressure Loss and
Main Break Response Guidance

PROVIDED TO PUBLIC WATER SYSTEMS
FROM THE WATER QUALITY CONTROL DIVISION

Colorado Department of Public Health and Environment

Purpose

The purpose of this guidance is to assist systems that experience a loss of pressure to all or part of their distribution system with the necessary response steps to protect public health while meeting department expectations.

Step 1) Notify all affected customers and department

Water is a vital resource and it is important to stay in communication and work with your affected customers during a pressure loss event. Notifying the department will allow us to assist your system through a pressure loss emergency and accurately represent your system when receiving consumer calls and media requests about the event.

Aqua Talk

safe drinking water information

Wednesday, December 6, 2023

Backflow Prevention and Cross Connection Control Regulation Updates

The updated Backflow Prevention and Cross Connection Control Program (BPCCC) rule (in Regulation 11 Section 11.39) was officially active as of October 15, 2023! The Division greatly appreciated all the stakeholder support in developing the updated BPCCC regulation and also the updated DW007 BPCCC Policy that accompanies the regulation changes. Major changes that were adopted with the BPCCC updates include:

- Suppliers have 1 calendar year to test assemblies not tested in previous calendar year (must still test at least 90% each year)
- In specific situations, suppliers can self-issue extensions of the 120-day deadline for controlling discovered cross-connections (see section 4.11 of Policy 7)
- Assemblies and methods are now one combined compliance ratio (see new annual report template)
- Cleaned up regulation to remove old dates and tables from delayed implementation schedules
- Updated Policy 7 to include more detail on permitting cross connections, surveying, self issued extensions, and more

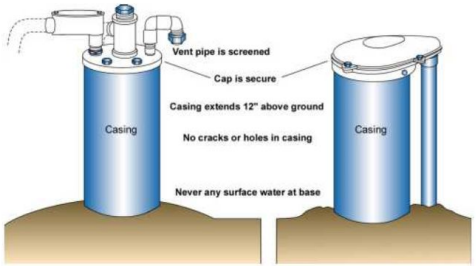
Wednesday, December 20, 2023

Wellhead Deficiencies

In this article, we continue our discussion of the Top 10 most frequently cited significant deficiencies and violations to raise awareness and help operators identify and correct issues before they become a potential health threat or citations in a sanitary survey. At #2 in the Top 10, source construction deficiencies (5030) were cited 9% of the time during sanitary surveys for the 2022 inspection year and 9% in the 2023 inspection year. Groundwater wells are the most common sources of drinking water used in Colorado (70% of public water systems use groundwater wells) and are perhaps one of the most overlooked parts of water systems. Wells can go unnoticed for years since they are often located away from most activities and may only be noticed when the flow of water is altered. The most commonly discovered significant deficiencies with wells are related to electrical conduits, gaskets, vents and vaults.

What are the minimum standards for a properly constructed well? In the "State of Colorado Design Criteria for Potable Water Systems" (Policy DW005), CDPHE actually primarily refers to the Colorado Division of Water Resources' (DNR) latest edition of "2 CCR 402-2 Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation, and Monitoring and Observation Hole/Well Construction" (a.k.a. Colorado Well Driller Regulations). The purpose of these regulations is to ensure public health and the safety of groundwater resources. The regulation outlines minimum construction standards for all types of wells in all types of environments, and it defines minimum well height, screening, minimum distance from potential sources of contamination, grouting standards, pump installation and much more.

There are many variations to well heads, but the two primary ones that inspectors come across are the "split-cap" and the "well-cap" (see image below for reference). The "split-cap" has the discharge line, vent and electrical conduit all protruding from the wellhead. The well head is comprised of two metal plates with a rubber gasket in between. When installed, the two plates are compressed, the rubber gasket expands and creates a watertight seal. The "well-cap" has a pitless water connection (below frostline) and a designated female electrical connection, a set of gaskets and a built-in vent (which are typically screened).

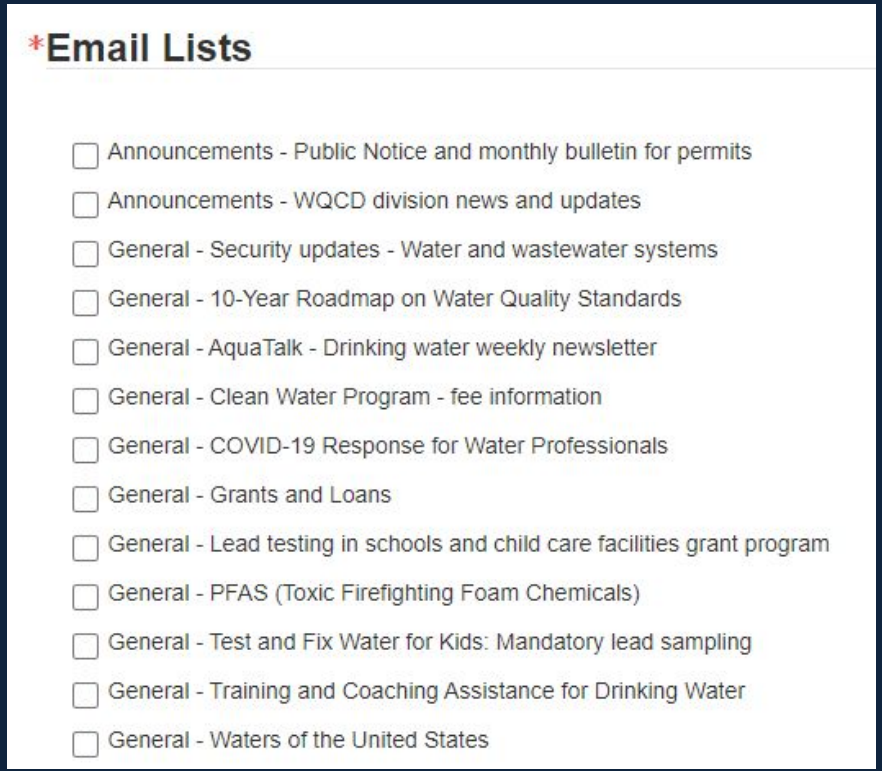


🔍 Search: wqcd aqua talk

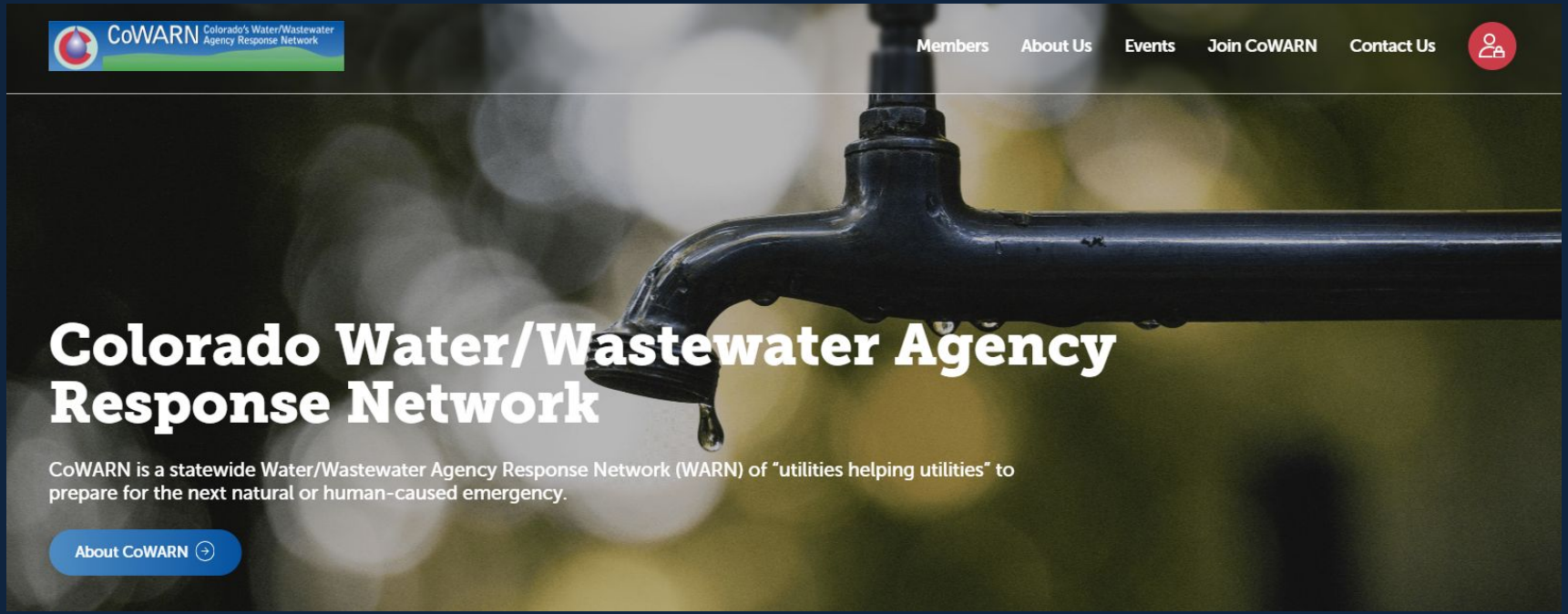
How to stay in the know?

Engagement email notifications

Sign up for email notifications and select which areas of interest you want to receive emails about.



🔍 Search: wqcd engagement



- Colorado Water/Wastewater Agency Response Network
  - Utilities helping utilities
  - Mutual Aid Agreement
  - New Website Fall 2023

🔍 Search: Colorado Water Agency Response

Security

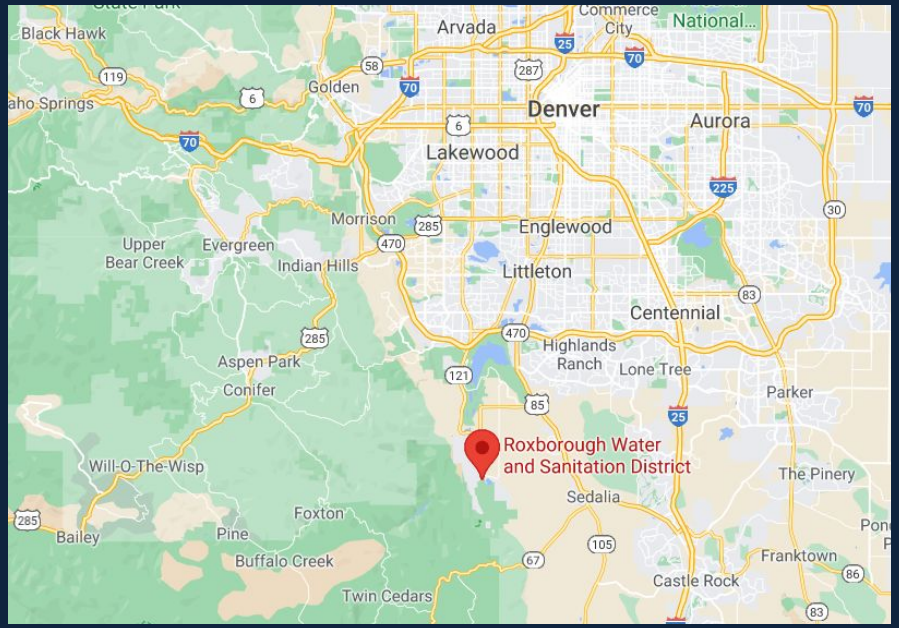
Concerns and Resources for PWS

Security Concerns

- General malevolent acts
  - Vandalism
  - Tampering
  - Violent acts
  - Terrorism attacks
- Cybersecurity
  - Ransomware
  - Malware
  - Phishing

Recent Cyber Attack

Roxborough Water and Sanitation



- Roxborough gave permission to discuss
- Surface water
- Community
- Pop: 10,622

Roxborough Water and Sanitation

- September 2020
- IT department → alarm
- Ransomware
  - W/WW automated control, SCADA, alarms, and billing data
  - Encryption, not theft

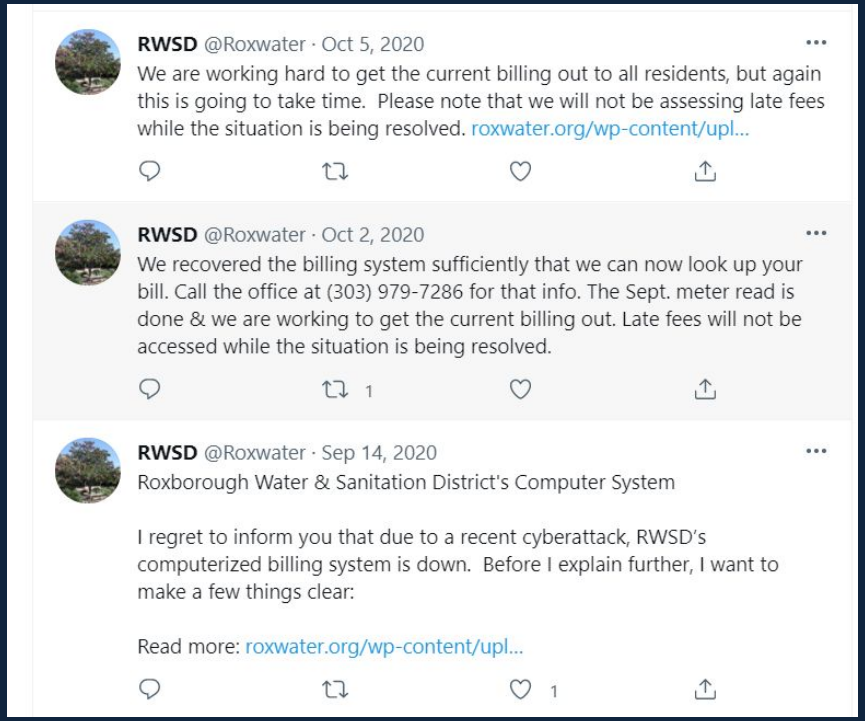
Roxborough Water and Sanitation

"Our number one priority was making sure we could provide safe water and efficient wastewater treatment operations for our members,"

1. Manual operations
2. Visual inspections and tank level checks
3. Inform state and federal partners
4. Hire experts
5. Rebuild systems
6. Pay the criminals - insurance

Roxborough Water and Sanitation

7. Communicating with customers

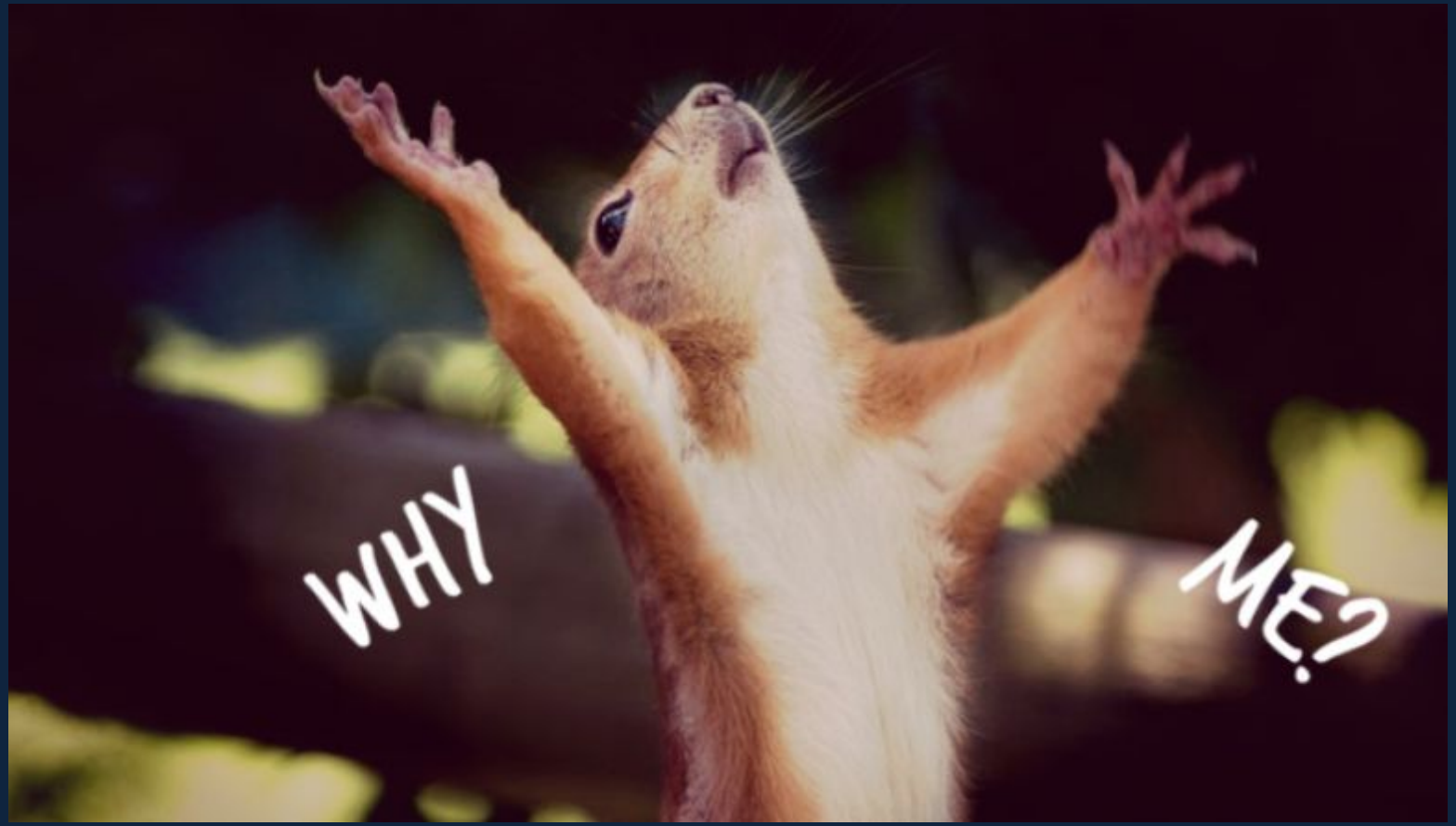


National Cyber Incidents

- Kansas 2019
  - Previous employee - remote operation
- California 2021
  - Bought username and password info on dark web
  - Deleted operational programing
- Florida 2021
  - Accessed remote view of SCADA - raised lye levels
  - Caught by operator
  - Previous employee

Recommended Basics

1. Change passwords regularly.
2. Use multi-factor authentication for access.
3. Take away access when staff leave the utility.
4. Staff training on cybersecurity fundamentals - critical users
5. System maintenance (O&M)
    a. Do frequent back-ups
    b. Keep up to date with software and install patches


WHY
ME?

Reporting Requirements

- Notify department ASAP, but no later than 10 a.m. of the next calendar day
  - Tampering
  - Suspected tampering
  - Receipt of tampering threat by the system

Reporting Requirements

- Provide written notice within five calendar days to the department (form on security website)
  - Explaining the circumstances of the occurrence.
  - How will you provide safe drinking water?
  - How will you prevent this from happening again?

WQCD - Incident Report Form

COLORADO
Department of Public Health & Environment

Tampering, Threat, & Incident Report

Water Quality Control Division - Safe Drinking Water Program

PWSID

Your answer

PWS Name

Your answer

Tampering, Threat & Incident Report

Water Quality Control Division – SaveDrinking Water Program

1. Contact Information

PWSID_____
First Name _____
Title_____
PWS Address_____
_____
City_____
State_____
ZIP Code_____

PWS Name_____
Last Name_____
Work Phone_____ Work Ext._____
Mobile Phone_____
E-mail Address _____
Are you the ORC YES NO
If yes move to section 3
If no proceed with section 2

2. ORC Contact Information (or Point Personnel for the Incident)

First Name _____ Last Name_____
Work Phone_____ Work Ext._____ Mobile Phone_____
_____
E-mail Address _____

3. Type of Incident

Incident Start Date_____ Incident Start Time _____

Please circle/highlight the type of incident:
Contamination Property damage Personal assault Bomb threat
Threat of any of the above
Other_____

Resources

WQCD - New Security Website

Drinking Water Security Response Toolbox

- Water Quality
  - Search or request records
  - Water quality engagement
  - Regulations, policies, and guidance
  - Drinking water consumer info & data
  - Drinking water resources for water systems
    - Compliance assurance
    - Facility design
    - Facility operator certification
    - Grants and loans
    - Guidance and forms

This toolbox is designed to help water utilities plan for, prevent, and guide responses to security threats including general malevolent acts, cyberattacks, tampering, and violent acts.

Preparing for malevolent acts

Malevolent acts, such as vandalism, tampering, violent acts, cybersecurity attacks, and terrorism attacks, pose a threat to water/wastewater utilities and are sometimes overlooked in Risk and Resilience Assessments as well as Emergency Response Planning efforts. Malevolent acts can affect your critical infrastructure by creating contamination events or by slowing or stopping your facility's ability to function. This toolbox will help you prevent, detect, prepare for, and respond to tamping events and violent acts.

- Planning resources: The department gathered resources to help your system prepare and respond to malevolent acts.
- Guidance: Report and Respond to Tampering Events or Security Threats.
- Join Colorado's Water/Wastewater Agency Response Network (CoWARN).
  - To apply as a member or associate representative, email the following to the CoWARN Website Administrator:
    1. Name of your utility/organization.
    2. Name, email, and phone number of a primary contact (once registered you will be able to add more contacts).
  - In addition, all water/wastewater utilities must have an Authorized Official sign and submit the Mutual Aid Agreement in order to become a CoWARN member.
    1. Download and view the Mutual Aid and Assistance Agreement.
  - Call 1-877-518-5608 to report malevolent acts or threats just as you would call to report hazardous substance spills or incidents that pose a risk to public health at any time. See the above guidance for more information on reporting processes.

EPA - Cybersecurity Incident Action Checklist

Actions to Prepare for a Cyber Incident

Actions to Respond to a Cyber Incident

Actions to Recover from a Cyber Incident

EPA - Free Assessment and TA

Free Cybersecurity Assessment and Technical Assistance

Cybersecurity is a broad term that refers to the security of computer network infrastructure and data. A cyber attack is an attempt to undermine or compromise the function of a computer network or system, or an attempt to track the online movements of individuals without their permission.

What are the expected outcomes?

All individual utility information gathered during the assessment will be protected and remain confidential. Trends in the anonymized, aggregated data will be shared with other utilities and agencies so that lessons learned from the assessments may benefit all.

Participating utilities can expect to receive a straightforward overview of their vulnerabilities and suggested best practices to reduce risks to their business enterprise, SCADA, and communications systems. Additionally, the utility will develop their cyber action plan with HWG and work to implement any recommended best practices.

What does the utility need to prepare before the assessment and technical assistance?

The assessment will require input from management, IT, operations/control staff and engineers as appropriate. The utility will also need to compile and provide any existing system documentation/diagrams, policies, and procedures.

So Many Resources - Tools

- Cybersecurity & Infrastructure Security Agency (CISA)
  - Free training online
    - Fundamentals
    - Incident response
  - Vulnerability screening
  - Threat briefings (WQCD)

So Many Resources - Funding

- SRF
  - Sensors, SCADA upgrade, Cyber assessments
- EPA - Drinking Water System Infrastructure Resilience and Sustainability Program
- EPA - Midsize & Large Drinking Water System Infrastructure Resilience & Sustainability Program

1. ID Threats

2. ID Areas of vulnerability

3. Build Resilience & Protection

4. Make Plans

5. Implement Your Plan

6. Recover

7. Hotwash

Tabletop Exercise - Wild/Urban Fire

- Day one:
  - Fire in 2 of your distribution zones
  - High winds
  - Firefighters evacuate treatment plant and storage tank

Tabletop Exercise

- Day one questions:
  - Who will you contact?
  - Where is your staff?
  - Do you have a direct line to incident command?
  - Do you evacuate?
  - How long can your plant run without personnel?

Tabletop Exercise

- Night one:
- Power out at treatment plant
- Fire passed over plant
  - Blew up generator

Tabletop Exercise

- Night one questions:
  - How did your treatment plan fare after the fire (structure type, what would survive)?
  - How will you supply power without generator?
  - Who is making decisions?
  - How are you communicating with incident command?

Tabletop Exercise

- Day two
- Power is restored
- Fire ongoing now to additional zones
- Federal partners onsite
- Road to plant blocked by National Guard/Police

Tabletop Exercise

- Day two:
  - How will you get back to plant? - Do PD/Federal partners know that you are VIP?
  - Who will go back to plant?
  - Who is making decisions?
  - What is happening with water supply?

Tabletop Exercise

- Day three:
  - Fire is out
  - Hospital moving patients back in
  - Bottle water advisory in effect

Tabletop Exercise

- Day three:
  - Who is working?
  - Who is making decisions?
  - How will you get water to hospital?
  - How will you communicate with customers - bottle water order?
  - How will you provide emergency drinking water supply?

Tabletop Exercise

- Day four - seven:
  - Treatment back online
  - Residents moving in where they can
  - Residents cleaning up
  - Power on

Tabletop Exercise

- Day four - seven :
  - How will you know if the water is safe to drink?
  - What if you lost tanks?
  - Who is making decisions?
  - Who is communicating with whom?

Thank you for attending!

Please don’t forget to rate this session in the CML conference app.

In the app, navigate to this session and click on SURVEY.

We appreciate your feedback!

Thank You!

Take action now to build resilience in your water/wastewater system:

- Implement cyber bmp
- Update emergency plans
- Train you staff (coaching available

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