


# UNDERSTANDING THE COSTS WHEN YOU FAIL TO PROTECT DRINKING WATER RESOURCES

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INTRODUCTION TO CROSS CONNECTION CONTROL AND BACKFLOW PREVENTION

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WATER DEPARTMENT DIRECTOR FOR THE CITY OF COEUR D'ALENE



Presenter introduction

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## THE DEDICATED FOLKS WITH THE ANSWERS!

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- Want to thank some valuable sources of information provided for this presentation:
- Anna Moody – Idaho Department of Environmental Quality 
- Bill Bernier – Washington State Department of Health 
- Molly Keller – Oregon Health Authority 

Thanks to Anna Moody, Bill Bernier, and Molly Keller

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## TOPICS OF THIS PRESENTATION

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- A basic introduction to the operational, legal and financial importance of cross connection control
- What could be the possible consequences of not protecting your public water system from cross connections
- Potential regulatory noncompliance issues

There will be a brief discussion of a basic program. We will also discuss worst case scenarios for regulatory, legal and financial implications of not having a proper program

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## TOPICS OF THIS PRESENTATION – CONT.

- Potential legal ramifications
- Public health perception and possible emergencies
- Emergency response, investigation and mitigation
- Potential related hard and soft costs
- What about operator liability?
- Examples



Will get into costs of having a program and also what it could cost if you don't have a proper program.

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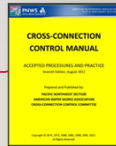
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## WHAT IS A CROSS CONNECTION?

- From the PNWS CCC Yellow Manual which says it best:
- **Definition:** any actual or potential physical connection between a public water system or the consumer's water system and any source of non-potable liquid, solid, or gas that could contaminate the potable water supply by backflow
- Can be a direct or an indirect connection



Operators will most likely deal with potential cross connections. Rarely will they see an actual cross connection.

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Examples?

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## WHAT CONDITIONS CAUSE BACKFLOW?

- All public water systems experience backflow either due to backpressure or backsiphonage
- Examples: thermal expansion (water heaters), main line breaks, irrigation system (booster pump), tall buildings (over 30 feet), high flow rates including fires, garden hose(?)
- Once water flows into a customer's service line, it is considered "used" water and should not be allowed to flow back into the public water system



All systems experience backflow. Explain issues with high pipe velocities.

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Garden hose is #1 offender with hose nozzle sprayers. Not supposed to leave nozzle on hose when not in use.

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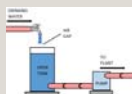


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### WHY IS CROSS CONNECTION CONTROL SO IMPORTANT?

#### • PROTECTION OF THE PUBLIC HEALTH!

- Integral part of a multibarrier approach to protect the public health through protection of a public water system (i.e. source protection, treatment, water quality monitoring, distribution, etc.)
- Cross connections are the #1 leading cause of waterborne disease outbreaks according to the Centers for Disease Control (CDC)

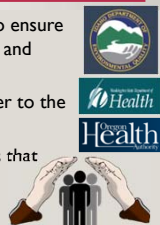


This should be the operators  
mantra, not the state says we have  
to do it.

Discuss multi-barrier approach to  
public health protection.

### A PROPER CROSS CONNECTION CONTROL PROGRAM:

- Provides public health protection by helping to ensure protection at the consumer's tap (commercial and residential)
- Is designed to prevent the return of used water to the public water system
- Required by Drinking Water Rule for all states that maintain Primacy



Helps to ensure safe drinking  
water by protecting distribution  
system.

Discuss primacy. Wyoming, Dist.  
of Columbia, and most Tribal  
Nations do not have primacy.

### WHO IS REQUIRED TO HAVE A CCC PROGRAM?

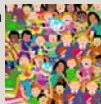
- All Community public water systems are required to have an active cross connection control program and non-transient non-community water systems must have approved backflow protection
- Definition of a public water system: 15 or more connections or 25 or more people served more than 60 days per year



Over 152,000 public water  
systems in US. Just under  
50,000 are community systems.  
9% of these serve 79% of the  
population. 27,000 serve 25 - 500  
population.

### DRINKING WATER REGULATORY COMPLIANCE FOR CCC PROGRAMS

- Most state Rules recognize systems 3300 in population and larger as required to implement their own program with designated personnel or an approved alternative
- Smaller systems may, and often do, use alternative solutions as they lack adequate staff and funding
- Non Community systems are typically very small but must still protect from backflow



Over 3300 is usually classified as a medium size system.  
Small systems may share operators or employ a contractor or satellite system management.  
Public Water System Coordination Act in WA amended 1991 to allow.

### WHAT IF I DON'T HAVE A PROGRAM?

- Your customers are at considerable risk of contamination leading to mild to severe adverse health issues
- Without a dedicated adequate program, your system (and you) can be subject to expensive legal ramifications
- Will face issues due to regulatory noncompliance
- May not have access to state funding for improvements and expansion
- Could face operator sanctions including loss of license



Funding can be an issue.  
Staffing usually the biggest problem.  
Lack of training.  
Exposure to legal issues for system and operators.

### WHAT IF I DON'T WANT TO RUN A PROGRAM?

- Drinking Water Rules mandate an "approved" CCC Program
- Do I have to run a program? Yes, whether directly or indirectly
- Systems do have the option of using other acceptable methods to run an approved program
- As an operator, document if you are prevented from setting up and running a proper program



What happens if you don't have a viable program? You have options.  
Share a certified operator,  
Employ a contract operator.  
Satellite Management Agency.  
If you are prevented from having a program, document to CYA.

### WHAT IS REQUIRED TO RUN A PROGRAM?

- Who can run a program? CCS in Washington and Oregon, DW Operator in Idaho
- Who can test? A BAT licensed in each particular state
- Reports, especially failing test reports, must be submitted in a timely manner
- Annual Summary Reports submitted to the applicable state!
- Must meet minimum criteria in each State's Rules



Must be a CCS in WA and OR, but Idaho does not have this certification so must be a certified drinking water operator. Must be a BAT licensed in state testing in, Idaho does accept ABPA BAT cert. Each state has its minimum criteria for a program.

### FIVE ELEMENTS OF A CROSS CONNECTION CONTROL PROGRAM

- Purveyor and/or LAA authority (ordinance, resolution or policy)
- Backflow prevention assemblies (proper type and installation)
- Certified personnel (run program, test and inspect)
- Defensible and detailed records (kept for life of assembly +)
- Education and training (properly train personnel and include public education materials)



Required to have some type of legal enforcement authority. Proper BFA's Certified operators and BAT's. Defensible records in case of law suit. Educate staff, management, elected officials and the public.

### WHAT DOES IT COST TO RUN A PROGRAM?

- Operator time, depending on size of system (\$65K/yr)
- Vehicle, laptop, camera and/or phone (\$45K)
- Cross Connection Control Software (\$900 to \$4500)
- Storage space for hard and/or electronic files (\$2500)
- Testing equipment for spot checks (\$2000)
- Estimated initial cost to setup and run program (\$119K)
- After startup costs, would be annual labor, software updates and other miscellaneous costs. (\$70K to \$80K)



Rough estimated cost for start up and annual program operations. This is for a medium sized system. Larger systems obviously will be more expensive.

### WHAT IS "SATELLITE MANAGEMENT"?

- Hiring a certified contractor to develop and run the program, or sharing an operator among systems
- Costs vary greatly dependent on system size and complexity but can usually provide a fairly fixed annual cost with much less start up costs
- They do all the leg work and provide you with records
- Emergency would still fall on purveyor for response
- Purveyor usually still answers customer calls though



Under Public Water System  
Coordination Act in WA, this is  
allowed as a reasonable alternative  
to run a program.  
Was not able to find any related  
costs.

### POTENTIAL REGULATORY ACTIONS:

- Public Water System Non-Compliance with state Drinking Water Rules
- Regulatory Agency can implement fines to the public water system for continued non-compliance
- Under sanitary surveys, can be determined as a significant deficiency, requiring reporting in CCR
- Possible operator license revocation



Worst case scenarios of not having  
a proper program.  
Each state will handle differently.  
Can also depend on system  
relationship with regulatory agency.  
Operators need to be aware of  
their legal obligations.

### POTENTIAL REGULATORY CONSEQUENCES:

- Water System Plan updates may not be approved
- Agency can disapprove system expansion for development/growth
- Significant Deficiencies have to be reported in annual CCR
- May have consequences related to Grant/SRF eligibility



Water System Plans must be  
approved for major system  
improvements.  
This can affect eligibility for state  
funding.



### POTENTIAL LEGAL RAMIFICATIONS OF NOT HAVING A PROGRAM

- Customers and businesses may file civil and possible criminal lawsuits against the public water system if a significant backflow event were to occur
- Possible civil lawsuits against the operator(s) for failure to “act in a reasonable and prudent manner to protect the public health”
- Water system files lawsuits against customer/owner that caused damage/contamination



We will cover several examples a little later.

Reminder that licensed operators assume liability.

System may look to recover lost revenues and damages.

### POTENTIAL FINANCIAL IMPLICATIONS OF NOT HAVING A PROGRAM

- Businesses could experience extended service interruptions and subsequent loss of vital revenue
- Potential property damage from contamination
- Loss of system credit bureau rating for future debt service for required system improvements
- Having to provide an alternative source of drinking water to customers affected by contamination



Texas water system was flooded a few years ago. Another southern state had a treatment plant flooded last year.

Lewiston reservoir failure caused service interruption for a couple of weeks and boil water notice.

### PUBLIC PERCEPTION

- Due to lack of education, the public perceives ccc as a “wasted and costly government conspiracy”
- Costs generally fall to customer for maintenance/testing
- Customers upset with additional cost for home/business maintenance
- Operator typical response when asked why is “it is required by the state”, further degrading consumer confidence
- Potential loss of consumer confidence in the public water system if/when an event occurs



There is a lot of public animosity due to a lack of education. Field personnel could really put a face to this program if they take to thoroughly explain it.

## PUBLIC EDUCATION

- A properly managed cross connection control program should include public education as a key component of the program
- Be proactive about providing information to your customers on a regular basis
- Good educational materials provided routinely can significantly reduce customer calls
- Materials are readily available through AWWWA, ABPA, The Group, SRC4, EPA and the state



There is plenty of available info from PNWS, SRC4, The Group, ABPA, the respective states, and even EPA.

Be proactive about sending out regular publications.

## INFORMATION TIPS FOR THE CUSTOMERS

- Backflow protection is for the **"Protection of the Public Health!"**, not because we have to
- If they suspect there is something wrong with the drinking water, report it immediately!
- Do your part to help ensure safe drinking water for your family, friends and neighbors
- This helps protect our valuable drinking water



Explain customer's responsibility for system protection. Our responsibility stops at the meter.

## WHAT GENERALLY HAPPENS WHEN A BACKFLOW INCIDENT OCCURS

- Customers call about a defined change in the acceptable water quality, out of the norm
- Customers, especially businesses, if shut down will likely contact health jurisdictions
- If a large enough event, can attract local news attention and possibly end up on national news (Example: Corpus Christi Texas)



When a possible incident occurs, there is a defined change in water quality and/or appearance. System response will dictate customer actions. Be prepared for this hitting the news, whether TV, paper or social media.



### COMMON CUSTOMER COMPLAINTS OF A POTENTIAL CONTAMINATION EVENT

- Taste, color and odor complaints (musty or metallic taste, odd colors such as green or pink, foul smell like petroleum or rotten eggs)
- Gastrointestinal issues (slight aches to severe cramping)
- Diarrhea and/or vomiting
- Flu like symptoms (aches and pains, vomiting and diarrhea, tired)



If an event is confirmed, you must notify your regulatory agency within 24 hours but sooner is better. They can assist you. A public notice may be required. You should notify local health facilities if potentially hazardous.

### MORE COMMON CUSTOMER COMPLAINTS OF A CONTAMINATION EVENT

- Skin irritation and burns (dry itchy sensation to actual lesions on the skin surface)
- Damage and discoloration of laundry
- Possible plumbing damage
- Property damage (customer and supplier)
- Saw it on the news, am I affected?



Here are some common complaints to mild events. Early detection and public notification are crucial to limiting health implications. Only present the facts, no ideas, no opinions.

### INITIAL ACTIONS TO BE TAKEN WHEN A BACKFLOW INCIDENT OCCURS

- Emergency response will immediately be required and should be initiated
- Must notify the state regulatory authority within 24 hours
- Likely a public notification will be required by compliance officer, request assistance
- May need to notify local health support facilities illness, or worse, is a possibility



If a relevant event is confirmed, initiate immediate emergency response. Public notices to be given as directed. Notify emergency response agencies as needed.

## EMERGENCY RESPONSE

- Public water system must initiate an immediate investigation into cause of problem to determine if caused by a potential cross connection
- If possible, isolate portion of the system where suspected contamination has occurred to reduce spread
- Acquire immediate water quality samples, may need full range based on type of contaminant if known, and begin system emergency flushing and disinfection measures



Operators should be familiar with normal system chemistry and with emergency response procedures. Investigate cause and point of contamination. Know where to find a list of the potential chemicals and contaminants.

## MITIGATION MEASURES

- Potential local system isolation at suspected point of contamination if able to determine
- Consult with regional compliance officer for additional assistance as the event progresses
- Provide updates on any public notification to keep customers posted on progress
- **If an immediate health hazard, terminate service**



Can't emphasize enough to consult with regulatory agency. They have likely dealt with issue. If a severe issue, may have to make a physical separation for effective disconnection.

## MITIGATION MEASURES

- Disinfection/cleaning, then flushing, flushing and then some more flushing
- New water quality samples taken after disinfection/cleaning and flushing
- Possible repeat samples after 24 hours to confirm water quality compliance
- Maintain isolation until all clear given
- Require acceptable backflow protection of customer



You will have to move a lot of water. Be aware of where you are flushing to and if there are potential concerns such as dechlorination. If isolated, keep water moving through the isolation point. Determine proper level of protection if not present.

### CORRECTIVE MEASURES TO PREVENT FURTHER CONTAMINATION

- Work with customer to get backflow protection installed at service entrance to property or a mutually agreed upon location
- Premise isolation protection must be installed prior to any downstream branches
- Only reactivate service if sure of adequate protection



Review with customer the required level of protection. Must be premise isolation.

Do not return to service until proper protection is provided.

Document conversations!

### RETURN TO NORMAL OPERATIONS

- Once conditions indicate acceptable compliance, bring the affected portion of the system back online
- Remove/rescind actions from public notification
- Ensure customer service properly protected
- Document "return to normal" status
- Preparation of costs, directly and indirectly, associated with the incident



Once everything is protected and all samples are clean, begin system or service restoration. Make sure to document these procedures as well. Once completed, review to acquire all costs associated with the event to date. Make sure to follow up on any public notifications.

### TRIAGE OF CONTAMINATION EMERGENCY RESPONSE

- Investigation should have identified likely source of contamination
- Triage the incident to determine what could have been done to prevent or reduce severity
- Detailed documentation of event, investigation, emergency response, mitigation measures, public notification, and return to normal status



Always a good idea to triage the event to determine what worked and what did not. Make sure to have defensible and detailed records for future reference if needed.

WHAT ARE THE HARD COSTS ASSOCIATED WITH BACKFLOW CONTAMINATION?

- Labor: investigation, emergency response including flushing, sampling, disinfection, mitigation and return to service
- Testing: water quality sampling costs
- Equipment and material costs
- Administrative costs: , calls, records, billing, etc.
- Agency response: such as police, fire, hazmat, etc.
- Documented fees and service charges
- Backflow protection: if installed by system



Hard costs include: all labor, sampling costs, equipment and materials, admin, outside agency response, fees and charges, and anything installed by the water system.

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WHAT ARE THE SOFT COSTS ASSOCIATED WITH BACKFLOW CONTAMINATION?

- Legal fees: attorney and court fees
- Fines and levies: courts, regulatory, environmental
- Public information/response; including consumer confidence
- Potential damage to health and welfare (long term medical costs associated with illness)
- Other associated costs?



Soft costs include: attorney and court fees, fines and levies, public information/notification, potential long term health costs, and any other unforeseen related costs.

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EXAMPLES OF BACKFLOW INCIDENTS AND THE KNOWN ASSOCIATED COSTS

- ABPA 1999 Survey in 2022 dollars
- Corpus Christi, Texas vs Valero Energy Corp
- Various nationwide incidents recorded
- A few local events that made the local news



We will briefly go over some examples I was able to find.

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### 1999 AMERICAN BACKFLOW PREVENTION ASSOCIATION COST STUDY

- ABPA conducted a nationwide survey of costs associated with backflow events
- 92 public water systems responded to the survey
- Systems averaged the time spent for small to large backflow events
- Ranged on average from a minimum of 61 hours up to 494 hours



In 1999 ABPA requested a survey to determine likely costs from small to large events. 92 systems responded and the time averaged ranged from 61 hours to 494 hours.

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### 1999 AMERICAN BACKFLOW PREVENTION ASSOCIATION COST STUDY

- Projections, at 2022 average labor rates, costs would range from \$24,000 to over \$179,000
- This is just for the known hard costs for labor, sampling and remediation
- Soft costs such as legal fees, system improvements, and public outreach would be on top of these costs
- How would something like this affect your system?



Using an inflation calculator, at average 2022 rates, cost would range from \$24,000 to \$179,000. Other related costs would likely be on top of the listed range.

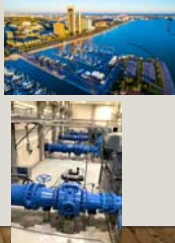
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### EXAMPLE: CORPUS CHRISTI TEXAS

- Corpus Christi is a large city along the gulf coast in southern Texas
- The public water system serves over 500,000 customers in the greater metropolitan area, including Corpus Christi and the surrounding suburbs
- Treats over 28 billion gallons annually through surface water treatment



So lets review a recent incident in Corpus Christi Texas.  
Total customers served = 500,000  
Treats 28 billion gallons of surface water per year.

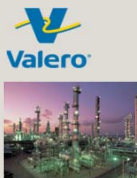
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## EXAMPLE: VALERO ENERGY CORPORATION

- Valero Energy Corporation is a world wide company supplying various industrial products
- VEC also has several subsidiaries that operate under their corporate umbrella around the country
- One such refinery, the VEC Bill Greehey Refinery, is located in an industrial park within the City's metropolitan area



VEC supplies products world wide.  
Has numerous subsidiaries.  
VEC operates the Bill Greehey Refinery in the industrial park in the central metropolitan service area.

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## EXAMPLE: ERGON ASPHALT AND EMULSIONS

- Ergon Asphalt and Emulsions is a supplier of conventional and polymer enhanced asphalt and emulsion products all over the US.
- One such plant is located in the same industrial park and in relative proximity to a Valero Energy Refinery
- This plant is the reported source of the contamination event that affected Corpus Christi



A local subsidiary, Ergon Asphalt & Emulsions, operates a plant adjacent to the refinery.  
This plant was the reported source of the contamination of the public water system.

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## EXAMPLE: EARLY INDICATIONS OF A PROBLEM

- Early on the morning of December 14<sup>th</sup>, 2016, Ergon plant workers were preparing 8,000 gallons of a solution of water and 24 gallons of Indulin AA 86 emulsifier for sale to a local contractor
- During the process it was discovered that a valve had failed, allowing the product to be backpressured into the plant water system
- Company would not immediately share chemical formulation for initial 24 hrs



Around 8 am workers were making a 8,000 gallon mixture of water & Indulin AA 86, an asphalt emulsifier, when it was discovered that a valve had failed. This allowed the mixture to be backpressured into the plant water system and possibly into the City system. No formula info shared for first 24 hours. (Proprietary)



#### EXAMPLE: CORPUS CHRISTI – WHAT HAPPENED?

- The City was notified of the potential for water system contamination by Valero/Ergon Officials
- Exact information was sketchy so the City had to act quickly regarding the potential contamination of the drinking water by either the refinery or asphalt plant
- City initiated a citywide ban on drinking the water fearing widespread contamination for over 320,000 residents as boiling the water likely would not clear the contamination according to a chemical roster



The City was notified a few hours after the incident by corporate management. Due to lack of viable information, City took precaution with an immediate ban on drinking the water as boiling would likely concentrate the contaminant. 320,000 customers immediately affected by ban.



#### PUBLIC REACTIONS TO THE WATER BAN

- City customers scrambled to buy bottled water, cleaning out all available supplies in short order
- Ban lasted 3 days, with many businesses closing their doors due to lack of clean water
- Lifted on Dec 18<sup>th</sup> after 28 samples indicated no further contamination of system
- At least 4 complaints of skin irritation and stomach illness were later reported, symptoms that are related to the specific contaminant



Panic ensued and available bottled water rapidly disappeared from all store shelves. Ban lasted for 3 days and was lifted late afternoon of the third day (18th) after 28 samples showed no indication of the contaminant. Was never really sure if entered the public water system but 4 complaints indicated symptoms.

#### EXAMPLE: INVESTIGATION RESULTS & LEGAL ACTIONS TAKEN

- Investigations determined no backflow protection existed at the Ergon Plant 
- VEC & Ergon Asphalt and Emulsions were named in a lawsuit as supplier of suspected contaminant of the water system
- While the City had a CCC Program, it had not actively followed up on inspections and testing, violating TCEQ Rules 
- A later study showed over 4,000 commercial and residential unprotected services, with over 1,000 commercial having since been corrected

The investigation later revealed that there was no backflow protection at the Ergon Plant. The City filed a lawsuit against VEC/Ergon for damages. The City was cited by TCEQ as they had failed to follow minimum CCC procedures and had 4000 unprotected services.

## CORPUS CHRISTI, VALERO, ERGON - SETTLEMENT

- The City involved the Texas AG's office in 2019 after their initial 3 year legal pursuit against VEC
- A settlement was negotiated in 2021 but has yet to be concluded
- Proposed \$2.6 million dollar settlement, \$1.3 mil to the City, and \$1.25 mil to TCEQ, (City fined \$12K by TCEQ)
- At last count, 9 businesses have filed suit for \$1 million a piece in damages/fees against City and VEC



City sought help from AG office to help with suit against VEC.

\$2.6 mill settlement, \$1.3m to City and \$1.25 to TCEQ, in 2021.

City was fined \$12K for failure.

9 businesses filed for \$1mill each for a current total of \$11.6 mill.

## OTHER EXAMPLES

- Commerce City, Colorado 2012 – Contractor installed a residential water softener with unprotected direct connection to a sewer. The system was installed without benefit of an inspection and the residents began to notice odors in the drinking water. A city employee performing a routine inspection witnessed the connection and immediately reported it. The court awarded a total of \$927,000 in damages to homeowners.



Plumbing contractor installed new water softener and connected drain directly to the sewer main. Found by utility operator. Court awarded residents \$927K from contractor.

## OTHER EXAMPLES

- City of Lockport, New York, May 18<sup>th</sup>, 2015 – Paving contractor unauthorized use of a fire hydrant without a backflow assembly. The product contained seed, dye, and wood pulp, but no chemical fertilizers. Problems were first noticed at an adjacent school. \$9,718 in damages received from the contractor for illegal use of hydrant resulting in hydroseed contamination and damage to the system.



Hydroseed pumped into the system by a paving contractor causing plugged meters and fouled system components. System was awarded \$9,718 in damages.

## OTHER EXAMPLES

- St. Louis, Missouri, Dec. 24<sup>th</sup>, 2015 – Legionnaires disease outbreak linked to water treatment plant. 12 elderly residents in a Illinois state veterans home were killed and sickened dozens of community residents. The CDC attributed the cause of the outbreak to a failing 129 year old water treatment facility. The state is seeking \$4.8 million in funding for replacement of the plant. No estimate of legal costs were included.



Legionnaires disease outbreak from 129 year old treatment plant killed 12 residents of state veteran's home and sickened dozens of others. CDC traced to the plant. System is seeking \$4.8 mill to replace plant. No info on civil claims included.

## OTHER EXAMPLES

- Barstow, California, Nov. 20<sup>th</sup> 2010 –Gov. Arnold Schwarzenegger declares emergency for San Bernadino County. Golden State Water Co. warned residents not to drink or use water contaminated with a chemical used to make explosives and rocket fuel. Approximately 40,000 customers were without their normal source of water for 2 weeks. Residents were stocking up on bottled water, not knowing extent of ban.



Mr. Terminator declared an emergency for Perchlorate contamination for about 40,000 customers which did last for over 2 weeks. Equated to at least \$170k in lost revenue plus provision of an alternative source of drinking water.

## OTHER EXAMPLES

- St. Paul, Minnesota, Oct. 1<sup>st</sup> 2010 – Plumber contaminates water at local college - After a plumber twice contaminated the college's plumbing system with ethylene glycol while working on a cooling tower, the state took actions to prevent the company's owner from doing any further work within the state and levied a \$25,000 fine to the company.



Plumbing contractor twice contaminated a college water system with ethylene glycol while working on a cooling tower. College filed a complaint with the state which pulled the contractor's license and levied a fine of \$25k.

#### EXAMPLES IN OUR AREA

- Spokane County, Nov 21, 2019 – Local public water system tests positive for E Coli - Just a couple of days before Thanksgiving, operators were notified of a positive sample in a portion of the system which serves over 10,000 customers. They have taken their CCC Program to the next level to prevent future incidents. The system manager related that they had accumulated over \$350k in overall costs as of 2022.



Local system notified of E-Coli hit a couple of days before Thanksgiving and issued a boil water notice. Later had a couple more hits over 2 days before all clear and able to lift the notice. System manager said it has cost over \$350K as of spring 22.

#### EXAMPLES IN OUR AREA

- Spokane County, July 26<sup>th</sup>, 2019 - Commercial hydroseed trailer unauthorized connection to fire hydrant. – A contractor was attempting to flush a hydroseed tank and accidentally pumped their hydroseed product into a portion of the public water system. After extensive main flushing, the purveyor had to replace plugged water meters in approximately a one square mile area. Related costs to date have exceeded \$140k.



Another local system was contaminated with hydroseed by a unauthorized connection to hydrant by a contractor. Had to replace meters in a portion of the system. To date their costs have exceeded \$140k. Contractor reimbursed for some of the damages.

#### EXAMPLES IN OUR AREA

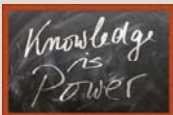
- Irrigation blow outs, Annually – Every year most public water systems deal with contamination issues related to fall sprinkler blow outs. What is the financial effect of fall sprinkler blow outs on unchlorinated systems? Even CDA has had issues with mains being evacuated with air. Anybody have any costs they could share?



Every fall we hear of contamination that is likely the result of sprinkler blow outs. How has this affected many of the local systems and what preventative measures are employed to stem the problem?

FINAL THOUGHTS

- Build a viable and proactive Cross Connection Control program
- Protect your customers to limit your liability
- Work with your regulatory agencies
- Keep defensible and detailed records
- Complete your applicable Annual Summary Reports
- **PROTECTION OF THE PUBLIC HEALTH!**



Make sure you have a viable prog.  
Do your part to protect customers.  
Build relationship with regulators.  
Accurate and detailed records.  
Comply with all required reporting.  
PROTECT THE PUBLIC HEALTH!

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UNDERSTANDING THE COSTS WHEN YOU FAIL TO PROTECT DRINKING WATER RESOURCES

- THANK YOU!
- QUESTIONS?
- [tpickel@cdaid.org](mailto:tpickel@cdaid.org)



Thanks!

Any questions?