

Backflow Incidents

This PDF contains cases documented by the American Backflow Prevention Association where a Backflow Assembly has failed, resulting in contamination of the public water supply and presenting danger to the users of the water supply.

Analysis of Backflow Incidents

Backflow incidents can have serious consequences for public health and safety, as well as significant legal and financial implications for property and business owners. A review of various backflow incidents highlights the critical importance of regular testing and maintenance of backflow prevention assemblies.

Key Backflow Incidents and Their Impacts

Incident	Location	Impact	Cause
Bacteria Found in Stafford Water	West Linn, Oregon	Contamination of school water supply; switch to bottled water	Faulty backflow devices on irrigation system and fire pump
Backflow Contamination in City Drinking Water	Boca Raton, California	Fecal matter in potable water; health risks	Inadequate cross-connection safeguards
Backflow Incident at a Swimming Pool	Liddieville, Louisiana	Boil water advisory for all connections; resident illnesses	Cross-contamination with swimming pool water
Thousands Told To Boil Drinking Water	Fort Worth, Texas	Boil water notice; disruption of daily activities	Operational error leading to pressure drop
Chemical Back Pressured into City Water Supply	Corpus Christi, Texas	Chemical contamination; health risks, legal actions	Lack of backflow preventer in chemical plant

Impacts on Water Supply when Backflow Incidents Occur

- **Health Risks:** Backflow incidents can introduce harmful bacteria, chemicals, and other contaminants into the potable water supply. This can lead to gastrointestinal illnesses, skin irritations, and other severe health problems.
- **Disruption:** Boil water advisories and the need to switch to alternative water sources can cause significant inconvenience to residents and businesses.
- **Legal and Financial Consequences:** Property owners can be held liable for contamination events caused by faulty or unmaintained backflow preventers. This can result in lawsuits, fines, and significant financial burdens.

Importance of Regular Backflow Testing

Property and business owners often view annual backflow testing as a nuisance, but this testing is crucial for several reasons:

- **Ensuring Public Safety:** Regular testing ensures that backflow prevention devices are functioning correctly, preventing contaminants from entering the potable water supply and safeguarding public health.
- **Compliance with Regulations:** Most local, state, and federal regulations require regular testing and maintenance of backflow prevention assemblies. Compliance helps avoid legal penalties and ensures the safety of the water supply.
- **Preventing Liability:** Properly maintained backflow assemblies reduce the risk of contamination incidents that could lead to lawsuits and financial liabilities. Negligence in maintaining these devices can result in significant legal repercussions.

Property and business owners should prioritize backflow assembly testing not only to comply with regulations but also to protect the health and safety of their communities and themselves from potential legal and financial consequences. Regular testing is a small investment compared to the significant risks and costs associated with backflow incidents.

INCIDENT: Bacteria Found in Stafford Water
LOCATION: West Linn, Oregon
SOURCE: West Linn Tidings
DATE OF INCIDENT: 3/1/2008

"Leaders of the West Linn-Wilsonville School District were surprised twice last week. And both surprises were bad news. Just a few days after receiving word from Coffey Laboratories that water at Stafford Primary School contained coliform bacteria, the district was informed Monday that the Northeast Portland lab had its certification suspended by the state Division of Public Health. According to Mike Skeels, interim Public Health Division administrator, Coffey's certification was suspended because of alleged inaccurate test results and ineffective quality assurance measures for Coffey's testing procedures. ...Besides turning the water off at Stafford, School District Facilities Manager Pat McGough said the district already had protected itself – without knowing about Coffey's problems – because the school's current water problem is significant. Instead of having the quarterly test conducted only by Coffey, as it has done for at least the past decade, water also was sent to another lab for the proverbial "second opinion." ...Alexin Analytical Laboratories of Tigard performed the same tests and reported the same results: that coliform bacteria was found in Stafford's drinking water. The water faucets and drinking fountains at Stafford were immediately shut off, and all of the students and staff began drinking bottled water and cleaning with hand sanitizer – a scenario that started March 3 and will continue until after the spring break, McGough said Monday. ...Currently, the district can't do much about finding and fixing the source of the problem. In order to fix the source of contamination, the well water system would have to be shut down. The school would therefore not have the use of restrooms, a situation that no one could tolerate. ...This week, the district will gain approval and begin installation of the chlorination system. The rest of the work begins Saturday, he said, including installation of a new pressure tank and well pump. The Backflow devices on the irrigation system and fire pump have either been repaired or replaced.

INCIDENT: Backflow Contamination in City Drinking Water
LOCATION: Boca Raton, California
SOURCE: www.abpa.org
DATE OF INCIDENT: 9/1/2012

The Palm Beach County Health Department found a host of long-standing problems with the city's drinking water including fecal matter and other ingredients found in wastewater. The City did not have the proper check valves to keep reclaimed water from mixing with potable water. Anyone drinking the potable water may have been drinking more than potable water. The official Notice of Violation from the Palm Beach health officials included: 1) Inadequate cross-contamination safeguards to prevent wastewater from entering drinking water lines. The Health Department found the city had been aware of problems since February 2006; 2) Illegal chemical injection system hooked up to city water lines. This violation covers eight years; 3) Reconnecting disinfected wells to city lines without adequate microbiological surveys to ensure removal of harmful contaminants; and 4) Failure to conduct thorough tests for the presence of lead and copper in water lines.

INCIDENT: Backflow Incident at a Swimming Pool
LOCATION: Liddieville, Louisiana
SOURCE: www.abpa.org
DATE OF INCIDENT: 8/1/2012

Due to a cross contamination incident with a customer's swimming pool, the Liddieville Water System issued a boil water advisory for all 441 connections in Franklin Parish. The problem has been corrected and system personnel are flushing the system. Samples are planned to be collected on Monday the 6th with results anticipated from the Shreveport lab on Wednesday the 8th. A resident called the Louisiana Department of Health and Human Services to report her family being ill with bacteriological infections. Her suspicions stemmed from the Liddieville Water System as being the source of their problems. The resident stated that their water began smelling and that it had been occurring for quite a while. The resident also stated that she contacted the water system months back and that they sent one of their operators out to flush the line. The complainant stated that the operator was unable to turn on the flush valve at the end of their line due to a tree root that was blocking access to the valve, but that the operator asked the resident to turn on all of their faucets in the home and allow them to flush the line out. The complainant stated that she did and it made the problem better, but the odors had returned and now her son was ill with the same infection that her daughter had earlier during the first episode (at the time she did not know what the children had been treated for). The complainant stated she wanted someone to test their water and find out what it was that was making them sick and if it was coming from the water.

The LA Department of Health and Human Services informed the complainant that they were unaware of a recent positive coliform sample for their system. They also informed the complainant that their system did have issues with nitrates and that it should not be an issue as their system chlorinates their water. They asked the complainant what odor she smelled, with her response being "algae". They asked the complainant how far off of the main line was their home, with her response being 0.25 miles and that their drive was once a parish maintained road but was now a private drive and they owned 50 acres. They asked the complainant if they had livestock troughs on their farm, to which she said "no". When asked about swimming pools, she said "yes". They inquired further how was their pool filled and was it an above or below ground pool, with her response being; "a big above ground pool and that she filled it with a garden hose". They LA DHHS asked if they left the garden hose in the pool and she replied "yes". They asked if she ever noticed it siphoning water at which time she replied "yes". They asked what kind of chlorination system do you have with the pool and she said they would turn it on when they were using it, but it was not operated all of the time. The LA DHHS informed the complainant that this was most likely was caused the problem and that she should remove the hose immediately and never to do this again. They informed the complainant that this is a problem for water systems and this type of action can contaminate a distribution system and affect not only her family but her neighbors and other member of the water system. They told her that she should always use an air gap when filling her pool. When the LA DHHS contacted the Liddieville Water System about their findings they stated that they would begin another flush. They said their system has a lot of customers with swimming pools and stock tanks as well as farm chemical tanks. After the discovery boil water advisory was issued for the Liddieville Water System and they also started a program to alert customers about the problems with cross connection.

INCIDENT: Thousands Told To Boil Drinking Water in Far North Fort Worth
LOCATION: Fort Worth, Texas
SOURCE: CBSDFW
DATE OF INCIDENT: February 4, 2016

Thousands of residents and businesses in parts of North Fort Worth are being told not to drink the tap water. The City issued a boil water notice a little after 2 a.m. The notice will be in effect until at least Friday.

Problems with the water were caused after an operational error led to the draining of an elevated water tank, which resulted in a drastic drop in pressure in parts of the water system. The loss of pressure means harmful bacteria and other microbes could get into the water. City crews were out at daybreak, running tests to run for contamination.

Information sent out explained that the Texas Commission on Environmental Quality (TCEQ) requires that customers be notified that water in the area is not fit for consumption and should be boiled prior to ingesting. Residents were also reminded that water used for cooking or making ice should be brought to a vigorous, rolling boil. The boil notice does not apply to water used for flushing, bathing or washing.

City officials said water for the area wasn't drained randomly. "The water was all sent out of the tank and not filled. The water wasn't wasted or anything in this case... it was there, but because the tank was taken down we may have lost some pressure in parts of the system."

The loss of water will also mean a loss of profits for some businesses. All restaurants and food preparation areas in deli and bakery sections of grocery stores will remain closed until boil water notice is rescinded. Officials have specified that business whose primary function is not food preparation such as nursing homes and daycare centers can remain open as long as they provide their clients with pre-packaged foods and only use water that is safe for consumption.

INCIDENT: Boil-Water Order Issued in 30 Massachusetts Communities
LOCATION: Boston, Massachusetts
SOURCE:
DATE OF INCIDENT: 5/1/2010

A Boil-water order was issued in 30 Massachusetts communities, including Boston after a water pipe break. The order affected nearly 2 million in Massachusetts. A major pipe bringing water to the Boston area has sprung a "catastrophic" leak and is dumping eight million gallons of water per hour into the Charles River. Governor Deval Patrick declared a state of emergency and issued a boil-water order for Boston and dozens of other communities. The water is not suitable for drinking. All residents in impacted communities should boil drinking water before consuming it.

INCIDENT: Water Contaminated at High School
LOCATION: Floyd County, Virginia
SOURCE:
DATE OF INCIDENT: 1/29/2009

A valve malfunction that contaminated water at Floyd County High School cancels classes. The contaminated water was restricted to one restroom and the kitchen. A pressure valve malfunctioned in the boiler system which transports heated water throughout the building. Due to the failure of the valve, fresh water was contaminated.

INCIDENT: Contractor error cause of contamination - pays City for backflow action
LOCATION: Lockport, New York
SOURCE: Lockport Union Sun & Journal
DATE OF INCIDENT: 5/18/2015

The City of Lockport received a \$9,717.99 payment from a private contractor whose unauthorized use of a city hydrant led to cross contamination of the city's water system. On May 18, Northeast Paving, a Lancaster-based lawn maintenance contractor, was filling a hydroseed tank with water, using a hydrant. The product contained seed, dye, and wood pulp, but no chemical fertilizers. According to sources, the operator failed to install a check valve –designed to prevent backflow-- between the hose leading to his truck, and the fire hydrant from which he was drawing water. Problems were first noticed at the school. Their water system actually got clogged up with this material and it prevented their water from flowing. The contents of the tank backflowed into the city water system. The water department had to immediately begin flushing the lines to contain and draw out the seed. As a result of the backflow, a two-day drinking water advisory was put into place for residents.

INCIDENT: Chemical is Back Pressured into City Water Supply
LOCATION: Corpus Christi, Texas
SOURCE: National Press
DATE OF INCIDENT: December 14, 2016

Based on the report of a possible backflow incident affecting the City's public water supply, a "Do Not Use the Water" advisory was issued to the City of Corpus Christi's customers on December 14, 2016 at 10:30 pm. The City water service was immediately shut-off to the facility where the reported backflow occurred. Before that date the City of Corpus Christi became aware of possible contamination as early as December 1st, with water quality complaints from its customers regarding abnormalities of their water.

Officials warned Corpus Christi residents of the water contamination which originated at a chemical plant mixing tank, identifying the chemical as an asphalt emulsifier known as INDULIN-AA-86, which can burn skin and cause respiratory problems. It was discovered that up to 24 gallons of the chemical in concentration was pumped back into the city water main, an amount normally diluted and used to produce up to 8000 gallons of product. After further investigation, no backflow preventer was found on the incoming water line to the chemical plant. This had opened the opportunity for an internal unprotected cross connection on a mixing tank, to backpressure the chemical into the city water main.

This incident marked the fourth water advisory in Corpus Christi in approximately a two-year period, leaving city officials saying that, after this *backflow* incident, the practice of boiling the water would not make it safe. Due to chemical involvement in the water main, lawsuits were numerous, possibly adding up to tens of millions of dollars.

INCIDENT: Drinking Water Fountain Found Connected to Recycled System
LOCATION: Cranbourne, Australia
SOURCE: Cranbourne Leader
DATE OF INCIDENT: 4/15/2015

A drinking water fountain at a Cranbourne school was connected to recycled water, and students drank from it for more than a year. A St Peter's College water fountain was connected to Class A recycled water following landscaping works at the school. Class A recycled water is the highest class of reclaimed water and is intended for uses such as watering gardens and the irrigation of crops grown for human consumption.

The College was not aware of any student illnesses as a result of this cross connection. Drinking the Class A recycled water may have led to a slightly increased risk of gastro. The problem was detected by a maintenance worker and the college was alerted on April 1. The fountain was immediately disconnected. A spokesman for the Department of Health said no spike in the number of gastro incidents had been reported at the school during the time the recycled water was connected.

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INCIDENT: E. Coli Bacteria Found in Winslow Township Water Supply
LOCATION: Winslow Township, New Jersey
SOURCE: The Inquirer
DATE OF INCIDENT: 11/1/2010

Residents of Winslow Township in lower Camden County are being advised to boil drinking water or use bottled water and keep their children home from public school after E. coli bacteria was found during a routine sampling. "It was not our wells. Our wells tested fine," Mike Minniti, a manager with the township water department, said on Sunday. "We are still trying to find the culprit here." Minniti said officials were looking at businesses in the area to make sure backflow preventers, a possible source of contamination, are functioning correctly. The township tests its water 40 times a month. In early October, a slight rise in the total coliform level was detected, but it did not exceed federal standards until Friday, Minniti said. He said the contaminated samples were from the Sicklerville area. Only residents using township water are affected. The problem does not involve private wells, Minniti said. Symptoms related to E. coli contamination include diarrhea, cramps, nausea, and headaches. The very young and the very old, as well as people with severely compromised immune systems, are most at risk of illness, according to the township website.

INCIDENT: Commerce City family wins lawsuit against Aquakleen over drinking water connected to sewer line
LOCATION: Commerce City, Colorado
SOURCE: Commerce City News
DATE OF INCIDENT: 10/26/2012

A Commerce City family started smelling something fishy in their household water after they hired Aquakleen contractors to install a water-softener system. Parents Nick and Roxanne Cattaneo later discovered their drinking water was connected to a sewer line. They sued Aquakleen and won. A jury awarded Roxanne Cattaneo \$465,000 on claims of negligent infliction of emotional distress and extreme and outrageous conduct. On a Colorado Consumer Protection Act claim, Nick Cattaneo was awarded \$462,000. The cross-connection between water and sewer lines at the Cattaneo home was first discovered by a Commerce City employee who was completing a routine inspection. He reported the issue. Water in Commerce City is managed by the South Adams County Water and Sanitation District. In a deposition, a South Adams County Water and Sanitation worker said that they shut off the Cattaneos' water supply after they discovered a cross-connection between the water and sewer lines. A copy of a written notice from the South Adams County Water and Sanitation District to its customers was also filed with the lawsuit. That document included this message to South Adams County Water and Sanitation customers: "It has recently come to the District's attention that water softeners are being improperly installed in homes within the District's service area and without the required permits from the City of Commerce City. District staff have observed cross-connections from the drinking water system to sewer lines with the potential to contaminate not only the drinking water in the home, but also the community system!" Commerce City discovered Aquakleen was installing water softeners in homes without the proper permits and notified Aquakleen that the company had 30 days to rectify the issue.

INCIDENT: Fire Foam Contaminates Water Supply
LOCATION: Pittsburgh, Pennsylvania
SOURCE: Pittsburgh Tribune Review
DATE OF INCIDENT: 3/1/2008

"Fire trucks' water pressure overwhelmed the city's drinking supply lines and pushed fire-suppression foam into them as firefighters tried to extinguish a burning Strip District warehouse, Pittsburgh's director of public safety said Wednesday. Two pumper trucks were connected to fire hydrants for a long time Tuesday afternoon, said Public Safety Director Mike Huss, and as the pressure built up in the truck lines, it overwhelmed the drinking water lines' force. "It's highly unusual, and we're surprised that it did it," (backpressure backflow) Huss said. The Pittsburgh Water and Sewer Authority advised people Downtown and in the Strip District not to use water for a few hours into yesterday morning, until the foam could be flushed from the system. Ingesting less than an ounce of the biodegradable foam wouldn't pose a health threat, but it can irritate skin and eyes, said Bob Hutton, a project coordinator for the authority. Callers began complaining about soapy-looking water Tuesday afternoon. Firefighters allowed the four-alarm fire, which started Tuesday morning in the former Otto Milk Co. complex at 25th and Smallman streets, to burn overnight because of difficulties extinguishing it in cork- and foam-insulated walls. The building continued smoldering yesterday. Fire Chief Darryl Jones said he had not seen the foam problem in the 20 years he has fought fires. "We are going to make some adjustments to make sure it doesn't happen again," he said. The fire apparently started when a construction crew's cutting torch ignited insulation in the building, the construction crew manager said."

INCIDENT: Glycol Contaminates School Water in Kentucky
LOCATION: Bowling Green, Kentucky
SOURCE: Daily News
DATE OF INCIDENT: 10/1/2010

The Drinking water at Bristow Elementary School was contaminated and officials urged students who may have ingested the water to watch for symptoms. Glycol, a chemical used in the school's heating and cooling system, leaked into the school's drinking suppl. A contracting company, Knights Mechanical, was working on the school's HVAC system, attempting to pump additional water from the school's drinking supply into geothermal pipes. Pressure in those pipes caused water to back up and a small amount of chemicals were pushed back into the drinking supply. Any students with nausea, diarrhea or vomiting should drink milk. If symptoms continue, they should seek medical attention, Hendricks said. Students will be given bottles of water at school and food will be prepared off site, likely at another school. Workers will install a back-flow prevention system, which should keep the drinking water safe from similar incidents.

INCIDENT: Governor Declares Emergency Over Water Contamination in Barstow
LOCATION: Barstow, California
SOURCE: Los Angeles Times
DATE OF INCIDENT: 11/20/2010

Gov. Arnold Schwarzenegger declared a state of emergency for San Bernardino County, where the water supply for the city of Barstow was found to be contaminated with a toxic chemical used to make explosives and rocket fuel. A day earlier, Golden State Water Co. warned residents of the desert town that their drinking water contained high levels of perchlorate, a contaminant often associated with defense and aerospace activities. Perchlorate, a type of salt derived from perchloric acid, has been found in drinking water in at least 35 states. It can interfere with iodine uptake in the thyroid gland. The thyroid, which releases hormones, helps with proper development in children and helps regulate metabolism. According to the governor's declaration, more than 40,000 customers were without their normal supply of drinking water, and several restaurants, hotels and other businesses had to close because of the contamination. Faour said residents packed into his business Friday when word spread that levels of perchlorate in several city wells had reached unacceptable levels. His customers have been stocking up on bottles and gallon containers of water. Golden State spokesman John Dewey said the company began warning residents after samples taken from the water system at the nearby Marine Corps logistics base showed levels of perchlorate three to four times higher than the state limit. Dewey said company water tests confirmed that the levels of the chemical exceeded standards. Three of 20 wells in the company's Barstow system had high levels of contamination, he said. At least one of the three was operational, but it has been shut down since the discovery. Dewey said Golden State was trying to determine how the water supply became contaminated.

INCIDENT: Pink Water Causes Hardship for Palmetto
LOCATION: Village of Palmetto, Louisiana
SOURCE:
DATE OF INCIDENT: 4/28/2015

Pink water from a faucet in a home in the Village of Palmetto caused two days of hardship for residents. Five samples were taken from different water supplies in the village and sent to the Department of Health and Hospitals Monday and soon after residents were put under a do not use advisory. Residents could not drink, bathe cook or in any way use their water supply. Two containers filled with water were stationed at the village's hall for residents to fill jugs, but local Hilda Barker said that wasn't the best way to handle the situation. According to DHH, a homeowner installed a water softener but failed to install a backflow preventer. This apparently caused chemicals to taint the water supply, causing a pink color. A simple explanation, but still a difficult time for residents who were denied a basic necessity.

INCIDENT: Plumber Must Quit After Tainting Water
LOCATION: St. Paul, Minnesota
SOURCE: Star Tribune
DATE OF INCIDENT: 10/1/2010

After a company twice contaminated the water system at Normandale Community College last year, its owner can no longer do plumbing work in Minnesota, the state Department of Labor and Industry said last month. Employees of Mechanical Solutions, Inc., a St. Paul company were working on a cooling tower at the Bloomington college in June 2009. They attached a hose without using a backflow preventer, allowing ethylene glycol into the drinking water system. Seventeen days later, company workers let chemicals backflow into a water heater. No one got sick. Both times the system was flushed. A \$25,000 fine against the company was vacated after the department was told the business had been closed.

INCIDENT: Poor Water Quality Call at a Meat Processing Plant
LOCATION: Guelph, Ontario
SOURCE:
DATE OF INCIDENT: Fall 2010

Operators found detergent in the water. Premises isolation was verified as functioning properly, testing was performed at a nearby fire hydrant. No contamination was found to be in the City water. The building once was compliant, but due to changes and additions to internal plumbing, locating the source of the contamination was unsuccessful. It was determined that it was an internal problem. Cooperation with the Operators and the City personnel stopped and the Operators resisted the City's help. After a couple hours it cleared up but the cause was never found.

Sample Backflow Incident Report Form

Reported By: _____ Title: _____

Mailing Address: _____ City: _____

State: _____ Zip Code: _____ Phone: _____

Reporting Agency: _____ Report Date: _____

Date of Incident: _____ Time of Occurrence: _____

General Location (Street, etc.): _____

Backflow Originated From:

Name of Premises: _____

Type of Business: _____

Address: _____ City: _____ Zip Code: _____

Description of Contaminants: *(Attach Chemical Analysis if available)*

Distribution of Contaminants:

Contained within customer's premises: Yes ☐ No ☐

Number of persons affected: _____

Effect of Contamination:

Illness Reported: _____

Physical Irritation Reported: _____

Backflow Incident Report:

Cross-Connection Source of Contaminant (boiler, chemical pump, irrigation system, etc.):

Cause of Backflow (main break, fire flow, etc.):

Corrective Action Taken to Restore Water Quality (main flushing, disinfection, etc.):

Corrective Action Ordered to Eliminate or Protect from Cross-Connection (type of backflow preventer, location, etc.)

Previous Cross-Connection Survey of Premises:

Date: _____ By: _____

Types of Backflow Prevention Isolating the Premises:

RPZ: ☐ RPDC: ☐ DCVA: ☐ DCDC: ☐ PVB: ☐ SVB: ☐
AVB: ☐ Air Gap: ☐ None: ☐ Other Type: _____

Date of Latest Test of Assembly: _____

Notification to Water Department's Cross-Connection Control Division

Date: _____ Time: _____ Person Notified: _____

Attach sheets with additional information, sketches, and/or media information, and mail to:

**Water Department
Cross-Connection Control Division
Address
City / State / zip**

INCIDENT: Sewage Pump hooked up to Municipal Drinking Water System
LOCATION: Mactier, Ontario
SOURCE: Simcoe Muskoka District Health Unit
DATE OF INCIDENT: 6/1/2010

A boil water advisory was issued for the community of Mactier after it was discovered that a contractor had hooked up a domestic sewage pump to the municipal drinking water system. The advisory was issued as a precaution due to a possible cross-connection from a private building connected to the municipal drinking water system. Flushing and chlorine residual testing of the water distribution system took place and chlorine content was at the recommended level. Bacteriological sampling throughout the municipal system had begun and continued until such time that test results confirmed that the safety and integrity of the water system had been maintained. Until that time, people who take their water from the municipal system should not drink the water, use it to brush their teeth, or use it to wash foods, such as fruit and vegetables, which will be consumed without cooking. Water may be used for these purposes if it is brought to a rolling boil and allowed to boil for one full minute. People should ensure that water used for cooking comes to a full boil. The water may be used for bathing and washing clothes without these precautions.

INCIDENT:	Soda Machine Blamed in Illness at Restaurant
LOCATION:	Lenexa, Kansas
SOURCE:	KMBC TV
DATE OF INCIDENT:	8/30/2009

Two dozen people became ill August 30th while eating at the Mi Ranchito restaurant in Lenexa. It was not the first time diners at this restaurant had gotten sick, officials said. About half of those who fell ill went to area hospitals as a precaution, but no one was admitted. It was discovered that carbonated drinks were the cause of the illnesses. The managers blamed the soda machine, which they said had backflow problems. That means carbonated water was coming into contact with copper lines, poisoning customers with copper.

INCIDENT: Sprinkler System Suspected of E-Coli Contamination
LOCATION: Corpus Christi, Texas
SOURCE:
DATE OF INCIDENT: 7/27/2015

Corpus Christi utility crews pinpoint the source of the E-coli contamination, their investigation found that an absent or failing backflow prevention device on a sprinkler system in the Flour Bluff area. The devices prevent water that enters private irrigation lines from re-entering the city's water lines and potentially leading to a contamination.

INCIDENT: Problems with Valve Shuts off Drinking Water at Batavia High School
LOCATION: Batavia, Illinois
SOURCE: The Beacon-News
DATE OF INCIDENT: 11/1/2010

An investigation into the potential failure of a backflow valve caused a bit of commotion about the drinking water at Batavia High School. On Monday, the school brought in bottled water for students and staff to drink as a precautionary measure, while contractors and city water department personnel tested the system to pinpoint the source of discolored water that came out of a custodial utility sink in the morning hours. Batavia Superintendent Jack Barshinger said Monday's preliminary testing did not reveal any contaminants in the water system. He said the Kane County Health Department and Kane County Regional Office of Education were notified. "From the preliminary testing, we haven't found any of the chemicals that would be expected from that area of the building that would have gotten through a backflow preventer," Barshinger said. The high school administration canceled all after-school activities to give the plumbers and mechanics full access to the building. Barshinger said an outside environmental testing agency and city water department personnel would be doing further testing and the high school water system would be flushed overnight. Bottled water will continue to be available to students on Tuesday, and hand sanitation stations in the restrooms and in other locations have been set up. Students are encouraged to bring bottled water Tuesday. School officials said the procedures will continue until the water system meets all safety standards.

INCIDENT: Water System Blamed in Legionnaire's Outbreak
LOCATION: St. Louis, Missouri
SOURCE: AP NewsBreak
DATE OF INCIDENT: December 24, 2015

A federal report obtained by The Associated Press shows that the Legionnaire's disease outbreak that killed 12 residents of an Illinois state veterans home this summer and sickened dozens was likely spread by an aging water system at a 129-year-old facility that lacked several safeguards. The Centers for Disease Control report was released to the AP through a public records request.

CDC environmental health specialists who spent nearly two weeks at the Illinois Veterans Home in Quincy in late August and September cited an "extensive and poorly understood water distribution system" and a "general lack of understanding of water system details" pertinent to the prevent and control" of the Legionella bacteria that causes the severe form of pneumonia.

Already, the state is pursuing a \$4.8 million project to replace the water system and make other emergency repairs at Illinois' oldest and largest home for veterans and their spouses, which sits along the Mississippi River in the far western part of the state. Officials with the Illinois Department of Veterans Affairs did not immediately respond to a request for comment.

Among the findings in the CDC's report:

- Maintenance of a cooling tower built in 2012 to help air-condition the dozens of buildings on the 210-acre campus didn't meet industry standards for containing Legionnaires' disease, which is transmitted by breathing vapor or mist from contaminated water systems. The report said "operation and maintenance record keeping was largely absent."
- A pressure valve failure inside the main water tower in early September — at the height of the outbreak — potentially led to water sitting stagnant "for an unspecified period of time," increasing the risks of contamination.
- There was an absence of electronic medical records for residents of the long-term care facility, nearly half of whom suffer from dementia, which the CDC said hinders the ability to quickly track health patterns, trends and shifts.

Planned repairs at the Quincy facility include installing a new water main and other water lines; converting a garage into a chemical treatment station; installing mixing valves in a hot water system that will be heated to higher temperature; and adding disinfection equipment, backflow valves and other upgrades to the cold water system to prevent bacterial growth.

INCIDENT:	Water Contaminated with E. coli
LOCATION:	Cooke City Water District, Montana
SOURCE:	Cooke City Water District
DATE OF INCIDENT:	6/15/2009

E. coli bacteria (a fecal indicator) were found in the water supply on June 15, 2009. These bacteria can make you sick, and are a particular concern for people with weakened immune systems. Bacterial contamination can occur when increased run-off enters the drinking water source (for example, following heavy rains). It can also happen due to a break in the distribution system (pipes) or a failure in the water treatment process.

INCIDENT: Well Contaminates Water District Systems with E. Coli
LOCATION: Motueka, Australia
SOURCE: The Nelson Mail
DATE OF INCIDENT: 9/1/2010

About 1200 households and businesses have been boiling their tap water after low levels of contamination were found in the reticulated supply last month. The Tasman District Council issued a boil-water notice on September 17 as a precautionary measure to protect residents from any risk of waterborne illness, but lifted it yesterday after four consecutive days of clear tests. Council utilities asset engineer said the water supply will continue to be monitored. The council was unable to pinpoint the source of the E. coli, but it was likely to have come from a house which was connected to a private water source such as a bore as well as the town supply. Residents were urged to make sure they had adequate backflow prevention on their connections into the town supply. He said the level of contamination had been low, with between one and three E. coli found in 100 milliliters of water during the numerous tests. Over the weeks, the test results had been sporadic, with clear results one day and low levels the next. Parts of the water supply had been isolated and flushed with chlorine. The Nelson Marlborough Public Health Service had given the council the go-ahead to lift the boil-water notice.