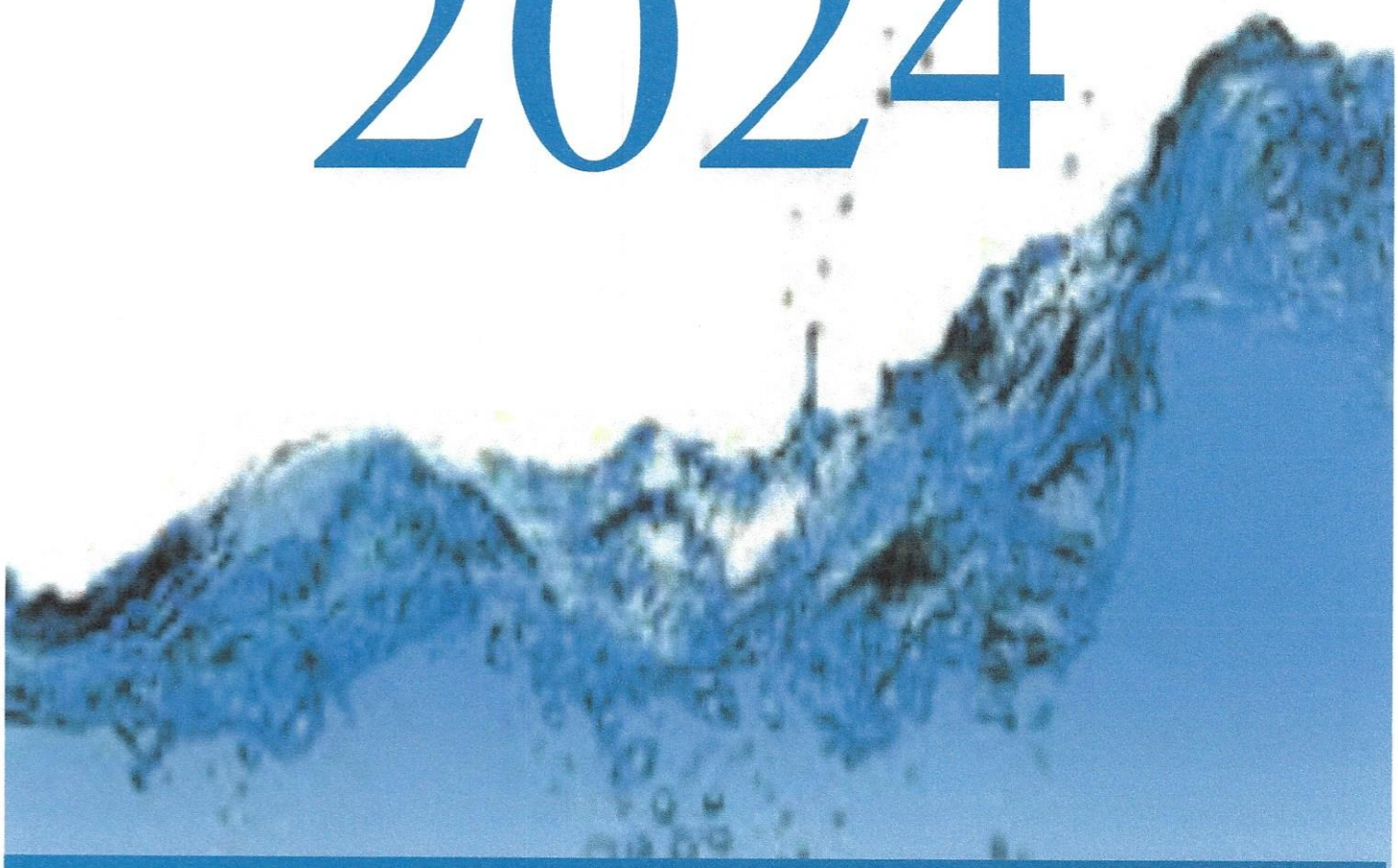
The City of Fairfax Public Water Supply

Water Quality Information Updates and Helpful Tips

2024



PFAS | Per- and Polyfluoroalkyl Substances

2024 City of Fairfax CCR Test Results

Test Results

CONTAMINANT	MCL - (MCLG)	Compliance		Date	Violation	Source
		Type	Value & (Range)		Yes/No	
Disinfection By-Products						
Total Trihalomethanes (ppb) [TTHM]	80 (N/A)	LRAA	<.002 (<.0005-<.0013)	8/12/2024	No	By-products of drinking water chlorination
Total Haloacetic Acids (ppb) [HAA5]	60 (N/A)	LRAA	<.006 (<.001 - .003)	8/12/2024	No	By-products of drinking water disinfection
Inorganic Contaminants						
Lead (ppb)	AL=15 (0)	90th	.002 (ND-.005)	Jul-24	No	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	AL=1.3 (1.3)	90th	0.640 (0.06-.74)	Jul-24	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Residual Disinfectants 950 - Distribution System						
Chlorine (ppm)	MRDL=4.0 (MRDLG=4.0)	RAA	2.96 (1.90-3.86)	12/31/2024	No	Water additive used to control microbes
Water Characteristics 950 - Distribution System						
Iron (ppm)	SMCL 0.3	AA	0.12	2024	No	Rusty color; sediment; metallic taste; reddish or orange staining
Manganese (ppm)	SMCL 0.05	AA	0.006	2020	No	Black to brown color; black staining; bitter metallic taste
PH	SMCL 6.5-8.5	AA	7.34	2020	No	LOW pH: Bitter metallic taste; corrosion HIGH pH: Slippery feel; soda taste; deposits
Hardness-mg CaCO3/L	N/A (N/A)	AA	440 25.7 Grains	2020	N/A	Soft: 0-17.1 Slighty Hard: 17.1-60 Mod Hard: 60-120 Hard: 120-180 Very Hard: 180 & over
Ammonia - Free (ppm)	N/A (N/A)	AA	0.56 (0.0-1.10) 53 samples	2024	N/A	Runoff from fertilizer use;leaching of septic tanks, sewage; erosion of natural deposits.
Nitrate (ppm)	10 (10)	AA	0.90 (0.081 -2.7) 104 samples	2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Nitrite (ppm)	1 (1)	AA	0.047 (0.0 - .0211) 112 samples	2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Phosphate PO4 (ppm)	10	AA	1.49	2018	No	Added for corrosion control and metals sequestering

Test Results

CONTAMINANT	MCL - (MCLG)	Compliance		Date	Violation	Source
		Type	Value & (Range)		Yes/No	

01 - Finished Water Sample Tap, #1

Combined Radium (pCi/L)	5 (0)	SGL	1.5	10/25/2022	No	Erosion of natural deposits
Gross Alpha, inc (pCi/L)	15 (0)	SGL	4.4	2/16/2021	No	Erosion of natural deposits
Ammonia (ppm)	N/A (N/A)	AA	5.321 (2.47-6.3)	2024	No	Runoff from fertilizer use;leaching of septic tanks, sewage; erosion of natural deposits.
Nitrite (ppm)	1 (1)	AA	0.017 (0.000 - 0.039)	2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Nitrate (ppm)	10 (10)	SGL	<.1	4/8/2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Chromium (ppb)	100 (100)	SGL	2.9	4/14/2020	No	Discharge from steel and pulp mills; Erosion of natural deposits.
Organic Chemicals (ppb) Volatile Organic Compounds Synthetic Organic Compounds	0.2 - 700 (ND-700)	SGL	ND	7/18/2022	No	Runoff from industrial sites, herbicides, petroleum sites, insecticides and PVC factories
Fluoride (ppm)	4 (4)	SGL	0.4	4/14/2020	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Sodium (ppm)	N/A (N/A)	SGL	55.5	4/3/2023	No	Erosion of natural deposits; Added to water during treatment process
Barium (ppm)	2 (2)	SGL	0.0208	4/14/2020	No	Discharge from drilling wastes;Discharge from metal refineries; Erosion of natural deposits

02 - Finished Water Sample Tap, #2

Gross Alpha, inc (pCi/L)	15 (0)	SGL	5.1	2/16/2021	No	Erosion of natural deposits
Combined Radium (pCi/L)	5 (0)	AA	3.9 (.067-2.91)	3/31/2022	No	Erosion of natural deposits
Ammonia (ppm)	N/A (N/A)	AA	4.99 (3.12 - 6.04)	2024	No	Runoff from fertilizer use;leaching of septic tanks, sewage; erosion of natural deposits.
Nitrite (ppm)	1 (1)	AA	.0162 (0.00 - 0.037)	2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Nitrate (ppm)	10 (10)	SGL	<.1	4/8/2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Organic Chemicals (ppb) Volatile Organic Compounds Synthetic Organic Compounds	0.2 - 700 (ND-700)	SGL	ND	7/18/2022	No	Runoff from industrial sites, herbicides, petroleum sites, insecticides and PVC factories
Selenium (ppb)	50 (50)	SGL	1.7	10/30/2019	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Barium (ppm)	2 (2)	SGL	0.0213	10/30/2019	No	Discharge from drilling wastes;Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4 (4)	SGL	0.5	10/30/2019	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Sodium (ppm)	N/A (N/A)	SGL	55.6	10/10/2022	No	Erosion of natural deposits; Added to water during treatment process

Test Results

CONTAMINANT	MCL - (MCLG)	Compliance		Date	Violation	Source
		Type	Value & (Range)		Yes No	
03 - Finished Water Sample Tap, #3						
Gross Alpha, inc (pCi/L)	15 (0)	SGL	4.4	8/20/2020	No	Erosion of natural deposits
Combined Radium (pCi/L)	5 (0)	SGL	0.52	10/25/2021	No	Erosion of natural deposits
Ammonia (ppm)	N/A (N/A)	AA	3.12 (2.46 - 4.23)	2024	No	Runoff from fertilizer use;leaching of septic tanks, sewage; erosion of natural deposits.
Manganese (ppm)	HAL 0.3 SMCL 0.05	AA	0.059 (0.025-0.4)	2021	No	Black to brown color; black staining; bitter metallic taste
Nitrate (ppm)	10 (10)	SGL	<.1 (ND)	7/2/2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Nitrite (ppm)	1 (1)	AA	.0163 (0.00 - 0.062)	2024	No	Runoff from fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits.
Fluoride (ppm)	4 (4)	SGL	0.3	10/30/2019	No	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Selenium (ppb)	50 (50)	SGL	1.7	10/30/2019	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Barium (ppm)	2 (2)	SGL	0.378	10/30/2019	No	Discharge from drilling wastes;Discharge from metal refineries; Erosion of natural deposits
Sodium (ppm)	N/A (N/A)	SGL	30.3	10/10/2022	No	Erosion of natural deposits; Added to water during treatment process
Organic Chemicals (ppb) Volatile Organic Compounds Synthetic Organic Compounds	0.2 - 700 (ND-700)	SGL	ND	8/5/2019	No	Runoff from industrial sites, herbicides, petroleum sites, insecticides and PVC factories
Chorides (as Cl) (ppm)	SMCL 250	SGL	6.7	5/8/2018	No	Erosion of natural deposits
Sulfates (ppm)	SMCL 250	SGL	19.8	5/8/2018	No	Erosion of natural deposits

Note: Contaminants with dates indicate results from the most recent testing done in accordance with regulations.

Definitions:

- Maximum Contaminant Level (MCL) -The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Secondary Maximum Contaminate Level (SMCL) - They are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL
- Maximum Contaminant Level Goal (MCLG)— The level of the contaminant in drinking water below which there is no known or expected risk to health. MCLG allow for a margin of safety.
- ppb—parts per billion.
- ppm—parts per million.
- pCi/L—picocuries per liter.
- N/A—Not applicable
- ND—Not detected
- RAA—Running Annual Average
- AA— Annual Average
- LRAA—Locational Running Annual Average
- Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.
- Action Level (AL)— The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Maximum Residual Disinfectant Level Goal (MRDLG)— The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL)— The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminates.
- SGL— Single Sample Result
- RTCR— Revised Total Coliform Rule
- NTU— Nephelometric Trubidity Units
- HAL - Health Advisory Level

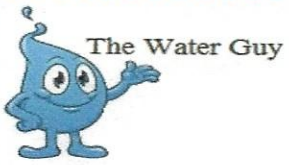
Mission, Vision, & Values

Mission: It is our mission as a public water supply for the City of Fairfax to provide clean, clear and safe drinking water under the regulations of the EPA to our users.

Vision: To manage our department and water resources, to meet evolving regulatory requirements, water supply needs and customer expectations in the future.

Values:

- **Service:** Our core purpose is to provide our customers with safe and reliable water, in compliance with regulatory requirements. We strive to treat every customer fairly and respectfully and to address their needs quickly and effectively.
- **Accountability:** The City of Fairfax is the steward of public funds collected to provide a defined service to our constituents. We manage these funds responsibly, fairly, and with integrity. We believe that our constituents are best served through continuous improvement and value enhancement.
- **Customer Confidence:** We foster customer confidence through clarity, honesty, and transparency in all communications. We work to educate our customers and employees on the issues pertinent to responsible water resources management. The City of Fairfax is committed to community visibility and education of the public.
- **Personnel Dedication:** We encourage employees to increase their professional value through personal growth, expanding their knowledge base, and gaining experience within their field. We proactively build a competent, effective, and loyal staff.
- **Environmental Stewardship:** We recognize and take seriously the responsibility of managing limited and precious environmental resources that are vital to human life and the economic health of our community. We are committed to safely complying with all applicable regulations to preserve the environment and economy in and around our service area.
- **Long Range Planning and Preparation:** We challenge ourselves to meet the evolving needs of the future through foresight, solid and specific planning efforts, and maintenance of department flexibility. We prepare for the unforeseen through commitment to safety, security, and emergency preparedness.



My Commitment to You:

In my 9+ years of public service operating and maintaining water and wastewater systems here in Fairfax Iowa, I have learned that YOU the customer is the most important part of the job. Every decision made with regards to our drinking water is not taken without serious evaluation. Your health and well being are my utmost first concern and my transparency of actions is second. The City of Fairfax is my employer, but I am also held to a high federal standard of ethics relating to water and wastewater. Clean and safe drinking water should be available to everyone without concern. I promise to provide the safest water to everyone within my ability and available resources.

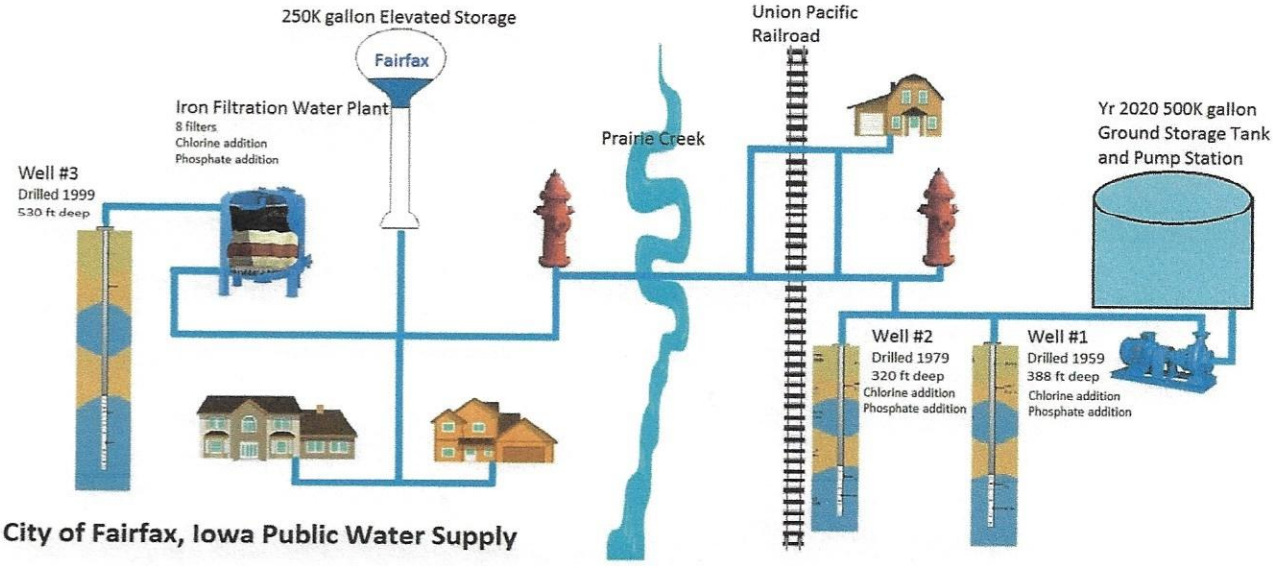
Thank you for allowing me to serve you. Brian D Merta

ABOUT OUR WATER…

What is in Fairfax's drinking water? The EPA requires regular sampling of the city's water supply to ensure drinking water safety. In 2024 we ran over 1,000 tests for different substances. The good news is that none of the contaminants that we detected exceeded EPA established Maximum Contaminant Levels or resulted in a violation of drinking water standards. Only a very small percentage of the contaminants tested for exist in our water at detectable levels. The tables on future pages identify the contaminants that were detected. The Iowa DNR requires us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though accurate, is more than one year old.

What is the source of Fairfax's drinking water? The City of Fairfax obtains 100% of its water from three wells from the dolomite of the Silurian aquifer that was created long ago by glacial activity. The Silurian aquifer was determined to be susceptible to contamination because of the characteristics of the aquifer. Overlying materials provide some protection from contaminants from the land surface. The Silurian wells will be susceptible to surface contaminants such as leaking underground storage tanks, contaminant spills, and excess fertilizer application. Well #1 was drilled in 1959; it can produce 198,000 gallons in 12 hours. Well #2 is across the street from #1 and was drilled in 1979; it can produce 162,000 gallons in 12 hours. Well #3 was drilled in 1999; it produces 241,000 gallons in 12 hours going through eight filters to remove iron. **Fairfax produced 94.19 million gallons of drinking water in 2024 or an average of 258,055 gallons per day. This is an increase of 4.7% from last year and 35% increase from 2020. This is due to more homes and residents added, an active splash pad season and mostly because of dry conditions in 2024 that made for more lawn and landscape watering along with the city's sports fields.** The average of 55-65 gal/person/day usage has been steady for the last couple of years. The national average is 60-80 gal/person/day usage. So to the customers of Fairfax we encourage good and proven methods of conserving our water resource. The demand for water in our surrounding area is growing rapidly, (future industrial needs, rural sub developments and metro growth) and we are staying informed in order to protect our water rights.

Thank You.

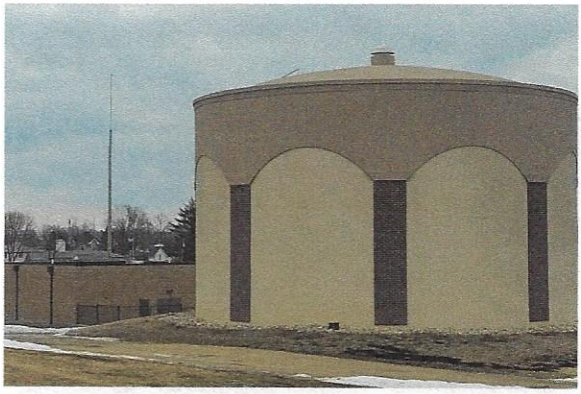


City of Fairfax, Iowa Public Water Supply

The Future of Our Water System…

Why do we need water storage? There are basically two types of water storage systems,
Elevated: which provides 1 psi of water pressure for every 2.31 ft. of elevation.
Ground Storage: which needs to be pumped to provide the pressure.

The City of Fairfax has both types. Our elevated storage is 250k gallons @ 110 ft. high providing a range of pressure from 38-48 psi just below the tower. The ground storage tank is 500k gallons and can provide over 2500 gpm at range of pressures with its 3 pumps (the rate of two firetrucks pumping together.)
The American Water Works Association and Iowa Dept. of Natural Resources recommend that a community have at minimum of 24 hours of water storage on reserve in the case of water production problems, like well pump failure, contamination, power problems, etc. Also a large fire can deplete water levels at an alarming rate if not monitored. In the summer we maintain a range of 450-650k gallons during the day cycles. Our average summer usage per day is 371k gallons per day and a max of 624k gallons per day. In the winter time we lessen the storage amount to match the usage per day. This helps keep fresher and better water quality in the system. Our current water storage at the current growth rate should meet our needs for the next 15-20 years. Future storage sites will be evaluated as the city grows in different directions and changing needs.



Why do we need more wells pumping?

Water storage and well pumping are two totally different things. We need to make the water to fill the tanks. The City has three production wells of different ages. Currently the three wells can provide 700 gallons per minute to our system. In the summer months they run about 12-15 hours per day to maintain storage levels. The wells are scheduled to run during the night hours to help maximize flow rates during non peak times otherwise they could run over 20 hours. If any one of the three wells are out of service the pumping time would be between 20-24 hours per day to meet the demand without any conservation requirements imposed (*some days not being able to keep up with demand.*) Our last well was drilled in 1999 and all three wells have been upgraded to maximum efficiency in the last several years. The City has started the engineering for a new well to be drilled west of the old Dairy Queen in the fall of 2025. A new water treatment plant will then be designed to treat the contaminates found and a second new well will possibly be drilled at the time of construction in the same general area. The fall of 2028 or spring of 2029 is the projected completion date for this project. As the demand increases every year this project is very much needed.

WHAT WE ARE DOING…

System Improvements: The City of Fairfax has been adding a 70/30 blend of orthophosphate and polyphosphate to the water at a dosing of 1.5 ppm since 2018. This has resulted in a significant reduction of lead and copper in the consumers homes from past years. The 2024 Lead and Copper results are in this report. The EPA is revising the Lead and Copper Rule and are requiring that every service connection in the City to all its customers have a record. The survey results showed that Fairfax does not have any lead or galvanized requiring replacement lines in our system that will need to be replaced.

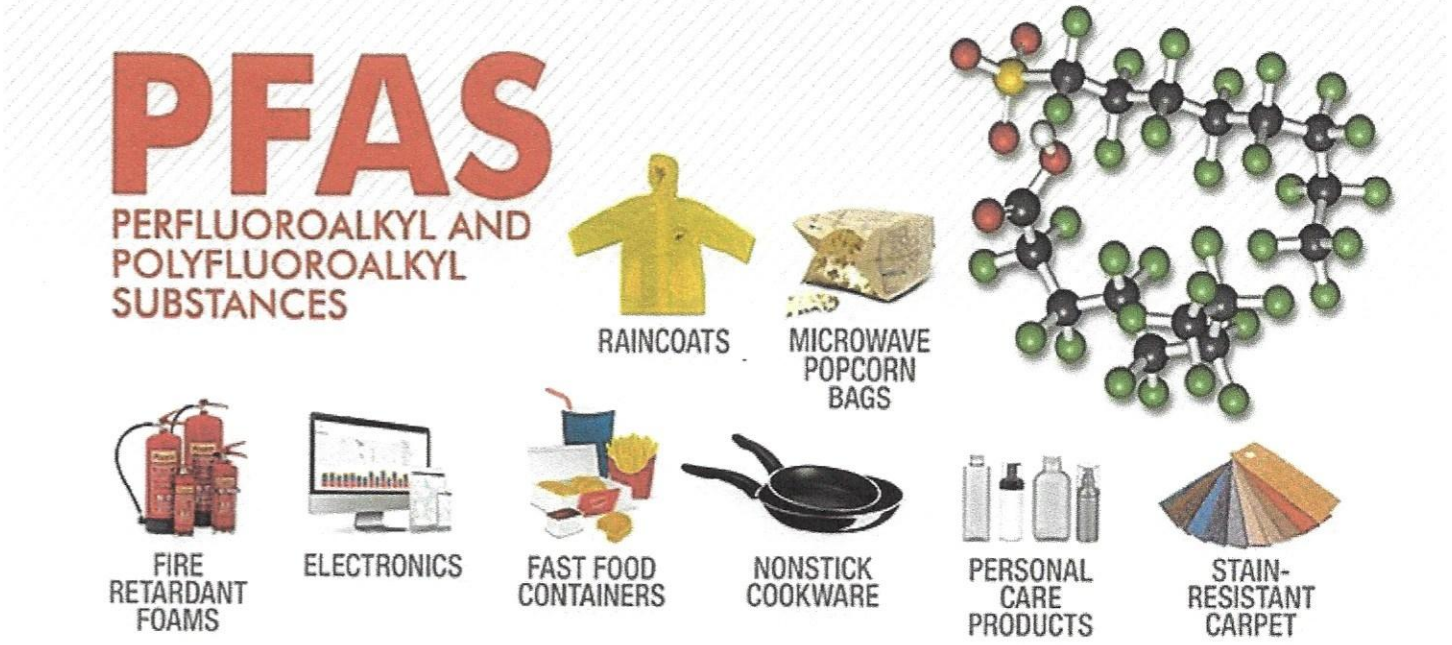
Our new 500K gallon ground storage water supply tank and pump booster station are completed and located on the south side of Fairfax by the corner of Hwy 151 and Williams Blvd. This facility was online the summer 2021. The south side was chosen due to the City having only one water main crossing Prairie Creek at that time. In 2023 a second crossing was constructed and put into service. This will give both of the City's water districts an active well and water storage. The IDNR and AWWA recommend that a community have a minimum of 24 hours water storage in the event all their wells are out of service. We now have 750,000 gallons storage available. In the winter we store about 450,000 gallons to prevent the tower from ice formation inside. This gives us about 48 hours of water available. In the summer the demand is much higher. We keep between 450,000-650,000 gallons for storage but consume between 400,000 and 600,000 gallons a day. This is about the 24 hours of water storage. Additional water storage is vital to our City for fire protection and the future consumption of our customers. The additional storage will meet the 24 hour recommendation with a total usable storage of 700,000 gallons in the summer months during peak usage. Fairfax has updated all of the older water mains to a minimum of 8". This provides ample water flows for fire protection. The IDNR strongly suggests that communities track their system water loss rate to help determine the need for additional water pumping needs and system repairs. Fairfax's water loss is less than 10% average for the year 2024. The national average is 16% and can run as high as 40% in some cities.

Biannually, every spring and fall, the City flushes all the fire hydrants to help control any sediment, debris, taste, and odor issues brought on by chlorine reacting with organic materials (TTHA's and HAA5's). Flushing also verifies the hydrant is operating properly.

The City has a **Source Water Protection Committee.** With assistance from the IDNR, we identify sources of contaminates and measures of mitigation for our current wells as well as our future well field. The City currently has no outside contaminates impacting it's current three wells.

Future projects for 2025 will involve drilling a full production well and a smaller monitoring well on the Bellon/Africa property west of the Church Street and Hwy 151 intersection. This will provide critical information for potential well capacities and drawdown information for the aquifer. This information will then be used for future well additions and treatment plant engineering. After the wells are drilled in late 2025, and the results are compiled, the planning and engineering for the treatment plant will accelerate.

ISO/PPC Fire Rating: In 2022, the fire department had their ISO (Insurance Services Office) fire rating completed. This scores the fire department from #1 to #10 for insurance purposes. #1 is the highest rating. Our department scored a #4. This is excellent for a volunteer department. Our water supply scored 38.33 out of 40 points. All the improvements we make in the water system are helping to keep the home insurance rates as low as possible.



Fairfax Public Water System

We have received some concerns, questions and inquires about PFAS found in the drinking water around the Cedar Rapids area. Cedar Rapids has had some detects in some wells that are above the new interim EPA health advisory of 0.004 ppt for PFOA and 0.02 ppt for PFOS. CR blends its water to keep levels below the advisory. Fairfax has asked the IDNR about sampling our wells. Fairfax is in the low to non- susceptible category. This is due to the three deep wells with a confining rock layer over 100 feet thick. Fairfax has not been contacted for any sampling as of yet, but will welcome the opportunity to participate. Our new wells will be drilled in the next year. We will be requesting that PFAS sampling be done so if treatment is required the new water treatment plant can be designed to do so.

Staying informed is difficult due to the rapid changes in results and information available.

0.004 ppt is equivalent to **1 drop of water in 3.3 billion gallons**, or **1 second in 8 million years or 6 inches distance to our solar systems Sun**. *(internet facts)*

For home treatment options there are two good choices. They are a Granulated Activated Carbon (GAC) filter or charcoal filter and a Reverses Osmosis (RO) unit. This provides safe drinking water from many contaminates. But the question not answered is, when the filter is discarded where do the PFAS's go? The answer is into a landfill - right back into the water source! This problem has a multitude of questions in solving all the parts.

We will keep our customers informed of all information that relates to our water system.

Thank you

Brian Merta & Brandon Lefebure

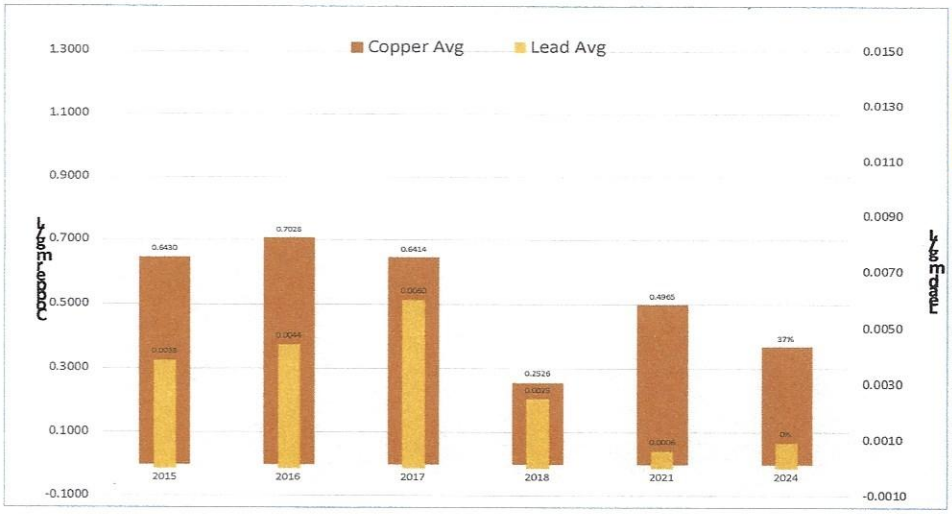
City of Fairfax Water Department

Lead in Drinking Water from the CDC

The City of Fairfax Lead and Copper Reduction Program

In 2018 the City started adding a blend of 70/30 Orthophosphate and Polyorthophophate to both of the well sites to help reduce the possible leaching of lead and copper into the drinking water from homes' plumbing fixtures. Orthophosphate provides a protective coating on the inside lining of the water pipes preventing erosion of the metals. Testing is done yearly unless very low results are seen, then a three year schedule is granted. Ten testing sites are chosen according to an EPA scoring for probability of lead plumbing. Over the last 10 years the City of Fairfax has replaced all of its older water mains with PVC and all new service lines to the home where installed, removing any lead service lines found. Some older homes in Fairfax may still have some lead pipes in their system. The latest testing was in 2024 and the following results are shown below.

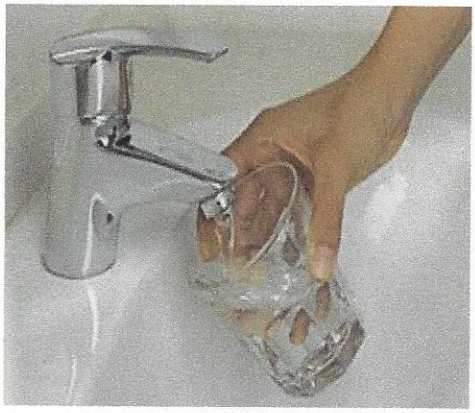
EPA max level for lead is 0.015 mg/L and copper is 1.3 mg/L



EPA Lead and Copper Tier Rating 1,2,3	Lead and Copper Sample Year	Lead Results MCL 0.015 mg/L	Copper Results MCL 1.3 mg/L
1	2024	<0.0010	0.740
2	2024	<0.0010	0.640
2	2024	0.0020	0.500
2	2024	<0.0010	0.380
2	2024	0.0020	0.250
2	2024	<0.0010	0.240
2	2024	0.0050	0.060
2	2024	<0.0010	0.090
2	2024	<0.0010	0.160
1	2024	<0.0010	0.560

The most common sources of lead in drinking water are lead pipes, faucets, and plumbing fixtures. Certain pipes that carry drinking water from the water source to the home may contain lead. Household plumbing fixtures, welding solder, and pipe fittings made prior to 1986 may also contain lead.

How lead gets into tap water Steps taken during the last two decades have reduced exposures to lead in tap water. These steps include actions taken under requirements of the 1986 and 1996 amendments to the Safe Drinking Water Act and the U.S. Environmental Protection Agency's (EPA's) Lead and Copper Rule. Even so, lead in water can come from homes with lead service lines that connect the home to the main water line. Homes without lead service lines may still have brass or chrome-plated brass faucets, galvanized iron pipes or other plumbing soldered with lead. Some drinking water fountains with lead-lined tanks and other plumbing fixtures not intended for drinking water (e.g., lab faucets, hoses, spigots, hand washing sinks) may also have lead in the water.



Lead can enter drinking water when a chemical reaction occurs in plumbing materials that contain lead. This is known as corrosion – dissolving or wearing away of metal from the pipes and fixtures. This reaction is more severe when water has high acidity or low mineral content. How much lead enters the water is related to:

- the acidity or alkalinity of the water,
- the types and amounts of minerals in the water,
- the amount of lead that water comes into contact with,
- the water temperature,
- the amount of wear in the pipes,
- how long the water stays in pipes, and
- the presence of protective scales or coatings in the pipes.

Find out if your tap water is contaminated with lead

You cannot see, taste, or smell lead in drinking water. The best way to know your risk of exposure to lead in drinking water is to identify the potential sources of lead in your service line and household plumbing.

Your local water authority is always your first source for testing and identifying lead contamination in your tap water. Ask your water provider if you have a lead service line providing water to your home. If you have a lead service line, ask if there are any programs to assist with removal of the lead service line going to your home. Understand that any work, such as water main or service line replacement, could increase exposure to lead while the work is ongoing and for up to six months after the work is completed. Ask to have your water tested. Many public water systems will test drinking water for residents upon request. There are also laboratories that are certified to test for lead in water. Understand that water sampling results can vary depending on the time of day, season, method of sampling, flow of water and other factors.

Risk from lead in water

Because no safe blood level has been identified for young children, all sources of lead exposure for children should be controlled or eliminated. EPA has set the maximum contaminant level goal for lead in drinking water at zero because lead can be harmful to human health even at low exposure levels. Lead is a toxic metal that is persistent in the environment and can accumulate in the body over time. Risk will vary depending on the individual, the chemical conditions of the water, and the amount consumed. For example, infants who drink formula prepared with lead-contaminated tap water may be at a higher risk of exposure because of the large volume of water they consume relative to their body size. Bathing and showering should be safe for you and your children because human skin does not absorb lead in water.

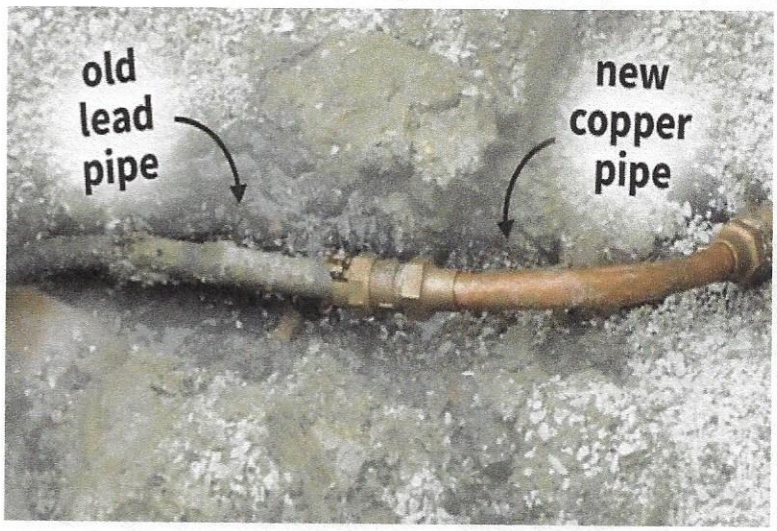
Get your child tested for lead exposure

If you think that you or your child has been exposed to lead in water, contact your health care provider. Most children and adults who are exposed to lead have no symptoms. The best way to tell if you or your child has been exposed is with a lead blood test. Your health care provider can help you decide whether a lead blood test is needed and can also recommend appropriate follow-up actions if you or your child has been exposed. As levels of lead in the blood increase, adverse effects from lead may also increase.

Reduce or eliminate exposure to lead in tap water

If you are concerned about lead in water or know that your plumbing contains lead, you can take action to reduce the amount of lead in your drinking water and minimize your potential for exposure.

You can reduce or eliminate your exposure to lead in tap water by drinking or using only tap water that has been run through a "point-of-use" filter certified by an independent testing organization to reduce or eliminate lead (NSF/ANSI standard 53 for lead removal and NSF/ANSI standard 42 for particulate removal). **If you have a lead service line, use a filter for all water you use for drinking or cooking.** You can flush your water to reduce potential exposure to lead from household lead plumbing. This is especially important when the water has been off and sitting in the pipes for more than six hours. Before drinking, flush your home's pipes by running the tap, taking a shower, doing laundry, or doing a load of dishes. Drink or cook only with water that comes out of the tap cold. Water that comes out of the tap warm or hot can have higher levels of lead. Boiling this water will not reduce the amount of lead in your water.

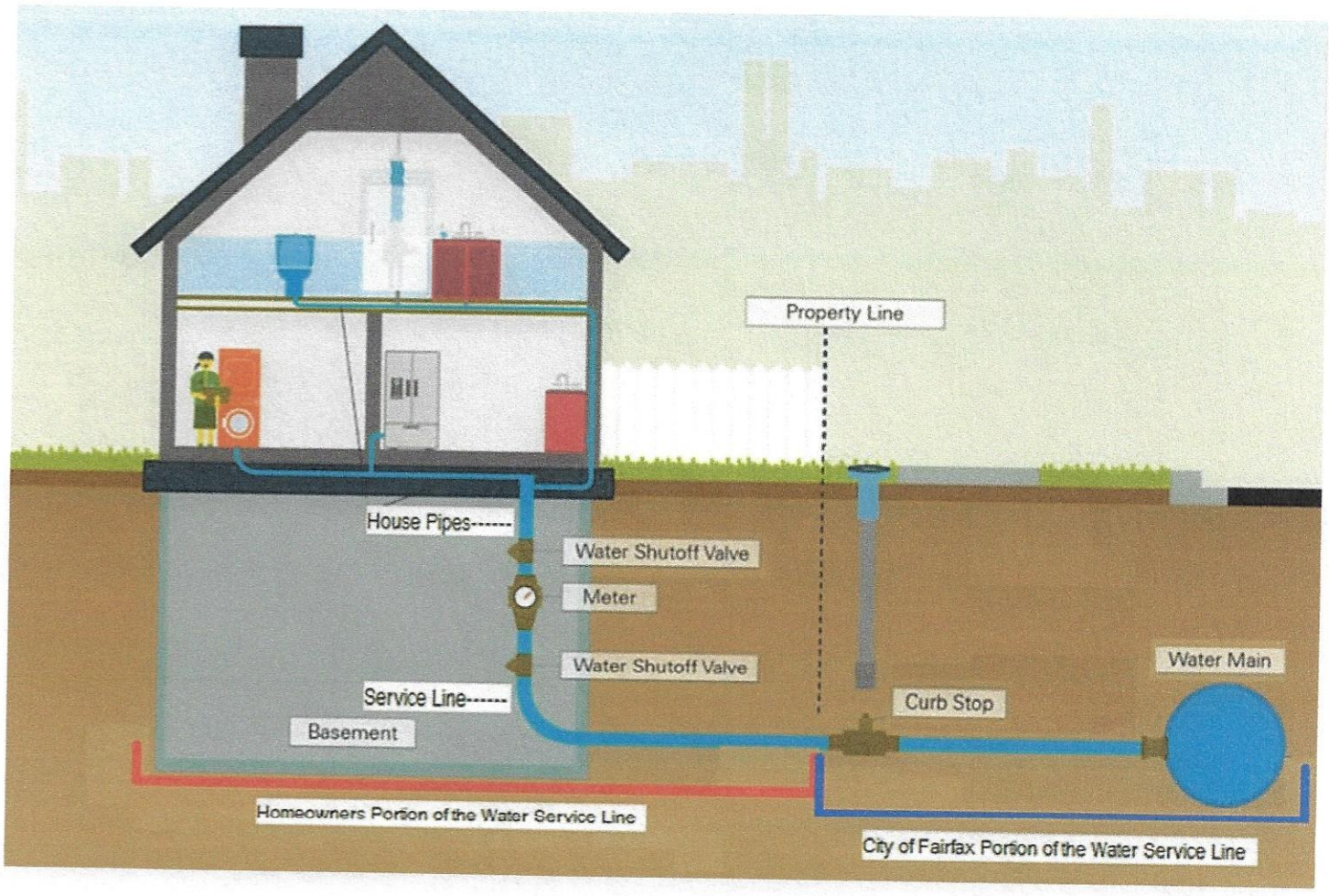


You can virtually eliminate your exposure to lead in water by drinking or using only bottled water that has been certified by an independent testing organization. This may not be the most cost-effective option for long-term use.

What am I responsible for in the plumbing of my HOME?

Homeowner: The home owner's responsibility starts after the curb stop that is generally located on the property line by the sidewalk. This is the service shutoff from the water main to the home. Everything after the curb stop to inside the home is the homeowners to maintain and replace including (*service line, shutoff valves, house pipes, filters, and water softeners*) except the water meter (city owned). The City is available to assist in helping diagnose problems with the water systems at no charge.

City Owned: The curb stop to the public water main is the City's responsibility to maintain. The curb stop is very important to remain visible and not damaged. This is the only way to shut off the water to the home incase of a main valve failure or service line leak. If repairs to the curb stop are needed, please call City Hall and request that someone come look at the problem. City staff are not allowed to make repairs or adjustments to private property but may offer suggestions to help with the problem.



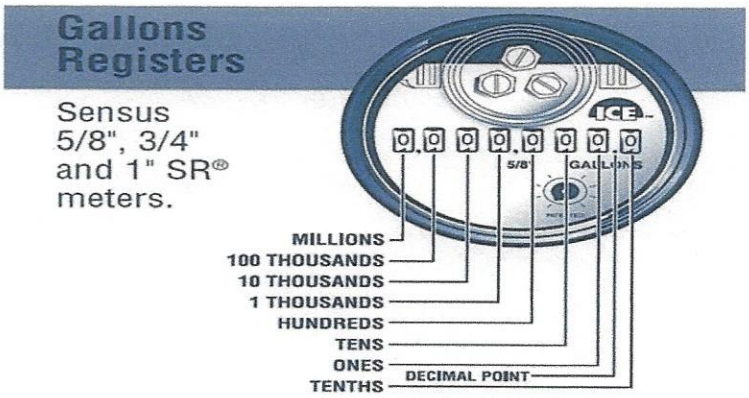
Facts About Your Water Meter

General Information

Your water meter is owned and maintained by The City of Fairfax Water Department. The Water Department has utilized Elster® Displacement Type Magnetic Drive Cold Water meters and Badger® Displacement Type Magnetic Drive Cold Water meters. Now Neptune® Displacement Type Magnetic Drive Cold Water meter are being used as they have been proven to be highly accurate and dependable. Each standard residential meter includes a register with a straight-reading (left to right), odometer type totalization display in gallons, a low flow (leak) detector, and it may have a 360° test circle with center sweep hand. Gears are self-lubricating, molded plastic for long life and minimum friction. All of our meters have electronic reading devices that allow the meter reader to drive or walk past your home and pick up the meter reading remotely.

How do Water Meters Work?

Water flows through the meter's strainer and into the measuring chamber where it drives the piston. The hydro-dynamically balanced piston oscillates around a central hub, guided by the division plate. A drive magnet transmits the motion of the piston to a driven magnet located within the hermetically sealed register. The driven magnet is connected to the register gear train. It reduces the piston oscillations into volume totalization units displayed on the register dial face. The register dial face has eight odometer wheels for totalizing flow. See reference diagram below.



Left is a picture of a standard residential mechanical water meter located inside the house, on the right is an ERT (Encoder Receiver Transmitter) which will be mounted on or near the meter. Wires are used to connect the meter to the ERT which allows us to read the meter without entering your home.

Meter Accuracy

The mechanical design of water meters does not allow for adjustments of the dials or accuracy calibration of the meter. Similar to automobiles, odometers, or other mechanical devices, the meter slows down with age and eventually stops registering completely. The Water Department has the ability to send in the meter to an outside vendor to test for meter accuracy and a meter will be used until the accuracy is less than 97% accurate. The meter will not arbitrarily run faster than it was designed to run or run backwards. The mechanical parts are not capable of "speeding up" or registering a significantly higher reading than actual usage. Having a meter register 20,000 gallons of consumption when the usage was actually 4,000 gallons would be like a vehicle with a maximum speed of 100 mph suddenly being able to intermittently run at speeds of 500 mph, it isn't mechanically possible.

Is it possible for a meter to be read incorrectly?

The Water Department utilizes a monthly report through the billing system that creates a report showing suspected high or low consumption numbers. This report is reviewed and we try to contact each address which seems to have an extremely high usage. The radio transmitter records each gallon of usage based on an electrical impulse from the meter, but if the wiring is broken or the battery is dead the City will not be able to obtain an electronic reading. A manual read will need to be taken from the dials and the City will need to determine why we were not able to obtain an electronic reading.

How to Lower Your Water Bills

If you feel your water consumption is higher than it should be, you should check for leaks. Leaking water produces a high water bill. Some leaks are sporadic and require some detective work. Other leaks are very obvious. One of the first things you should do is read your meter each day for a week. If you call City Hall with the readings, we can do the calculations and let you know how many gallons you are currently using each day. It doesn't matter what type of leak you have, there is a solution. **High usage is almost never related to a mechanical meter running fast!**

The most common cause of high water usage and leaks in the home are a toilet or water softener!

Toilet leaks often occur without audible or visual evidence. When a toilet does not shut off after flushing the water usage can be heard and seen. Leaking toilets can waste 200 gallons or more of water per day and if undetected it could lead to significantly higher usage over the course of a month. Pin-pointing a toilet leak is easy and usually inexpensive. Follow these procedures to locate a toilet leak:

Wait 5-10 minutes after the last flush.

Remove tank cover. Is the water level in the tank too high and spilling into the overflow tube? If it is you have a leak.

While you have the tank cover off, put food coloring in the toilet tank. Wait at least 30 minutes. If the colored water appears in the bowl, you have a leak.

After a completed fill cycle, close the water supply valve to the toilet (usually located behind the locate between the tank and the floor. Wait 30-60 mins, turn the valve back on. If it makes noise and begins to fill, you have a leak.

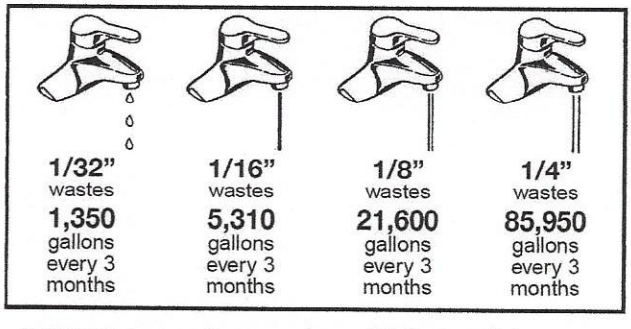
How to Detect a Leak

First make sure all water using fixtures in your home are not in use. Check to see if the flow indicator on the face of the meter is moving. If it is moving, you either have a leak or something in your home is using water. Go find it. Places to look are:

Toilets: (flappers get old and wear out, chains stick or floats not adjusted correctly) Lower level bathrooms not used often.

Faucets and hot water heaters

Water softeners: (check drain line for discharge, programmed correctly or control valve malfunction)



Note above how many gallons even a very small leak can use during a 3-month period:

Are Chloramines Safe for My Furry Pets?

Yes. **Chloraminated Water is Safe for Everyone to Drink,**

including:

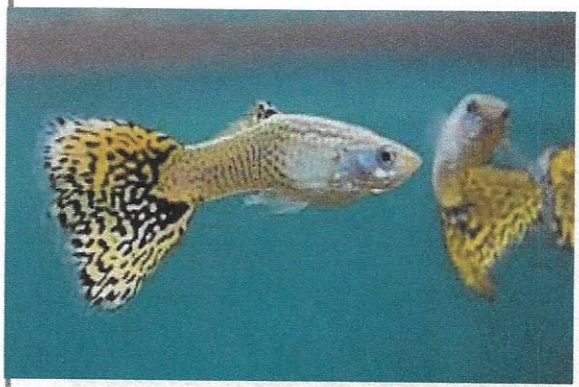
- Pregnant women
- Children and infants
- People on kidney dialysis
- People on low sodium diets
- People with diabetes
- Warm blooded pets (dogs, cats, birds, pigs, etc.)

Chloraminated water is safe for all warm blooded animals, including humans, to drink because the digestive process neutralizes the chloramine before it reaches the blood stream.

Chloraminated water is <u>NOT</u> safe for all cold blooded animals

Your Aquarium and Fairfax City Water

The article below helps explain how to treat your tap water before adding it to your aquarium. The City of Fairfax water supply has naturally accruing ammonia in its source water (3.0-6.0 ppm). Ammonia in its self is not harmful to humans but it will convert to nitrite then to nitrate. These two compounds are regulated by the IDNR and EPA. The City uses chlorine to combine with the natural ammonia to form chloramines, this is a type of disinfection that lasts longer in the system before breaking down. We manage the chlorine levels to limit the free ammonia left in our system to about <1.0 ppm, this keeps the amounts for nitrite and nitrate conversion to limits under the EPA mandated regulations *(the conversion rate is 1 ppm NH3 ammonia to 1ppm NO2 nitrite to 1ppm NO3 nitrate).*



Most aquarists use tap water for their aquariums, both for the initial fill up and to top off the tank to replace water lost due to evaporation. If your tap water comes from a private water system that uses a private well for its source, in all probability the water will come from a well which will not be treated with chlorine or chloramine before being distributed to the end users. This water does not need to be treated before using in an aquarium.

Municipalities, on the other hand, are required to treat their water with chlorine and/or chloramine whether it comes from a well, a river, or any other source. Treating the water with chlorine and/or chloramine is a great idea, since this has the potential to destroy a wide variety bacteria and other nasties that we really don't want to be ingesting if we want to stay healthy, nor do we want any stray bacteria finding its way into our tanks.

Colors and Smells

Noticeable water problems tend to involve unusual colors, smells, and tastes. Once identified, these aesthetically displeasing elements can be eliminated using a variety of different methods. Federal guidelines are set up to monitor these aesthetic problems.

Taste and Odor

Since taste and odor work together it is often difficult to distinguish the two. Common complaints include:

Strong Chlorine taste or smell - Generally this occurs when the water is treated at the water treatment plant to disinfect it. The addition of chlorine is used to kill off bacteria and other harmful micro-organisms.

Metallic taste - Some water systems have a high mineral concentration giving the consumer a salty or soda taste. In the case of iron and manganese, a strong metallic taste is readily detected.

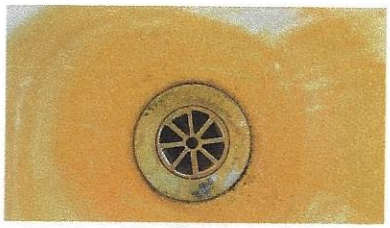
Rotten egg odor - This is usually a result of decaying organic deposits underground . As water flows through these areas, hydrogen sulfide gas is picked up. When this water reaches the surface or comes out of the faucet, the gas is released into the air. Hydrogen sulfide gas which produces the rotten egg odor, can be corrosive to plumbing at high concentrations, and can tarnish silver rapidly. In large enough quantities, it is toxic to aquarium fish. As little as 0.5 PPM (parts per million) can be tasted in drinking water.

Musty or unnatural smells - These smells are normally a result of organic matter or even some pesticides in the water supply. Even very low amounts can introduce unpleasant odors into the water.

Turpentine taste or odor - This smell can be a result of MTBE (Methyl tert-butyl ether) contamination in your water. The odor threshold of MTBE is fairly low, so even though you can smell it, the MTBE is more than likely not at a level to cause harmful effects.

Color

"Clean" water should be clear with no noticeable color deposits. Common colors include:



Red or Brown Color - A red, brown or rusty color is generally indicative of iron or manganese in your water. Disadvantages to iron in your water include stains in sinks, or discolored laundry.

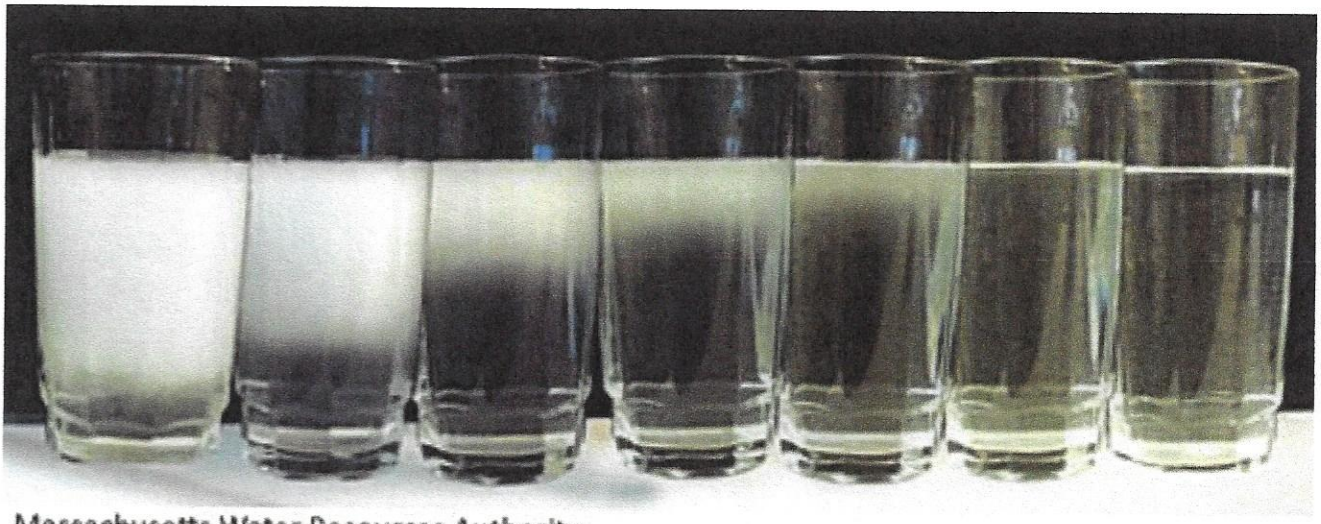
Yellow Color - This coloration occurs in regions where the water has passed through marshlands and then moved through peat soils. In the United States, these conditions occur in the Southeast, Northwest, New England, and Great Lakes regions. It is more commonly found in surface water supplies and shallow wells. Although the yellow color may be displeasing, it presents no health hazard, as it is only small particles suspended in the water.

Blue or Green Color - A green or blue color is generally a result of copper in your water supply, or copper pipes and corrosive water. The copper can cause staining of your fixtures and your laundry. Copper is regulated in drinking water by the EPA at 1.3 PPM. This is at a low enough concentration that the copper cannot be tasted (the taste threshold is around 5 PPM). Copper can become a problem if it is higher than 30 PPM in your water. Effects at this dose are vomiting, diarrhea, and general gastrointestinal distress. If you are using well water as your primary source of water, and copper is a concern in your area, it would be to your advantage to have your water tested for copper.

Cloudy White or Foamy - Cloudy water is usually due to turbidity. Turbidity is caused by finely divided particles in the water. When light hits the water, it is scattered, giving a cloudy look to the water. The particles may be of either organic or inorganic nature. Neither one causes any harmful effects to the body, although they can cause abrasions to pipes or possible staining of sinks.

Why does my drinking water look cloudy sometimes?

Once in a while, you get a glass of water and it looks cloudy; maybe milky is a better term. After a few seconds it miraculously clears up! The cloudiness might be caused by the water in the pipes being under a bit more pressure than the water in the glass, but is more likely due to tiny air bubbles in the water. Like any bubble, the air rises to the top of the water and goes into the air above, clearing up the water. Cloudy water, also known as white water, is caused by air bubbles in the water. It is completely harmless.



Massachusetts Water Resources Authority

It usually happens when it is very cold outside because the solubility of air in water increases as water pressure increases and/or water temperature decreases. Cold water holds more air than warm water. In the winter, water travels from the reservoir which is very cold and warms up during its travel to your tap. Some of the air that is present is no longer soluble, and comes out of solution.

Also, water pressure has something to do with it. The water in the pipes is pressurized to a degree (which helps to get the water all the way from the water tower to your home). Water under pressure holds more air than water that is not pressurized. Once the water comes out of your tap, the water is no longer under pressure and the air comes out of solution as bubbles (similar to a carbonated soft drink). The best thing to do is let it sit in an open container until the bubbles naturally disappear.