FORT WORTH WATER

DRINKING WATER QUALITY REPORT

YEAR 2015 DATA

On the cover

Several years ago, staff found this old sign inside one of the workshops at the North Holly Water Plant.

Its date is unknown but today the cost for a ton of water is 99 cents.

Fort Worth Water Department

Customer Service: 817-392-4477

Speakers Bureau: 817-392-8206

wpe@FortWorthTexas.gov

www.FortWorthTexas.gov/water

www.SaveFortWorthWater.org

Facebook: Fort Worth Water

Twitter: @FWWater

Administrative Office:

Fort Worth City Hall, 2nd Floor
1000 Throckmorton St. 76102

The Water Department is part of the Fort Worth city government. The City Council meets each Tuesday at City Hall, 1000 Throckmorton St. at 7 p.m. Check the calendar online for changes or cancellations.

Information for immunocompromised people

The exact wording shown below is required by state regulations. The following information is not meant to alarm or scare you. It is meant to make you aware.

You may be more vulnerable than the general population to certain microbial contaminants, such as *Cryptosporidium*, in drinking water. Infants, some elderly or immunocompromised persons, such as those undergoing chemotherapy for cancer, those who have undergone organ transplants, those who are undergoing treatment with steroids and people with HIV/AIDS or other immune system disorders can be particularly at risk from infections.

You should seek advice about drinking water from your physician or health care provider.

Additional guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Microorganisms detected in untreated water

Tarrant Regional Water District monitors the raw water at all intake sites for *Cryptosporidium*, *Giardia Lamblia* and viruses. The source is human and animal fecal waste in the watershed.

The 2015 sampling showed low level detections of *Cryptosporidium*, *Giardia Lamblia* and viruses that are common in each raw water source.

Cryptosporidium and *Giardia Lamblia* monitoring is done monthly. Virus monitoring is performed four times a year in January, March, July and September.

Presence in raw water does not mean presence in the finished water. Treatment processes are designed to kill or remove these contaminants.

Viruses are treated through disinfection processes. *Cryptosporidium* and *Giardia Lamblia* are removed through a combination of disinfection and/or filtration.

Intake location	*Cryptosporidium*	*Giardia Lamblia*	Adenovirus	Enterovirus	Astrovirus	Rotavirus
Richland-Chambers Reservoir	Not detected	Not detected	January	Not detected	Not detected	Not detected
Cedar Creek Lake	Not detected	Not detected	January & March	Not detected	Not detected	Not detected
Lake Benbrook	Not detected	Not detected	January & March	Not detected	Not detected	Not detected
Eagle Mountain Lake	June	June, December	January	Not detected	Not detected	Not detected
Lake Worth	Not detected	Not detected	January & March	September	Not detected	Not detected
Clearfork of Trinity River	Not detected	February, June, July	January & March	Not detected	Not detected	Not detected

Lakes are the source of city's drinking water

Fort Worth uses surface water from Lake Worth, Eagle Mountain Lake, Lake Bridgeport, Richland Chambers Reservoir, Cedar Creek Reservoir, Lake Benbrook and the Clear Fork Trinity River.

Fort Worth owns Lake Worth. The U.S. Army Corps of Engineers is responsible for Benbrook Lake. The other four lakes are owned and operated by Tarrant Regional Water District.

As water travels over the land or through the ground, it dissolves naturally occurring minerals and radioactive material. Water also can pick up substances resulting from animal waste or human activity.

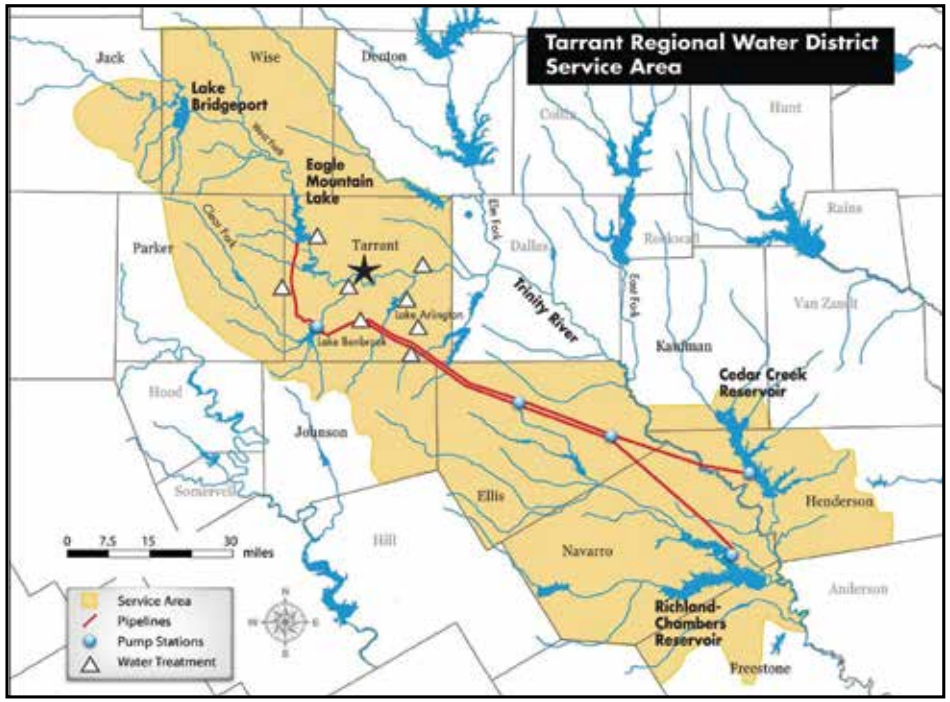
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate the water poses a health risk.

Contaminants that may be in source water before treatment include microbes, inorganic contaminants, pesticides, herbicides, radioactive materials and organic chemical contaminants.

In addition, contaminants found in drinking water may cause taste, color or odor problems.

These types of problems are not necessarily cause for health concerns. For more information on taste, odor or color of drinking water, please contact us at 817-392-4477 or wpe@fortworthtexas.gov.

To ensure tap water is safe to drink, the U.S. Environmental Protection Agency and the Texas Commission on Environmental Quality regulate the amount of certain contaminants in water provided by public systems.



Tarrant Regional Water District supplies Fort Worth with raw water.

TCEQ assesses raw water supplies

The Texas Commission on Environmental Quality completed an assessment of Fort Worth's sources of water. TCEQ classified the risk to our source water as high for most contaminants.

High susceptibility means there are activities near the sources water and/or watersheds that make it very likely that chemical constituents come into contact with the source water. It does not mean that there are any health risks present.

Tarrant Regional Water District, from which Fort Worth purchases its raw water, received the assessment reports.

For more information on source water assessments and protection efforts at our system, contact Stacy Walters at 817-392-8203.

More information about the source-water assessments is available online in TCEQ's Drinking Water Watch at http://dww2.tceq.texas.gov/DWW.

Speakers Available

We welcome the opportunity to speak to neighborhood groups and civic organizations about our utility's services.

wpe@fortworthtexas.gov
817-392-8206

Drinking water quality test results

Contaminant	Measure	MCL	2015 Highest single result	Lowest monthly % of samples ≤ 0.3 NTU	MCLG	Common Sources of Substance
Turbidity	NTU	TT	0.50	98.9%	N/A	Soil runoff (Turbidity is a measure of the cloudiness of water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Contaminant	Measure	MCL	2015 Level	Range	MCLG	Common Sources of Substance
Total Coliforms (including fecal coliform & E. coli)	% positive samples	Presence in 5% or less of monthly samples	Presence in 2% of monthly samples	0 to 2%	0	Coliforms are naturally present in the environment as well as feces; fecal coliforms and E. coli only come from human and animal fecal waste.

Contaminant	Measure	MCL	2015 Level	Range	MCLG	Common Sources of Substance
Gross Beta particles & Photon emitters[1]	pCi/L	50	5.6	4 to 5.6	N/A	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Radium 226/228	pCi/L	5	0	0 to 0	0	Erosion of natural deposits
Arsenic	ppb	10	1.70	0.96 to 1.70	0	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Antimony	ppb	6	0.021	0 to 0.021	6	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder
Barium	ppm	2	0.07	0.05 to 0.07	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (Total)	ppb	100	1	0.87 to 1	100	Discharge from steel and pulp mills, erosion of natural deposits
Cyanide	ppb	200	145	13.4 to 145	200	Discharge from plastic and fertilizer factories; discharge from steel and metal factories
Fluoride	ppm	4	0.56	0.12 to 0.56	4	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate (measured as Nitrogen)	ppm	10	0.67	0.2 to 0.67	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (measured as Nitrogen)	ppm	1	0.04	0 to 0.04	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Bromate	ppb	10	6.22	0 to 6.22	0	By-product of drinking water disinfection
Haloacetic Acids	ppb	60	15.6	8.8 to 15.6	N/A	By-product of drinking water disinfection
Total Trihalomethanes	ppb	80	27.8	12.4 to 27.8	N/A	By-product of drinking water disinfection

Contaminant	Measure	MRDL	2015 Level	Range	MCLG	Common Sources of Substance
Chloramines	ppm	4	4.3	0.94 to 4.3	4	Water additive used to control microbes

Contaminant	High	Low	Average	MCL	MCLG	Common Sources of Substance
Total Organic Carbon	1	1	1	TT = % removal	N/A	Naturally occurring

It is used to determine disinfection by-product precursors. Fort Worth was in compliance with all monitoring and treatment technique requirements for disinfection by-product precursors.

[1] Because of historically low levels of radionuclides in its water, TCEQ has Fort Worth on a reduced monitoring schedule. The test results shown are from 2011 (Radium) or 2014 (Gross Beta).

The tables list only those contaminants detected in Fort Worth's water. For a complete list of what is tested for in drinking water, visit http://water.epa.gov/drink/contaminants/index.cfm#List.

Unregulated Contaminants

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Contaminant	Measure	Range of Detects	2015 Level	MCL	MCLG	Common Sources of Substance
Chloral Hydrate	ppb	0.30 to 0.67	0.67	Not regulated	None	By-product of drinking water disinfection
Bromoform	ppb	1.5 to 9.9	9.9	Not regulated	None	By-products of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Bromodichloromethane	ppb	2.6 to 8.9	8.9	Not regulated	None	
Chloroform	ppb	2.8 to 15.2	15.2	Not regulated	None	
Dibromochloromethane	ppb	1.9 to 9.0	9.0	Not regulated	None	
Monochloroacetic Acid	ppb	2.0 to 5.0	5.0	Not regulated	None	By-products of drinking water disinfection; not regulated individually; included in Haloacetic Acids
Dichloroacetic Acid	ppb	7.3 to 9.3	9.3	Not regulated	None	
Trichloroacetic Acid	ppb	1.2 to 6.8	6.8	Not regulated	None	
Monobromoacetic Acid	ppb	0 to 2.4	2.4	Not regulated	None	
Dibromoacetic Acid	ppb	0 to 3.8	3.8	Not regulated	None	

Secondary Constituents

These items do not relate to public health but rather to the aesthetic effects. These items are often important to industry.

Item	Measure	2015 Range
Bicarbonate	ppm	96.4 to 120
Calcium	ppm	33.3 to 42.1
Chloride	ppm	12.5 to 25.9
Conductivity	µmhos/cm	333 to 427
pH	units	8.0 to 8.2
Magnesium	ppm	3.55 to 6.79
Sodium	ppm	12.3 to 28.5
Sulfate	ppm	20.2 to 29.0
Total Alkalinity as $CaCO_3$	ppm	96.4 to 120
Total Dissolved Solids	ppm	163 to 234
Total Hardness as $CaCO_3$	ppm	101 to 133
Total Hardness in Grains	grains/gallon	6 to 8

Abbreviations used in tables

MCL: Maximum Contaminant Level - 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.

MCLG: Maximum Contaminant Level Goal - the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL: Maximum Residual Disinfectant Level - 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 contaminants.

MRDLG: Maximum Residual Disinfectant Level Goal - 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.

MRL: Minimum Report Level - The lowest concentration of a contaminant that can be measured by a laboratory

NTU - Nephelometric Turbidity Unit; a measure of water turbidity or clarity

pCi/L - Picocuries per liter; a measure of radioactivity

ppb - Parts per billion or micrograms per liter (µg/L)

ppm - Parts per million or milligrams per liter (mg/L)

TT: Treatment Technique - a required process intended to reduce the level of a contaminant in drinking water

Violation Cited in 2015

The Texas Commission on Environmental Quality cited Fort Worth for a treatment technique violation that occurred in February 2015.

The violation was for failing to properly disinfect the drinking water for a period of more than four hours. The Water Department notified customers by postcard of the violation in early March.

The problem was corrected within a few hours. In addition, the Water Department retrained employees on the standard operating procedure and updated that procedure to include additional checks and balances.

FREE Water Savings Seminars

During the evening monthly seminars attendees learn:

- to keep landscapes healthy even during restrictions,
- to plan and grow a water-saving garden,
- to do irrigation check-ups; make minor repairs and adjustments, and
- why drip irrigation is the most efficient irrigation method.

To register FortWorthTexas.Gov/water/education/seminars.

What you should know about lead in drinking water

If present, elevated lead levels can cause serious health problems, especially for pregnant women and young children. Fort Worth's drinking water does not have elevated lead levels.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing.

Fort Worth is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using the tap water for drinking or cooking.

If you are concerned about lead in your water, the Fort Worth Water Department Laboratory offers testing to our customers. The cost is $15 per sample. Call 817-392-4477 to make the arrangements.

Information on lead in drinking water, testing methods and steps you can take to minimize your exposure is available from the Safe Drinking Water Hotline at 800-426-4791 or at www.epa.gov/safewater/lead.

Fort Worth has been on reduced monitoring for lead and copper, meaning we sample 50 homes every three years. In 2009, we were asked by the regulatory agency to add one apartment complex, one daycare and one school to the sampling.

This year the results have our 90th percentile value at 6.3 parts per billion. Because this value is above 5 ppb, the utility must repeat the sampling in 2016 instead of waiting till 2018.

Contaminant	Year of testing	Measure	90th percentile	# of sites exceeding action level	Action Level	Common Sources of Substance
Lead	2015	ppb	6.3	1	15	Corrosion of household plumbing systems; erosion of natural deposits
Copper	2015	ppm	.78	1	1.3	

90th Percentile Value:
90 percent of the samples were at or below this value. EPA considers the 90th percentile value the same as an "average" value for other contaminants. Lead and copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps.

Action Level:
The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Identifying a lead water service line

Use the flat edge of a screwdriver or other tool to scratch through any corrosion that may have built up on the outside of the pipe.

If the scraped area is shiny and silver, your service line is lead. A magnet will not stick to a lead pipe.

If the scraped area is copper in color, like a penny, your service line is copper. A magnet will not stick to a copper pipe.

If the scraped area remains a dull gray, and a magnet sticks to the surface, your service line is galvanized steel.

Eliminating lead plumbing is a shared responsibility

Fort Worth Water cares about the health of our customers and their families. We want to be transparent about issues and facts surrounding lead in Fort Worth's drinking water.

Lead is not in the water source. It is not present in the water leaving the treatment plant. It enters drinking water when it leaches from lead service lines or private lead plumbing, lead solder or plumbing fixtures, especially brass, that may contain some lead.

The water must sit stagnant in the pipes for several hours for the leaching to occur.

The situation in Flint

The public health crisis in Flint, Mich. could have been avoided completely.

That water utility switched its source water without proper study and testing. As a result, the new source, the Flint River, was corrosive and caused lead to leach from public service lines and private plumbing.

The situation in Flint has a short-term fix (restore corrosion control) and a long-term fix (lead line removal) to the lead problem.

Corrosion control

Fort Worth has a corrosion control plan. Fort Worth's corrosion control technique is to adjust pH so the finished water is non-corrosive. The goal is to maintain a water pH of 8.1 or higher.

Treating water so it is harder and not corrosive actually help coat pipes with a mineral deposit as the water passes through them.

Shared responsibility

Because EPA defines the service line as from the main to the point it enters the home, there is a shared ownership.

The utility owns the portion from the main to the meter, including the meter. The property owner is responsible for the line exiting the meter and all plumbing and fixtures inside the home.

Lead service line replacement

Fort Worth Water Department's goal is to eliminate all city-owned lead service lines, but it will take many years to achieve.

Through the years, the city's lead service lines have been replaced when they are found through repairs or rehabilitation projects. Fort Worth estimates about 4,000 to 8,000 city-owned, lead service lines remain in the system.

The utility has no data on the type of material used in private plumbing lines inside homes and business. We do know developments built in the past 30 years would not have lead service lines, lead solder or lead private plumbing lines.

Locating lead service lines

The utility currently is undertaking an in-house project to obtain GPS coordinates for every meter in the city.

At the same time, staff will check and record the type of pipe material on both sides of the meter. Project is estimated to take two-years to complete.

Just because the line coming out of the meter is not lead, does not mean the home or business may not have lead and/or copper pipes with lead solder, or plumbing fixtures that contain lead.

Only a licensed plumber can evaluate the entire private plumbing materials to determine if any lead pipes or solder have been used.

If the utility finds a lead service line or lead private plumbing, we will notify the customer and provide information on steps that can be taken to minimize the risk.

Actions customers can take

Flushing is an effective and inexpensive, short-term solution.

It is simply running cold water from the faucets you use for drinking. This can improve water quality by drawing fresh water into the home, particularly after long periods of time when water has not been used.

If you have a lead service line, run the water at the kitchen tap for three to five minutes to clear the water that has been sitting in the line.

There are many ways to flush and still be efficient with your water use. Washing clothes, showering, flushing the toilet and running the dishwasher are effective methods for flushing pipes and allowing fresh water from the distribution system to enter household pipes.

The long-term and permanent solution is to replace any private plumbing that is lead. The actual cost of service line replacement depends on a number of factors including the length of the service line, where the service line is located, and the technique used to install the new service line.

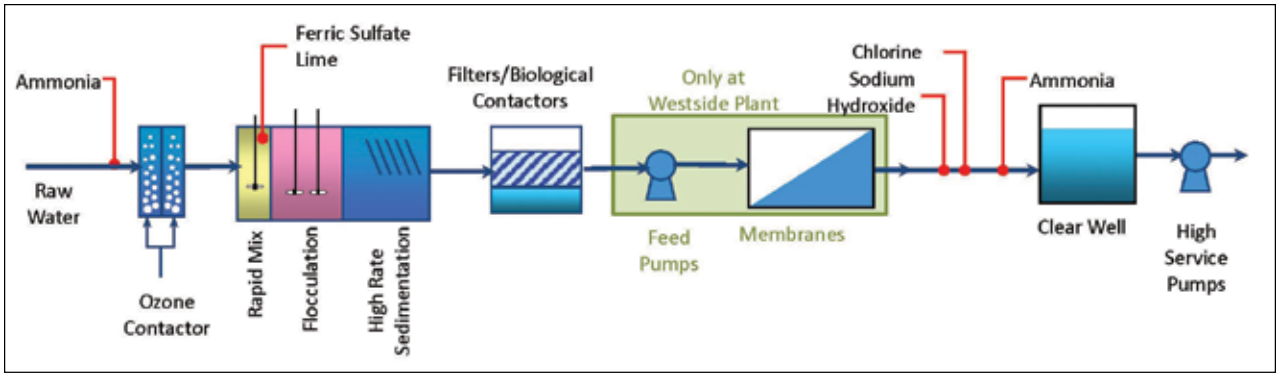
Did you know?

Fort Worth Water is now on social media

Follow us on **twitter**
@fwwater

Like us on **Facebook**
Fort Worth Water

Water treatment process protects public health



A multi-barrier approach is used in treating drinking water. The treatment process may vary between utilities based on source water quality.

In Fort Worth, the process starts with adding ozone to kill bacteria and viruses. Adding ammonia prior to ozonation decreases bromate formation.

Chemicals, called coagulants and polymers, are added to the water to cause small particles to adhere to each other, forming clumps. This process is called flocculation.

In the sedimentation basins, the particles, called floc, settle to the bottom of the basin and are removed. A small amount of fluoride is added to the amount naturally present for dental health.

Water is filtered through four feet of biologically active charcoal filters. At the Westside Water Treatment Plant, the water then passes through membrane filters.

Monochloramine is added to provide disinfection all the way to your faucet. The chlorine kills bacteria and viruses. Ammonia is added to reduce the chlorine odor and the amount of chlorine byproducts created.

Water is temporarily stored in tanks, called clearwells, before it is pumped to the public.

Managing system water loss

Water loss control represents the efforts of water utilities to provide accountability in their operation by reliably auditing their water supplies and implementing controls to minimize system losses.

Water loss control programs can potentially defer, reduce, or eliminate the need for a facility to expend resources on costly repairs, upgrades, or expansions.

Many variables influence water loss, including meter inaccuracy, data discrepancies, reported breaks and leaks unauthorized consumption and unreported losses.

Fort Worth's Water Conservation Plan addresses water loss and has goals for lowering this over time. In the water loss audit submitted to the Texas Water Development Board for calendar year 2015, the Fort Worth system lost an estimated 7,340,060,382 gallons of water from the 66,708,332,000 gallons of water purchased. Fort Worth has an Infrastructure Leakage Index of five, which means, theoretically, the leakage could be reduced five times before reaching the lowest possible value.

The city will continue to use its state-of-the-art technologies that use acoustic leak-noise detectors to target and locate suspected leaks. Its leak detection program continuously monitors almost 230,000 linear feet of pipe in critical areas, as well as surveying over 2.5 million linear feet annually.

Customers are encouraged to report visual leakage by calling 817-392-4477.

If you have any questions about the water loss audit, please contact Water Conservation Manager Micah Reed at 817-392-8211.