



Drinking Water Quality Report

Year 2012 Data

*The Westside Water
Treatment Plant
opened in 2012.*

Frequently Asked Questions About This Report

Why am I receiving this report?

In 1996, Congress amended the Safe Drinking Water Act to include a requirement that water utilities annually notify customers about their drinking water quality.

The law is quite specific regarding what information must be included. Large utilities also must post it on their websites.

Microorganism Testing Shows Low Detections

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

No viruses were detected, but *Cryptosporidium* and *Giardia Lambia*, microbial parasites common in surface water, were detected at very low levels.

The *Cryptosporidium* testing methods cannot determine if the parasite is dead and inactive or alive and capable of causing cryptosporidiosis. This is an abdominal infection that causes nausea, diarrhea and abdominal cramps after indigestion.

The drinking water treatment process is designed to remove *Cryptosporidium* and *Giardia Lambia* through filtration.

How is this report distributed?

In January, the U.S. Environmental Protection ruled that electronic distribution of this annual report is acceptable under certain conditions. Fort Worth Water is taking advantage of that decision. We are making customers aware of the report's availability online through a bill insert. Customers that have chosen to stop receiving paper bills, are being notified in the e-mail message they receive that their June bill is available for viewing.

If you still want a hard copy, you can get one. Just call 817-392-4477 to request one be mailed to you. The law requires utilities make a good faith effort to distribute this report to

consumers that are not customers. Consumers are individuals that receive our water but not a bill, such as people who work in Fort Worth and live elsewhere or anyone living in an apartment complex receiving our water.

For this reason, the report is mailed to multi-family dwellings. In addition, copies are available at all libraries and community centers.

Why is this report in two languages?

The regulations require the report be available in other languages when certain criteria are met. The Fort Worth City Council has desired the city produce materials in both languages because a large portion of our city is Spanish-speaking.

Information for Immunocompromised People

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

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.



Fort Worth Relies on Surface 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.

Nature & Human Activities Contaminate Water Supplies

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.

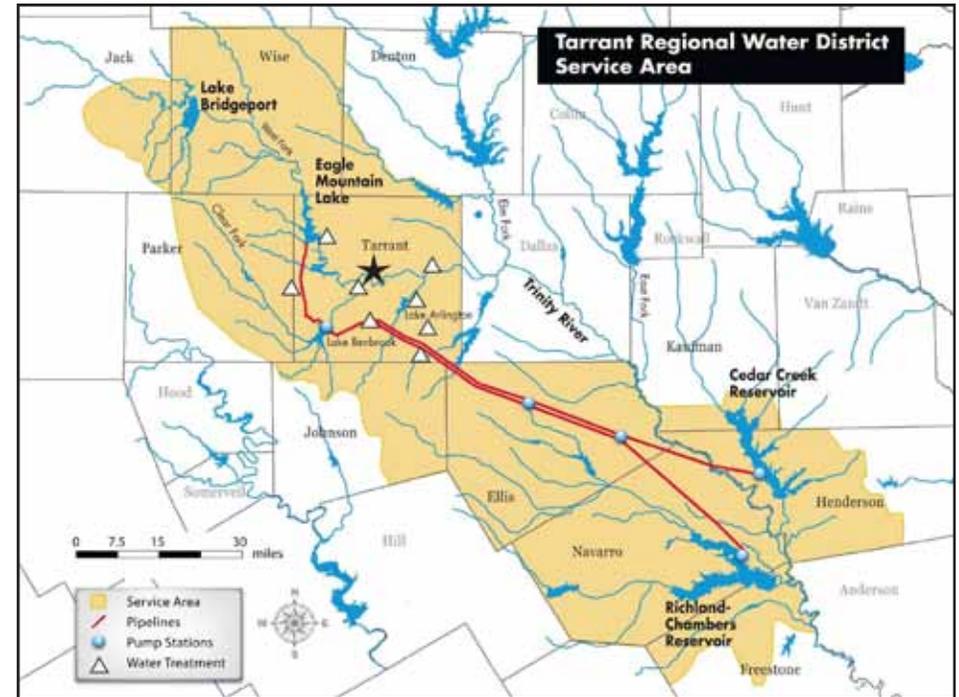
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate the water poses a health risk.

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

and organic chemical contaminants.

In addition, contaminants may be found in drinking water that may cause taste, color or odor problems. These types of problems are not necessarily causes 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 Accesses Raw Water Supplies

A Source Water Susceptibility Assessment for our drinking water sources was performed by TCEQ. This information describes the susceptibility and types of contaminants that may come into contact with your drinking water source, based on human

activities and natural conditions. The information contained in the assessment allows us to focus our source water protection strategies. Some of this source water assessment information is available on Texas Drinking Water Watch at www.tceq.texas.gov/gis/swaview.



Drinking Water Quality Test Results

Contaminant	Measure	MCL	2012 Level	Range of Detects	MCLG	Common Sources of Substance
Arsenic	ppb	10	1	0.3 to 1	0	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	ppm	2	0.06	0.04 to 0.06	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Alpha particles ¹	pCi/L	15	2.8	0 to 2.8	N/A	Erosion of natural deposits
Gross Beta emitters ¹	pCi/L	50	7.5	0 to 7.5	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
Fluoride	ppm	4	0.98	0.48 to 0.98	4	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate (measured as Nitrogen)	ppm	10	0.91	0.12 to 0.91	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (measured as Nitrogen)	ppm	1	0.52	0.01 to 0.52	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Bromate	ppb	10	2.89	0 to 2.89	0	By-product of drinking water disinfection
Haloacetic Acids	ppb	60	15.2	5.6 to 15.2	N/A	By-product of drinking water disinfection
Total Trihalomethanes	ppb	80	38.0	6.8 to 38	N/A	By-product of drinking water disinfection
Total Coliforms (including fecal coliform & E. coli)	% of positive samples	Presence in 5% or less of monthly samples	Presence in 3.4% of monthly samples	0 to 3.4%	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.
Turbidity ²	NTU	TT	0.45 Highest single result 99.9% Lowest monthly % of samples ≤ 0.3 NTU	N/A	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	MRDL	2012 Level	Range of Detects	MRDLG	Common Sources of Substance
Chloramines	ppm	4	3.0	0.5 to 4.2	4	Water additive used to control microbes

Contaminant	High	Low	Average	MCL	MCLG	Common Sources of Substance
Total Organic Carbon ³	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.

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.

N/A - Not Applicable.

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 (mg/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.

www.savefortworthwater.org

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. The next testing is scheduled for 2014.

² 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.

³ Total Organic Carbon 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.

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	2012 Level	MCL	MCLG	Common Sources of Substance
Chloral Hydrate	ppb	0.26 to 0.76	0.76	Not regulated	None	By-product of drinking water disinfection
Bromoform	ppb	0 to 3.6	3.6	Not regulated	None	By-products of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Bromodichloromethane	ppb	2.3 to 6.7	6.7	Not regulated	None	
Chloroform	ppb	2.3 to 13.3	13.3	Not regulated	70	
Dibromochloromethane	ppb	1.3 to 5.0	5.0	Not regulated	60	
Monochloroacetic Acid	ppb	0 to 1.0	1.0	Not regulated	70	By-products of drinking water disinfection; not regulated individually; included in Haloacetic Acids
Dichloroacetic Acid	ppb	3.6 to 8.1	8.1	Not regulated	None	
Trichloroacetic Acid	ppb	0 to 7.4	7.4	Not regulated	20	
Monobromoacetic Acid	ppb	2.0 to 9.4	9.4	Not regulated	None	
Dibromoacetic Acid	ppb	0.5 to 1.3	1.3	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	2012 Range
Bicarbonate	ppm	93 to 120
Calcium	ppm	97 to 110
Chloride	ppm	14 to 32
Conductivity	µmhos/cm	318 to 423
pH	units	8.0 to 8.4
Magnesium	ppm	4 to 8
Sodium	ppm	14 to 28
Sulfate	ppm	25 to 38
Total Alkalinity as CaCO ₃	ppm	93 to 120
Total Dissolved Solids	ppm	172 to 237
Total Hardness as CaCO ₃	ppm	117 to 133
Total Hardness in Grains	grains/gallon	7 to 8

What You Should Know about Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Fort Worth 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.

The city of 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 water for drinking or cooking.

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

Contaminant	Year of testing	Measure	90th percentile	# of sites exceeding action level	Action Level	Common Sources of Substance
Lead	2012	ppb	4.5	2	15	Corrosion of household plumbing systems; erosion of natural deposits
Copper	2012	ppm	0.51	0	1.3	
90th percentile value: 90% 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.		

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.

In the United States, water utilities monitor for more than 100 contaminants and must meet 91 regulations for water safety and quality. 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>.

Treatment Steps for Protecting Public Health

A multi-barrier approach is used in treating drinking water. The treatment process may vary between utilities based on source water quality. The process used at Fort Worth plants is as follows.

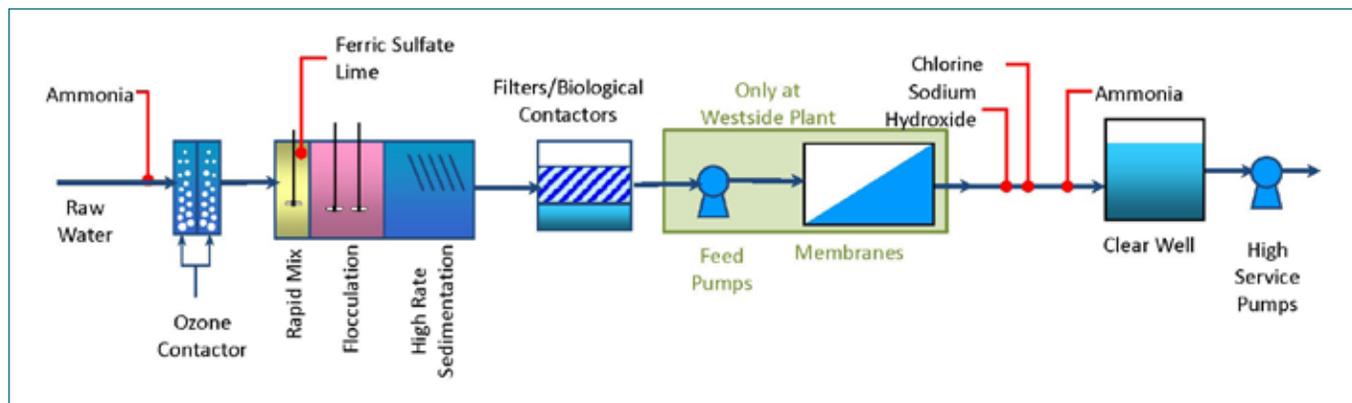
First, ozone is added to kill bacteria and viruses. Adding ammonia prior to ozonation decreases bromate formation.

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 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. See Page 6 for more information on the Westside plant.

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 by-products created.

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



Ozone Treatment Now in Place at All Plants

Since last fall, all five Fort Worth drinking water treatment plants are using ozone for primary disinfection. The North Holly and South Holly plants are the last to be converted.

Fort Worth pioneered using ozone for primary disinfection in Texas in 1993 with the opening of the Eagle Mountain Water Treatment Plant. The Rolling Hills plant started ozonation in 2002.

Special generators convert liquid oxygen (O_2) to ozone (O_3). The ozone molecule is unstable and does not last long, so it cannot be used to provide residual disinfection in the distribution system.

Ozone is a strong oxidant and disinfectant for purifying drinking water. Because it oxidizes

organic matter in raw water, less coagulation chemicals are needed in the treatment process.

In addition, ozonation helps with taste and odor. While taste and odor are not indicators of water quality from a safety standpoint, they do affect customers' perception of the water quality.

Fort Worth customers should experience less variation in the taste and odor of the drinking water now.

Another change in 2012 at the North and South Holly plants was a switch from using chlorine and ammonia gas to liquid forms of both. This change does not impact the treatment process. It does eliminate the risk to employees and the public.



New Plant Uses Membrane Technology



Fort Worth opened its fifth drinking water treatment plant in late April 2012. The Westside Water Treatment Plant is the first new treatment plant since the Eagle Mountain plant opened in 1993.

This is the first water treatment plant in Fort Worth to use microfiltration membranes. The membrane technology allows this facility to have a much smaller footprint than the other treatment plants

and provides the highest quality water.

The membrane fibers are densely packed in long tubes. Each tube has about 5,600 membrane fibers and is called a module. The Westside WTP has four racks with 102 modules in each rack.

The walls of each fiber have numerous microscopic pores that are 0.1 micrometer in size. A micrometer is one-millionth of a meter.

Water is forced into the fibers through pores in its walls. Any particles larger than 0.1 micrometer cannot pass through and are filtered out. The filtered water moves out from the top of the module and proceeds to the next step in treatment.

The facility has a 12-million-gallons a day treatment capacity but was built to easily, incrementally expand to 35 MGD with the addition of equipment.

The Westside WTP was the first Fort Worth plant to use the liquid forms of chlorine and ammonia instead of the gaseous forms. In the fall of 2012, the North and South Holly plants made the switch to liquid forms of both.

Sodium hypochlorite is similar to household bleach, but it is twice the strength at 12.5 percent.

While the impact on disinfection is the same, a spill of sodium hypochlorite or liquid ammonia sulfate does not pose the risks associated with the transportation and storage of chlorine gas or ammonia gas. Using the liquid forms eliminates the need to conduct an off site consequence analysis and the associated U.S. Environmental Protection Agency's risk management plan.

Restructuring Improves Efficiency

Recent growth in Fort Worth has required the construction of numerous pump stations, storage tanks, lift stations, and metering stations, as well as the Westside Water Treatment Plant. Instead of just adding staffing at the Westside plant, the Production Division used the opportunity to evaluate its existing organizational structure.

A staff committee evaluated the existing organizational structure and recommended reorganizing the maintenance and electrical staff into a geographic structure to increase efficiency. Staff positions are assigned to one of the four plant locations – Eagle Mountain, Holly Complex, Rolling Hills or Westside. Each facility's maintenance group is responsible for all assets within a defined geographical area, including pump stations, storage tanks, lift stations, grinder pumps and meter stations.

Adding a new treatment plant to the system in the past has required as many as 12 new positions. With the restructuring, the Production Division added only three positions



Fort Worth Water Department

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www.FortWorthTexas.gov/water

www.saveFortWorthwater.org

Administrative Office:

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

The Water Department is part of the Fort Worth city government. The City Council meets each Tuesday at City Hall, 1000 Throckmorton St. The meetings are at 7 p.m. on the 1st & 2nd Tuesday of the month. The meetings are at 10 a.m. all other Tuesdays. Check the calendar online to make sure a meeting is not cancelled or rescheduled.



...public health protection
...fire protection
...support for the economy
...the overall quality of life we enjoy

 American Water Works Association

Learn More about Your Water

If you want to learn more about your drinking water, there are many ways to do so. Regardless of the age group, the Water Department has an educational program to offer.

Speakers are available for professional organizations, civic clubs, neighborhood associations, churches or schools. A wide variety of topics can be addressed, including efficient water use,

water quality and water treatment. Programs also are available on water reclamation process and its energy generation component.

School-age presentations may include videos or hands-on activities.

Contact the public education section at wpe@fortworthtexas.gov or 817-392-7420 to schedule a speaker.

Tours of treatment plants are available for community groups and schools in our service area. There are security requirements.

Tours range from 30 to 90 minutes and include a preliminary overview followed by a walking tour. They can be scheduled on weekdays during normal business hours for groups of up to 40 people. The minimum age is 10-years-old.

Public artwork part of new facility

Artist Julie Lazarus was commissioned by the Fort Worth Public Art Program to create the artwork for the Westside Water Treatment Plant.

The artwork consists of two components: a glass mosaic installed into the curved concrete wall that wraps the building entry ramp on the exterior, and an oil painting in the lobby of the building. Both use rich color and abstraction to depict the processes and cutting-edge technology in use in the plant as well as its product —pure clean water.

The artists titled her work *Membrane Technology: Sources/Filtration*. The oil painting on canvas is 8-feet-two-inches

high by 9-feet wide. The mosaic is made from hand-cut Byzantine glass smalti tile (with 5% gold smalti). It

measures five feet tall by 35 feet wide.

Fort Worth Public Art is a City of Fort Worth program that creates an enhanced visual environment for Fort Worth residents through the artistic design of public spaces. The Arts Council of Fort Worth and Tarrant County manages the program.

Visit www.fwpublicart.org for more information.



www.savefortworthwater.org

www.FortWorthTexas.gov/water

