



Annual Drinking Water Quality Report 2016

Lake Worth, Texas

Annual Water Quality Report for the period of January 1 to December 31, 2016.

This report is a summary of the quality of water provided to Lake Worth customers. Analyses were made by using data from the most recent U.S. Environmental Protection Agency (EPA) testing requirements and presented in the attached documentation. This information helps you become knowledgeable about what's in your drinking water. Lake Worth's constant goal is to provide you with a safe and dependable supply of water.

For more information regarding this report or concerning your water service, please contact:

**City of Lake Worth Water Department
(817) 237-1211 ext. 200**

En español Este informe incluye información importante sobre el agua potable. Si tiene preguntas o comentarios sobre este informe en español, favor de llamar al tel. (817) 237-1211 EXT 110. Par hablar con una persona bilingüe en español.

The City of Lake Worth produces drinking water from two wells. The water comes from the Paluxy and Trinity Aquifers. Lake Worth also purchases drinking water from the City of Fort Worth. Fort Worth surface water comes 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 (TRWD). The Texas Commission on Environmental Quality (TCEQ) has assessed the lakes and rivers that are the sources of Fort Worth's drinking water. TCEQ classified the risk to these sources of water as high for most contaminants. High susceptibility means there are activities near the source 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, please refer to:

www.tceq.texas.gov/drinkingwater/SWAP/index_swa.html

SOURCES OF DRINKING WATER

The source of drinking (both tap water and bottle water) includes rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals, and in some cases, radioactive material and can pick up substance resulting from the presence of Contaminants that may be present in source.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPAs Safe Drinking Water Hotline at (800) 426-4791.

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife

Inorganic contaminants, such as salts and metals, which can be naturally–occurring or result from urban storm water runoff, Industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by–products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulation establish limits for contaminants in bottle water which must provide the same protection for public health.

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 the system’s business office.

You may be more vulnerable than the general population to certain microbial contaminants, such as Cryptosporidium, in drinking water. Infants, some elderly, or immunocompromised person such as those undergoing chemotherapy for cancer; persons 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 providers. Additional guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791).

Information about Source Water Assessments

A Source Water Susceptibility Assessment for your drinking water source(s) is currently being updated by the Texas Commission on Environmental Quality. This information describes the susceptibility and types of constituents 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 source water protection strategies.

For more information about your sources of water, please refer to the Source Water Assessment Viewer available at:
<http://gis3.tceq.state.tx.us/swav/Controller/index.jsp?wtrsrc=>

Further details about sources and source-water assessments are available in Drinking Water Watch at: <http://dww.tceq.texas.gov/DWW>

Source Water Name		Type of Water	Report Status	Location
3 Azle Ave / HWY 820 (PS 2)	Azle Ave / HWY 820	GW	A	Longitude: -97.414927 Latitude: 32.813497
5 Stadium Wall / Boat Club (PS 4)	PS 4	GW	A	Longitude: -97.414448 Latitude: 32.818708
SW from Fort Worth	CC From TX2200012 City of	GW	A	Longitude: -97.421449 Latitude: 32.822186



CITY OF FORT WORTH DATA: Raw Water Quality Monitored Regularly

Tarrant Regional Water District (TRWD) monitors the raw water at all intake sites for Cryptosporidium, Giardia Lamblia and viruses. Their source is human and animal fecal waste in the watershed. The 2016 sampling detected in some of the raw water sources Cryptosporidium, Giardia Lamblia and viruses. Cryptosporidium and Giardia Lamblia monitoring is done monthly. Virus monitoring is performed four times a year in January, March, July, and September. Treatment processes are designed to kill or remove these contaminants. Viruses are treated through disinfection processes. Cryptosporidium and Giardia Lamblia are removed through disinfection and filtration.

Intake Location	Giardia	Cryptosporidium	Adenovirus	Enterovirus	Astrovirus	Rotavirus
Richland - Chambers Reservoir	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Cedar Creek Lake	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Lake Benbrook	August	Not Detected	January	Not Detected	Not Detected	Not Detected
Eagle Mountain Lake	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Lake Worth	June	Not Detected	January & September	Not Detected	Not Detected	Not Detected
Clear Fork of Trinity River	May, June, August, September, November	June & August	Not Detected	Not Detected	Not Detected	Not Detected

City of Lake Worth Data for calendar year 2016

Regulated Contaminants: Not all sample results may have been used for calculating the Highest Level Detected because some results may be part of an evaluation to determine where compliance sampling should occur in the future.

Year	Disinfectants	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Unit	Violation (Y/N)	Source of Contaminant
2016	Total Trihalomethanes (TTHm)	11	3.62-15.4	N/A	80	ppb	N	Byproduct of drinking water disinfection.
2016	Haloacetic Acids (HAA5)	9	4.7-14.9	N/A	60	ppb	N	Byproduct of drinking water disinfection.

Inorganic Contaminants: Nitrate Advisory - Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Collection Date	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Unit	Violation (Y/N)	Likely Source of Contaminant
2016	Barium	0.014	0.011-0.014	2	2	Ppm	N	Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits.
2016	Fluoride	0.838	0.838-0.838	4	4.0	Ppm	N	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
2016	Nitrate (Measured as Nitrogen)	0.42	0.034-0.42	10	10	Ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
01/26/2015	Nitrite (Measured as Nitrogen)	0.043	0-0.043	1	1	Ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Radioactive Contaminants

Year	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Unit	Violation (Y/N)	Likely Source of Contaminant
2016	Combined Radium 226/228	1.5	1.5-1.5	0	5	pCi/L	N	Erosions of natural deposits

Disinfectant Residual

Year	Disinfectant	Average Level	Min. Level	Max. Level	MRDL	MRDLG	Unit of Measure	Violation	Source of Contaminant
2016	Chlorine Residual	2.40	0.5	3.5	4	4	Ppm	N	Disinfectant used to control microbes.

Lead and Copper

Action Level Goals (ALG): The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for margin of safety.
Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow

Contaminant	Measure	MCL	2016 Level	Range	MCLG	Violation (Y/N)	Likely Source of Contaminant
Total Coliforms (including fecal coliforms & E. Coli)	% Positive Sample	Presence in 5% or less of monthly samples	0	0 to 2%	0	N	Naturally present in the environment as well as feces; fecal coliforms and E. Coli only come from human and animal fecal waste.

CITY OF LAKE WORTH: 2016 Water Loss Audit

The City of Lake Worth's Water Conservation Plan addresses several measures in reducing water loss and improving the efficiency in the use of water. In the water loss audit submitted to the Texas Water Development Board for the time period of January through December 2016, the system lost an estimated 9,899,914 gallons of water from the 284,982,155 gallons of water produced/ purchased. Leaks, line breaks, unmetered fire protection, hydrant flushing for health and safety purposes, unauthorized consumption, data discrepancies, and other factors all contribute to water loss. The city will continue to audit its water supply and implement water conservation controls to minimize system losses.



DEFINITIONS & ABBREVIATIONS

MRDL (Maximum Residual Disinfectant Level) The highest level of 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 contamination.

MCL (Maximum Contaminant Level) The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available technology.

MCLG (Maximum Contaminant Level Goal) The level of a contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety.

TT (Treatment Technique) A required process intended to reduce the level of a contaminant in drinking water.

AL (Action Level) – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.

Level 1 Assessment- A Level 1 assessment is a study of a water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in water system.

Level 2 Assessment- A Level 2 assessment is a very detail study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

mrem: millirems per year (a measure of radiation absorbed by the body)

NTU: Nephelometric Turbidity Units (a measure of turbidity)

MFL: million fibers per liter (a measure of asbestos)

pCi/L: picocuries per liter (measurement of radioactivity)

Ppm: milligrams per liter or parts per million- or one ounce in 7,350 gallons of water

Ppb: micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water

Na: not applicable

Avg.: Regulatory compliance with some MCLs are based on running annual average of monthly samples.

Ppt: parts per trillion, or nanograms per liter (ng/L)

Ppq: parts per quadrillion, or picograms per liter (pg/L)

SW From Fort Worth CC From TX2200012 City of Fort Worth

The following information is provided by the City of Fort Worth since the City of Lake Worth purchases treat water from the Fort Worth.

City of Fort Worth Data Drinking Water Quality Test Results

Contaminant	Measure	Range	2016 Level	MCLG	MCL	Likely Source of Contamination		
Alpha particles	pCi/L	2 to 2	2	N/A	15	Erosion of natural deposits of certain minerals that are radioactive and may emit forms of radiation known as alpha radiation.		
Gross Beta particles & photon emitters	pCi/L	4 -5.6	5.6	N/A	50	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.		
Arsenic	ppb	0 - 1.40	1.40	0	10	Erosion of natural deposits.		
Barium	ppm	0.05-0.06	0.06	2	2	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits.		
Chromium (total)	ppb	0 -.73	0.73	100	100	Discharge from steel and pulp mills, erosion of natural deposits.		
Cyanide	ppb	0 - 80.3	80.3	200	200	Discharge from plastic and fertilizer; discharge from steel and metal factories		
Fluoride	ppm	0.23 to 0.50	0.50	4	4	Water additive which promotes strong teeth; erosion of natural deposits. Discharge from fertilizer and aluminum factories		
Nitrate (measured as Nitrogen)	ppm	0.26 - 0.66	0.66	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.		
Nitrite (measured as Nitrogen)	ppm	0.1 - 0.03	0.03	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.		
Bromate	ppb	0 -10.4	5.50	0	10	By-product of drinking water disinfection.		
Haloacetic Acids	ppb	0 - 15.9	8.35	N/A	60	By-product of drinking water disinfection.		
Total Trihalomethanes	ppb	2.19 -25	17.5	N/A	80	By-product of drinking water disinfection.		
Contaminant	2016 Highest Single Sample	Lowest Monthly % of samples < 0.3 NTU			MCLG	MCL	Measure	Likely Source of Contamination
Turbidity	0.36	99.7%			N/A	TT	NTU	Soil runoff (Turbidity is a measure of the cloudiness of water).
Contaminant	Measure	MRDL	2016 level		RANGE		MCLG	Common Sources of Substance
Chloramines	ppm	4	4.40		0.63-4.40		4	Water additive used to control microbes

Contaminant	High	Low	MCLG	MCL	Average	Likely Source of Contamination
Total Organic Carbon ¹	1	1	N/A	TT=% Removal	1	Naturally occurring.

1 Do to historically low levels of radionuclides in its water, TCEQ has Fort Worth on a reduced monitoring schedule. The test results shown are from 2013 and 2014.

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	2016 Level	MCL	MCLG	Common Sources Of Substance
Chloral Hydrate	ppb	0.53 - 0.93	0.93		None	By-Product of drinking water disinfection
Bromoform	ppb	0-4.16	4.16		None	By-Product of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Bromodichloromethane	ppb	2.15- 7.26	7.26		None	By-Product of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Chloroform	ppb	4.26 -13	13.0	Not Regulated	None	By-Product of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Dibromochloromethane	ppb	0-10.2	10.2		None	By-Product of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Monochloroacetic Acid	ppb	0-3.0	3.0		None	By-Product of drinking water disinfection; not regulated individually; included in Haloacetic Acid
Dichloroacetic Acid	ppb	5.90- 11.8	11.8		None	By-Product of drinking water disinfection; not regulated individually; included in Haloacetic Acid
Trichloroacetic Acid	Ppb	0-1.5	1.5		None	By-Product of drinking water disinfection; not regulated individually; included in Haloacetic Acid
Monobromoacetic Acid	ppb	0-2.2	2.2		None	By-Product of drinking water disinfection; not regulated individually; included in Haloacetic Acid
Dibromoacetic Acid	ppb	0-5.1	5.1		None	By-Product of drinking water disinfection; not regulated individually; included in Haloacetic Acid

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	2016 Range
Bicarbonate	ppm	112-145
Calcium	ppm	41.1-58
Chloride	ppm	15.8-20.2
Conductivity	uhms/cm	322-396
pH	units	8.1-8.4
Magnesium	ppm	4.63-5.86
Sodium	ppm	15.1-17.8
Sulfate	ppm	15.8-29.9
Total Alkalinity as CaCO3	ppm	112-145
Total Dissolved Solids	ppm	180-227
Total Hardness as CaCO3	ppm	126-164
Total Hardness in Grains	Grains/gallon	7-10