Annual Drinking Water Quality Report 2018

Annual Water Quality Report for the period of January 1, 2018 to December 31, 2018

Lake Worth, Texas

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 you 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

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

TCEQ Assesses Raw Water Supplies for Susceptibility

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 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. The Texas Commission on Environmental Quality completed an assessment of Fort Worth's source waters. TCEQ classified the risk to our water source waters as high for most contaminants. High susceptibility means there are activities near the source water a or watershed make it very likely that chemical constituents may come into contact with the source water. It does not mean that there are any health risk present. Tarrant Regional Water District, from which Fort Worth purchases its 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. Further details about the source-water assessments are available in the Texas Commission on Environmental Quality's Drinking Water Watch database at: hhtp://dww2.tceq.texas.gov/DWW/JSP/SWAP.jsp?tinwsys_is_number=5802&tinwsys_st_code=TX&wsnumber=TX2200012%20%20%20&DWWState=TX

SOURCE 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 discharge, 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 number 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 provider. Additional guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800) 426-4791.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When you water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http:/www.epa.gov/safewater/lead.

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 Fort Worth	SW	A	Longitude: -97.421449 Latitude: 31.822186

CITY OF FORT WORTH DATA:

Microorganism testing shows low detections in raw 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 2018 sampling showed low level detections of *Cryptosporidium*, *Giardia Lamblia* and viruses in some but not all the water supply sources. Viruses are treated through disinfection processes. *Cryptosporidium* and *Giardia Lamblia* are removed through disinfection and/or filtration.

City of Lake Worth Data for calendar year 2018

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.

Disinfection By-product	Collection Date	Highest Level of Average Detected	Units	MCL	MCLG	Range	Violation	Likely Source of Contamination
Haloacetic Acids (HAA5)	2018	5	ppb	60	N/A	3.5 – 8.1	N	Byproduct of drinking water disinfection
*The value in the Highest Level or Average Detected column is the highest average of all HAA5 sample results collected at a location over a year'								
Total Trihalomethanes (TTHM)	2018	6	ppb	80	N/A	2.43 – 6.69	N	Byproduct of drinking water disinfection
*The values in the Highest Level or Average Detected column is the highest average of all TTHM sample results collected at a location over a year'								

Inorganic Contaminants – Nitrate Advisory – Nitrate 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.

Inorganic Contaminants	Collection Date	Highest Level of Average Detected	Units	MCL	MCLG	Range	Violation	Likely Source of Contamination
Barium	1/20/2016	0.014	ppm	2	2	0.011 – 0.014	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Cyanide	1/23/2017	35.8	ppb	200	200	0 - 35.8	N	Discharge from plastic and fertilizer factories; Discharge from steel/metal factories
Fluoride	1/23/2017	0.352	ppm	4	4	0.352 – 0.352	N	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen)	2018	0.269	ppm	10	10	0.057 – 0.269	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (as Nitrogen)	1/26/2015	0.043	ppm	1	1	0 – 0.043	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radioactive Contaminants	**Collection Date**	**Highest Level of Average Detected**	**Units**	**MCL**	**MCLG**	**Range**	**Violation**	**Likely Source of Contamination**
Combined Radium 226/228	1/20/2016	1.5	pCi/L	5	0	1.5 – 1.5	N	Erosion of natural deposits
Disinfectant Residual	**Year**	**Average Level**	**Units**	**MRDL**	**MRDLG**	**Range**	**Violation**	**Source in Drinking Water**
Chlorine Residual	2018	2.35	ppm	4	4	0.5 – 3.5	N	Disinfectant used to control microbes
Lead and Copper	**Date Sample**	**MCLG**	**Units**	**Action Level (AL)**	**90th Percentile**	**# Sites Over AL**	**Violation**	**Likely Source of Contamination**
Copper	8/10/2016	1.3	ppm	1.3	0.25	0	N	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems
Lead	8/10/2016	0	ppm	15	3	0	N	Corrosion of household plumbing systems; Erosion of natural deposits

CITY OF LAKE WORTH: 2018 Water Loss Audit

The City of Lake Worth's 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 2018, the system lost an estimated 7.05% of water from the 279,111,660 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 loss.

SW From Fort Worth CC Form TX2200012 City of Fort Worth

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

Compound	Measure	MCL	MCLG	Your water	Violation	Common Source of Substance
Turbidity	NTU	TT=1	N/A	0.5 99.9%	N	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.)

Compound	MCL	MCLG	Your water	Range	Violation	Common Source of Substance
Total Coliforms (including fecal coliform & E. coli)	TT	0	0	0	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.

Compound	Measure	MCL	MCLG	Your water	Range	Violation	Common Source of Substance
Beta/photon emitters[1]	pCi/L	50	0	5.6	4.4 to 5.6	N	Decay of natural and man-made deposits
Combined Radium[1]	pCi/L	5	0	2.5	NA	N	Erosion of natural deposits
Uranium[1]	ppb	30	0	1.1	0 to 1.1	N	Erosion of natural deposits
Arsenic	ppb	10	0	1.1	0 to 1.1	N	Erosion of natural deposits; runoff from orchards, runoffs from glass and electronics production waste.
Atrazine	ppb	3	3	0.1	0.0 to 0.1	N	Runoff from herbicide used on row crops
Barium	ppm	2	2	0.07	0.05 to 0.07	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Cyanide	ppb	200	200	84.3	0 to 84.3	N	Discharge from plastic and fertilizer factories; discharge from steel and metal factories.
Fluoride	ppm	4	4	0.61	0.17 to 0.61	N	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.
Nitrate (as Nitrogen)	ppm	10	10	0.67	0.17 to 0.67	N	Runoff fertilizer use, teaching from septic tanks, sewage; erosion of natural deposits.
Nitrite (as Nitrogen)	ppm	1	1	0.02	0 to 0.02	N	Runoff fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Bromate	ppb	10	0	2	0 to 13	N	Byproduct of drinking water disinfection.
Haloacetic Acids	ppb	60	NA	9	2.2 to 6	N	Byproduct of drinking water disinfection.
Total Trihalomethanes (TTHM)	ppb	80	NA	11	1.45 to 14.1	N	Byproduct of drinking water disinfection.

Compound	Measure	MRDL	MRDLG	Your water	Range	Violation	Common Source of Substance
Chloramines[2]	ppm	4	4	2.35	.5 to 3.5	N	Water additives used to control microbes

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

Compound	MCL	MCLG	High	Low	Average	Violation	Common Source of Substance
Total Organic Carbon[3]	TT % removal	N/A	1	1	1	N	Naturally occurring

[1]Because Fort Worth historically has had low levels of radionuclides in its water, TCEQ requires this monitoring occur only once every six years. The test results shown above are from 2017. The next monitoring will occur in 2023.

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.

Compound	Measure	MRDL	MRDLG	Your water	Range	Common Source of Substance
Chloral Hydrate	ppb	Not regulated	N/A	0.34	0.12 to 0.34	Byproduct of drinking water disinfection
Bromoform	ppb	Not regulated	0	5.15	0 to 5.15	Byproducts of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Bromodichloromethane	ppb	Not regulated	0	7.08	1.99 to 7.08	
Chloroform	ppb	Not regulated	70	8.4	2.43 to 8.40	
Dibromochloromethane	ppb	Not regulated	60	6.94	1.31 to 6.94	
Dibromoacetic Acid	ppb	Not regulated	N/A	4.3	1 to 4.3	Byproducts of drinking water disinfection; not regulated individually; included in Haloacetic Acids.
Dichloroacetic Acid	ppb	Not regulated	0	8.5	3.9 to 8.5	
Monobromoacetic Acid	ppb	Not regulated	N/A	2.3	0 to 2.3	
Monochloroacetic Acid	ppb	Not regulated	70	3.9	1.5 to 3.9	
Trichloroacetic Acid	ppb	Not regulated	20	2.2	0 to 2.2	

Secondary Constituents

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

Compound	Measure	Your water
Bicarbonate	ppm	108 to 144
Calcium	ppm	42 to 52.1
Chloride	ppm	11.8 to 40
Conductivity	uhms/cm	302 to 471
pH	units	8.6 to 8.7
Magnesium	ppm	3.20 to 8.64
Sodium	ppm	14.8 to 30.3
Sulfate	ppm	26.3 to 36.5
Total Alkalinity as $CaCO_3$	ppm	98.2 to 136
Total Dissolved Solids	ppm	156 to 251
Total Hardness as CaCO3	ppm	118 to162
Total Hardness in Grains	grains/gallon	7 to 9

Corrosion Control

To meet requirements of the Lead and Copper Rule, Fort Worth achieves corrosion control through pH adjustment

EPA gathers data to decide if future regulation is necessary

Water utilities in the United States monitor for more than 100 contaminants and must meet 91 regulations for water safety and quality.

Should other contaminants be regulated?

The 1996 Safe Drinking Water Act amendments require that once every five years EPA issue a new list of up to 30 unregulated contaminants to be monitored by public water systems.

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.

The fourth Unregulated Contaminant Monitoring Rule includes assessment for three brominated haloacetic acid groups, 10 cyanotoxins, two metals, three semi-volatile chemicals, three alcohols, eight pesticides and one pesticide manufacturing byproduct.

The rule requires testing for cyanotoxins in four consecutive months. Fort Worth tested from August through November 2018.

As required by the rule, testing for the other compounds is done over four consecutive quarters. Fort Worth's testing period is from June 2018 through March 2019. The results shown are for the first three quarters of sampling. The final quarter's results will appear in next year's annual water quality report.

UCMR 4

Fort Worth's testing detected only four of the 30 compounds included in the fourth round of unregulated contaminant monitoring. The detections were one metal and three haloacetic acid disinfection byproduct groups.

Compound	Measure	Average	Range of Detects	Common Sources of Substance
Manganese	ppb	0.27	0 - 1.29	Naturally occurring; used in drinking water and waste-water treatment; used in steel production, fertilizer, batteries and fireworks
HAA5	ppb	6.42	2.6 - 18.62	Byproducts of drinking water disinfection
HAA6Br	ppb	4.44	0 - 8.88	
HAA9	ppb	9.3	0 - 22.98	

Haloacetic Acid Groups

This table includes all of the compounds that comprise each of the haloacetic acid groups. Compounds that are not detected are usually not listed in the charts in this report; however, those undetected are listed below to provide complete information on the compounds that comprise each of the three groups in the table above.

Compound	Measure	Average	Range of Detects	HAA5	HAA6BR	HAA9	Common Sources of Compound
Dichloroacetic Acid	ppb	4.62	2.60 to 7.88	HAA5		HAA9	Byproducts of drinking water disinfection
Monochloroacetic Acid	ppb	0.24	0 to 6.22	HAA5		HAA9	
Trichloroacetic Acid	ppb	0	0 to 0	HAA5		HAA9	
Monobromoacetic Acid	ppb	0	0 to 0	HAA5	HAA6BR	HAA9	
Dibromoacetic Acid	ppb	1.56	0 to 4.52	HAA5	HAA6BR	HAA9	
Bromochloroacetic Acid	ppb	2.88	0 to 4.36		HAA6BR	HAA9	
Bromodichloroacetic Acid	ppb	0	0 to 0		HAA6BR	HAA9	
Chlorodibromoacetic Acid	ppb	0	0 to 0		HAA6BR	HAA9	
Tribromoacetic Acid	ppb	0	0 to 0		HAA6BR	HAA9	

UCMR 4 compounds not detected

Cyanotoxins
Total misrocystin
microcystin-LA
microcystin-LF
microcystin-LR
microcystin-LY
microcystin-RR
microcystin-YR
nodularin
anatoxin-a
cylindrospermopsin

Metals
Germanium

Semi-volatile Chemicals
butylated hydroxyanisole
o-toluidine
quinoline

Alcohols
1-butanol
2-methoxylethanol
2-propen-1-ol

Pesticides and Pesticide Manufacturing Byproduct
alpha-hexachlorocyclohexane
chlorpyrifos
dimethipin
ethoprop
oxyfluorfen
profenofos
tebuconazole
total permethrin
tribufos

DEFINITIONS & ABBREVIATIONS

MRDL (Maximum Residual Disinfectant Level) The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for control of microbial contaminants.

MRDGL (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.

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 proves 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 – 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 – Level 2 assessment is a very detail study of the water system to identify potential problems and determines (if possible) why total coliform bacteria have been found in our water system on multiple occasions.

Mrem – millirems per year (a measure or 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 of 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)

Ppg – parts per quadrillion, or picograms per liter (pg/L)

ALG – (Action Level Goal) 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.

MCL – (Maximum Contaminant Level) The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Learn About Stormwater Pollution

What is Storm Water?

Stormwater is rain that falls on roofs or paved area like driveways and roads. It picks up chemicals and materials that are not naturally found in our waterways i.e. fertilizers, cigarette butts, leaves, oil, soaps, etc. and carries them directly into the surrounding lakes and rivers. Stormwater is separate from the sewage system, unlike wastewater, rainwater is not treated, and flows directly into the bodies of water that we use for swimming, fishing, and those that provide drinking water. Polluted runoff is the nation's greatest threat to clean water.

"THE DRAIN IS FOR THE RAIN!"

ENVIS Centre: CPCB

What's the problem?

Rain washes pollutants from the streets, and construction sites into storm sewers and ditches. Eventually, the polluted water from these systems get washed into streams and rivers with no treatment. This problem is known as stormwater pollution.

Stormwater pollution can have many adverse effects on creeks, rivers, lakes and water supplies as well as plants, fish, animals, and people.

Visit the City's Storm-water Page or Texas Smartscape to learn more and see what you can do to help prevent Stormwater Pollution. You can help with simple day to day actions.

Source: The Morning Call


City of
LAKE
WORTH
TEXAS