



2016 Annual Drinking Water Quality Report

(Consumer Confidence Report)

Customer Service: 817-297-2201

Emergency - Nights & Weekends: 817-297-2276

Special Notice

You may be more vulnerable than the general population to certain microbial contaminants, such as Cryptosporidium, in drinking water. Infants, some elderly or immunocompromised 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 for infections. You should seek advice about drinking water from your Physician or health care providers. Additional guidelines for appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at (800) 426-4791.

Public Participation Opportunities

Date: City Council meetings are the 1st and 3rd Thursday of each month

Time: 7:00 pm

Location: City Hall, Council Chambers

Phone No: 817-297-2201

To learn about future public meetings (concerning your drinking water), or to request to schedule one, please call us or check our website at www.ci.crowley.tx.us.

Where do we get our drinking water?

Our drinking water is obtained from purchased surface water sources. It comes from the following Lake/River/Reservoir/Aquifer: Surface Water is purchased from the City of Fort Worth (Lake Worth, Eagle Mountain Lake, Lake Bridgeport, Richland Chambers Reservoir, Cedar Creek Reservoir, Lake Benbrook and Clear Fork Trinity River).

Source water assessment and its availability

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 the following URL: <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 the following URL: <http://dww2.tceq.texas.gov/DWW>

Contaminants that may be present in source water include:

- 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, 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 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.

OUR DRINKING WATER IS REGULATED

Annual Water Quality Report is for the period of January 1 to December 31, 2016. This report is a summary of the quality of the water we provide our customers. The analysis was made by using the data from the most recent U.S. Environmental Protection Agency (EPA) required tests and is presented in the attached pages. We hope this information helps you become more knowledgeable about what's in your drinking water.

SOURCES OF DRINKING WATER: The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Drinking water, including bottled water, may be reasonably 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.

En Espanol

Este informe contiene informacion muy importante sobre la calidad de su agua potable. Por favor lea este informe o comuniquese con alguien que pueda traducir la informacion.

About The Following Pages

The following tables contain scientific terms and measures, some of which may require explanation.

DEFINITIONS

Maximum Contaminant Level Goal (MCLG)

The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

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.

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 disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

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

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

NTU: Nephelometric Turbidity Units (a measure of water turbidity or clarity)

pCi/L: picocuries per liter (a measure of radioactivity)

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

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

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. 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 Public Works Department. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions above.

Inorganic Contaminants								
Collection Date	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Unit of Measure	Violation	Source of Contaminant
2016	Antimony	0.24	0-0.24	6	6	ppb	N	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; test addition
2016	Arsenic	3.1	0.83 to 3.1	0	10	ppb	N	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
2016	Barium	.058	0.035 to .058	2	2	ppm	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
2016	Chromium	1.5	0.46 to 1.5	100	100	ppb	N	Discharge from steel and pulp mills; Erosion of natural deposits.
2014	Cyanide	71.4	0 to 71.4	.2	.2	ppm	N	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
2014	Fluoride	0.499	0.466 to 0.499	4.0	4.0	ppm	N	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
2016	Nitrate [measured as Nitrogen]	1	0.602 to 1.27	10	10	ppm	N	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
2016	Selenium	1.3	0 to 1.3	50	50	ppb	N	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.

Radioactive Contaminants								
2016	Beta/Photon emitters	5.3	0 to 5.3	0	50	pCi/L*	N	Decay of natural and man-made deposits. *EPA considers 50 pCi/L to be the level of concern for beta particles.
2016	Combined Radium 226/228	1.5	1.5 to 1.5	0	5	pCi/L	N	Erosion of natural deposits.

Volatile Organic Contaminants								
Collection Date	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Unit of Measure	Violation	Likely source of Contamination

In 2016, testing was conducted on the following contaminants; all testing resulted in levels lower than the detect levels. 1,2-Dichloropropane, Benzene, Carbon Tetrachloride, Chlorobenzene, Ethylbenzene, Styrene, Tetrachloro-ethylene, Toluene, Trichloro-ethylene Vinyl Chloride, Xylenes, cis-1,2-Dichloroethylene, o-Dichlorobenzene, p-Dichlorobenzene, trans-1,2-Dichloroethylene, Dichloromethane

Disinfectants and Disinfection By-products								
Collection Date	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG or MRDLG	MCL	Units	Violation	Source of Contaminant
2016	Total Haloacetic Acids	12	6.5 – 21.7	No goal for the total	60	ppb	N	By-product of drinking water chlorination.
2016	Total Trihalomethanes	16	6.58 –19.8	No goal for the total	80	ppb	N	By-product of drinking water chlorination.

Lead and Copper
The Lead and Copper Rule protects public health by minimizing lead and copper levels in drinking water, primarily by reducing water corrosivity. Lead and copper enter drinking water mainly from corrosion of lead and copper containing plumbing materials.

Collection Date	Contaminant	MCLG	Action Level (AL)	90 th Percentile	# Sites Over AL	Unit of Measure	Violation	Likely Source of Contamination
2014	Copper	1.3	1.3	0.396	0	ppm	N	Corrosion of household plumbing systems/erosion of natural deposits; leaching from wood preservatives.
2014	Lead	0	15	3	1	ppb	N	Corrosion of household plumbing systems; erosion of natural deposits.

Definitions:
Action Level Goal (ALG): The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.
Action Level: The concentration of a contaminant which, if exceeded triggers treatment or other requirements which a water system must follow.
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high quality drinking water, but we 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 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 Save Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Coliform Bacteria/E. coli
Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.
E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.

Maximum Contaminant Level	Total Coliform Maximum Contaminant Level	Highest No. of Positive	Fecal Coliform or E. Coli Maximum Contaminant Level (MCL)	Total No. of Positive E. Coli or Fecal Coliform Samples	Violation	Likely Source of Contamination
0	1 positive monthly sample.	1	A routine sample and a repeat sample are total coliform positive and one is also fecal coliform or E. coli positive	0	N	Naturally present in the environment.

The City of Crowley's water loss as reported on the Water Loss Audit for 2016 was 107,127,996 gallons of water.

Public Notification Rule
The Public Notification Rule helps to ensure that consumers will always know if there is a problem with their drinking water. These notices immediately alert consumers if there is a serious problem with their drinking water (e.g., a boil water emergency).

Violation Type	Violation Begin	Violation End	Violation Explanation
Public Notice Rule Linked to Violation	05/31/2016	2016	We failed to adequately notify you, our drinking water consumers, about a violation of the drinking water regulations.
Public Notice Rule Linked to Violation	07/11/2016	2016	We failed to adequately notify you, our drinking water consumers, about a violation of the drinking water regulations.

Fort Worth Drinking Water Year 2016 Results

Contaminant	Measure	MCL	2016 Level	Range of Detects	MCLG	Common Sources of Substance in Drinking Water
Alpha particles ¹	pCi/L	15	2	2 to 2	N/A	Erosion of natural deposits of certain minerals that are radioactive and may emit forms of radiation known as alpha radiation
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
Arsenic	ppb	10	1.40	0 to 1.40	0	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	ppm	2	0.06	0.05 to 0.06	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (Total)	ppb	100	0.73	0 to 0.73	100	Discharge from steel and pulp mills, erosion of natural deposits
Cyanide	ppb	200	80.3	0 to 80.3	200	Discharge from plastic and fertilizer factories; discharge from steel and metal factories
Fluoride	ppm	4	0.50	0.23 to 0.50	4	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate (measured as Nitrogen)	ppm	10	0.66	0.26 to 0.66	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (measured as Nitrogen)	ppm	1	0.03	0.01 to 0.03	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Bromate	ppb	10	5.50	0 to 10.4	0	Byproduct of drinking water disinfection
Total Coliforms (including fecal coliform & E. coli)	% of positive samples	Presence in 5% or more of monthly samples	Presence in 2.2% of monthly samples	0 to 2.2%	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
Turbidity ²	NTU	TT	0.36 Highest single Result	N/A	N/A	Soil Runoff
			99.7% Lowest monthly % of samples < 0.3 NTU			
Disinfectant	Measure	MRDL	2016 Level	Range of Detects	MRDLG	Common Sources of Substance in Drinking Water
Chloramines	ppm	4	1.7	0.2 to 3.9	4	Water additive used to control microbes
Contaminant	High	Low	Average	MCL	MCGL	Common Sources of Substance in Drinking water
Total Organic Carbon ³	1	1	1	TT = % removal	N/A	Naturally occurring

¹ Because Fort Worth historically has had low levels of radionuclides in its water, TCEQ has Fort Worth on a reduced monitoring schedule. The test results shown are from 2013 through 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 Contaminants⁴

⁴ 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.

Contaminants	unit	Range of Detections	2016 Level	MCL	MCLG	Common Sources of Substance in Drinking Water
Chloral Hydrate	ppb	0.53 to 0.93	0.93	Not Regulated	None	By-product of drinking water disinfection
Bromoform	ppb	0 to 4.16	4.16	Not Regulated	None	By-products of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Bromodichloromethane	ppb	2.15 to 7.26	7.26	Not Regulated	None	
Chloroform	ppb	4.26 to 13	13	Not Regulated	None	
Dibromochloromethane	ppb	0 to 10.2	10.2	Not Regulated	None	
Monochloroacetic Acid	ppb	0 to 3.0	3.0	Not Regulated	None	By-products of drinking water disinfection; not regulated individually; included in Haloacetic Acids
Dichloroacetic Acid	ppb	5.90 to 11.8	11.8	Not Regulated	None	
Trichloroacetic Acid	ppb	0 to 1.5	1.5	Not Regulated	None	
Monobromoacetic Acid	ppb	0 to 2.2	2.2	Not Regulated	None	
Dibromoacetic Acid	ppb	0 to 5.1	5.1	Not Regulated	None	

TCEQ accesses raw water supplies for susceptibility

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 source waters as high for most contaminants.

High susceptibility means there are activities near the source water or a watershed that make it very likely that chemical constituents may 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 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 at

dww2.tceq.gov/DWW/JSP/SWAP.jsp?tinusys_is_number=5802&tinusys_st_code=TX&wnumber=TX2200012%20%20%20&DWWState=TX.

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 2015 sampling showed low level detections of *Cryptosporidium*, *Giardia Lamblia* and viruses that are common in surface water. The table below indicates when detections were found 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.

Intake Location	<i>Cryptospridium</i>	<i>Giardia Lamblia</i>	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	January & March	Not detected	Not detected	Not detected

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 to 145
Calcium	ppm	41.1 to 58
Chloride	ppm	15.8 to 20.2
Conductivity	µmhos/cm	322 to 396
pH	units	8.1 to 8.4
Magnesium	ppm	4.63 to 5.86
Sodium	ppm	15.1 to 17.8
Sulfate	ppm	15.8 to 29.9
Total Alkalinity as CaCO ₃	ppm	112 to 145
Total Dissolved Solids	ppm	180 to 277
Total Hardness as CaCO ₃	ppm	126 to 164
Total Hardness in Grains	grains/gallon	7 to 10

Effective April 17, 2014: Current Watering Restrictions were made permanent.

MONDAY: NO Watering allowed

TUESDAY & FRIDAY: Non-residential sites (apartments, businesses, parks, common areas)

WEDNESDAY & SATURDAY: Residential addresses ending in 0, 2, 4, 6, 8

THURSDAY & SUNDAY: Residential addresses ending in 1, 3, 5, 7, 9

<p>For additional information, please go to the City of Crowley's website at www.ci.crowley.tx.us</p>
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