

## UNREGULATED CONTAMINANTS – CITY OF FORT WORTH SAMPLING RESULTS

Contaminant	Measure	Range	2016 Level	MCL	MCLG	Common Source of Substance
Chloral Hydrate	ppb	0.53 to 0.93	0.55	Not regulated	None	By-product of drinking water disinfection
Bromoform	ppb	0 to 4.16	4.16	Not regulated	None	
Bromodichloromethane	ppb	2.15 to 7.26	7.26	Not regulated	None	By-products of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Chloroform	ppb	4.26 to 13	13.0	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	

## UNREGULATED CONTAMINANTS – CITY OF KELLER SAMPLING RESULTS

Contaminant	Measure	Range	2016 Level	MCL	MCLG	Common Source of Substance
Bromoform	ppb	0 to 0	0	Not regulated	None	By-products of drinking water disinfection; not regulated individually; included in Total Trihalomethanes
Bromodichloromethane	ppb	1.82 to 5.72	3.57	Not regulated	None	
Chloroform	ppb	3.14 to 6.63	4.68	Not regulated	None	
Dibromochloromethane	ppb	1.00 to 3.57	2.13	Not regulated	None	By-products of drinking water disinfection; not regulated individually; included in Haloacetic Acids
Monochloroacetic Acid	ppb	0 to 2.80	0.63	Not regulated	None	
Dichloroacetic Acid	ppb	6.60 to 10.50	8.66	Not regulated	None	
Trichloroacetic Acid	ppb	1.20 to 1.90	1.38	Not regulated	None	
Monobromoacetic Acid	ppb	0 to 1.30	0.41	Not regulated	None	
Dibromoacetic Acid	ppb	0 to 2.10	1.14	Not regulated	None	

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

## SECONDARY CONSTITUENTS-CITY OF FORT WORTH SAMPLING RESULTS

Contaminant	Measure	2016 Range
Bicarbonate	ppm	112 to 145
Calcium	ppm	41.1 to 58
Chloride	ppm	15.8 to 20.2
Conductivity	umhos/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 CaCO3	ppm	112 to 145
Total Dissolved Solids	ppm	180 to 227
Total Hardness as CaCO3	ppm	126 to 164
Total Hardness in Grains	grains/gallon	7 to 10



**Secondary constituents** are items that do not relate to public health but rather to the aesthetic effects. These items are often important to industrial users.

## 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 Lamblia	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
Clearfork of Trinity River	May, June, August, September, November	June & August	January & March	Not detected	Not detected	Not detected

## VIOLATIONS

Violation Type	Violation Begin	Violation End	Violation Explanation
LEAD CONSUMER NOTICE (LCR)	12/30/2013	03/22/2016	Keller was issued a violation in 2013 for failing to provide the test data of tap water lead monitoring to the consumers at the sampled location within 30 days of receiving the analytical results. The violation was later resolved with the TCEQ.

## 2016 WATER LOSS AUDIT

The City of Keller'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 163,410,092 gallons of water from the 2,784,674,878 gallons of water 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.

## TWICE PER WEEK WATERING ALWAYS IN EFFECT

Maximum twice per week watering and prohibition on watering any day between 10 a.m. and 6 p.m. is a year-round water conservation measure. Under the Water Conservation Plan, residential addresses ending in an even number (0, 2, 4, 6, or 8) may water on Wednesdays and Saturdays. Residential addresses ending in an odd number (1, 3, 5, 7 or 9) may water on Thursdays and Sundays. All non-residential locations (apartment complexes, businesses, industries, parks, medians, etc.) may water on Tuesdays and Fridays.

## WATER CONSERVATION TIPS

### Conserving water inside your home:

- Fix leaking faucets, pipes, toilets, etc.
- Replace old fixtures; install water-saving devices in faucets, toilets, and appliances.
- Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.
- Turn off water while shaving or brushing teeth.
- Soak dishes before washing.

### Conserving water outdoors:

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.
- Use water-saving nozzles.
- Use water from a bucket to wash your car; save the hose rinsing.

## STORMWATER QUALITY

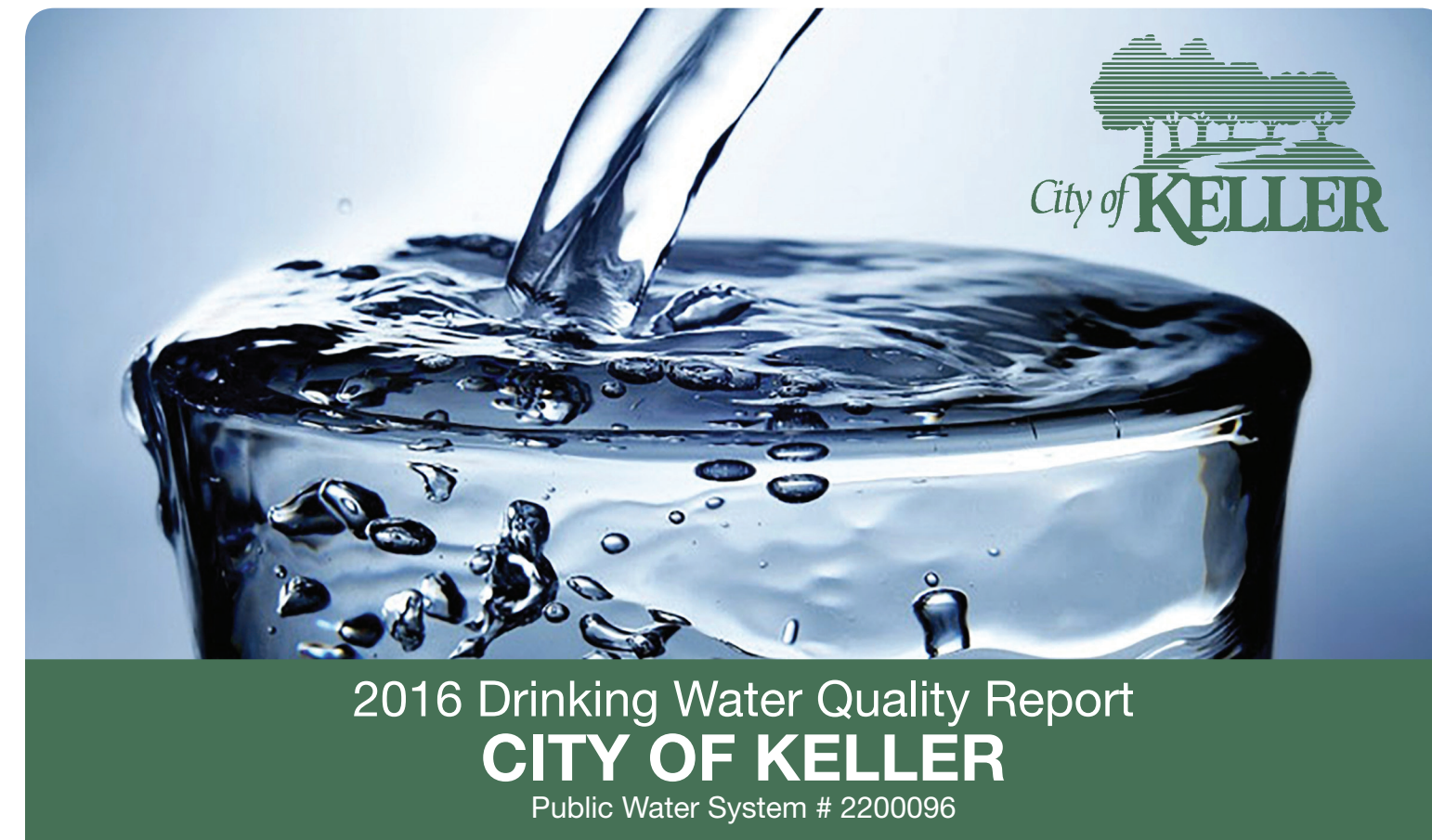
Stormwater is water that originates during precipitation events and snow/ice melt. Stormwater can pick up dirt, debris, and other contaminants and carry the pollutants to streams, creeks, and lakes. The major contribution of pollution to local watersheds is caused by stormwater runoff from urbanized areas.

### Stormwater Pollution Prevention Measures:

- Pick up after your pet.
- Never fertilize your lawn before a rain event.
- Use organic lawn care methods.
- Do not blow grass clippings, leaves or other yard waste to streets or storm drains; mulch lawn clippings and leaves and leave them on the lawn.
- Do not wash your vehicle on a paved surface; wash it on the grass or in a designated commercial car wash.
- Recycle household paint, motor oil, antifreeze, tires, and batteries.
- Do not overwater your lawn to prevent the excess water runoff.
- Report littering/illegal dumping to your local authority (Keller Town Hall) at 817-743-4000.



Please call our office (817-743-4080) if you have questions. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.



This report is a summary of the quality of the water provided to Keller 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. This information helps you become more knowledgeable about what's in your drinking water. Keller's constant goal is to provide you with a safe and dependable supply of drinking water. If you have any questions about this report or concerning your water utility, please contact the City of Keller Water Department at 817-743-4200.

**En Español:** Este reporte incluye informacion importante sobre el agua para tomar. Para asistencia en español, por favor de llamar al telefono 817-743-4200.

**Public Participation Opportunities:** Keller City Council meetings are held on the first and third Tuesday of each month. Meetings generally start with a Pre-Council meeting at 5 p.m. followed by the regular City Council meeting at 7 p.m. All Keller City Council meetings are open to the public. For scheduling and information, call 817-743-4007 or email [townhall@cityofkeller.com](mailto:townhall@cityofkeller.com).

The City of Keller purchases its 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 (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](http://www.tceq.texas.gov/drinkingwater/SWAP/index_swa.html).

All 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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

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 Safe Drinking Water Hotline at 800-426-4791.

The sources of drinking water (both tap water 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. 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, or farming.
- Pesticides and herbicides, which might have 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 byproducts 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 the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that 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 City of Keller Water Department at 817-743-4200.

## ABBREVIATIONS AND DEFINITIONS

<b>NTU</b>	Nephelometric Turbidity Units (a measure of water turbidity or clarity)		
<b>pCi/L</b>	picocuries per liter (a measure of radioactivity)	<b>grains/gallon</b>	unit of water hardness
<b>ppm</b>	parts per million, or milligrams per liter (mg/L)	<b>umhos/cm</b>	micromhos per centimeter
<b>ppb</b>	parts per billion, or micrograms per liter (µg/L)	<b>N/A</b>	not applicable

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

**Level 1 Assessment:** A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria were found.

**Level 2 Assessment:** A very detailed study of the water system to identify potential problems and determine (if possible) why an Escherichia coli (E. coli) maximum contaminant level (MCL) violation has occurred and/or why total coliform bacteria were found on multiple occasions.

**Maximum Contaminant Level (MCL):** The highest permissible level of a contaminant in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

**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 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.

**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 contamination.

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

The City of Keller routinely monitors for constituents in your drinking water according to federal and state laws. The following pages show results of monitoring for the period of January 1, 2016 through December 31, 2016.

## LIST OF REGULATED CONTAMINANTS – CITY OF FORT WORTH SAMPLING RESULTS

Contaminant	Measure	MCL	2016 Level	Range	MCLG	Common Source of Substance
Alpha particles*	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*	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 electronic 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	By-product of drinking water disinfection
Haloacetic Acids	ppb	60	8.35	0 to 15.9	N/A	By-product of drinking water disinfection
Total Trihalomethanes	ppb	80	17.5	2.19 to 25	N/A	By-product of drinking water disinfection

\* 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 2013 and 2014.

Contaminant	High	Low	Average	MCL	MCLG	Common Source of Substance
Total Organic Carbon	1	1	1	TT = % removal	N/A	Naturally occurring
Total Organic Carbon is used to determine disinfection byproduct precursors.						

Contaminant	Measure	MCL	2016 Highest single result	Lowest monthly % of samples ≤ 0.3 NTU	MCLG	Common Source of Substance
Turbidity	NTU	TT	0.36	99.7%	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.						

**Turbidity** has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

## LIST OF REGULATED CONTAMINANTS – CITY OF KELLER SAMPLING RESULTS

Contaminant	Measure	MCL	2016 Level	Range	MCLG	Violation	Common Source of Substance
Nitrate (measured as Nitrogen)	ppm	10	0.454	0.332 to 0.454	10	N	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (measured as Nitrogen)	ppm	1	0.168	0 to 0.168	1	N	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Disinfectant	Measure	MRDL	2016 Lowest Level	Range	MRDLG	Common Source of Substance
Chloramines	ppm	4	2.54	1.0 to 3.60	4	Water additive used to control microbes

Disinfectant By-Product	Measure	MCL	2016 Level	Range	MCLG	Violation	Common Source of Substance
Haloacetic Acids	ppb	60	12.33	9.70 to 14.90	N/A	N	By-product of drinking water disinfection
Total Trihalomethanes	ppb	80	10.38	6.19 to 15.80	N/A	N	By-product of drinking water disinfection

Contaminant	Collection Date	Measure	Action Level (AL)	90th Percentile	# Sites Over AL	MCLG	Violation	Likely Source of Contaminant
Copper	2016	ppm	1.3	0.68	0	1.3	N	Erosion of natural deposits; leaching from wood preservatives; corrosion of household plumbing systems
Lead	2016	ppm	0.015	0.0057	2	0	N	Corrosion of household plumbing systems; erosion of natural deposits

**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. If more than 10% of tap water samples exceed the action level, water systems must take additional steps.

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. The City of Keller 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 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 at the Safe Drinking Water Hotline or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## TOTAL COLIFORMS – CITY OF FORT WORTH SAMPLING RESULTS

Contaminant	Measure	MCL	2016 Level	Range	MCLG	Common Source of Substance
Total Coliforms (including fecal coliform & E. coli)	% positive samples	Presence in 5% or less of monthly samples	Presence in 2.3% of monthly samples	0.4 to 2.3%	0	Naturally present in the environment as well as feces; fecal coliforms and E. coli only come from human and animal fecal waste

## TOTAL COLIFORMS – CITY OF KELLER SAMPLING RESULTS

Contaminant	Measure	MCL	2016 Level	Range	MCLG	Violation	Common Source 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	N	Naturally present in the environment as well as feces; fecal coliforms and E. coli only come from human and animal fecal waste

**Total coliform bacteria** are used as indicators of microbial contamination of drinking water because testing for them is easy. While not disease-causing organisms themselves, they are often found in association with other microbes that are capable of causing disease. Coliform bacteria are harder than many disease-causing organisms; therefore, their absence from water is a good indication that the water is microbiologically safe for human consumption.