

# ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2016



PRESENTED BY



**CLEARWATER**  
BRIGHT AND BEAUTIFUL • BAY TO BEACH

## At Your Service

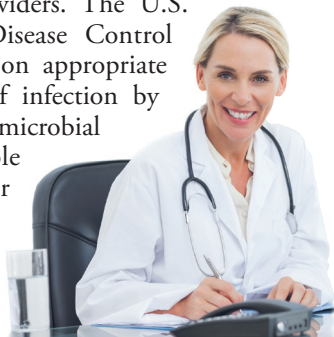
Here at Clearwater Public Utilities, our team of utility professionals provide our community with safe drinking water, an environmentally proactive wastewater collection system, and treated wastewater to very high standards. This helps us to provide reclaimed water to our customers for reuse in the community. We proudly present to you the annual water quality report that covers the period between Jan. 1 through Dec. 31, 2016.

The city is proud of the dedication and expertise of its utility professionals who serve our customers and keep our systems operating efficiently and cost-effectively. It is our pledge to maintain increased productivity, controlled costs and improved customer service. It is our continuing endeavor to serve the public by providing our customers with high-quality safe and efficient services, while promoting conservation and responsible management of resources.

## Important Health Information

While your drinking water meets the U.S. EPA's standard for arsenic, it does contain low levels of arsenic. The EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



## Community Participation Is Welcome

You are invited to participate in regularly scheduled meetings. The City of Clearwater Council normally meets at 6 p.m. on the first and third Thursdays of each month at City Hall, 112 S. Osceola Ave., Clearwater, FL. The meeting agendas are published on the city's Web site at [myclearwater.com](http://myclearwater.com). For more information, call (727) 562-4090.

The Pinellas County Board of County Commissioners meets typically twice a month (usually, but not always) on the first and third Tuesdays of the month. The earlier meeting in the month begins at 9:30 a.m. Meetings in the latter part of the month are held in two parts. Agenda items are discussed with the board at 2 p.m., after which there is a break and the board reconvenes at 6 p.m. The public is invited to attend these meetings, held in the 5th floor Assembly Room of the Pinellas County Courthouse, located at 315 Court St. in Clearwater. For more information, call (727) 464-3485.

Tampa Bay Water's Board of Directors meetings occur on the third Monday of every other (even) month at 9 a.m. at Tampa Bay Water, 2575 Enterprise Road in Clearwater. For more information, visit their Web site at [tampabaywater.org](http://tampabaywater.org) or call (727) 796-2355.



## Lead in Home Plumbing

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 Safe Drinking Water Hotline or at [www.epa.gov/lead](http://www.epa.gov/lead).



## Where Does My Water Come From?

City of Clearwater residents use approximately 10.5 million gallons of potable water every day. Approximately 80 percent is pumped from city-owned and operated groundwater wells; the remaining daily demand is supplied by water purchased from Pinellas County Utilities. The groundwater source for Clearwater comes from a groundwater supply called the Floridan Aquifer. This aquifer, one of the major sources of groundwater in the United States, underlies all of Florida, southern Georgia, and small parts of adjacent Alabama and South Carolina.

Pinellas County Utilities receives drinking water from Tampa Bay Water, a regional water supplier, which in turn becomes part of the water supplied to the residents of Clearwater. The water supplied by Tampa Bay Water is a blend of groundwater, treated surface water, and desalinated seawater. Eleven regional wellfields, pumping from the Floridan Aquifer, are the primary source for the regional groundwater supply. The Alafia River, the Hillsborough River, C.W. Bill Young Regional Reservoir, and the Tampa Bypass Canal are the primary supplies for the regional treated surface water supply. Hillsborough Bay is the primary supply of seawater for the regional desalinated supply. For more information on the Tampa Bay Water system, visit their Web site at [tampabaywater.org](http://tampabaywater.org).

## Source Water Assessment

In 2016, the Florida Department of Environmental Protection performed a Source Water Assessment on our system. The assessment was conducted to provide information about any potential sources of contamination in the vicinity of our wells. There are 50 potential sources of contamination identified for this system, with low to moderate susceptibility levels. There are 3 potential sources of contamination identified for this system with high susceptibility levels.

Between 2004 and 2016, the Department of Environmental Protection performed Source Water Assessments for Tampa Bay Water facilities. The assessments were conducted to provide information about any potential sources of contamination in the vicinity of the Tampa Bay Water surface water intakes. The surface water system is considered to be at high risk because of the many potential sources of contamination present in the assessment area.

The assessment results are available on the FDEP Source Water Assessment and Protection Program Web site at [www.dep.state.fl.us/swapp](http://www.dep.state.fl.us/swapp) or they can be obtained from Tampa Bay Water, 2575 Enterprise Road, Clearwater, FL 33763, phone (727) 796-2355.

## City Water Treatment Plants

Clearwater has three water treatment plants, two of which use reverse-osmosis (RO) technology.

### How Is My Water Treated?

Clearwater uses Best Available Treatment (BAT) technologies to ensure that the drinking water delivered to our consumers meets or exceeds all drinking water standards. The city produces its own water and purchases the rest from Pinellas County Utilities to meet the water demand of city residents.

At RO Plant No. 1, water from wells in the Upper Floridan Aquifer is filtered to remove suspended solids such as iron. It is then processed by reverse-osmosis to remove selected dissolved molecules, including hardness-causing salts. The water is disinfected using monochloramines, stabilized to protect the pipeline system, and then pumped to consumers.

At RO Plant No. 2, brackish water from the lower portions of the Upper Floridan Aquifer is treated by reverse-osmosis to remove selected dissolved molecules, including hardness-causing salts. The water is then treated with ozone to remove sulfide, disinfected using monochloramines, stabilized to protect the pipeline system, and then pumped to consumers.

At Water Plant No. 3, raw water from the Upper Floridan Aquifer is blended with water supplied by Pinellas County Utilities, disinfected using monochloramines, stabilized to protect the pipeline system, and then pumped to consumers.



## Groundwater Replenishment

The City of Clearwater is working to ensure the future of our water. After years of thorough analysis and testing, Clearwater is moving forward with the design and permitting phase of the Clearwater Groundwater Replenishment Water Purification Plant. This project purifies reclaimed water to better-than-drinking-water standards and recharges the aquifer using purified recycled water. This process is safe and is used throughout the country and the world. This \$33-million project is cooperatively funded by the Southwest Florida Water Management District. Construction is expected to begin in 2018. Learn more at [myclearwater.com/groundwater](http://myclearwater.com/groundwater).

## QUESTIONS?

Please contact Fred Hemerick at (727) 562-4627 if you have questions about this report.

## About Our Violation

During the second quarter of 2016, the city did not complete all monitoring or testing for cis-1,2-Dichloroethylene, and therefore cannot be sure of the quality of your drinking water during that time. Annual water quality sampling conducted in January 2016 at one of our three water treatment plants detected the volatile organic compound cis-1,2-Dichloroethylene at 0.6 parts per billion. The maximum contaminant limit for cis-1,2-Dichloroethylene is 70.0 parts per billion. Drinking water regulations require quarterly sampling when a volatile organic compound is detected above the regulatory detection limit. The regulatory detection limit for all volatile organic compounds is 0.5 parts per billion.

## Substances That Could Be in Water

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 stormwater 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 stormwater 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 stormwater 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, the U.S. EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

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 EPA's Safe Drinking Water Hotline at (800) 426-4791.



## Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all detects below their respective maximum allowed levels. The State recommends monitoring for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

Although *E. coli* was detected, the water system is not in violation of the *E. coli* MCL.

### PRIMARY REGULATED CONTAMINANTS

#### Microbiological Contaminants

CONTAMINANT AND UNIT OF MEASUREMENT	MCL/TT VIOLATION (YES/NO)	DATE OF SAMPLING (MO./YR.)	City of Clearwater		Pinellas County Utilities		MCLG	MCL/TT	LIKELY SOURCE OF CONTAMINATION
			HIGHEST MONTHLY PERCENTAGE/ NUMBER (UNTIL MARCH 31, 2016) OR RESULT (BEGINNING APRIL 1, 2016)	DATE OF SAMPLING (MO./YR.)	HIGHEST MONTHLY PERCENTAGE/ NUMBER (UNTIL MARCH 31, 2016) OR RESULT (BEGINNING APRIL 1, 2016)				
<b>Total Coliform Bacteria</b> (% positive samples until March 31, 2016)	No	1/16–3/16	0	1/16–3/16	1.1		0	Presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment
<b>Total Coliform Bacteria</b> <sup>1</sup> (positive samples beginning April 1, 2016)	No	4/16–12/16	4	NA	NA		NA	TT	Naturally present in the environment
<b>Total Coliform Bacteria</b> (% positive samples beginning April 1, 2016)	No	NA	NA	4/16–12/16	5.0		NA	TT	Naturally present in the environment

CONTAMINANT AND UNIT OF MEASUREMENT	MCL VIOLATION (YES/NO)	DATE OF SAMPLING (MO./YR.)	City of Clearwater		Pinellas County Utilities		MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
			TOTAL NUMBER OF POSITIVE SAMPLES FOR THE YEAR	DATE OF SAMPLING (MO./YR.)	TOTAL NUMBER OF POSITIVE SAMPLES FOR THE YEAR				
<b><i>E. coli</i></b> (# positive samples beginning April 1, 2016)	No	4/16–12/16	4	4/16–12/16	0		0	See footnote #2	Human and animal fecal waste
<b>Fecal coliform and E.coli [in the distribution system]</b> (# positive samples)	No	1/2016-3/2016	0	1/16-3/16	0		0	0	Human and animal fecal waste

#### Radioactive Contaminants

		City of Clearwater			Pinellas County Utilities					
CONTAMINANT AND UNIT OF MEASUREMENT	MCL VIOLATION (YES/NO)	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Alpha Emitters (pCi/L)	No	1/25/16	4.1	ND–4.1	3/11	0.806	ND–0.806	0	15	Erosion of natural deposits
Radium 226 + 228 [Combined Radium] (pCi/L)	No	1/25/16	2.2	1.6–2.2	NA	NA	NA	0	5	Erosion of natural deposits
Uranium (ppb)	No	1/25/16	0.30	0.078–0.54	NA	NA	NA	0	30	Erosion of natural deposits

#### Inorganic Contaminants

<b>Arsenic</b> (ppb)	No	1/25/16	5.6	2.0–5.6	NA	NA	NA	NA	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
<b>Barium</b> (ppm)	No	1/25/16	0.020	0.0080–0.020	2/16	0.0151	NA	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
<b>Chromium</b> (ppb)	No	1/25/16	11	4.2–4.9	2/16	2.3	NA	100	100	Discharge from steel and pulp mills; erosion of natural deposits
<b>Fluoride</b> (ppm)	No	1/25/16	0.5	ND–0.5	2/16	0.43	NA	4	4.0	Erosion of natural deposits; discharge from fertilizer and aluminum factories; water additive that promotes strong teeth when at optimum levels between 0.7 and 1.3 ppm

		City of Clearwater			Pinellas County Utilities					
CONTAMINANT AND UNIT OF MEASUREMENT	MCL VIOLATION (YES/NO)	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Inorganic Contaminants										
Nickel (ppb)	No	1/25/16	4.5	2.0–4.5	2/16	1.2	NA	NA	100	Pollution from mining and refining operations; natural occurrence in soil
Nitrate [as Nitrogen] (ppm)	No	1/25/16	0.12	ND–0.12	2/16	0.1	NA	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium (ppb)	No	1/25/16	8.4	4.2–8.4	NA	NA	NA	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Sodium (ppm)	No	1/25/16	91	37–91	2/16	19.6	NA	NA	160	Salt water intrusion; leaching from soil
Synthetic Organic Contaminants including Pesticides and Herbicides										
Dalapon (ppb)	No	1/2016; 4/2016; 7/2016	0.52	ND–0.52	NA	NA	NA	200	200	Runoff from herbicide used on rights of way
Volatile Organic Contaminants										
cis-1,2-Dichloroethylene (ppb)	No	1/2016; 7/2016; 10/2016	0.7	ND–0.7	NA	NA	NA	70	70	Discharge from industrial chemical usage
Stage 1 Disinfectants / Disinfection By-Products										
		City of Clearwater			Pinellas County Utilities					
CONTAMINANT AND UNIT OF MEASUREMENT	MCL VIOLATION (YES/NO)	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	MCLG OR [MRDLG]	MCL OR [MRDL]	LIKELY SOURCE OF CONTAMINATION
Bromate (ppb)	No	1/2016; 12/2016	6.4	ND–13.7	NA	NA	NA	0	10	By-product of drinking water disinfection
Chloramines (ppm)	No	1/16-5/16; 7/16-8/16; 10/16-12/16	2.83	0.5–4.6	1/16–12/16	3.8	0.6–6.0	[4]	[4.0]	Water additive used to control microbes
Chlorine (ppm)	No	6/2016; 9/2016	2.61	0.6–4.2	NA	NA	NA	[4]	[4.0]	Water additive used to control microbes
		City of Clearwater				Pinellas County Utilities				
CONTAMINANT AND UNIT OF MEASUREMENT	TT VIOLATION (YES/NO)	DATE OF SAMPLING (MO/YR)	ANNUAL AVERAGE MONTHLY REMOVAL RATIO OR LOWEST ANNUAL AVERAGE MONTHLY REMOVAL RATIO	RANGE OF MONTHLY REMOVAL RATIOS	DATE OF SAMPLING (MO/YR)	ANNUAL AVERAGE MONTHLY REMOVAL RATIO OR LOWEST ANNUAL AVERAGE MONTHLY REMOVAL RATIO	RANGE OF MONTHLY REMOVAL RATIOS	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Total Organic Carbon <sup>3</sup> (ppm)	No	1/25/16	2.1	ND–2.1	NA	NA	NA	NA	TT	Naturally present in the environment
Stage 2 Disinfectants / Disinfection By-Products										
		City of Clearwater			Pinellas County Utilities					
CONTAMINANT AND UNIT OF MEASUREMENT	MCL VIOLATION (YES/NO)	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	DATE OF SAMPLING (MO./YR.)	LEVEL DETECTED	RANGE OF RESULTS	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Haloacetic Acids (five) [HAA5] (ppb)	No	1/16; 4/16; 7/16; 10/16	24	12–28	2/16; 5/16; 8/16; 11/16	27.70	18.00–40.90	NA	60	By-product of drinking water disinfection
TTHM [Total trihalomethanes] (ppb)	No	1/16; 4/16; 7/16; 10/16	57	34–59	2/16; 5/16; 8/16; 11/16	42.17	24.3–46.6	NA	80	By-product of drinking water disinfection

Lead and Copper (Tap water samples were collected from sites throughout the community.)										
		City of Clearwater			Pinellas County Utilities					
CONTAMINANT AND UNIT OF MEASUREMENT	AL EXCEEDANCE (YES/NO)	DATE OF SAMPLING (MO./YR.)	90TH PERCENTILE RESULT	NO. OF SAMPLING SITES EXCEEDING THE AL	DATE OF SAMPLING (MO./YR.)	90TH PERCENTILE RESULT	NO. OF SAMPLING SITES EXCEEDING THE AL	MCLG	AL (ACTION LEVEL)	LIKELY SOURCE OF CONTAMINATION
<b>Copper [tap water]</b> (ppm)	No	2/2016; 8/2016	0.379	0	6/14–7/14	0.41	0	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
<b>Lead [tap water]</b> (ppb)	No	2/2016; 8/2016	3	0	6/14–7/14	0.8	0	0	15	Corrosion of household plumbing systems; erosion of natural deposits

<sup>1</sup>Pinellas County Utilities is reporting highest month percentage total coliform results for 2016. Unsatisfactory sample results due to a sample collection error during 11/2016.

<sup>2</sup>Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or system fails to take repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*.

<sup>3</sup>The monthly TOC removal ratio is the ratio between the actual TOC removal and the TOC rule removal requirements.

## Definitions

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

**LRAA (Locational Running Annual Average):** The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

**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.

**NA:** Not applicable

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

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