

Water Quality report 2019 for City of Deerfield Beach

We are pleased to provide you with the 2019 Annual Drinking Water Quality Report. This report is based on the results of our water quality-monitoring program which in 2017 tested over 90 regulated and unregulated compounds, with some tested regularly, following the standards required by the Environmental Protection Agency and the Florida Department of Environmental Protection. We will be testing a large number of regulated and unregulated compounds again in 2020. Our staff works diligently to provide our community outstanding quality water and are committed to provide great-tasting and safe drinking water throughout the City. We wish to keep you informed about the high-quality drinking water and services we have provided over the past calendar year. Our goal is and always has been to provide a safe and dependable drinking water supply to our residents, businesses and visitors. Today the City of Deerfield Beach's water treatment plant supplies high quality drinking water to a population of more than 52,000 people throughout our community. Our water meets all federal and state drinking water standards and the City has satisfactorily met the growing demands for clean drinking water through proper planning, upgrades and expansion of its facilities.

This report contains information about the source of our drinking water which is drawn from several underground wells and the regulations that are in effect to protect the quality of our drinking water, the treatment processes and the analytical test results of our monitoring for the period of January 1 through December 31, 2019.

This report will also be available at the City's Public Libraries, City Hall, Century Village Main Club House and other City and local community facilities throughout Deerfield Beach.

Water Plant, Treatment Processes and Water Sources

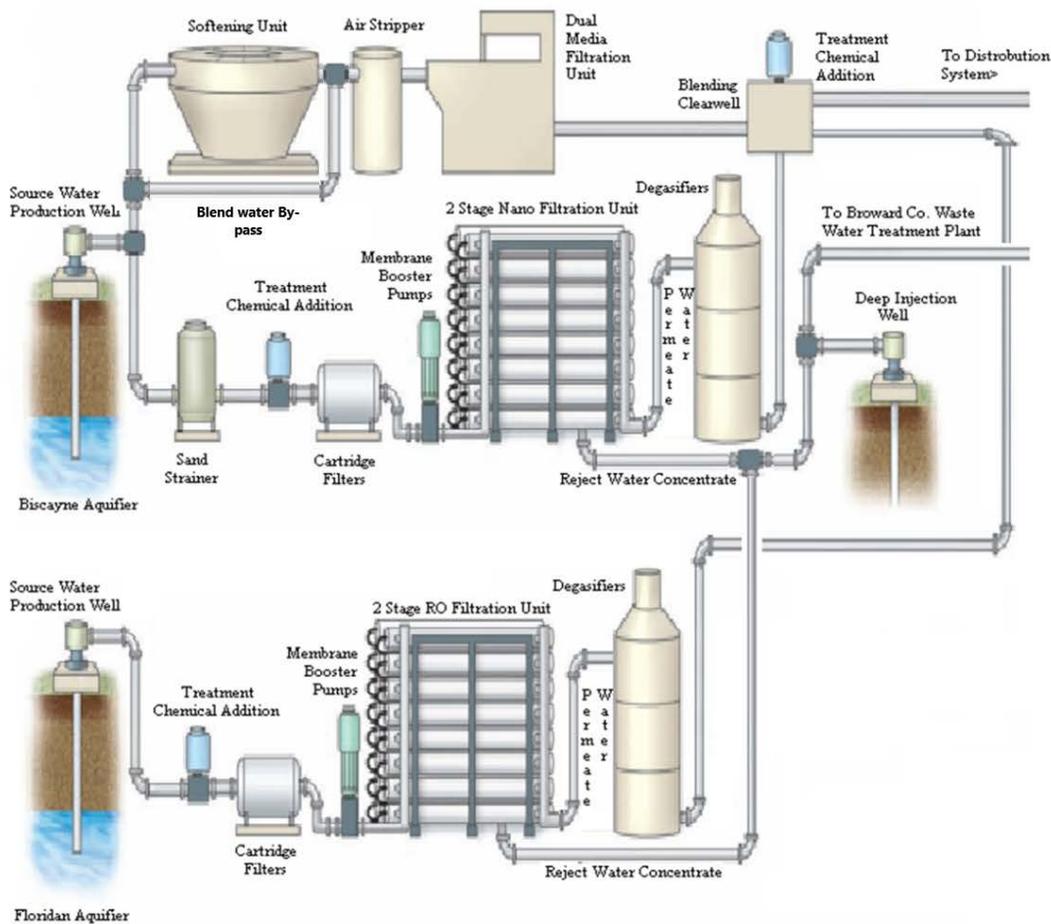
The source of water for the City of Deerfield Beach is ground water pumped from two aquifers: Biscayne and Floridan aquifers. The Biscayne aquifer is an underground geologic formation made up of highly permeable limestone and less permeable sandstone located under a portion of South Florida. The Biscayne is the shallower of the two aquifers, extending to depths of approximately 240 feet along the coast of South Florida and is the major source of ground water for Miami-Dade, Broward and Palm Beach counties. The Floridan aquifer is deeper than the Biscayne and extends to depths of about 3,000 feet and has much higher mineral content, thus making the treatment process considerably more expensive. The raw water from the Floridan and Biscayne aquifers are pumped from the City's 14 active production wells to our West Water Treatment Plant where the water is treated by three distinct processes: Lime Softening, Nano Filtration, and Reverse Osmosis.

The Lime Softening Plant has a treatment capacity of approximately 7.5 Million Gallons per Day (MGD) and uses ground water from the Biscayne aquifer. The ground water is treated with quicklime which is used to reduce the hardness. The treated water then passes through high rate granular media filters to reduce the turbidity as high turbidity can hinder the effectiveness of disinfectants. Disinfection is then achieved in a process that combines chlorine and ammonia, called chloramination. Low levels of Fluoride are also added to the treated drinking water to help with the prevention of tooth decay and is used in accordance to Broward County ordinances and regulations.

The Nano Filtration Plant began producing water in May of 2004 and has a design capacity of 13.1 MGD. It draws its source water from the Biscayne Aquifer and the raw water is treated using relatively high pressure filtration and osmosis. The high-pressure filtration is achieved with booster pumps and hundreds of spiral wound membranes.

The third and newest type of treatment is the Reverse Osmosis Plant and was completed in 2012. It has a capacity of approximately 3 MGD and draws its source water from the Floridan Aquifer which is the deeper of the two underground water formations feeding the water plant. The source water is treated under high pressures and sent through semipermeable membranes to remove salt and other inorganic minerals to produce drinking water. The waters produced from the Lime Softening, Nano Filtration and Reverse Osmosis processes are then blended together and further treated for pH adjustment and chloramination to meet EPA required disinfectant levels. The blended finished water is then pumped into storage tanks. High flow service pumps and miles of pipes in our distribution system are used to deliver the drinking water from the Water Plant to your tap.

In 2019 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 19 potential sources of contamination identified for this system with a low to high susceptibility level. The assessment results are available on the FDEP Source Water Assessment and Protection Program website at <https://fldep.dep.state.fl.us/swapp/> or they can be obtained from the Deerfield Beach Water Treatment Plant by calling 954-480-4370.



We here at the City of Deerfield Beach are extremely proud of the quality of drinking water we produce and are happy to be able to adequately meet the demands of our residents, businesses and visitors.

Contact Information

If you have any questions about this report or concerning your water utility, please contact our Environmental Compliance Manager at 954-480-4370. We encourage our valued customers to be informed about their water utility. Regular City Commission meetings are held on the first and third Tuesday of each month at 6:45 at City Hall located at 150 NE 2nd Avenue. For information on meeting schedules and agendas contact 954-480-4213 or visit the City's website at www.deerfield-beach.com

Deerfield Beach Drinking Water in 2019

The City of Deerfield Beach Water Treatment Plant routinely monitors for contaminants in your drinking water according to Federal and State laws, rules, and regulations. Except where indicated otherwise, this report is based on the results of our monitoring for the period of January 1 to December 31, 2019. Data obtained before January 1, 2019, and presented in this report is from the most recent testing done in accordance with the laws, rules, and regulations.

Explanations for Terms and Abbreviations

In the tables below, you may find unfamiliar terms and abbreviations. To help you better understand these terms we've provided the following definitions:

Maximum Contaminant Level or 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 Contaminant Level Goal or MCLG: 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.

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

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

Maximum residual disinfectant level or MRDL: 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.

Maximum residual disinfectant level goal or 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.

Parts per billion (ppb) or Micrograms per liter ($\mu\text{g}/\text{l}$): one part by weight of analyte to 1 billion parts by weight of the water sample.

Parts per million (ppm) or Milligrams per liter (mg/l): one part by weight of analyte to 1 million parts by weight of the water sample.

Picocurie per liter (pCi/L): measure of the radioactivity in water.

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

Water Quality Test Results

NON-SECONDARY CONTAMINANTS TABLE

Microbiological Contaminants

Contaminant and Unit of Measurement	Dates of sampling (mo/yr)	TT Violation	Result	MCLG	TT	Likely Source of Contamination
1. Total Coliform Bacteria	01/19 - 12/19	N	Negative	N/A	TT	Naturally present in the environment

Microbiological Contaminants

Contaminant	Dates of sampling (mo/yr)	MCL Violation Y/N	Total Number of Positive Samples for the Year	MCLG	MCL	Likely source of contamination
2a. <i>E. coli</i>	01/19 – 12/19	N	1	0	Routine and repeat samples are total coliform positive and either is <i>E. coli</i> positive or system fails to take repeat samples following <i>E. coli</i> positive routine sample or system fails to analyze total coliform positive repeat sample for <i>E. coli</i>	Human and animal fecal waste

Our system is not in violation. We detected E. coli in one water sample collected in October. The repeat sample collected at that location did not confirm the presence of coliform bacteria.

Health Effects: Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems

Radioactive Contaminants

Contaminant and Unit of Measurement	Dates of sampling (mo/yr)	MCL Violation Y/N	Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
7. Radium 226 + 228 or combined radium (pCi/L)	06/17	N	1.1	NA	0	5	Erosion of natural deposits

Inorganic Contaminants

Contaminant and Unit of Measurement	Dates of sampling (mo/yr)	MCL Violation Y/N	Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
9. Antimony (ppb)	06/17	N	0.017	NA	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder

Contaminant and Unit of Measurement	Dates of sampling (mo/yr)	MCL Violation Y/N	Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
10. Arsenic (ppb)	06/17	N	0.3	N/A	0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
12. Barium (ppm)	06/17	N	0.0048	N/A	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
17. Fluoride (ppm)	06/17	N	0.461	N/A	4	4.0	Erosion of natural deposits; discharge from fertilizer and aluminum factories. Water additive which promotes strong teeth when at the optimum level of 0.7 ppm
24. Sodium (ppm)	06/17	N	19.9	N/A	N/A	160	Salt water intrusion, leaching from soil

Stage 1 Disinfectants and Disinfection By-Products

Disinfectant or Contaminant and Unit of Measurement	Dates of sampling (mo/yr)	MCL or MRDL Violation Y/N	Level Detected	Range of Results	MCLG or MRDLG	MCL or MRDL	Likely Source of Contamination
78. Chlorine and Chloramines (ppm)	01/19/-12/19	N	2.58	0.6-3.6	MRDLG = 4	MRDL = 4.0	Water additive used to control microbes

Stage 2 Disinfectants and Disinfection By-Products

Contaminant and Unit of Measurement	Dates of sampling (mo/yr)	MCL Violation (Y/N)	Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
83. Haloacetic Acids (HAA5) (ppb)	01/19-12/19	N	54	28-67	N/A	60	By-product of drinking water disinfection
84. Total Trihalomethanes (TTHM) (ppb)	01/19-12/19	N	35	8.8-47	N/A	80	By-product of drinking water disinfection

Lead and Copper (Tap Water)

Contaminant and Unit of Measurement	Dates of sampling (mo/yr)	AL Exceeded (Y/N)	90th Percentile Result	No. of sampling sites exceeding the AL	MCLG	AL (Action Level)	Likely Source of Contamination
85. Copper (tap water) (ppm)	07/17	N	0.064	0	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
86. Lead (tap water) (ppb)	07/17	N	2.91	1	0	15	Corrosion of household plumbing systems; erosion of natural deposits

One sample in August 2018 had HAA5 result of 67 ppb, which exceeds the MCL of 60 ppb. However, the system did not incur an MCL violation, because all of the annual average results at all sites were below the MCL. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Water and Health Safety Information

City of Deerfield Beach West Water Treatment Plant

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. (insert name of utility) 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 from the Safe Drinking Water Hotline or at

<https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-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:

- (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- (B) 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.
- (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- (D) 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.
- (E) Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the EPA prescribes regulations, which 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, which 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 Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Required Vulnerable Population Language

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Some Closing Notes

Please DO NOT FLUSH your unused/unwanted medications down toilets or sink drains. More information is available at

<https://floridadep.gov/waste/permitting-compliance-assistance/content/pharmaceutical-waste-management-businesses-and>

We at the City of Deerfield Beach would like you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to insuring high quality water to every tap that is connected to our water distribution system. We ask that all our customers help us protect our water sources, which play a key role in preserving our community, our way of life and our children's future.

Water conservation should be part of our daily activities. Conserving water isn't only good for the environment; it can also save you money. The City of Deerfield Beach is participating in the Broward Water Partnership (BWP), which is a group of municipalities and water utilities who have come together to help save water, money and the environment. The BWP offers toilet rebates of up to \$100 each when you replace an old water guzzling toilet with a WaterSense® high efficiency model. What's more, the BWP and the City of Deerfield Beach are also offering free water saving showerheads and faucet aerators to qualifying residents to save you money on your water bill. Please call 800-270-9794 to see if you qualify for these FREE water saving devices. To check your eligibility and apply for a rebate, visit www.Conservationpays.com.