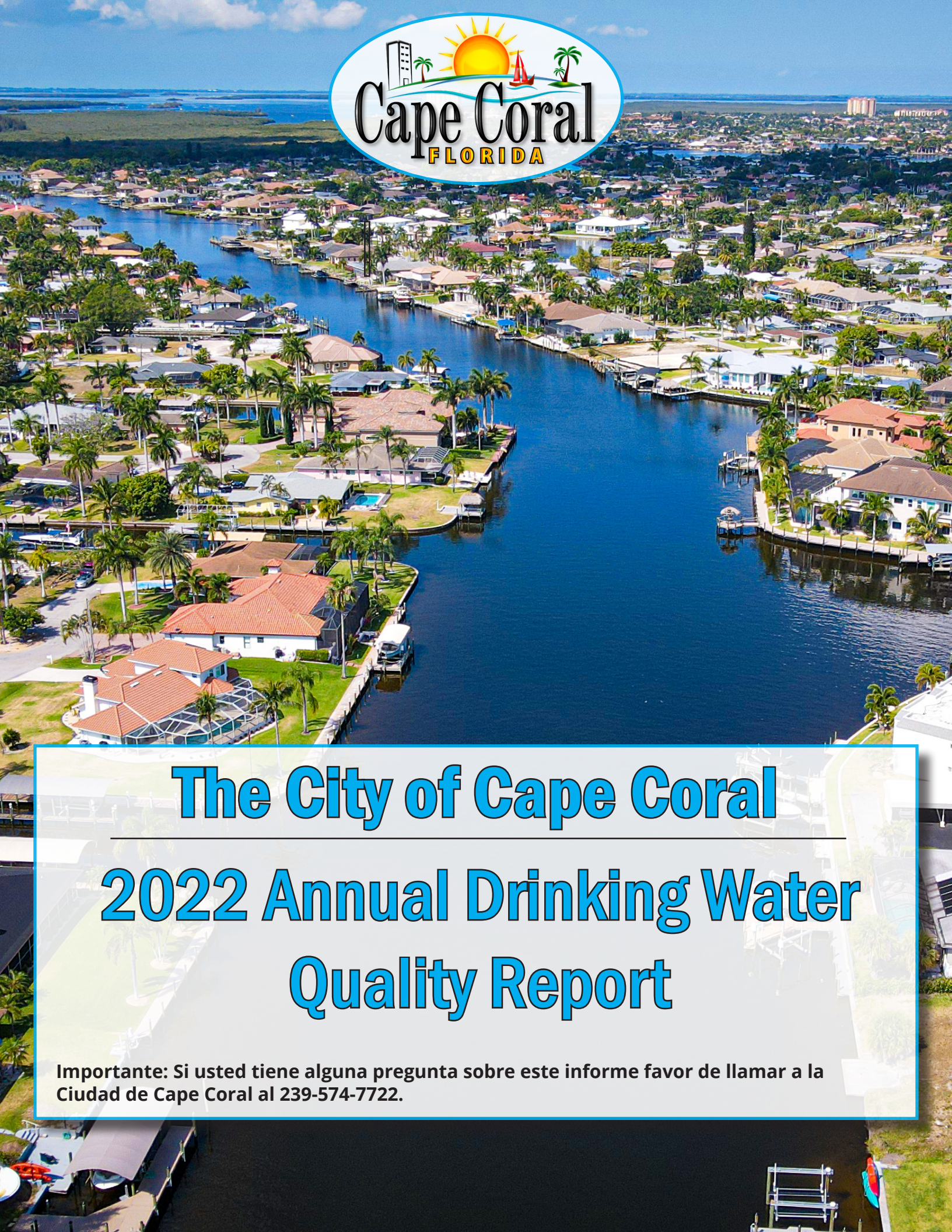


The City of Cape Coral

2022 Annual Drinking Water Quality Report

Importante: Si usted tiene alguna pregunta sobre este informe favor de llamar a la Ciudad de Cape Coral al 239-574-7722.

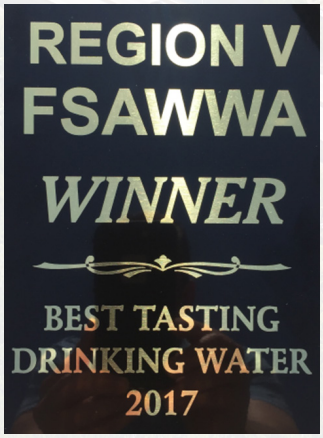
A MESSAGE FROM YOUR UTILITIES DIRECTOR

Dear Valued Customer,

Jeff Pearson

Municipal tap water is the life source for every community. The City's dependable water supply contributes to public health by keeping citizens safe from waterborne illness, drives economic prosperity, and is vital to our daily lives. This Annual Water Quality Report affords us the opportunity to make you aware of the high quality water that flows from your tap. We already know you appreciate the value of water, as most of our customers are extremely conservation-minded. Because of you, Cape Coral Utilities is among the leaders in per-capita drinking water usage, with some of the lowest usage numbers in the state. We thank you for your continued efforts to conserve water, one of our most precious natural resources. And thanks to the efforts of our hard-working and dedicated employees, you can be confident that this clean, safe, reliable and award-winning drinking water will continue to be available at your tap and at your command.

Jeff Pearson



Annual Consumer Report on the Quality of Tap Water for 2022

Introduction

The City of Cape Coral is committed to providing residents with a safe and reliable supply of high-quality drinking water. We process and test our water using sophisticated equipment and advanced procedures. The City of Cape Coral's tap water meets state and federal standards for both appearance and safety. This annual "Consumer Confidence Report," required by the Safe Drinking Water Act (SDWA), tells you where your water comes from, how it is processed, what our tests show about it, and other things you should know about drinking water.

This report contains information on the results of testing for potentially harmful contaminants in your tap water. The information in this report can be summarized as follows:

The City of Cape Coral's drinking water meets or surpasses all federal and state drinking water standards.

We encourage public interest and participation in our community's decisions affecting drinking water. City Council meetings are held every ot her Wednesday at 4:30 P.M. at City Hall Council Chambers. The public is welcome. The upcoming agenda is posted on the bulletin board at Ci ty Hall or available on-line at capecoral.gov. If you have any questions about this report or concerning your drinking water please contact Gu stave Dowd, Water Production Manager, at 239-242-3410, Robert Woods, North RO Plant Chief Operator, at 239-242-3427 or Heidi Paquette, Southwest RO Plant Chief Operator, at 239-574-0759.

Treatment Plant History

The City of Cape Coral Southwest Reverse Osmosis (RO) Plant is the oldest continuously operating RO treatment facility in the world. The original plant was built in 1977 with a 3 million gallon per day (MGD) production capability to supplement the city's existing Lime Softening Treatment Plant (2 MGD). In 1980, the city expanded the facility to 5 MGD. At that time, the City was experiencing problems with its Lime Softening Plant due to salt water intrusion into the wellfield (Upper Hawthorne Aquifer). The City also was experiencing a rapid growth in population. Faced with these two issues, the city decided to abandon the Lime Softening Plant and initiate a major expansion of the RO Plant. Cape Coral would be the first city of significant size in the United States to make the decision to rely completely on reverse osmosis treatment as its only means of producing potable water.

The decision paid off. By 1985, the city had the largest low pressure reverse osmosis plant in the world, capable of producing 15 MGD. The plant was producing water at a cost that was cheaper than the Lime Softening Plant and it had tapped into a source water supply (Upper Floridan Aquifer) that would provide enough water for many years to come. Although production capability remained the same for more than 20 years, many changes took place at the plant during that time. The city kept pace with changing technologies and completed many upgrades and retrofits. These technology improvements included: more efficient low pressure membranes, variable frequency drives, computer automation, etc. Despite being the oldest plant of its kind, these changes allowed the plant to continue to be a "state of the art" facility producing high quality potable water at a reasonable cost.

Due to a rapid increase in population and a planned major expansion of the utilities service area, the city began design work in 2005 to expand the production capacity of the Southwest Plant from 15 MGD to 18 MGD. This increased capacity would ensure that the city had a sufficient supply of potable water until an additional RO Plant could be designed and built in the northern part of the city. The expansion at the existing plant was completed in 2008. The new North RO Plant (12 MGD) was completed and on-line by March of 2010. The addition of this new plant is now allowing for much needed major maintenance, repairs, and retrofits at the 45 year old Southwest RO Plant that could not be initiated until additional production capacity on the system was available.

Water Source

The source of the City of Cape Coral's municipal potable water supply is groundwater from the Upper Floridan Aquifer. Local geologists have estimated that this aquifer has a sufficient supply of water to support the future growth of Cape Coral. The recharge areas for the Upper Floridan Aquifer have been determined to be an area encompassing the north-central part of Florida. Source water currently being used by both RO Plants has been estimated to be more than 10,000 years old, based on underground flow rates of inches per year.

Because of its mineral content, brackish water is the term used to describe the quality of the source water. Minerals are compounds commonly found in nature, like salts. The amount of minerals found in water are expressed as dissolved solids. The city's source water has a total dissolved solids (TDS) content of approximately 2,300 parts per million (ppm), as opposed to the TDS of seawater, which is approximately 35,000 ppm.

There are 55 wells at a depth of approximately 700 to 800 feet that tap this water supply. The well-field for the Southwest RO Plant has 33 wells located in the southwestern part of the city. Wells are located around the plant grounds and in or near the medians of Agualinda Boulevard, Chiquita Boulevard, Gleason Parkway, and Trafalgar Parkway. The well-field for the North RO Plant has 22 wells located in the northern part of the city. Wells are located around the plant grounds and in lots near Kismet Parkway, Diplomat Parkway, Chiquita Boulevard North, and Del Prado Boulevard North. In 2021 the 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 12 potential sources of contamination identified for our system with low susceptibility levels. The assessment results are available on the FDEP

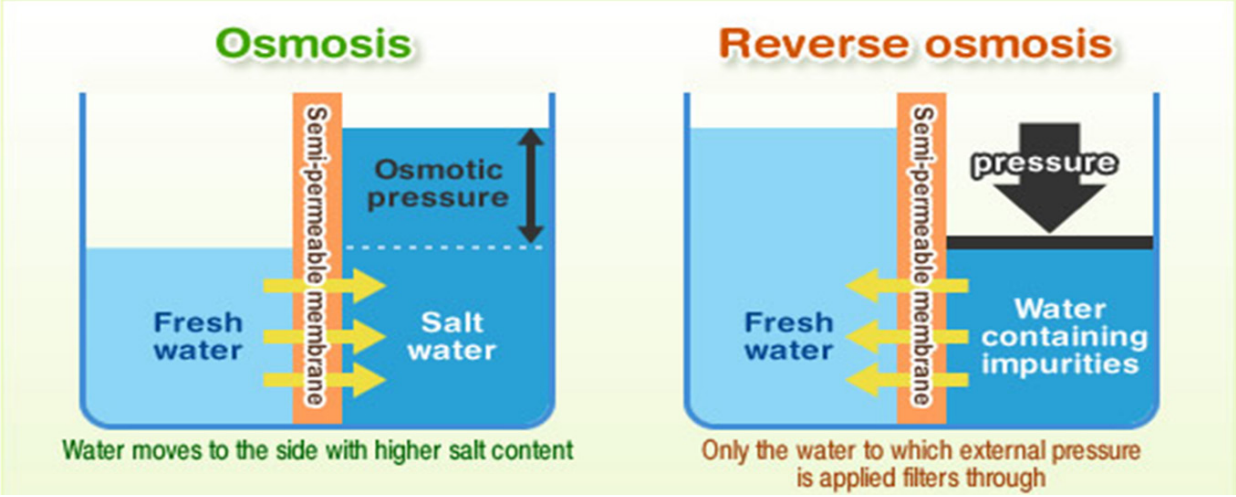
Source Water Assessment and Protection Program website at https://fldep.dep.state.fl.us/swapp or they can be obtained from Robert Woods at (239) 242-3427.

The depth of the Upper Floridan Aquifer, the significant confining layers of earth above it, our stringent well construction methods, and our wellhead protection program, help to protect our source water from man-made contaminants. The major treatment requirement for our source water is reduction of the naturally occurring total dissolved solids. The reverse osmosis treatment process does this very effectively.

Reverse Osmosis

Reverse osmosis (RO) is the opposite of osmosis, a process occurring in nature. Osmosis can be defined as the passage of a liquid from a fresh water solution to a more concentrated salt water solution across a semi-permeable membrane. The semi-permeable membrane allows the passage of the water but not the dissolved contaminants like salt (see FIGURE 1). Reverse osmosis is accomplished by applying pressure to a concentrated salt water solution forcing the pure water to flow through the semi-permeable membrane to the weak fresh water side (see FIGURE 2). Reverse Osmosis rejects between 98 and 99 percent of dissolved solids (salts), color, bacteria, radioactive substances, and other inorganic or organic chemicals that may be present in ground water systems.

(Figure 1) (Figure 2)



http://www.hitachi.com/environment/showcase/solution/industrial/desalination_plant.html)

Treatment Process

Source water entering the plant is called raw water. Upon entry, sulfuric acid to lower the pH, and a scale inhibitor to prevent scaling, are added by injection. Addition of these two chemicals is commonly referred to as pretreatment. At this point, the raw water becomes the feed water. After pretreatment the feed water passes through a series of cartridge filters. They work similar to a pool filter, removing sand, silt, etc.

Upon passing through the cartridge filters, the water is pumped with high pressure pumps into the RO production units for primary treatment. When the feed water travels across the RO membrane elements, it is separated into usable (product) and non-usable (concentrate) water. Pretreatment keeps dissolved solids in liquid form during this separation. As required by permit, the concentrate is then discharged from the system by way of a pipeline to a deep injection well.

The amount of concentrate removed in the RO process is approximately 20% of the feed water entering the system. The concentrate water is not drinkable nor is it suitable for irrigation due to the high dissolved solids concentration.

After the RO units separate the water into product and concentrate, the product water flows toward the degasifiers. Product water coming out of the RO units is of such high purity that it has little or no hardness. Prior to entering the degasifiers, some raw water is blended with the product water to increase alkalinity and hardness to a moderate level. This produces a more stable finished water for corrosion control. At this point, the water is called blend product. Approximately 20% of the total blend product is blend water.

The blend product water now enters the degasifiers where a final contaminant needing removal, hydrogen sulfide, is stripped from the water. Hydrogen sulfide produces the objectionable sulfur or “rotten egg” odor often found in well water. Blend product water cascades down packing in the degasifiers. It is forcibly mixed with air from a blower. The air strips the hydrogen sulfide from the water, and the combined hydrogen sulfide and air leaves through a tower connected to the top of the degasifiers. The water now falls into the clearwell where chlorine and caustic soda are added. Chlorine (sodium hypochlorite) is added for disinfection and removal of any remaining hydrogen sulfide not removed by the degasifiers. Caustic soda (sodium hydroxide) also is added to raise the pH of the water. This pH adjustment is the final step in the process of stabilizing the water for corrosion control. From the clearwell, the water is pumped to storage tanks where it is called finished water. At this point, it is available for pumping to the consumer.

Water Quality Data Table

The City of Cape Coral routinely monitors for contaminants in your drinking water according to federal and state laws. This report is based on the results from tests conducted between January 1st to December 31st 2022. Because of our consistent compliance with testing requirements and results that regularly exceed federal and state drinking water standards, we have been granted reduced testing frequencies for many contaminants listed in the table. Therefore, some tests are conducted less frequently than once a year. If the test was not performed in 2022, then the most recent analysis is listed. For the complete list of results, including the non-detected contaminants contact Robert Woods at (239) 242-3427.

As water travels over the land or underground it can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances. All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk.

The Water Quality Data Table lists only the contaminants that were detected. In addition to these, we also tested for many other contaminants that were not detected. Results from the most recent testing required by EPA, show that the following contaminants were not detected:

Antimony, Arsenic, Asbestos, Beryllium, Cadmium, Color, Cyanide, Foaming Agents, Lead (point of entry), Mercury, Nickel, Nitrite, Nitrate, Selenium Thallium, 2,4-D, 2,4,5-TP (Silvex), Alachlor, Atrazine, Benzo(a)pyrene [PAH], Carbofuran, Chlordane, Dalapon, Di (2-ethylhexyl) adipate, Di(2-ethylhexyl)phthalate, Dibromochloropropane (DBCP), Dinoseb, Dioxin (2,3,7,8- TCDD), Diquat, Endothall, Endrin, Ethylene dibromide, Glyphosate, Heptachlor, Heptachlor epoxide, Hexachlorobezene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Oxamyl [Vydate], PCB's [Polychlorinated biphenyls], Pentachlorophenol, Picloram, Simazine, Toxaphene, Benzene, Carbon Tetrachloride, Chlorobenzene, o-Dichlorobenzene, p-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-Dicholoroethylene, Dichloromethane, 1,2- Dichloropropane, Ethylbenzene, Styrene, Tetrachloroethylene, 1,2,4-Trichlorobenzene, 1,1,1,-Trichloroethane, 1,1,2- Trichloroethane, Trichloroethylene, Toluene, Vinyl Chloride, Xylenes, Aluminum, Iron, Manganese, Silver, Carbaryl, Methomyl, Aldicarb Sulfoxide, Aldicarb Sulfone, Metolachlor, Aldicarb, 3-Hydroxycarbofuran, Propachlor, Aldrin, Dieldrin, Dicamba, Metribuzin, Isophorone, 2,4-Dinitrotoluene, Dimethylphthalate, Diethylphthalate, Di-n-butylphthalate, Butyl benzylphthalate, Dioctylphthalate, 2-Chlorophenol, 2-Methyl-4,6-dinitrophenol, Phenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6- dinitrotoluene, Acetochlor, DCPA mono-acid, Degradate, Di-acid degradate (DCPA), 4,4'-DDE, EPTC, Molinate,Methyl tert- butyl-ether (MTBE), Nitrobenzene, Perchlorate, Terbacil, Uranium, Germanium, Chlorpyrifos, Total Permethrin, Alpha- Hexachlorocyclohexane, Dimethipin, Oxyfluorfen, Profenofos, Tebuconazole, Tribufos, Ethoprop, Butylated Hydroxyanisole, O-Toluidine, Quinoline, 1-butanol, 2-methoxyethanol, 2-propen-1-ol.

Water Quality Data Table Terms and Abbreviations

In this table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms, we've provided the following definitions:

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

pCi/L: picocuries per liter - a measure of the radioactivity in water.

ppm: parts per million - one part by weight of analyte to 1 million parts by weight of the water sample.

ppb: parts per billion - one part by weight of analyte to 1 billion parts by weight of the water sample.

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 the 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.

ND: Not Detected - means not detected and indicates that the substance was not found by laboratory analysis.

Note: 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.

Non-Secondary Contaminants Table

Contaminant	Date Sampled (mo/yr)	Unit	MCL	MCLG	Detected Level	Range of Results	Likely Source of Contamination	MCL Violation Yes/No
Radioactive Contaminants (Southwest R.O. Plant Point of Entry)								
Alpha Emitters	03/06/17	pCi/L	**15**	0	**6.85**	n/a	Erosion of natural deposits	**No**
Combined Radium	03/06/17	pCi/L	**5**	0	**2.50**	n/a	Erosion of natural deposits	**No**
Radioactive Contaminants (North R.O. Plant Point of Entry)								
Alpha Emitters	01/07/20	pCi/L	**15**	0	**5.2**	n/a	Erosion of natural deposits	**No**
Combined Radium	01/07/20	pCi/L	**5**	0	**3.1**	n/a	Erosion of natural deposits	**No**
Inorganic Contaminants (Southwest R.O. Plant Point of Entry)								
Barium	01/07/20	ppm	**2**	2	**0.0037**	n/a	Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits	**No**
Fluoride	01/07/20	ppm	**4**	4	**0.49**	n/a	Erosion from natural deposits; Discharge from fertilizer and aluminum factories. Water additive which promotes strong teeth when at the optimum level of 0.7 ppm	**No**
Sodium	01/07/20	ppm	**160**	n/a	**99**	n/a	Salt water intrusion, leaching from soil	**No**
Inorganic Contaminants (North R.O. Plant Point of Entry)								
Barium	01/07/20	ppm	**2**	2	**0.0072**	n/a	Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits	**No**
Sodium	01/07/20	ppm	**160**	n/a	**110**	n/a	Salt water intrusion, leaching from soil	**No**
Stage 1 Disinfectant and Disinfection By-Products								
Chlorine	2022 Monthly	ppm	**MRDL 4**	**MRDLG** 4	**1.3**	0.26-2.2	Water additive used to control microbes	**No**
Stage 2 Disinfectant and Disinfection By-Products								
HAA5 [Haloacetic Acids]	2022 Quarterly	ppb	**60**	n/a	**6.48**	4.40-7.9	By-product of drinking water disinfection	**No**
TTHMs [Total Trihalomethanes]	2022 Quarterly	ppb	**80**	n/a	**32.50**	20.00 - 41.00	By-product of drinking water disinfection	**No**

Contaminant	Date Sampled (mo/yr)	Unit	MCL	MCLG	Detected Level	Range of Results	Likely Source of Contamination	MCL Violation Yes/No
Microbiological Contaminants								
E. Coli	09/09/22	Positive Samples	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 sam-ple for *E. coli*	0	**1**	n/a	Human and animal fecal waste	**Yes**

Contaminant	Date Sampled (mo/yr)	Unit	AL (Action Level)	MCLG	90th Percentile Result	No. of sites exceeding the AL	Likely Source of Contamination	Violation Yes/No
Lead and Copper (Tap Water)								
Copper (tap water)	08/20	ppm	AL=1.3	1.3	0.025	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	No
Lead (tap water)	08/20	ppb	AL=15	0	1.1	0	Corrosion of household plumbing systems; Erosion of natural deposits	No

Additional Health Information

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

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

Some people may be more vulnerable to contaminants in drinking water than is the general population. Immunocompromised 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. US Environmental Protection Agency (EPA)/Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791).

Public Notices

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. We found E. coli bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that were found during these assessments.

We had an E. Coli positive repeat sample following a total coliform positive routine sample. We were required to complete a Level 2 assessment because we found E. coli in our system. In addition, we were required to complete zero corrective actions and we completed zero of these corrective actions.

Important Information About Lead

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 Cape Coral 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 http://www.epa.gov/ safewater/lead.

Frequently Asked Questions from Cape Coral City Water Customers

Do I need a water softener if I am on City water?

No, because city water is not hard water. Water hardness is a measure of the soap or detergent consuming power of water. Hardness in water is caused by calcium and magnesium ions. Based on the levels of these constituents in our water, it is considered (by industry standards) to be in the range of soft to moderately hard. This is the most desirable range from a consumer standpoint. Water that is too soft makes it very difficult to remove soap from your hands or detergent from your laundry. Extremely soft water also can lead to premature corrosion of metal piping. Water that is excessively hard is undesirable because it requires an increased use of soap or detergent to adequately clean. Extremely hard water also can lead to excessive scaling of pipes and water fixtures.

My dishwashing machine operator's manual says that the amount of dishwashing detergent I need to use depends on the grains per gallon of hardness in the water. What is the hardness of city water?

City water has 5.5 to 6.5 grains per gallon of total hardness.

We notice a slight chemical taste in the City's water. Can you tell us what this is? Where we used to live, we had great tasting drinking water.

The slight chemical taste that you may notice is probably chlorine. Although chlorine addition is essential to ensure the safety of your drinking water, it can affect the taste of the water. If the community you came from had a higher mineral or contaminant content in the water, it masked or hid the taste of chlorine in your water. This is why our water tastes a little different. You may wish to remove the chlorine by purchasing an inexpensive activated carbon (charcoal) filter, which you can install on your kitchen sink. If you should chose to do this, please remember to change these filters on a regular basis as recommended by the manufacturer. We also suggest that you keep a gallon of tap water in your refrigerator. Our groundwater is very warm, it is about 80F coming out of your tap, and warm water is not as appealing for drinking as cool water.

Is Cape Coral's city water corrosive?

No, because the City's RO Plant uses a federal and state approved treatment process to achieve corrosion control. The Florida Department of Environmental Protection has established water quality parameters (WQP's) for our city water. These parameters include operating ranges for pH, alkalinity, calcium hardness, and the Langelier Index (LI). The LI is the most common index used in water treatment to determine the corrosiveness of water. The City has been using the LI to monitor its' corrosion control treatment process since the Southwest Plant went online in 1977.

Cape Coral's city water LI value is positive, which demonstrates that the water is noncorrosive. This result meets the state established WQP's requirement for corrosion control. The Langelier Index (LI) involves the measurement of pH, alkalinity, calcium hardness, total dissolved solids (TDS), and temperature. The LI calculation is performed over 3,000 times per year on a combination of both treated water leaving the plants and water already out in the distribution system. In addition to this testing, online meters continuously monitor the pH, TDS, and temperature of water being pumped from the production plants into the distribution system 24 hours a day 7 days a week.

The Environmental Protection Agency (EPA) established the Lead and Copper Rule in 1992. Under this rule, the EPA mandated very stringent testing procedures for water systems to determine the effectiveness of their corrosion control treatment processes. Lead and copper contamination in drinking water generally occurs from corrosion of household pipes. Therefore, the EPA requires water systems to control the corrosiveness of their water if the level of lead or copper at home taps exceed the action level.

The EPA set the action level for lead at 15 ppb. The most recent tests for lead in the Cape Coral tap water show the 90th percentile results to be well below the action level. The EPA set the action level for copper at 1.30 ppm. The most recent tests for copper show the 90th percentile results to be well below the action level. These current, and past analytical results indicate that the City of Cape Coral water does not cause a lead or copper corrosion problem.

Does Cape Coral add fluoride to the city water supply?

No, we do not add fluoride to our water because fluoride already exists naturally in our groundwater. The RO treatment process used by the City reduces the amount of natural fluoride to a level in the range of 0.18 to 0.49 ppm at your tap.