2019 ANNUAL DRINKING WATER QUALITY REPORT

A SUPERIOR RATED WATER SYSTEM

PWS ID: TX1780003

Este reporte incluye informacion importante sobre el agua para tomar.
Para asistencia en español, favor de llamar al telefono 361-826-1800.

DEAR WATER CUSTOMER,

The Corpus Christi Water Utilities Department is pleased to present its 2019 Annual Water Quality Report in accordance with the United States Environmental Protection Agency (EPA) National Primary Drinking Water Regulations, 40 CFR Part 141 Subpart O, which requires all drinking water suppliers to provide the public with an annual statement describing the water supply and the quality of its water.

Highly trained professionals take steps to perform extensive water quality monitoring and testing, so our water supply meets or exceeds all federal and state drinking water requirements. We are mindful of our responsibility to provide you with a safe product at all times. If you have questions about the content of this report, contact the City of Corpus Christi Water Quality Hotline at **361-826-1234**.

DID YOU KNOW..?

A City customer service representative is available to help you. The City of Corpus Christi Call Center can be reached at **361-826-CITY (2489)**, Monday through Friday, from 7 am to 6 pm.

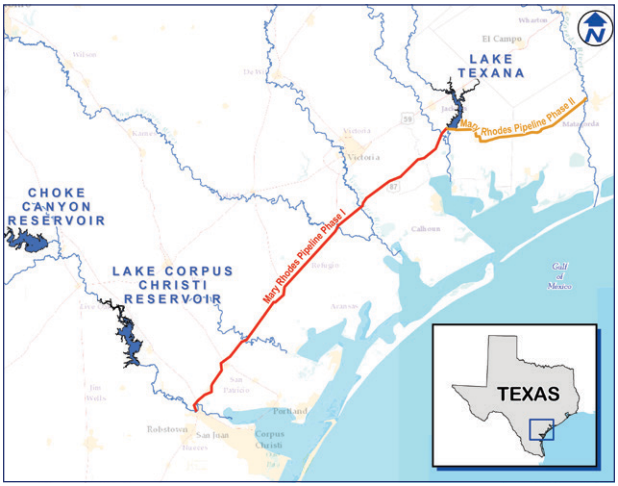
WANT TO KNOW MORE ABOUT YOUR WATER?

For more information on the quality of your drinking water, visit our website at **www.cctexas.com/departments/water-department**. Here you can find information on water quality data, water rates and the status of water quality projects, or call the Water Quality Hotline at **361-826-1234** to speak with one of our highly trained professionals.

KNOW MORE ABOUT THE SOURCE OF YOUR DRINKING WATER

City of Corpus Christi sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and aquifers. 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/industrial activity. Contaminants that may be present in a water source before treatment include: microbes, inorganic contaminants, pesticides and herbicides, radioactive contaminants and organic chemical contaminants.

The City's water is obtained from a combination of water sources. The Atascosa River and the Nueces River supply water to Lake Corpus Christi, while the Frio River supplies water to the Choke Canyon Reservoir. These sources flow down the Nueces River where they are then pumped to the O. N. Stevens Water Treatment Plant. Additionally, water from the Lower Colorado River is transported through the Mary Rhodes Phase II Pipeline where it meets Lake Texana. Water from Lake Texana is then added and transported through the 101-mile long Mary Rhodes Phase I Pipeline to the O. N. Stevens Water Treatment Plant.



A Source Water Susceptibility Assessment of our drinking water sources is available on the Texas Drinking Water Watch website. To view, please visit: **http://dww2.tceq.texas.gov/DWW/**. The report describes the susceptibility and types of constituents that may come in contact with our water supply source based on human activities and natural conditions.

WATER LOSS

In the water loss audit submitted to the Texas Water Development Board for the time period of January 1, 2019 to December 31, 2019, our system lost an estimated 1,770,594,834 gallons of water, which is 7.38%. If you have any questions about the water loss audit, please call **361-826-1234**.

IMPORTANT HEALTH INFORMATION

Cryptosporidium is a microbial parasite that may be found in untreated surface water; however, treatment facilities are required to meet removal standards during the treatment process to ensure drinking water is safe for consumption. Although filtration removes *Cryptosporidium*, it cannot guarantee 100 percent removal. Our monitoring indicated the presence of these organisms in our source water in one out of twenty-four samples. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection with symptoms such as nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the infection within a few weeks.

You may be more vulnerable than the general population to certain microbial contaminants, such as *Cryptosporidium*, in drinking water. Infants, some elderly, or immune-compromised 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**.

ALL DRINKING WATER MAY CONTAIN CONTAMINANTS

Treatment of water is regulated by the EPA to ensure it is safe to drink. 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. 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's Water Quality Hotline at **361-826-1234**. More information about contaminants and potential health effects can also be obtained by calling the EPA's Safe Drinking Water Hotline at **800-426-4791**.

HOME PLUMBING PIPES MAY IMPACT YOUR EXPOSURE TO 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 Corpus Christi Water Utilities Department 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 two 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 at **800-426-4791** or at **http://www.epa.gov/safewater/lead**.

DEFINITIONS OF THE DRINKING WATER QUALITY REPORT TABLE

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 had occurred and/or why total coliform bacteria were found on multiple occasions.

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (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.

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 contaminants.

Nephelometric Turbidity Units (NTU) – A measure of turbidity in water.

Not Applicable (NA)

Parts Per Billion (ppb) – Equivalent to micrograms per liter (µg/L).

Parts per Million (ppm) – Equivalent to milligrams per liter (mg/L).

Picocuries Per Liter (pCi/L) – A measure of radioactivity.

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

Turbidity – A measure of clarity of drinking water.

A REMINDER TO CONSERVE WATER

Most of us take for granted that we will always have enough water. Unfortunately, our area often experiences long periods of drought. We encourage residents to continue to conserve water as we strive to provide the highest water quality in Texas. Conservation is saving tomorrow's water *today* and it begins with each of us. Visit our website for conservation tips and information at **http://www.cctexas.com/conservation**.

2019 DRINKING WATER QUALITY REPORT

Our drinking water is regulated by the Texas Commission on Environmental Quality (TCEQ). The information that follows lists all the federally regulated or monitored contaminants which have been found in our drinking water. The U.S. EPA requires water systems to test for up to 97 contaminants. The data presented in this report is from the most recent testing done in accordance with the regulations.

INORGANIC CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Highest Single Measurement	Range	MCL	MCLG	Likely Source of Contaminant
2019	Barium (ppm)	0.0872	0.0872	0.0858 – 0.0872	2	2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits
2019	Chlorite (ppm)	0.55	0.59	0.33 – 0.59	1.00	0.8	Byproduct of drinking water disinfection
2019	Cyanide (ppb)	160	200	120 – 200	200	200	Discharge from plastic and fertilizer factories; discharge from steel/metal factories
2019	Fluoride (ppm)	0.64	0.64	0.49 – 0.64	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
2019	Nitrate (ppm)	0.50	0.78	0.34 – 0.78	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

ORGANIC CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Highest Single Measurement	Range	MCL	MCLG	Likely Source of Contaminant
2019	Atrazine (ppb)	0.10	0.10	0–0.10	3	3	Runoff from herbicide used on row crops
2019	Simazine (ppb)	0.08	0.08	0.07 – 0.08	4	4	Herbicide runoff

DISINFECTION BYPRODUCTS

Year	Constituent (Unit of Measure)	Highest Yearly Average	Range	MCL	MCLG	Likely Source of Contaminant
2019	Total Trihalomethanes (ppb)	36.6	23.9 – 44.0	80	NA	Byproduct of drinking water disinfection
2019	Total Haloacetic Acids (ppb)	23.1	6.2 – 32.9	60	NA	Byproduct of drinking water disinfection

The locational running annual average is a health concern at levels above the MCL. Some people who drink water containing TTHMs in excess of the MCL over many years may experience problems with their liver, kidney, or central nervous systems, and may have an increased risk of getting cancer.

TOTAL ORGANIC CARBON

Year	Constituent (Unit of Measure)	Average	Range	Removal Ratio (TT)	MCLG	Likely Source of Contaminant
2019	Source Water (ppm)	5.4	4.73 – 6.48	NA	NA	Naturally present in the environment
2019	Plant 1 (ppm)	3.5	3.19 – 4.08	NA	NA	Naturally present in the environment
2019	Plant 2 (ppm)	3.4	3.12 – 3.91	NA	NA	Naturally present in the environment
2019	Plant 1 Removal Ratio (% removal*)	1.2	1.17 – 1.73	≥1.0	NA	Naturally present in the environment
2019	Plant 2 Removal Ratio (% removal*)	1.4	1.17 – 1.87	≥1.0	NA	Naturally present in the environment

Total Organic Carbon (TOC) has no health effects. The disinfectant can combine with TOC to form disinfection byproducts. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. Byproducts of disinfection include trihalomethanes (THM) and haloacetic acids (HAA5) which are reported elsewhere in this report. ***Removal ratio is the percent of TOC removed by the treatment process divided by the percent of TOC required by TCEQ to be removed.**

MAXIMUM RESIDUAL DISINFECTANT LEVEL

Year	Constituent (Unit of Measure)	Highest Average	Range	MCL	MCLG	Likely Source of Contaminant
2019	Chloramines (ppm)	3.28	1.89 – 4.41	4.0	4.0	Disinfectant used to control microbes
2019	Chlorine Dioxide (ppb)	30	0 – 90	800	800	Water additive used to control microbes

UNREGULATED CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Range	MCL	MCLG	Likely Source of Contaminant
2019	Bromodichloromethane (ppb)	11.7	6.0 – 15.2	NA	NA	Byproduct of drinking water disinfection
2019	Bromoform (ppb)	10.7	1.2 – 15.8	NA	NA	Byproduct of drinking water disinfection
2019	Chloroform (ppb)	9.2	1.6 – 16.1	NA	NA	Byproduct of drinking water disinfection
2019	Dibromochloromethane (ppb)	9.4	2.4 – 17.0	NA	NA	Byproduct of drinking water disinfection

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

TURBIDITY

Year	Constituent (Unit of Measure)	Highest Single Measurement	Lowest % of Samples Meeting Limits	Entry Point Limit (TT)	Single Measurement Limit (TT)	Likely Source of Contaminant
2019	Plant 1 (NTU)	0.18	100	≤0.3	1.0	Soil runoff
2019	Plant 2 (NTU)	0.25	100	≤0.3	1.0	Soil runoff

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.

CRYPTOSPORIDIUM MONITORING

Year	Constituent	Average Concentration	Unit of Measurement	MCLG	Likely Source of Contaminant
2019	*Cryptosporidium*	0.01	Total (Oo) cysts/L	0	Naturally present in the environment

Cryptosporidium is of great concern in public water systems that treat surface water for drinking water sources. Resistant to disinfectants, *Cryptosporidium* can cause gastrointestinal illness in individuals who consume contaminated water. The Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) is required by Congress in order to increase protection from microbial contaminants such as *Cryptosporidium*. Under this rule, water systems must conduct monthly *Cryptosporidium* sampling over a two year span. The City of Corpus Christi completed sampling in July 2019.

MICROBIOLOGICAL CONTAMINANTS

Year	Constituent	Highest Monthly % of Positive Samples	Unit of Measurement	MCL	Likely Source of Contaminant
2019	Total Coliform Bacteria	0.94	Presence	**	Naturally present in the environment

Total coliform bacteria occur naturally in the environment and are used as an indicator for other, potentially harmful, bacteria that could also be present. ****Presence of coliform bacteria in 5% or more of the monthly samples.**

Year	Constituent	Total Number of Positive Samples	Unit of Measurement	MCL	Likely Source of Contaminant
2019	Fecal Coliform and *E. coli*	0	Presence	***	Human and animal fecal waste

Fecal Coliform bacteria, in particular *E. coli*, are members of the coliform bacteria group originating in the intestinal tract of warm-blooded animals and are passed into the environment through feces. The presence of fecal coliform bacteria (*E. coli*) in drinking water may indicate recent contamination of the drinking water with fecal material. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, and other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
***A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive.**

LEAD AND COPPER MONITORING RULE

Year	Constituent (Unit of Measure)	90th Percentile	Number of Sites Exceeding Action Level	AL	Likely Source of Contaminant
2017	Lead (ppb)	2.9	0	15.0	Corrosion of household plumbing systems; erosion of natural deposits
2017	Copper (ppm)	0.067	0	1.3	Corrosion of household plumbing systems; erosion of natural deposits

RADIOACTIVE CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Range	MCL	MCLG	Likely Source of Contaminant
2017	Gross Beta Particle Activity (pCi/L)	8.1	6.6 – 8.1	50.0	0	Decay of natural and man-made deposits

UNREGULATED CONTAMINANT MONITORING RULE 4 (UCMR4)

Year	Constituent (Unit of Measure)	Average	Range	MRL (Min. Reporting Level)	Likely Source of Contaminant
2018	Bromochloroacetic Acid (ppm)	13.2	6.0 – 16.0	NA	Byproduct of drinking water disinfection
2018	Bromodichloroacetic Acid (ppm)	2.2	1.4 – 2.9	NA	Byproduct of drinking water disinfection
2018	Chlorodibromoacetic Acid (ppm)	1.2	0.3 – 1.9	NA	Byproduct of drinking water disinfection
2018	Dibromoacetic Acid (ppm)	9.7	1.1 – 13.5	NA	Byproduct of drinking water disinfection
2018	Dichloroacetic Acid (ppm)	12.9	5.5 – 20.7	NA	Byproduct of drinking water disinfection
2018	HAA5 (ppm)	25.7	15.6 – 28.8	NA	Byproduct of drinking water disinfection
2018	HAA6Br (ppm)	27.2	9.0 – 35.5	NA	Byproduct of drinking water disinfection
2018	HAA9 (ppm)	42.4	24.7 – 49.4	NA	Byproduct of drinking water disinfection
2018	Manganese (ppb)	0.7	0.0 – 1.3	0.4	Naturally occurring element
2018	Monobromoacetic Acid (ppm)	1.0	0.0 – 1.4	NA	Byproduct of drinking water disinfection
2018	Trichloroacetic Acid (ppm)	2.3	1.1 – 4.0	NA	Byproduct of drinking water disinfection

SECONDARY AND OTHER CONSTITUENTS – NOT ASSOCIATED WITH ADVERSE HEALTH EFFECTS

Many constituents, such as calcium, sodium, or irons, which are often found in drinking water, can cause taste, color and odor problems. The taste and odor constituents are called secondary constituents and are regulated by the State of Texas, not the USEPA. These constituents are not causes for health concern. Therefore, secondaries are not required to be reported in this document, but they may greatly affect the appearance and taste of your water.

Year	Constituent (Unit of Measure)	Highest Average	Range	SMCL	Likely Source of Contaminant
2019	Aluminum (ppm)	0.22	0.18 – 0.22	0.2	Abundant naturally occurring element
2019	Bicarbonate (ppm)	167	160 – 167	NA	Corrosion of carbonate rocks such as limestone
2019	Calcium (ppm)	52	51 – 52	NA	Abundant naturally occurring element
2019	Chloride (ppm)	51	48 – 51	300	Abundant naturally occurring element; used in water purification
2019	Conductivity (µmho/cm)	592	574 – 592	NA	Naturally occurring ions
2019	Hardness as $CaCO_3$ (ppm)	160	158 – 160	NA	Naturally occurring calcium and magnesium
2019	Magnesium (ppm)	7.32	7.17 – 7.32	NA	Abundant naturally occurring element
2019	Nickel (ppm)	0.0022	0.0021 – 0.0022	NA	Erosion of natural deposits
2019	Potassium (ppm)	6.87	6.81 – 6.87	NA	Abundant naturally occurring element
2019	Sodium (ppm)	45	42 – 45	NA	Erosion of natural deposits; oil field byproduct
2019	Sulfate (ppm)	60	59 – 60	300	Naturally occurring; oil field byproduct
2019	Total Alkalinity (ppm)	137	131 – 137	NA	Naturally occurring soluble mineral salts
2019	Total Dissolved Solids (ppm)	333	319 – 333	1,000	Total dissolved mineral constituents in water

CLEAN DRINKING WATER STARTS AT THE SOURCE

AND IT'S EVERYONE'S JOB TO PROTECT IT!

The City of Corpus Christi uses surface water from rivers and lakes as primary sources of drinking water. Although water goes through a treatment process before being delivered to customers, we all play a vital role in protecting water at the source.

A watershed is an area of land that catches rainwater and drains into a water body such as a river or lake. Anything on the land that can be carried by wind or rainwater can potentially pollute the water body. That means we must not only protect the water itself but all the land surrounding it as well to keep the water clean. Keeping source water free of pollution can reduce the cost and the need for complex treatment. It is also important for recreational use, such as boating, fishing, and swimming, and for maintaining healthy wildlife.

We can help keep our sources of drinking water clean by doing a few simple things:

- **Pick up pet waste often.** Allowing pet waste to remain on the ground prior to a rain event may increase bacteria in source water which can increase the cost of treatment.
- **Prevent littering.** Leave an area better than you found it. Placing trash in trash bins prevents water treatment intakes from becoming clogged with debris.
- **Dispose of household chemicals and waste properly.** Household chemicals and waste such as used oil, pesticides, fertilizer, grease, paint, cleaning products, and other household chemicals may pollute the water, making it more expensive to treat.

DON'T MESS WITH TEXAS® WATER

Please share this information with all other people who use this water, especially those who may not have received this notice directly (i.e., people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Corpus Christi Water Utilities Department
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www.cctexas.com/departments/water-department

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