



over  
**100**  
YEARS  
of Service

## 2008 Annual WATER QUALITY REPORT



Este informe incluye información importante sobre el agua potable. Si tiene preguntas o comentarios sobre éste informe en español, favor de llamar al 361-826-1681 para hablar con una persona bilingüe en español.

## Where Does Our Drinking Water Come From?

The City's water is obtained from a combination of surface water sources. The Atascosa River and Nueces River supply Lake Corpus Christi, while the Frio River supplies Choke Canyon Reservoir. Water from Lake Texana is transported through the 101 mile Mary Rhodes Pipeline. Drinking water is produced at the O. N. Stevens Water Treatment Plant.

The sources of drinking water, whether it is tap or bottled water, comes from rivers, lakes, streams, ponds, reservoirs, springs or wells. As water travels over the surface of the land, it dissolves naturally occurring minerals and in some cases, radioactive material, and picks up substances resulting from the presence of animals or from human or industrial activity. Contaminants that may be present in a water source before treatment include microbes, inorganic contaminants, pesticides, radioactive contaminants and organic chemical contaminants.

A Source Water Susceptibility Assessment of our drinking water sources is currently being updated by the Texas Commission on Environmental Quality and will be provided later this year. The report will be posted to our web site at [www.corpuschristiwater.com](http://www.corpuschristiwater.com) as it becomes available. The report describes the susceptibility and types of constituents that may come in contact with our supply water source based on human activities and natural conditions. The information contained in the assessment will allow the City to focus on source water protection strategies. For more information on source water assessments and protection efforts at our system, please call 361-826-1200.

## UPCOMING PUBLIC PARTICIPATION OPPORTUNITY

**6 p.m. | Tuesday, June 30, 2009**  
**Water Utilities Conference Room**  
**2726 Holly Road Corpus Christi, TX**

Water issues are also discussed at City Council meetings, usually held on every Tuesday, except for the first Tuesday of the month. Call (361) 880-3105 for exact date and meeting times or check the website at [www.cctexas.com](http://www.cctexas.com)

## Water Matters

Up to 50 percent of lawn and garden watering goes to waste due to evaporation, wind or runoff. Grow greener grass using less water. Water deeply and encourage a deeper root system.

Xeriscape your garden. Start with a plan to reduce turf. Improve the soil with organic matter and select plants that are native or adapted to drought conditions. Limit turf areas to play areas for children and pets. Remember to water efficiently because plants don't waste water, people do. Choose your favorite mulch to top dress the garden and control weeds and loss of moisture. Most importantly, maintain your garden by weeding, feeding, pruning (including mowing), organic pest control and watering efficiently. For more information, visit our web site at [www.xeriscapecc.com](http://www.xeriscapecc.com)

[www.corpuschristiwater.com](http://www.corpuschristiwater.com)



## ***Dear Water Customers,***

We are pleased to deliver our annual drinking water quality report using data from the most recent U. S. Environmental Protection Agency (USEPA) required tests. Highly trained professionals have taken extensive steps to ensure that we provide the very best product possible: safe drinking water. Through extensive water quality monitoring and testing, the City of Corpus Christi 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.

One of the tasks of the newly created Water Quality Section is to manage the water line and fire hydrant flushing program to clean out any sediment and ensure the freshness of drinking water. Water lines located at dead-end lines and cul-de-sacs are flushed to maintain water quality at its optimal level.

## ***All Drinking Water May Contain Contaminants***

When drinking water meets federal standards, there may not be any health based benefits to purchasing bottled water or point of use devices. 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 USEPA's Safe Drinking Water Hotline at 800-426-4791.

## ***Cryptosporidium Monitoring***

The City monitored for Cryptosporidium, a microbial parasite that may be commonly found in surface water. Cryptosporidium may come from animal and human feces in the watershed. The result of our monitoring indicated that there may be Cryptosporidium in the raw water and/or treated finished water. Although treatment by filtration removes Cryptosporidium, it cannot guarantee 100 percent removal. The testing methods used cannot determine if the organisms are alive and capable of causing cryptosporidiosis, an abdominal infection with nausea, diarrhea and abdominal cramps that may occur after ingestion of contaminated water.

**IN 2008, THE CITY-WIDE CONSUMPTION WAS 235 GALLONS PER PERSON, PER DAY.  
GOAL - TO REDUCE CONSUMPTION BY ONE PERCENT PER YEAR.**

*(includes industrial water use)*

## ***A Special Notice for the Elderly, Infants, Cancer Patients, People With HIV/AIDS and Other Immune System Disorders***

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. The EPA Center for Disease Control and Prevention (CDC) 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.

# Drinking Water Quality Report 2008

Federally regulated or monitored contaminants, as identified below, have been found in our drinking water. The U.S. Environmental Protection Agency requires water systems to test for up to 97 constituents. The EPA with assistance from the Texas Commission on Environmental Quality (TCEQ) administers the Safe Drinking Water Act to ensure that tap water is safe to drink by restricting the presence of contaminants in public water systems. In addition, the City of Corpus Christi Water Department tests the quality of water daily.

## 2004-2008

| REGULATED INORGANIC CONTAMINANTS/SOURCE OF CONTAMINANT                   | AVG  | MIN  | MAX  | MCL | MCLG |
|--|------|------|------|-----|------|
| Barium (ppm) - Discharge of drilling waste, erosion of natural deposits  | 0.09 | 0.09 | 0.09 | 2   | 2    |
| Fluoride (ppm) - Erosion of natural deposits; water additive             | 0.36 | 0.36 | 0.36 | 4   | 4    |
| Nitrate (ppm) - Petroleum/metal discharge; erosion of natural deposits   | 0.27 | 0.27 | 0.27 | 10  | 10   |
| Gross Beta Emitters (pCi/L) - Decay of natural/man-made deposits         | 4.1  | 4.1  | 4.1  | 50  | 0    |
| Selenium (ppb) - Erosion of natural deposits                             | 4.8  | 4.8  | 4.8  | 50  | 50   |
| Total Haloacetic Acids (ppb) - By-product of drinking water disinfection | 26.5 | 12.4 | 42.2 | 60  | n/s  |
| Total Trihalomethanes (ppb) - By-product of drinking water disinfection  | 54.5 | 34.3 | 66.1 | 80  | n/a  |

**UNREGULATED INITIAL DISTRIBUTION SYSTEM EVALUATION (IDSE) FOR DISINFECTION BY-PRODUCTS (2007)** - This evaluation is sampling required by EPA to determine the range of total trihalomethanes (THMs) and haloacetic acids (HAA5) in the system for future regulations. The samples are not used for compliance, and may have been collected under non-standard conditions. EPA also requires the data to be reported here.

|  | AVG  | MIN  | MAX   | MCL |
|--|------|------|-------|-----|
| Total Haloacetic Acids (ppb) - By-product of drinking water disinfection | 41.4 | 0    | 178.0 | N/A |
| Total Trihalomethanes (ppb) - By-product of drinking water disinfection  | 85.8 | 16.8 | 508.5 | N/A |

**TOTAL ORGANIC CARBON (TOC) (2008)** has no health effects. The disinfectant can combine with TOC to form disinfection by-products. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. By-products of disinfection include trihalomethanes (THMs) and haloacetic acids (HAA5) which are reported elsewhere in this report. The source of these contaminants are naturally present in the environment.

|                                    | AVG  | MIN  | MAX  | MCL |
|------------------------------------|------|------|------|-----|
| Source Water TOC (ppm)             | 5.58 | 4.91 | 6.35 | N/A |
| Plant 1 Drinking Water TOC (ppm)   | 3.41 | 3.23 | 3.74 | N/A |
| Plant 2 Drinking Water TOC (ppm)   | 3.37 | 3.06 | 3.80 | N/A |
| Plant 1 Removal Ratio (% removal*) | 1.52 | 1.14 | 1.81 | N/A |
| Plant 2 Removal Ratio (% removal*) | 1.54 | 1.17 | 1.89 | N/A |

\* Removal ratio is the percent of TOC removed by the treatment process divided by the percent of TOC required by TCEQ to be removed.

| ORGANIC CONTAMINANTS (2008)                              | AVG | MIN | MAX | MCL | MCLG |
|--|-----|-----|-----|-----|------|
| Atrazine (ppb) - Runoff from herbicide used on row crops | 0.3 | 0.3 | 0.3 | 3.0 | 3.0  |

| MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL) (2008)          | AVG  | MIN  | MAX  | MCL | MCLG  |
|--|------|------|------|-----|-------|
| Chloramines (ppm) - Disinfectant used to control microbes. | 2.45 | 2.35 | 2.56 | 4.0 | < 4.0 |

**UNREGULATED CONTAMINANTS (2008)** Bromodichloromethane, Chloroform, Dibromochloromethane and Bromoform are disinfection by-products. There is no maximum contaminant level for these chemicals at the entry point to distribution. The source of these contaminants are a by-product of drinking water disinfection.

|                            | AVG  | MIN  | MAX  | MCL | MCLG |
|----------------------------|------|------|------|-----|------|
| Bromodichloromethane (ppb) | 5.82 | 5.82 | 5.82 | N/A | N/A  |
| Chloroform (ppb)           | 4.81 | 4.81 | 4.81 | N/A | N/A  |
| Dibromochloromethane (ppb) | 4.07 | 4.07 | 4.07 | N/A | N/A  |
| Bromoform (ppb)            | 1.92 | 1.92 | 1.92 | N/A | N/A  |

**TURBIDITY (2008)** 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.

|  | Highest Single Measurement | Lowest Monthly % of Samples Meeting Units | Turbidity Limits |
|--|----------------------------|---|------------------|
| Turbidity - Plant 1 (NTU) Naturally present in the environment | 0.28                       | 100%                                      | TT/AL - 0.3      |
| Turbidity - Plant 2 (NTU) Naturally present in the environment | 0.40                       | 97.8%                                     | TT/AL - 0.3      |

**TOTAL COLIFORM (2008)** 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 more persistent than many disease-causing organisms; therefore, their absence from water is a good indication that the water is free from microbiological contaminants and safe for human consumption.

|  | Highest Monthly % of Positive Samples | Unit of Measure | MCL |
|--|---------------------------------------|-----------------|-----|
| Total Coliform Bacteria - Naturally present in the environment | 3.7                                   | Presence        | **  |

\*\* Presence of coliform bacteria in 5% or more of the monthly samples.

**FECAL COLIFORM (2008)** 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.

|   | Total Number of Positive Samples | Unit of Measure | MCL |
|---|----------------------------------|-----------------|-----|
| 2008 Fecal Coliform and <i>E. coli</i> - Human and animal fecal waste | 2                                | Presence        | *** |

\*\*\* A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive.

| LEAD AND COPPER (2005) - Lead and copper are a source of corrosion. | The 90th Percentile | Number of Sites Exceeding Action Level | Action Level |
|---|---------------------|--|--------------|
| Lead (ppb)  | 2.1                 | 0                                      | 15           |
| Copper (ppm)  | 0.17                | 0                                      | 1.3          |

## Secondary and Other Constituents - Not Associated with Adverse Health Effects (2004-2008)

Many constituents, such as calcium, sodium, or iron, 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.

| Constituent   | Average Level | Min Level | Max Level | Secondary Limit |
|---|---------------|-----------|-----------|-----------------|
| Aluminum (ppm) - Abundant naturally occurring element                                   | 0.133         | 0.133     | 0.133     | 0.05            |
| Bicarbonate (ppm) - Corrosion of carbonate rocks such as limestone                      | 105           | 105       | 105       | N/A             |
| Calcium (ppm) - Abundant naturally occurring element                                    | 49.4          | 49.4      | 49.4      | N/A             |
| Chloride (ppm) - Abundant naturally occurring element; used in water purification       | 155           | 155       | 155       | 300             |
| Copper (ppm) - Corrosion of household plumbing systems; erosion of natural deposits     | 0.001         | 0.001     | 0.001     | 1               |
| Hardness as Ca/Mg (ppm) - Naturally occurring calcium and magnesium                     | 185           | 185       | 185       | N/A             |
| Magnesium (ppm) - Abundant naturally occurring element                                  | 8.1           | 8.1       | 8.1       | N/A             |
| Manganese (ppm) - Abundant naturally occurring element                                  | 0.0011        | 0.0011    | 0.0011    | .05             |
| Nickel (ppm) - Erosion of natural deposits  | 0.002         | 0.002     | 0.002     | N/A             |
| pH - Measure of corrosivity of water  | 7.6           | 7.6       | 7.6       | >7.0            |
| Sodium (ppm) - Erosion of natural deposits; oil field by-product                        | 90            | 90        | 90        | N/A             |
| Sulfate (ppm) - Naturally occurring; oil field by-product                               | 73.3          | 73.3      | 73.3      | 300             |
| Total Alkalinity (ppm) - Naturally occurring soluble mineral salts as CaCO <sub>3</sub> | 105           | 105       | 105       | N/A             |
| Total Dissolved Solids (ppm) - Total dissolved mineral constituents in water            | 497           | 497       | 497       | 100             |

## KEY TERMS AND ABBREVIATIONS

**AL - Action Level** - The concentration of a contamination which, if exceeded, triggers treatment or other requirements which a water system must follow.

**MPN - Most Probable Number**

**MCL - Maximum Contaminant Level** - The highest level of a contamination allowed in drinking water. MCLs are set as close to the MCLG 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 disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. The limit is the running annual average.

**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.

**NTU - Nephelometric Turbidity Units** - A measure of turbidity in water.

**pCi/L - pico-curies per liter** - A measure of radioactivity.

**ppb - parts per billion** - One part per billion is equal to one packet of artificial sweetener sprinkled into 250,000 gallons of iced tea.

**ppm - parts per million** - One part per million is equal to one packet of artificial sweetener sprinkled into 250 gallons of iced tea.

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

**Turbidity** - A measure of clarity of drinking water. The lower the turbidity, the better the taste.



## HEALTH INFORMATION ON 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 Corpus Christi 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>.



The City of Corpus Christi conducted *Cryptosporidium* (and *Giardia*) monitoring from January 2005 to December 2006. This was conducted under Long Term 2 Enhanced Surface Water Treatment (LT2) Rule so that the data could be 'grandfathered'. Additionally, from October 2006 to December 2006, Nueces River and Lake Texana raw water were tested for *E. coli*. The results of this monitoring are shown below.

October and December 2005 and January 2006  
*Cryptosporidium* 1.0 count / 10 L Sample

| Source Water | Date of Sample | <i>E. coli</i> (MPN/100 mL) |
|--------------|----------------|-----------------------------|
| Nueces Raw   | 10/10/06       | 10                          |
| Lake Texana  | 10/10/06       | <10                         |
| Nueces Raw   | 11/7/06        | <10                         |
| Lake Texana  | 11/7/06        | 40                          |
| Nueces Raw   | 12/5/06        | 75                          |
| Lake Texana  | 12/5/06        | <10                         |