



This report is a summary of the quality of water we provided to our customers during 2004. We hope the information helps you become more knowledgeable about what's in your drinking water.

**YOUR WATER. OUR PRIORITY.**

Este reporte contiene informacion sobre su agua potable. Para obtener una copia de este reporte en español, llame al (361) 857.1879.

Published June 2005

City of Corpus Christi

# 2004 Annual Water Quality Report



# Your Water. Our Priority.

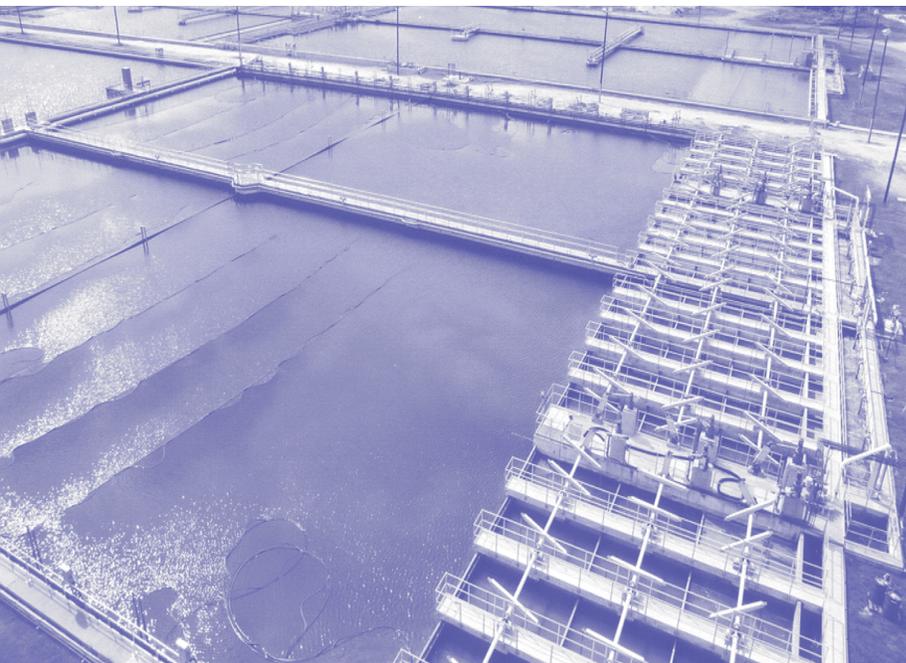
Dear Corpus Christi Water Customers:

It has been seven years since we began to distribute the annual Water Quality Report to help consumers understand where their water comes from and the results of water quality testing. This report serves as a reliable source of information. The quality of drinking water is regulated by the United States Environmental Protection Agency (USEPA) and requires all drinking water suppliers in the country to distribute this information on an annual basis.

Tests performed on Corpus Christi's drinking water indicate that we met all standards set by the USEPA. The Texas Commission on Environmental Quality (TCEQ) tests drinking water samples for up to 97 constituents; however, only those contaminants found in our drinking water are shown in the 2004 Water Quality Report.

We hope that you will attend the upcoming annual meeting being held at 6:00 p.m. on Wednesday, June 29, 2005 at the Water Utilities Conference Room located at 2726 Holly Road, Corpus Christi, Texas. Water issues are also discussed at City Council meetings usually held on every Tuesday, except for the first Tuesday of the month. You may call 880.3105 for date and meeting times.

View of basins at the O. N. Stevens Water Treatment Plant.



## Special Notice

for the elderly, infants, cancer patients, people with HIV/AIDS and other immune system disorders

You may be more vulnerable than the general population to certain microbial contaminants such as Cryptosporidium, in drinking water. Infants, some elderly, or immunocompromised 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 for 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 1.800.426.4791.

## Source Water Assessment

TCEQ completed an assessment of our source water and results indicate that some of our sources are susceptible to certain contaminants. The sampling requirements for our water system is based on this susceptibility and previous sample data. For more information on source water assessments and protection efforts of our system, contact the Water Utilities Laboratory at (361) 826.1200.

## Did You Know that 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 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 1.800.426.4791.

# Water Resources

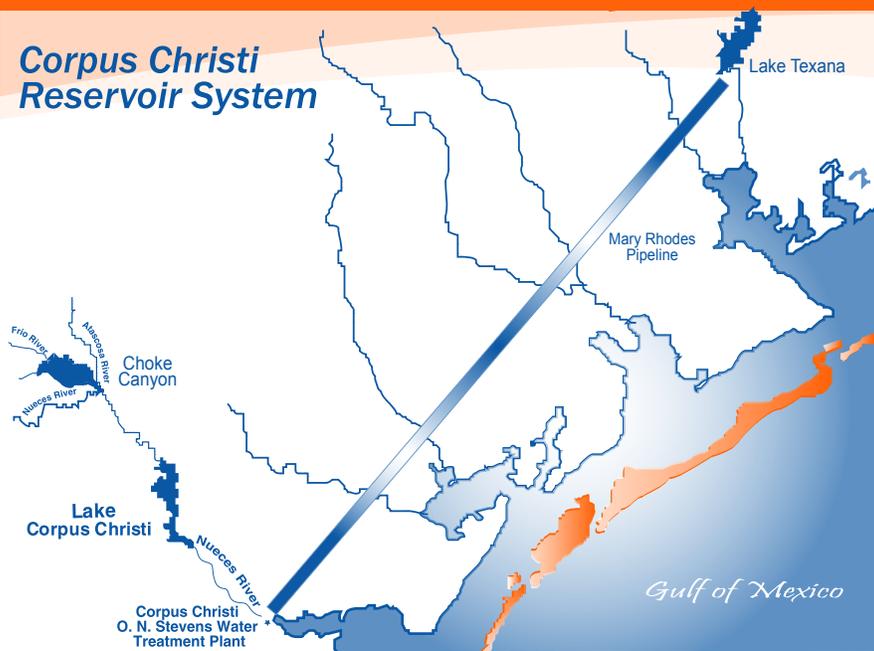
Our mission is to effectively manage the water supply, production and distribution system in order to meet the water supply needs and to provide safe drinking water that meets all state and federal regulations. We are also committed to maintaining infrastructure to ensure the adequacy of the water system to reach projected growth requirements and to identify and acknowledge consumer needs and expectations.

Our primary supply of water comes from surface water resources. The Atascosa, Frio and Nueces Rivers supply water to the Lake Corpus Christi/Choke Canyon Reservoir System. Water from Lake Texana is transported through the 101 mile long Mary Rhodes pipeline.

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, 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, herbicides, radioactive contaminants, and organic chemical contaminants.

## Corpus Christi Reservoir System



Water quality from tap and bottled water is regulated by two governmental agencies. The U. S. Environmental Protection Agency sets regulations which limit the amount of certain contaminants in water provided by public water systems to ensure that tap water is safe to drink. On the other hand, the U. S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some contaminants found in drinking water may cause taste, color, or odor problems. These types of problems are not necessarily causes for health concerns. If you experience any of these problems, please contact the Water Utilities Laboratory at 826.1200.

To obtain a copy of this report in Spanish  
Si tiene preguntas o comentarios  
sobre este informe en español: (361) 826.1879

Laboratory water testing information: (361) 826.1200

City Council meeting times: (361) 880.3105

Water conservation information/  
Speakers bureau: (361) 826.1879

Water Line Breaks/ Dispatcher: (361) 826.1888

### ANNUAL PUBLIC MEETING

Please join us on Wednesday, June 29, 2005  
at 6:00 p.m. at the Water Utilities Conference Room  
2726 Holly Road \* Corpus Christi, Texas

### Consumer Confidence Web Sites

Texas Commission on Environmental Quality (TCEQ)  
[www.tncc.state.tx.us/permitting/waterperm/pdw.ccr.html](http://www.tncc.state.tx.us/permitting/waterperm/pdw.ccr.html)

U. S. Environmental Protection Agency (USEPA)  
[www.epa.gov/safewater/](http://www.epa.gov/safewater/)

City of Corpus Christi Water Department  
[www.cctexas.com](http://www.cctexas.com)

# Water Quality Monitoring Data

Federally regulated or monitored constituents, as identified below, have been found in our drinking water. The U. S. Environmental Protection Agency require water systems to test for up to 97 constituents. During 2004, drinking water samples collected from the City of Corpus Christi met all state and federal drinking water requirements. All water quality results are for the year 2004, except for lead, copper and gross beta emitters, which are for 2002.



| Regulated Contaminants   | Corpus Christi's Water Results                 |  | USEPA Regulations               |                                       |
|--|--|--|---------------------------------|---------------------------------------|
| Constituent / Unit of Measurement / Source   | Average  | Range <sup>(1)</sup>                       | Maximum Contaminant Level (MCL) | Maximum Contaminant Level Goal (MCLG) |
| <b>INORGANIC CONTAMINANTS</b>  |  |  |                                 |                                       |
| Barium (ppm) - Discharge of drilling waste or from metal refineries; erosion of natural deposits   | 0.09   | 0.09 - 0.09                                | 2                               | 2                                     |
| Fluoride (ppm) - Water additive; promotes strong teeth; erosion of natural deposits  | 0.84   | 0.84 - 0.84                                | 4.0                             | 4.0                                   |
| Nitrate (ppm) - Runoff from fertilizer use; erosion of natural deposits  | 0.44   | 0.44 - 0.44                                | 10                              | 10                                    |
| Gross Beta Emitters (Pci/L) <sup>(2)</sup> - Decay of natural and man-made deposits  | 5.5  | 5.5 - 5.5                                  | 50                              | 50                                    |
| Selenium (ppm) - Discharge from petroleum and metal refineries; erosion of natural deposits  | .005   | .005 - .005                                | 0.05                            | 0.05                                  |
| <b>LEAD AND COPPER</b>   |  |  |                                 |                                       |
|  | The 90th Percentile                            | Sites Exceeding Action                     | USEPA Action Level              |                                       |
| Copper (ppm) - Corrosion of household plumbing systems   | 0.13   | 0  | 1.3                             |                                       |
| Lead (ppb) - Corrosion of household plumbing systems   | 4.7  | 0  | USEPA Action Level<br>15        |                                       |
| <b>TURBIDITY</b>   |  |  |                                 |                                       |
|  | Highest Single Measurement                     | Lowest Monthly % of Samples Meeting Limits |                                 |                                       |
| Turbidity (NTU) Plant 2 - Soil runoff  | 0.3  | 100  | TT/AL = 0.3                     | N/A                                   |
| <b>ORGANIC CONTAMINANTS</b>  |  |  |                                 |                                       |
| Atrazine (ppb) - Runoff from herbicide used on row crops   | 0.5  | 0.5 - 0.5                                  | 3                               | 3                                     |
| <b>MONITORED CONTAMINANTS</b>  |  |  |                                 |                                       |
| Bromodichloromethane (ppb)   | 10.07  | 10.07 - 10.07                              | N/A                             | N/A                                   |
| Chloroform (ppb)   | 15.62  | 15.62 - 15.62                              | N/A                             | N/A                                   |
| Chlorodibromomethane (ppb)   | 2.98   | 2.98 - 2.98                                | N/A                             | N/A                                   |
| - Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants |  |  |                                 |                                       |
| <b>FECAL COLIFORM</b>  |  |  |                                 |                                       |
|  | Highest Monthly Percentage of Positive Samples |  | Presence of coliform bacteria   |                                       |
| Total Coliform Bacteria (Presence) - Naturally present in the environment  | 1.6%   |  | in ≥ 5.0% of monthly samples    |                                       |
|  | Total Number of Positive Samples               |  | (3)                             |                                       |
| Fecal Coliform and E.coli (Presence) - Human and animal fecal waste  | 2  |  |                                 |                                       |
| <b>DISINFECTION BYPRODUCTS</b>   |  |  |                                 |                                       |
| Total Trihalomethanes (ppb) - By products of drinking water disinfection   | 37   | 24 - 53                                    | 80                              | N/A                                   |
| Total Haloacetic Acids (ppb) - By products of drinking water disinfection  | 37   | 18 - 59                                    | 60                              | N/A                                   |
| <b>TOTAL ORGANIC CARBON</b>  |  |  |                                 |                                       |
| Total Organic Carbon - Raw Water (ppm)   | 6.1  | 5.0 - 7.0                                  | N/A                             | N/A                                   |
| <b>CHLORAMINES</b>   |  |  |                                 |                                       |
|  | Highest Average                                |  | MRDL                            | MRDLG                                 |
| Chloramines (ppm) - Disinfectant used to control microbes.   | 2.7  | 0.0 - 6.6                                  | 4.0                             | ≤ 4.0                                 |

**Coliforms.** Total coliform 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 hardy than many disease-causing organisms; therefore, their absence from water is a good indication that the water is microbiologically safe for human consumption.

Fecal coliform bacteria and, 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.

**Arsenic.** Some people who drink water containing arsenic in excess of the Maximum Contaminant Level (MCL) over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

At present the MCL is 0.050 ppm. Effective January 23, 2006, the MCL limit will be changed to 0.010 ppm.

Arsenic was not detected in year 2004 compliance water samples.

- (1) Range of detected levels indicated for one or more sample collected in 2004.
- (2) 50 pCi/L = 4 mrems/year.
- (3) A routine sample and a repeat sample are total coliform positive; and one is also fecal coliform or E.coli positive.

## Key Terms

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

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

**MCL - Maximum Contaminant Level** - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

**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 and are non-enforceable public health goals.

**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. This limit is the running annual average (RAA) value.

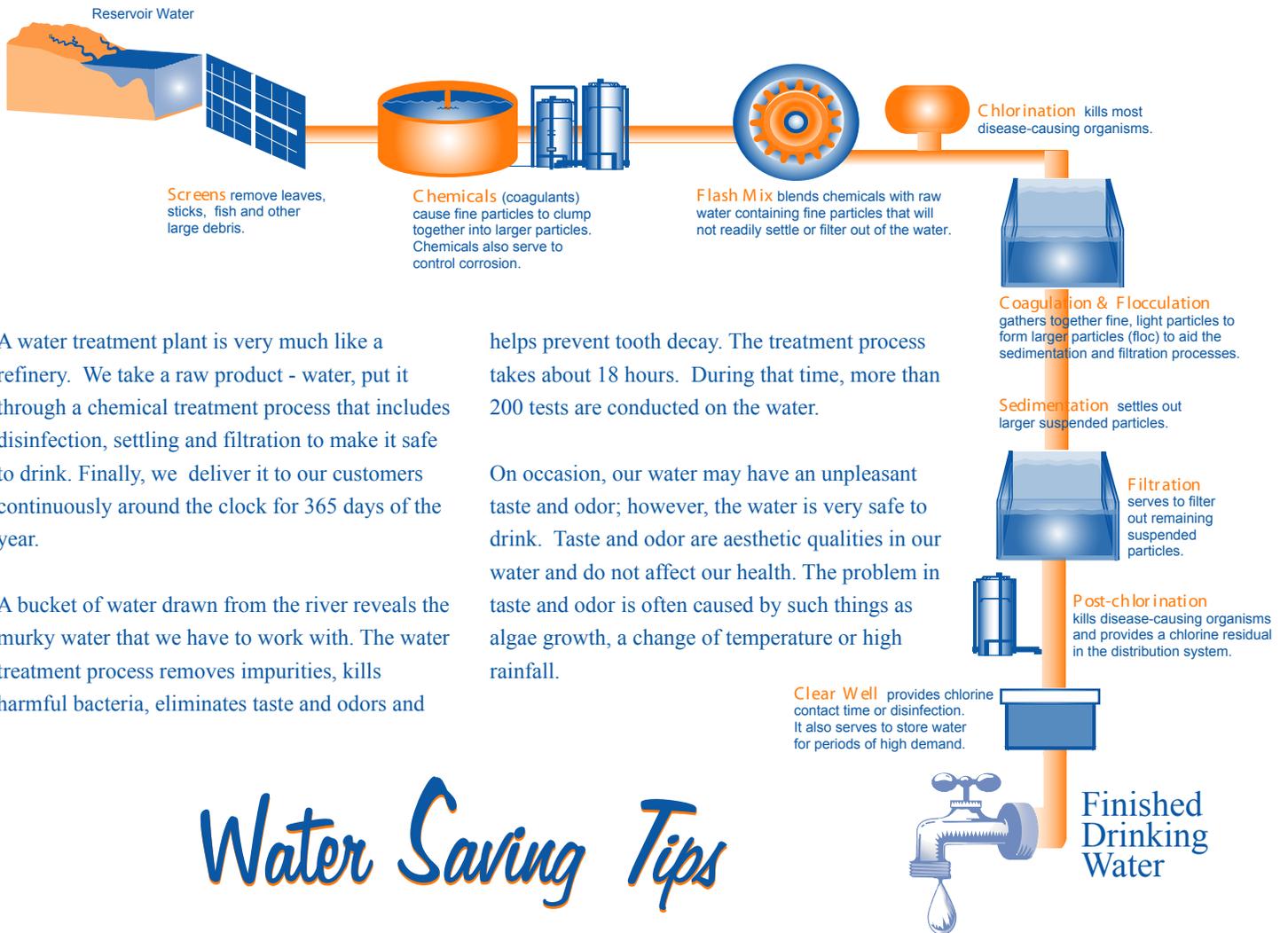
**MRDLG - Maximum Residual Disinfectant Level Goal** - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**pCi/L** - Pico-curies per liter - The measurement of radioactivity in water.

**ppb** - Parts per billion or micrograms per liter (ug/L)

**ppm** - Parts per million or milligrams per liter (mg/L)

# The Water Treatment Process



A water treatment plant is very much like a refinery. We take a raw product - water, put it through a chemical treatment process that includes disinfection, settling and filtration to make it safe to drink. Finally, we deliver it to our customers continuously around the clock for 365 days of the year.

A bucket of water drawn from the river reveals the murky water that we have to work with. The water treatment process removes impurities, kills harmful bacteria, eliminates taste and odors and

helps prevent tooth decay. The treatment process takes about 18 hours. During that time, more than 200 tests are conducted on the water.

On occasion, our water may have an unpleasant taste and odor; however, the water is very safe to drink. Taste and odor are aesthetic qualities in our water and do not affect our health. The problem in taste and odor is often caused by such things as algae growth, a change of temperature or high rainfall.

## Water Saving Tips

There are many things that you can do around the house to conserve our most precious resource - water.

### In the Bathroom

Toilets account for 26% of the water used at home. Old toilets can use from 3.5 to 7 gallons per flush. New low-volume flush toilets use only 1.6 gallons per flush!

Low flow aerators are little gizmos that can save you a lot of water. Call the Water Hotline at 857-1600 to get two free!

Enjoy singing in the shower? Well, singing your favorite tune can really add up to a lot of waste.



### In the Kitchen

We suggest running dishwashers with a full load. This saves water, energy, detergent and money.

Keep a container of water in the refrigerator. Running water from the tap until it is cool is wasteful.

Scrape the dishes clean instead of rinsing them before washing, unless they are heavily soiled.

### In the Laundry Room

Wash only a full load when using an automatic washing machine (32 to 56 gallons are required per load).

Use the lowest water level setting on the washing machine for light or partial loads.

If replacing your washing machine, consider a front loading model that saves even more water than traditional top loading machines.

### In the Garden

Avoid watering between 10 am to 6 pm. That's when evaporation is at its greatest.

Use a sprinkler that produces large drops of water, rather than a fine mist.

Use drip irrigation to water flower beds efficiently.

Water only when needed. If the grass looks wilted and the soil is dry, you're on the right track to pull the sprinkler out.



**AVAILABILITY OF UNREGULATED CONTAMINANT MONITORING RULE (UCMR) DATA** -- The City participated in gathering data under the UCMR in order to assist USEPA in determining the occurrence of possible drinking water contaminants. If any unregulated contaminants were detected, they are shown in the tables within this report. This data may also be found on EPA's web site at <http://www.epa.gov/safewater/data/ncod.html>, or you can call the Safe Drinking Water Hotline at 1.800.426.4791.

**SECONDARY AND OTHER CONSTITUENTS NOT REGULATED**

| Constituent / Source of Constituent  | Average | Minimum Level | Maximum Level | USEPA Limit | City Internal Monitoring Avg. |
|--|---------|---------------|---------------|-------------|-------------------------------|
| Aluminum (ppm) - <i>Abundant naturally occurring element</i>   | 0.1     | 0.1           | 0.1           | 0.05 - 0.2  | 0.2                           |
| Calcium (ppm)- <i>Abundant naturally occurring element</i>   | 49      | 49            | 49            | NA          | 51                            |
| Chloride (ppm) - <i>Abundant naturally occurring element, used in water purification; byproduct of oil field activity</i>    | 126     | 126           | 126           | 300         | 101                           |
| Copper (ppm) - <i>Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives</i> | 0.0012  | 0.0012        | 0.0012        | NA          | <0.05                         |
| Hardness as Ca/Mg (ppm) - <i>Naturally occurring calcium and magnesium</i>   | 157     | 157           | 157           | NA          | 151                           |
| Magnesium (ppm) - <i>Abundant naturally occurring element</i>  | 8.1     | 8.1           | 8.1           | NA          | --                            |
| Manganese (ppm)- <i>Abundant naturally occurring element</i>   | 0.001   | 0.001         | 0.001         | 0.05        | 0.1                           |
| pH (units)- <i>Measure of corrosivity of water</i>   | 7.8     | 7.8           | 7.8           | NA          | 7.6                           |
| Sodium (ppm) - <i>Erosion of natural deposits; byproduct of oil field activity</i>   | 90      | 90            | 90            | NA          | 68                            |
| Sulfate (ppm)- <i>Naturally occurring; common industrial byproduct; byproduct of oil field activity</i>                      | 72      | 72            | 72            | 300         | 71                            |
| Total Alkalinity as CaCO3 (ppm)- <i>Naturally occurring soluble mineral salts</i>  | 94      | 94            | 94            | NA          | 88                            |
| Total Dissolved Solids (ppm)- <i>Total dissolved mineral constituents in water</i>   | 454     | 454           | 454           | 1000        | 353                           |

**Know What To Do If You Have Lead in Household Pipes**

Lead, a metal found in natural deposits, is commonly used in household plumbing materials and water service lines. The greatest exposure to lead is swallowing or breathing in lead paint chips and dust.

But lead in drinking water can also cause a variety of adverse health effects. In babies and children, exposure to lead in drinking water above the action level can result in delays in physical and mental development, along with slight deficits in attention span and learning abilities. In adults, it can cause increases in blood pressure. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Lead is rarely found in source water, but enters tap water through corrosion of plumbing materials. Homes built before 1986 are more likely to have lead pipes, fixtures and solder. However, new homes are also at risk; even legally "lead-free" plumbing may contain up to 8 percent lead.

The USEPA requires water systems to monitor for lead and copper. The safe action level of lead in drinking water is 15 parts per billion and 1.3 parts per million for copper. The City's water samples showed that lead and copper values were below the action level.

**Actions You Can Take To Reduce Lead in Drinking Water**

1. Flush your water pipes before drinking. Faucets that have not been used for six hours or longer should be allowed to "flush".
2. Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead. These two actions are very important to the health of your family. Most lead in household water usually comes from the plumbing in your house, not from the local water supply.
3. Look for solder on pipes that have a dull gray metal and are easily scratched with a house key. If you see signs of corrosion, frequent leaks, rust colored water, stained dishes or laundry, or if your non-plastic plumbing is less than five years old, you should take further action.
4. After you have taken the two precautions above for reducing the lead in water used for drinking or cooking, you should have the water tested by a competent private laboratory.
5. Seek additional information by calling the USEPA Safe Drinking Water Hotline at 800.426.4791 or the National Lead Information Center at 800.424.LEAD [5323] to receive an information packet.