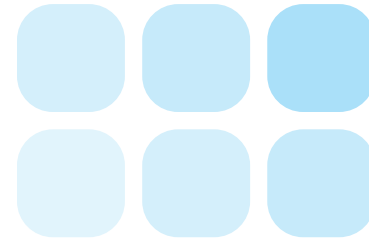




# 2008 Water Quality Report



Conserve Water  
 and Reduce Your  
 Carbon Footprint



Carlsbad Municipal Water District – A subsidiary district of the City of Carlsbad

Este informe contiene información muy importante sobre su agua potable.  
 Tradúzcalo o hable con alguien que lo entienda bien.



This report presents an overview of how potable water is delivered to your home or business, and how the Carlsbad Municipal Water District (CMWD) works to ensure the highest quality of water.

This report also includes information about the quality of the water delivered to Carlsbad Municipal Water District customers in 2007.

## Supply

Currently, the Carlsbad Municipal Water District imports all of its water supply – there are no local sources of fresh drinking water. Imported water is treated by and purchased from the Metropolitan Water District (MWD) via our wholesaler, the San Diego County Water Authority (SDCWA).

MWD receives water from two sources: the Colorado River through the Colorado River Aqueduct, and from Northern California through the California Aqueduct (also known as the State Water Project). These waters are rigorously treated at MWD's Lake Skinner Treatment Plant in Southern Riverside County. The water is then delivered to Carlsbad through the San Diego Aqueduct, owned by the SDCWA.

In 2007, supplies from the State Water Project accounted for about 34 percent of San Diego County's water supply.

Reliable water supplies are important to Carlsbad and continuing to use these supplies long-term may be problematic. For instance, the Colorado River Basin has entered its eight year of drought and supplies from Northern California are reduced due to impacts to environmentally sensitive fish species. Please help do your part and use these precious resources wisely.

# Sources

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.

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 USEPA's Safe Drinking Water Hotline: (800) 426-4791.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that 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, that 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, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that 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, the U.S. Environmental Protection Agency (USEPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain



contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

## Special Note:

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. USEPA/Centers for Disease Control (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: (800) 426-4791.

## Source Water Assessment

The Metropolitan Water District of Southern California completed its source water assessment of its Colorado River and State Water Project supplies in December 2002. Colorado River supplies are considered to be most vulnerable to contamination from recreation, urban/storm water runoff, increasing urbanization in the watershed and wastewater. State Water Project supplies are considered to be most vulnerable to contamination from urban/storm water runoff, wildlife, agriculture, recreation, and wastewater. A summary of the assessment can be obtained by contacting Metropolitan by phone at (213) 217-6850.

## How to Contact Us

This report covers testing for contaminants in 2007. For questions or concerns regarding the quality of Carlsbad's drinking water, contact Steven Plyler at the Carlsbad Municipal Water District (CMWD): (760) 438-2722 or [water@ci.carlsbad.ca.us](mailto:water@ci.carlsbad.ca.us).

To participate in decisions that affect drinking water in the CMWD service area, please watch the CMWD agenda for drinking water items. CMWD Board meetings are held in conjunction with the Carlsbad City Council on an as needed basis on Tuesday evenings. Agendas may be obtained at [www.ci.carlsbad.ca.us](http://www.ci.carlsbad.ca.us) or Carlsbad City Hall, 1200 Carlsbad Village Drive. Comments regarding your drinking water are always welcome.

This report is mailed to all CMWD customers at their billing address and is available at most City facilities. This report may be photocopied and distributed or posted in a prominent place at your facility. Additional copies are available on the Internet at [www.carlsbadca.gov](http://www.carlsbadca.gov).

### The Carlsbad Municipal Water District

5950 El Camino Real

Hours: Monday through Friday, 8 am to 5 pm

(760) 438-2722 • [water@ci.carlsbad.ca.us](mailto:water@ci.carlsbad.ca.us)

Additional sources for water quality information:

### San Diego County Water Authority

(858) 522-6600 • [www.sdcwa.org](http://www.sdcwa.org)

### Metropolitan Water District of Southern California

(800) CALL-MWD (225-5693) • [www.mwd.dst.ca.us](http://www.mwd.dst.ca.us)

### California Department of Health Services

Division of Drinking Water & Environmental Management

(619) 525-4159 • [www.dhs.ca.gov/ps/ddwem](http://www.dhs.ca.gov/ps/ddwem)

### U.S. Environmental Protection Agency

Office of Ground Water & Drinking Water

Safe Drinking Water Hotline: (800) 426-4791

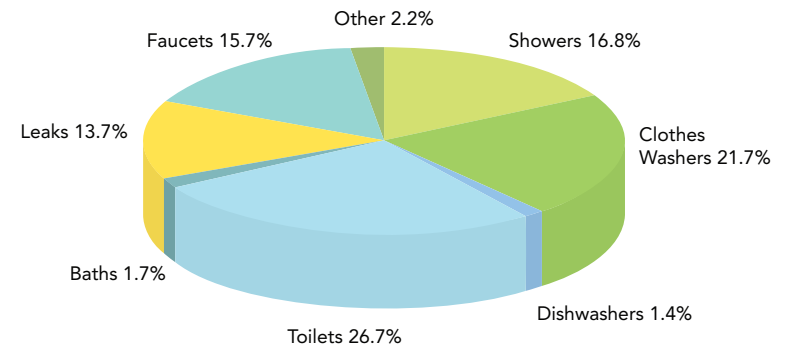
[www.epa.gov/safewater/dwhealth.html](http://www.epa.gov/safewater/dwhealth.html)

[www.epa.gov/safewater/faq/faq.html](http://www.epa.gov/safewater/faq/faq.html)

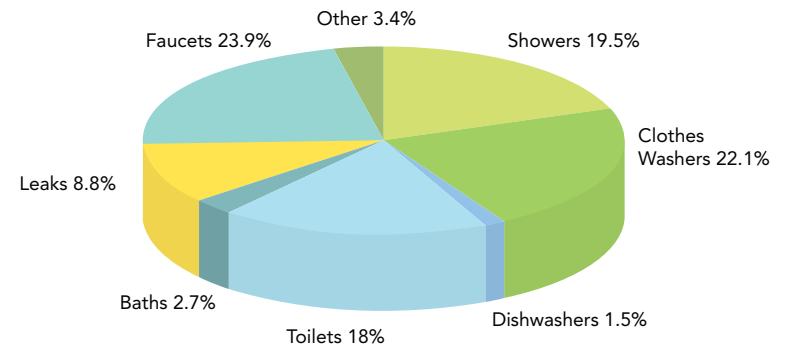
# Water Use

## Indoors

Daily indoor per capita water use in the typical single family home is 69.3 gallons and is used as follows:



By installing more efficient water fixtures and regularly checking for leaks, households can reduce daily per capita water use by about 35% to about 45.2 gallons per day:



Source: *Handbook of Water Use and Conservation* by Amy Vickers

## Outdoors

Each day on average a person uses 97 gallons of water outdoors. (Source: [www.sdcwa.org](http://www.sdcwa.org)) If all U.S. households installed water-saving features, water use would decrease by 30 percent, saving an estimated 5.4 billion gallons per day. This would result in dollar-volume savings of \$11.3 million per day or more than \$4 billion per year.



# Sustaining Water Resources

Since Southern California is located in a semi-arid climate, conditions are dry. Conserving water is a way of life and ensures that there is adequate water for everyone. However, did you also know that saving water helps decrease greenhouse gas emissions? That's because a lot of energy is required to transport and deliver clean water to your home.

Water must travel 242 miles from the Colorado River basin and 444 miles from Northern California to get to your home. In fact, approximately 19% of the total energy used in California is attributed to water transport and treatment, water heating and wastewater disposal.

In the San Diego region, it takes approximately .0075 kWh of power (1.34 lbs. of CO<sub>2</sub>)\* for each gallon of water delivered to your home. So, if you want to help the environment and reduce your carbon footprint, you can start by reducing your water use to reduce carbon emissions.

Here are some easy tips to reduce water outside the home:

Estimated Savings	Water	CO <sub>2</sub>
Use a broom instead of a hose to clean driveways and sidewalks	150 gallons or more per use**	201 lbs. CO <sub>2</sub> or more per use***
Repair any leaks around pool and spa pumps	20 gallons per day per leak	26.8 lbs. CO <sub>2</sub> per day per leak
Adjust sprinklers to prevent over-spray and runoff	15-25 gallons per day	20-33.5 lbs. CO <sub>2</sub> per day
Install water-efficient drip irrigation system for trees, shrubs and flowers to get water to the plant's roots more efficiently	20-25 gallons per day	26.8-33.5 lbs. CO <sub>2</sub> per day
Add 2" to 3" of mulch around trees and plants to reduce evaporation	20-30 gallons per day	26.8-40 lbs. CO <sub>2</sub> per day
Upgrade to a "Smart Irrigation Controller," which automatically adjusts watering times for hotter weather and shuts down the system when it rains	20-25 gallons per day	26.8-33.5 lbs. CO <sub>2</sub> per day

\*Energy Down the Drain, NRDC, 2004

\*\*Water Savings courtesy of the San Diego County Water Authority.

\*\*\* CO<sub>2</sub>/kWh - CO<sub>2</sub> emission from the generation of electric power in the US, DOE 7/2000.

## How to Read this Report

As you read the water quality tables in this report, compare the level of constituents found in CMWD's water in the "Skinner Plant Effluent" column with the standards set for them in the MCL and PHG columns. CMWD's water did not violate any drinking water standards in 2007.

The following are key terms to help you understand the standards we use to measure drinking water safety.

### Maximum Contaminant Level (MCL)

The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

### 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 are set by the U.S. Environmental Protection Agency.

### Public Health Goal (PHG)

The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

### Maximum Residual Disinfectant Level (MRDL)

The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

### Maximum Residual Disinfectant Level Goal (MRDLG)

The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.

### Primary Drinking Water Standard (PDWS)

MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

### Treatment Technique

A required process intended to reduce the level of a contaminant in drinking water.

### Regulatory Action Level

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

## Abbreviations

AI	Aggressiveness Index
AL	California Action Level
CFU/mL	Colony Forming Units per Milliliter
DCEP	Dimethyl Tetrachloroterephthalate
DBP	Disinfection By-Products
DLR	Detection Limits for purposes of Reporting
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MFL	Million Fibers per Liter
MRDL	Maximum Residual Disinfectant Level
MRDLG	Maximum Residual Disinfectant Level Goal
N	Nitrogen
NA / ND	Not Applicable / None Detected
NL	Notification Level
NTU	Nephelometric Turbidity Units
P or A	Presence or Absence
pCi/L	picoCuries per liter
PHG	Public Health Goal
ppb	parts per billion or micrograms per liter ( $\mu\text{g/L}$ )
ppm	parts per million or milligrams per liter ( $\text{mg/L}$ )
ppq	parts per quadrillion or picograms per liter ( $\text{pg/L}$ )
ppt	parts per trillion or nanograms per liter ( $\text{ng/L}$ )
RAA	Running Annual Average
SI	Saturation Index (Langelier)
TOC	Total Organic Carbon
TON	Threshold Odor Number
TT	Treatment Technique
$\mu\text{S/cm}$	microSiemen per centimeter; or
$\mu\text{mho/cm}$	micromho per centimeter

# Water Quality Report to MWD Member Agencies

## The Metropolitan Water District of Southern California

PARAMETER	UNITS	STATE OR FEDERAL MCL [MRDL]	PHG (MCLG) [MRDLG]	STATE DLR	SKINNER PLANT		MAJOR SOURCES IN DRINKING WATER
					RANGE	AVERAGE	
Percent State Project Water	%	NA	NA	NA	32 - 55	43	
<b>PRIMARY STANDARDS – Mandatory Health-Related Standards</b>							
<b>CLARITY</b>							
Combined Filter Effluent Turbidity	NTU/ %	0.3/95 (a)	NA	NA	Highest 0.13	100% < 0.3	Soil runoff
<b>MICROBIOLOGICAL</b>							
Total Coliform Bacteria (Local)	%	5.0	(0)	NA	.007%	%	Naturally present in the environment
Total Coliform Bacteria	%	5.0 (b)	(0)	NA	0.0 - 0.14%	0.02%	Naturally present in the environment
Fecal Coliform and E. coli	(c)	(c)	(0)	NA	Distribution System-wide	Fecal	Human and animal fecal waste
Heterotrophic Plate Count (HPC) (d)	CFU/mL	TT	NA	NA	Coliform-positive samples: 0		
Total Culturable Viruses (e)	P or A/1000 L	TT	(0)	NA	Distribution System-wide		Naturally present in the environment
				NA	Ecoli-positive samples: 0		Human and animal fecal waste
<b>ORGANIC CHEMICALS – Semi-Volatile Organic Chemicals</b>							
Arylamide	NA	TT	(0)	NA	TT	TT	Water treatment chemical impurities
Epichlorohydrin	NA	TT	(0)	NA	TT	TT	Water treatment chemical impurities
<b>INORGANIC CHEMICALS</b>							
Aluminum (f)	ppb	1000	600	50	ND - 57	ND	Residue from water treatment process; natural deposits erosion
Copper (f, h) 33 sites triennial 2006	ppm	AL=1.3	0.17	0.05	90%ile	0.75 (Local)	Internal corrosion of household pipes; natural deposits erosion
Fluoride (i) (naturally-occurring)	ppm	2.0	1	0.1	0.2 - 0.3	0.2	Erosion of natural deposits; discharge from fertilizer and aluminum factories
Fluoride (i) Treatment-related	ppm	Optimal Fluoride Control Range			0.7 - 1.3		
		(i)	1	0.1	0.5 - 0.9		Water additive for dental health
Nitrate (as N) (i)	ppm	Distribution System-wide			0.1 - 1.0		Runoff and leaching from fertilizer use; septic tank and sewage; natural deposits erosion
		10	10	0.4	ND - 0.4	ND	
<b>RADIOLOGICALS (i)</b>							
Gross Alpha Particle Activity	pCi/L	15	(0)	3	ND - 5.5	ND	Erosion of natural deposits
Uranium	pCi/L	20	0.43	1	1.5 - 3.2	2.3	Erosion of natural deposits
<b>DISINFECTANT BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCTS PRECURSORS (o)</b>							
Total Trihalomethanes (TTHM)	ppb	80	NA	0.5	35.7 - 59	48.8 (Local)	By-product of drinking water chlorination
Total Trihalomethanes (TTHM) (p)	ppb	80	NA	0.5	17 - 74	Highest RAA 42	By-product of drinking water chlorination
Halooacetic Acids (five) (HAA5) (q)	ppb	60	NA	1	7.4 - 28.0	21.9 (Local)	By-product of drinking water chlorination
Halooacetic Acids (five) (HAA5) (p,q)	ppb	60	NA	1	3.0 - 35	Highest RAA 19	By-product of drinking water chlorination
Total Chlorine Residual	ppm	[4.0]	[4.0]	NA	0.72 - 3.4	Highest RAA 2.4	Drinking water disinfectant added for treatment
DBP Precursors Control (TOC) (o)	ppm	TT	NA	0.30	TT	TT	Various natural and man-made sources
<b>SECONDARY STANDARDS – Aesthetic Standards</b>							
Aluminum (f)	ppb	200	600	50	ND - 57	ND	Residue from water treatment process; natural deposits erosion
Chloride	ppm	500	NA	NA	84 - 96	92	Runoff/leaching from natural deposits; seawater influence
Color	Units	15	NA	NA	1 - 2	2	Naturally occurring organic materials
Odor Threshold (s)	TON	3	NA	1	2	2	Naturally-occurring organic materials
Specific Conductance	µS/cm	1600	NA	NA	755 - 927	841	Substances that form ions in water; seawater influence
Sulfate	ppm	500	NA	0.5	134 - 202	169	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	ppm	1000	NA	NA	438 - 551	495	Runoff/leaching from natural deposits; seawater influence
Turbidity (a)	NTU	5	NA	NA	0.05 - 0.07	0.05	Soil runoff
<b>UNREGULATED CHEMICALS REQUIRING MONITORING</b>							
Boron	ppb	NA	NL=1,000	100	130 - 160	140	Runoff/leaching from natural deposits; industrial wastes
Chromium VI (t)	ppb	NA	NA	1	0.07 - 0.18	0.12	Industrial waste discharge; could be naturally present as well
<b>FEDERAL REGULATED CONTAMINANTS WITH NO MCLs (u) List 1 - Assessment Monitoring</b>							
Perchlorate	ppb	NA	NA	4	ND - 4.6	ND	Industrial waste discharge
<b>OTHER PARAMETERS</b>							
Alkalinity	ppm	NA	NA	NA	91 - 106	98	
Calcium	ppm	NA	NA	NA	44 - 60	53	
Chlorate (v)	ppb	NA	NL=800	20	ND - 23	24 - 43	By-product of drinking water chlorination; industrial processes
Corrosivity (w) (as Aggressiveness Index)	AI	NA	NA	NA	12.1 - 12.3	12.2	Elemental balance in water, affected by temperature, other factors
Corrosivity (x) (as Saturation Index)	SI	NA	NA	NA	0.15 - 0.52	0.38	
Hardness	ppm	NA	NA	NA	194 - 254	226	
HPC (d)	CFU/ml	TT	NA	NA	ND - 3	ND	Municipal and industrial waste discharges
Magnesium	ppm	NA	NA	NA	19 - 25	22	Naturally present in the environment
pH	pH Units	NA	NA	NA	8.1	8.1	
Potassium	ppm	NA	NA	NA	3.8-4.5	4.2	
Sodium	ppm	NA	NA	NA	73 - 89	83	
TOC (z)	ppm	TT	NA	0.30	1.9 - 2.7	2.3	Various natural and man-made sources

## Footnotes

- (a) The turbidity level of the filtered water shall be less than or equal to 0.3 NTU in 95% of the measurements taken each month and shall not exceed 1 NTU at any time. Turbidity is a measure of the cloudiness of the water and is an indicator of treatment performance. The monthly averages and ranges of turbidity shown in the Secondary Standards were based on the treatment plant effluent.
- (b) Total coliform MCLs: No more than 5.0% of the monthly samples may be total coliform-positive. Compliance is based on the combined distribution system sampling from all the treatment plants. In 2007, 8905 samples were analyzed and two samples were positive for total coliforms. The MCL was not violated.
- (c) Fecal coliform/E.coli MCLs: The occurrence of two (2) consecutive total coliform-positive samples, one of which contains fecal coliform/E. coli, constitutes an acute MCL violation. The MCL was not violated in 2007.
- (d) HPC values were based on the monthly averages of the treatment plant effluent samples. In 2007, all distribution samples collected had detectable total chlorine residuals and no HPC was required.
- (e) In 2007, the effluent from the five (5) treatment plants had no detectable Cryptosporidium, Giardia, or Total Culturable Viruses. Two hundred (200) liters of water were collected monthly for Cryptosporidium and Giardia analysis. One thousand (1000) liters of water were analyzed quarterly for Total Culturable Viruses.
- (f) Aluminum, copper, MTBE, and thiobencarb have both primary and secondary standards.
- (g) MTBE reporting level is 0.5 ppb.
- (h) Lead and copper are regulated as a Treatment Technique under the Lead and Copper Rule. It requires systems to take water samples at the consumers' tap. The action levels, which trigger water systems into taking treatment steps if exceeded in more than 10% of the tap water samples, are 1.3 ppm for copper and 15 ppb for lead.
- (i) Data for the naturally-occurring fluoride were taken before the fluoridation treatment began. Fluoridation treatment of water supplies at all five treatment plants started sequentially from October 29, 2007 to December 3, 2007. Metropolitan was in compliance with all provisions of the State's Fluoridation System Requirements.
- (j) State MCL is 45 mg/L as nitrate, which equals 10 mg/L as N.
- (k) The State primary MCL for perchlorate was set at 6 ppb effective October 18, 2007. Perchlorate reporting level is 2 ppb.
- (l) Reported results were taken from four consecutive quarters of monitoring from August 2005 to April 2006.
- (m) The gross beta particle activity MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ. The screening level is 50 pCi/L.
- (n) State MCL is 5 pCi/L for combined Radium-226 and -228.
- (o) In 2007, Metropolitan was in compliance with all provisions of the Stage 1 Disinfectants/Disinfection By-Products (D/DBP) Rule including the DBP precursor (TOC) control portion.
- (p) Average and range for the treatment plant effluent were taken from weekly samples for TTHM and monthly samples for HAA5. Distribution system-wide average and range were taken from 47 samples collected quarterly.
- (q) DLR = 1.0 ppb for each HAA5 analyte (dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid) except for monochloroacetic acid which has a DLR = 2.0 ppb.
- (r) Running annual average was calculated from quarterly results of weekly samples. Bromate reporting level is 3 ppb.
- (s) Metropolitan has developed a flavor-profile analysis method that can detect odor occurrences more accurately. For more information, call MWD at (213) 217-6850.
- (t) Chromium VI reporting level is 0.03 ppb.
- (u) Data collected from January 2002 to January 2003. Minimum reporting levels are as stipulated in the Federal Unregulated Contaminants Monitoring Rule (UCMR). List 1 - Assessment Monitoring consists of 12 chemical contaminants for which standard analytical methods were available. List 2 - Screening Survey consists of 16 contaminants for which new analytical methods were used.
- (v) Ranges for the plant effluent were taken from two quarterly samples. Distribution system-wide range was taken from a total of eight samples.
- (w) AI measures the aggressiveness of water transported through pipes. Water with AI <10.0 is highly aggressive and would be very corrosive to almost all materials found in a typical water system. AI > 12.0 indicates non-aggressive water. AI between 10.0 and 11.9 indicates moderately aggressive water.
- (x) SI measures the tendency for a water to precipitate or dissolve calcium carbonate (a natural mineral in water). Positive indices indicate the tendency to precipitate and/or deposit scale on pipes and are assumed to be non-corrosive. Negative indices indicate the tendency to dissolve calcium carbonate and are assumed to be corrosive.
- (y) Ranges for the treatment plant effluent were taken from quarterly samples. Distribution system-wide range was taken from 19 samples collected quarterly.
- (z) Average and range for TOC were taken from weekly samples collected at the combined filter effluent.

