



**City of Garden Grove**

Public Works Department ~ Water Service Division  
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**City of  
Garden Grove**  
Water Services Division



# 2003 Water Quality Report

# The 2003 Water Quality Report

## *Drinking Water Quality*

Since 1990, California water utilities have been providing an annual Water Quality Report to their customers. This year's report covers calendar year 2002 water quality testing, and has been prepared in compliance with new regulations called for in the 1996 reauthorization of the Safe Drinking Water Act. The reauthorization charged the United States Environmental Protection Agency (EPA) with updating and strengthening the tap water regulatory program and changed the report's due date to July 1.

EPA and the California Department of Health Services (DHS) are the agencies responsible for establishing drinking water quality standards. To ensure that your tap water is safe to drink, EPA and DHS prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. DHS regulations also establish limits for contaminants in bottled water that must provide the same protection for public

**This information is important.  
Have someone translate it for you.**

これは重要な情報ですので、翻訳を依頼してください。

Esta información es importante. Por favor pídale a alguien que se la traduzca.

此乃重要資料・必須請人替您翻譯。

این اطلاعات بسیار مهم است. لطفاً از کسی بخواهید این را برایتان ترجمه کند.

이 자료는 매우 중요한 것입니다. 그러므로 영어를 할 수 있는 사람에게 번역해 줄 것을 부탁드립니다.

Bản báo cáo này có những tin tức quan trọng về nước uống của quý vị.  
Hãy dịch ra hoặc nói chuyện với những ai thông hiểu.

### ***If you have any questions about your water, please contact us for answers...***

For information about this report, or your water quality in general, please contact Zachary Barrett, Water Quality Supervisor, at (714) 741-5395. Public City Council meetings are held on the second and fourth Tuesdays of each month at 6:45 p.m. in the Council Chambers at the Community Meeting Center, 11300 Stanford Avenue, Garden Grove, California. You may also contact our City Clerk's Office, Garden Grove City Hall, 11222 Acacia Parkway, Garden Grove, CA 92840 or call (714) 741-5040 for information about Garden Grove City Council meetings. Please feel free to participate in these meetings.

For more information about the health effects of the listed contaminants in the following tables, call the Environmental Protection Agency hotline at (800) 426-4791.

health. The federal Food and Drug Administration (FDA) also sets regulations for bottled water.

The City of Garden Grove vigilantly safeguards its water supply and, as in years past, the water delivered to your home meets the standards required by the state and federal regulatory agencies. In some cases, your local utility goes beyond what is required to monitor for additional contaminants that have known health risks.

Unregulated contaminant monitoring helps EPA determine where certain contaminants occur and whether it needs to establish regulations for those contaminants.

# What You Need to Know, ...and How it May Affect You

## Sources of Supply

Your drinking water is a blend of mostly groundwater from the Orange County groundwater basin and also surface water imported by the Metropolitan Water District of Southern California. Metropolitan's imported water source is mostly the Colorado River, with augmentation by the State Water project from northern California. Your groundwater comes from a natural underground reservoir managed by the Orange County Water District that stretches from the Prado Dam and fans across the northwestern portion of Orange County, excluding the communities of Brea and La Habra, and stretching as far south as the El Toro 'Y'.

Last year, as in years past, your tap water met all EPA and State drinking water health standards. The City of Garden Grove vigilantly safeguards its water supplies and once again we are proud to report that our system has never violated a maximum contaminant level or any other water quality standard. This brochure is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. We are committed to providing you with information because informed customers are our best allies.

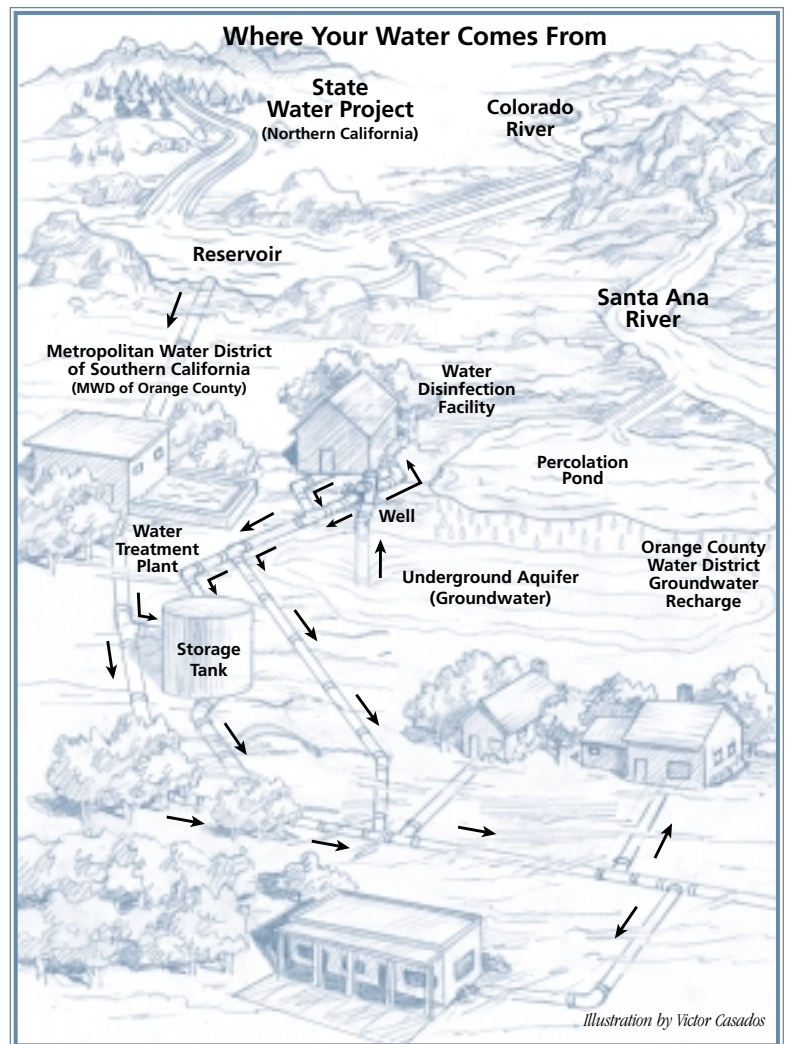
The City's source water comes from 12 groundwater wells. Imported water comes from the Sierra Nevada and the Colorado River area.

## Government Regulations of Potential Contaminants

Drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. As water travels over the surface of the land or through the layers of the ground it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of human or animal activity. For most people, the presence of contaminants does not necessarily mean water may be a health risk.

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 storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining and farming.



*Water Distribution System: Imported water supplied by Metropolitan Water District of Southern California (via MWD of Orange County) and piped to your community by your local water retailer. Your groundwater is managed by the Orange County Water District and pumped out of the ground by your local water retailer.*

- ◆ Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production or mining activities.
- ◆ Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water 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 gasoline stations, urban storm water runoff and septic systems.



blood to carry oxygen resulting in serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L (as Nitrogen) may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

The City of Garden Grove currently blends with an additional well of a lower nitrate level for lowering the nitrate concentration. At no time did the drinking water exceed the MCLs for nitrate.

## ***Cryptosporidium***

*Cryptosporidium* is a microscopic organism that, when ingested, can cause diarrhea, fever, and other gastrointestinal symptoms. The organism comes from animal and/or human wastes and may be in surface water. The Metropolitan Water District of Southern California, which did not detect it in the water, tested your surface water for *Cryptosporidium* in 2001. If it ever is detected, *Cryptosporidium* is eliminated by an effective treatment combination including sedimentation, filtration and disinfection.

The EPA and the federal Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from EPA's safe drinking water hotline at (800) 426-4791 between 9 a.m. and 5 p.m. Eastern Time (6 a.m. to 2 p.m. in California).

## ***Immuno-compromised people***

Some people may be more vulnerable to constituents in the water than the general population.

Immuno-compromised people, such as those with cancer who are undergoing chemotherapy, persons who have had organ transplants, people with HIV/AIDS or other immune system disorders, some elderly persons and infants can be particularly at risk of infections. These people should seek advice about drinking water from their healthcare providers.

## ***Nitrate***

Nitrate in drinking water at levels above 10 mg/L (as Nitrogen) is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's

## ***Import (Metropolitan) Water Assessment***

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

## ***Groundwater Assessment***

An assessment of the drinking water sources for City of Garden Grove Water Services Division was completed in December 2002. The groundwater sources are considered most vulnerable to the following activities associated with contaminants detected in the water supply: Known contaminant plumes, historic agricultural activities and application of fertilizers, and parks. The groundwater sources are considered most vulnerable to the following activities not associated with detected contaminants: Confirmed leaking underground storage tanks, dry cleaners, gas stations, and photo processing/printing.

A copy of the complete assessment is available at Department of Health Services Office of Drinking Water, Santa Ana District, 28 Civic Center Plaza Room 325, Santa Ana, CA 92701. You may request a summary of the assessment by contacting the City of Garden Grove Water Services Division at (714) 741-5395.

## City of Garden Grove Groundwater Quality

Chemical	MCL	PHG (MCLG)	Average Amount	Range of Detections	MCL Violation?	Most Recent Sampling Date	Typical Source of Contaminant
<b>Radiologicals</b>							
Alpha Radiation (pCi/L)	15	n/a	9.4	4.1 – 13	No	2002	Erosion of Natural Deposits
Uranium (pCi/L)	20	0.5	9.3	3.5 – 15	No	2002	Erosion of Natural Deposits
<b>Organic Chemicals</b>							
1,1,1 – Trichloroethane (ppb)	6	10	<0.5	ND – 0.6	No	2002	Industrial Solvent
<b>Inorganic Chemicals</b>							
Aluminum (ppm)	1 / 0.2*	0.6	<0.05	ND – 0.11	No	2002	Erosion of Natural Deposits
Arsenic (ppb)	50	n/a	<2.0	ND – 5.0	No	2002	Erosion of Natural Deposits
Barium (ppm)	1	(2)	<0.1	ND – 0.14	No	2002	Erosion of Natural Deposits
Fluoride (ppm)	2	1	0.40	0.29 – 0.51	No	2002	Erosion of Natural Deposits
Nickel (ppb)	100	12	<10	ND – 11	No	2002	Erosion of Natural Deposits
Nitrate (ppm as N)	10	10	3.2	ND – 8.4	No	2002	Fertilizers, Septic Tanks
Nitrate+Nitrite (ppm as N)	10	10	3.2	ND – 8.4	No	2002	Fertilizers, Septic Tanks
Selenium (ppb)	50	(50)	<5.0	ND – 7.9	No	2002	Erosion of Natural Deposits
<b>Secondary Standards*</b>							
Chloride (ppm)	500*	n/a	64	15 – 108	No	2002	Erosion of Natural Deposits
Color (color units)	15*	n/a	1	ND – 4	No	2002	Erosion of Natural Deposits
Copper (ppm)	1*	0.17	<0.05	ND – 0.05	No	2002	Erosion of Natural Deposits
Manganese (ppb)	50*	n/a	<20	ND – 22	No	2002	Waste Discharges
MBAS (ppb)	500*	n/a	10	ND – 90	No	2002	Waste Discharges
Odor (threshold odor number)	3*	n/a	0.08	ND – 1	No	2002	Erosion of Natural Deposits
Specific Conductance (µmho/cm)	1,600*	n/a	790	440 – 1,160	No	2002	Erosion of Natural Deposits
Sulfate (ppm)	500*	n/a	113	38 – 176	No	2002	Erosion of Natural Deposits
Total Dissolved Solids (ppm)	1,000*	n/a	500	285 – 724	No	2002	Erosion of Natural Deposits
Turbidity (ntu)	5*	n/a	0.4	0.1 – 0.9	No	2002	Erosion of Natural Deposits
Zinc (ppm)	5*	n/a	<0.05	ND – 0.17	No	2002	Erosion of Natural Deposits
<b>Unregulated Contaminants Requiring Monitoring</b>							
Bicarbonate (ppm)	Not Regulated	n/a	223	201 – 262	n/a	2002	Erosion of Natural Deposits
Boron (ppm)	Not Regulated	n/a	<0.1	ND – 0.23	n/a	2002	Erosion of Natural Deposits
Calcium (ppm)	Not Regulated	n/a	88	47 – 122	n/a	2002	Erosion of Natural Deposits
Hexavalent Chromium (ppb)	Not Regulated	n/a	<1	ND – 2.4	n/a	2002	Erosion of Natural Deposits
Magnesium (ppm)	Not Regulated	n/a	17	8.4 – 25	n/a	2002	Erosion of Natural Deposits
pH (pH units)	Not Regulated	n/a	7.9	7.2 – 8.1	n/a	2002	Acidity, hydrogen ions
Potassium (ppm)	Not Regulated	n/a	3.5	2.0 – 5.1	n/a	2002	Acidity, hydrogen ions
Sodium (ppm)	Not Regulated	n/a	48	32 – 84	n/a	2002	Erosion of Natural Deposits
Total Alkalinity (ppm as CaCO <sub>3</sub> )	Not Regulated	n/a	183	165 – 215	n/a	2002	Erosion of Natural Deposits
Total Hardness (ppm as CaCO <sub>3</sub> )	Not Regulated	n/a	288	155 – 406	n/a	2002	Erosion of Natural Deposits
Total Hardness CaCO <sub>3</sub> (grain/gal)	Not Regulated	n/a	17	9.3 – 24	n/a	2002	Erosion of Natural Deposits
Vanadium (ppb)	Not Regulated	n/a	<3	ND – 4.5	n/a	2002	Erosion of Natural Deposits

ppb = parts-per-billion; ppm = parts-per-million; pCi/L = picoCuries per liter; ntu = nephelometric turbidity units; n/a = not applicable; < = less than

MCL = Maximum Contaminant Level; (MCLG) = federal MCL Goal; PHG = California Public Health Goal;

\*Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color).

## City of Garden Grove Distribution System Water Quality

	MCL (MRDL/MRDLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Total Trihalomethanes (ppb)	80	16	ND – 45	No	Byproducts of chlorine disinfection
Haloacetic Acids (ppb)	60	12	ND – 25	No	Byproducts of chlorine disinfection
Chlorine Residual (ppm)	(4 / 4)	0.9	0.2 – 1.2	No	Disinfectant added for treatment
Turbidity* (ntu)	5*	0.14	0.07- 0.63	No	Erosion of natural deposits

Sixteen locations in the distribution system are tested quarterly for total trihalomethanes; forty locations are tested each month for color, odor and turbidity.

MRDL = Maximum Residual Disinfectant Level; MRDLG = Maximum Residual Disinfectant Level Goal; ntu = nephelometric turbidity units; ND = not detected

\*Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color)

## Lead and Copper Action Levels at Residential Taps

	Action Level (AL)	Health Goal	90th Percentile Value	Sites Exceeding AL / Number of Sites	AL Violation?	Typical Source of Contaminant
Lead (ppb)	15	2	<5	0 / 50	No	Corrosion of household plumbing
Copper (ppm)	1.3	0.17	0.36	0 / 50	No	Corrosion of household plumbing

Every three years, 50 residences are tested for lead and copper at-the-tap. The most recent set of samples was collected in 2001. Lead was detected in four homes. None of the lead positive samples exceeded the lead action level. Copper was detected in forty-seven (47) samples, none of which exceeded the regulatory action level. A regulatory action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

## Metropolitan Water District of Southern California Treated Surface Water

Chemical	MCL	PHG, or (MCLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
<b>Radiologicals – Tested in 1999</b>						
Alpha Radiation (pCi/L)	15	n/a	3.6	1.2 – 6.0	No	Erosion of natural deposits
Beta Radiation (pCi/L)	50	n/a	6.2	5.2 – 7.8	No	Decay of man-made or natural deposits
Combined Radium (pCi/L)	5	n/a	0.6	ND – 1.5	No	Erosion of natural deposits
Uranium (pCi/L)	20	0.5	2.6	ND – 3.8	No	Erosion of natural deposits
<b>Inorganic Chemicals – Tested in 2002</b>						
Fluoride (ppm)	2	1	0.23	0.20 – 0.27	No	Erosion of natural deposits
Nitrate and Nitrite as N (ppm)	10	10	<0.4	ND – 0.5	No	Agriculture runoff and sewage
Nitrate as N (ppm)	10	10	<0.4	ND – 0.5	No	Agriculture runoff and sewage
<b>Secondary Standards* – Tested in 2002</b>						
Chloride (ppm)	500*	n/a	86	76 – 98	No	Runoff or leaching from natural deposits
Color (color units)	15*	n/a	2	1 – 3	No	Runoff or leaching from natural deposits
Corrosivity (LSI)	non-corrosive	n/a	0.23	0.17 – 0.26	No	Elemental balance in water
Specific Conductance (µmho/cm)	1,600*	n/a	843	768 – 939	No	Substances that form ions in water
Sulfate (ppm)	500*	n/a	171	126 – 207	No	Runoff or leaching of natural deposits
Total Dissolved Solids (ppm)	1,000*	n/a	499	434 – 567	No	Runoff or leaching of natural deposits
Turbidity (NTU)	5*	n/a	0.06	0.05 – 0.07	No	Runoff or leaching of natural deposits
<b>Unregulated Chemicals – Tested in 2002</b>						
Alkalinity (ppm)	Not Regulated	n/a	111	95 – 124	n/a	Runoff or leaching from natural deposits
Boron (ppb)	Not Regulated	n/a	130	110 – 130	n/a	Runoff or leaching from natural deposits
Calcium (ppm)	Not Regulated	n/a	54	43 – 63	n/a	Runoff or leaching from natural deposits
Magnesium (ppm)	Not Regulated	n/a	24	21 – 26	n/a	Runoff or leaching from natural deposits
Perchlorate (ppb)	Not Regulated	n/a	<4	ND – 4	n/a	Rocket fuel discharged to the Colorado River
pH (pH units)	Not Regulated	n/a	8	8	n/a	Hydrogen ion concentration
Potassium (ppm)	Not Regulated	n/a	3.9	3.7 – 4.2	n/a	Runoff or leaching from natural deposits
Sodium (ppm)	Not Regulated	n/a	80	74 – 89	n/a	Runoff or leaching from natural deposits
Hardness (ppm)	Not Regulated	n/a	232	192 – 258	n/a	Runoff or leaching of natural deposits
Hardness (grains/gal)	Not Regulated	n/a	14	11 – 15	n/a	Runoff or leaching of natural deposits

ppb = parts-per-billion; ppm = parts-per-million; pCi/L = picoCuries per liter; NTU = nephelometric turbidity unit; ND = not detected; < = average is less than the detection limit for reporting purposes; MCL = Maximum Contaminant Level; (MCLG) = federal MCL Goal; PHG = California Public Health Goal; n/a = not applicable; LSI = Langelier Saturation Index; µmho/cm = micromho per centimeter  
 \* Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color).

Turbidity - combined filter effluent	Treatment Technique	Turbidity Measurements	TT Violation?	Typical Source of Contaminant
1) Highest single turbidity measurement	0.3 NTU	0.14	No	Soil run-off
2) Percentage of samples less than 0.3 NTU	95%	100	No	Soil run-off

Turbidity is a measure of the cloudiness of the water, an indication of particulate matter, some of which might include harmful microorganisms. Low turbidity in Metropolitan's treated water is a good indicator of effective filtration. Filtration is called a treatment technique.(TT). A treatment technique is a required process intended to reduce the level of contaminants in drinking water that are difficult and sometimes impossible to measure directly. ntu = nephelometric turbidity unit

## Information Collection Rule Disinfection By-Products in Metropolitan Water District Finished Water Data Collected August 1997 - November 1998

Chemical	Average Amount (ppb)	Range of Detections (ppb)	Typical Source of Contaminant
<b>Disinfection By-Products</b>			
Haloacetonitriles	7.6	5.1 – 11	Formed by the reaction with chlorine disinfectant
Halo ketones	1.7	0.7 – 2.7	Formed by the reaction with chlorine disinfectant
Chloral Hydrate	3.8	1.5 – 6.1	Formed by the reaction with chlorine disinfectant
Total Organic Halogen	113	78 – 155	Formed by the reaction with chlorine disinfectant
Cyanogen Chloride	1.7	0.5 – 2.3	Formed by the reaction with chlorine disinfectant

The Information Collection Rule (ICR) is a multi-year national monitoring program administered by the U.S. Environmental Protection Agency. The primary purpose of the ICR is to gather nationwide occurrence data on chemicals which may be formed during drinking water disinfection. The results of the ICR will assist the EPA in regulating many of these disinfection by-products over the next 5 years.  
 ppb = parts-per-billion.

### Definitions

#### Public Health Goal (PHG)

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

#### Maximum Contaminant Level (MCL)

The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the public health goals and maximum contaminant level goals 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 contaminant in drinking water below which there is no known or expected risk to health. Maximum contaminant level goals are set by the EPA.

#### Action Levels (AL)

Health-based advisory levels established by the State

Department of Health Services for chemicals that lack MCLs.

#### Primary Drinking Water Standard (PDWS)

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

#### Regulatory Action Level

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

#### Variance

State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

*The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.*

#### Treatment Technique (TT)

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

#### Measurements

Water is sampled and tested throughout the year. Contaminants are measured in parts per million (ppm), parts per billion (ppb), parts per trillion (ppt), and even parts per quadrillion (ppq). If this is difficult to imagine, think about these comparisons:

**Parts per million (mg/L):**    **Parts per billion (µg/L):**  
 § 3 drops in 42 gallons    § 1 drop in 14,000 gallons  
 § 1 second in 12 days    § 1 second in 32 years  
 § 1 penny in \$10,000    § 1 penny in \$10 million  
 § 1 inch in 16 miles    § 1 inch in 16,000 miles

*It is important to note, however, that even a small concentration of certain contaminants can adversely affect a water supply.*