City of Garden Grove
Public Works Department ~ Water Service Division
13802 Newhope Street
Garden Grove, California 92843

POSTAL CUSTOMER

2002 Water Quality Report

City of Garden Grove
Water Services Division

The 2002 Water Quality Report

Drinking Water Quality

Since 1991, California water utilities have been providing an annual Water Quality Report to their customers. This year's report covers calendar year 2001 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 health. The federal Food and Drug Administration (FDA) also sets regulations for bottled water.

If you have questions, please contact us for answers…

For information about this report, or your water quality in general, please contact David Proffit 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 of 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.

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.

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。

[illegible]

이 자료는 매우 중요한 것입니다. 그러므로 영어를 할 수 있는 사람한테 번역해 줄 것을 부탁하십시오.

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

What You Need to Know, And How it May Affect You

Sources of Supply

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,

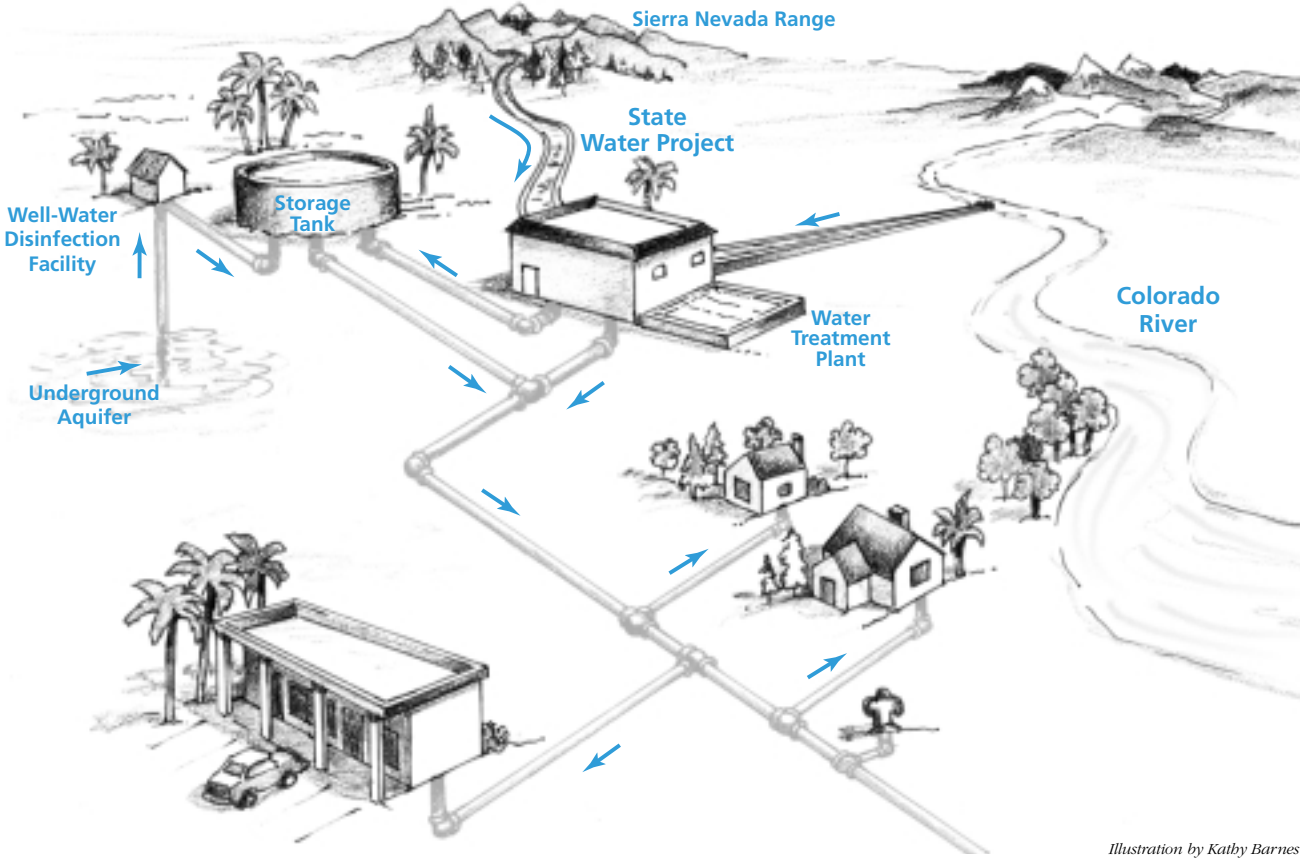

Illustration by Kathy Barnes

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.
- 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.

Cryptosporidium

Cryptosporidium is a microscopic organism that, when ingested, can cause diarrhea, fever, and other gastro-intestinal 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.

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.

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).

Nitrate

Nitrate in drinking water at levels above 45 mg/L is a health risk for infants of less than six months of age. High nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. High nitrate levels 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. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from you health care provider, or choose to use bottled water for mixing formula and juice for your baby. If you are pregnant, you should drink bottled water.

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

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
Radiologicals							
Alpha Radiation (pCi/L)	15	n/a	7.7	3.0 - 9.9	No	1998	Erosion of Natural Deposits
Uranium (pCi/L)	20	0.5	7.4	3.9 - 10	No	1998	Erosion of Natural Deposits
Organic Chemicals							
1,1,1 - Trichloroethane (ppb)	6	10	<0.5	ND - 0.6	No	2001	Industrial Solvent
Inorganic Chemicals							
Aluminum (ppm)	1 / 0.2*	0.6	<0.1	ND - 0.1	No	2001	Erosion of Natural Deposits
Arsenic (ppb)	50	n/a	<2.0	ND - 4.9	No	2001	Erosion of Natural Deposits
Barium (ppm)	1	(2)	<0.1	ND - 0.12	No	2001	Erosion of Natural Deposits
Fluoride (ppm)	2	1	0.36	0.29 - 0.55	No	2001	Erosion of Natural Deposits
Nickel (ppb)	100	12	<10	ND - 17	No	2001	Erosion of Natural Deposits
Nitrate (ppm as NO_3)	45	45	9	0.6 - 38	No	2001	Fertilizers, Septic Tanks
Nitrate+Nitrite (ppm as N)	10	n/a	2	ND - 8.4	No	2001	Fertilizers, Septic Tanks
Selenium (ppb)	50	(50)	<5.0	ND - 8.8	No	2001	Erosion of Natural Deposits
Secondary Standards*							
Chloride (ppm)	500*	n/a	59	16 - 107	No	2001	Erosion of Natural Deposits
Iron (ppb)	300*	n/a	<100	ND - 103	No	2001	Erosion of Natural Deposits
MBAS (ppb)	500*	n/a	<20	ND - 70	No	2001	Waste Discharges
Specific Conductance (µmho/cm)	1,600*	n/a	761	470 - 1,130	No	2001	Erosion of Natural Deposits
Sulfate (ppm)	500*	n/a	110	39 - 190	No	2001	Erosion of Natural Deposits
Total Dissolved Solids (ppm)	1,000*	n/a	486	266 - 714	No	2001	Erosion of Natural Deposits
Zinc (ppm)	5*	n/a	<0.05	ND - 0.07	No	2001	Erosion of Natural Deposits
Unregulated Contaminants Requiring Monitoring							
Boron (ppm)	Not Regulated	n/a	<0.1	ND - 0.26	n/a	2001	Erosion of Natural Deposits
Hexavalent Chromium (ppb)	Not Regulated	n/a	1.2	ND - 2.4	n/a	2001	Erosion of Natural Deposits
Sodium (ppm)	Not Regulated	n/a	46	29 - 83	n/a	2001	Erosion of Natural Deposits
Total Hardness (ppm)	Not Regulated	n/a	280	165 - 375	n/a	2001	Erosion of Natural Deposits
Total Hardness $CaCO_3$ (grain/gal)	Not Regulated	n/a	16	9.6 - 22	n/a	2001	Erosion of Natural Deposits
Vanadium (ppb)	Not Regulated	n/a	3.3	ND - 4.5	n/a	2001	Erosion of Natural Deposits

ppb = parts-per-billion; ppm = parts-per-million; pCi/L = pico curies 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

	Primary MCL	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Total Trihalomethanes (ppb)	100	13.0	ND - 50	No	Byproducts of chlorine disinfection
Turbidity* (ntu)	5*	0.16	0.05 - 0.59	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.
*Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color); ntu = nephelometric turbidity units; ND = not detected

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	0.37	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.

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 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.

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.

AL
Action Level

Primary Drinking Water Standard (PDWS)
MCL's 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 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.

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:
- 3 drops in 42 gallons
- 1 second in 12 days
- 1 penny in $10,000
- 1 inch in 16 miles

Parts per billion:
- 1 drop in 14,000 gallons
- 1 second in 32 years
- 1 penny in $10 million
- 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.*

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
Radiologicals - Tested in 1999						
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	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
Organic Chemicals - Tested in 2001						
MTBE (ppb)	13	13	<3	ND - 0.7	No	Gasoline additive
Toluene (ppb)	150	150	<0.5	ND - 4.0	No	Industrial solvent
Inorganic Chemicals - Tested in 2001						
Aluminum (ppm)	1	0.6	0.141	0.096 - 0.200	No	Residue from water treatment process
Arsenic (ppb)	50	n/a	<2	ND - 2.4	No	Erosion of natural deposits
Fluoride (ppm)	2	1	0.22	0.19 - 0.24	No	Erosion of natural deposits
Nitrate as N (ppm)	10	10	<0.45	ND - 0.56	No	Agriculture runoff and sewage
Secondary Standards* - Tested in 2001						
Aluminum (ppm)	0.2*	n/a	0.141	0.096 - 0.200	No	Residue from water treatment process
Chloride (ppm)	500*	n/a	78	72 - 83	No	Runoff or leaching from natural deposits
Color (color units)	15*	n/a	1	1 - 2	No	Runoff or leaching from natural deposits
MTBE (ppb)	13*	n/a	<3	ND - 0.7	No	Gasoline additive
Specific Conductance (µmho/cm)	1,600*	n/a	832	779 - 884	No	Substances that form ions in water
Sulfate (ppm)	500*	n/a	177	155 - 194	No	Runoff or leaching of natural deposits
Total Dissolved Solids (ppm)	1,000*	n/a	498	464 - 530	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
Unregulated Chemicals - Tested in 2001						
Alkalinity (ppm)	Not Regulated	n/a	113	107 - 122	n/a	Runoff or leaching from natural deposits
Boron (ppb)	Not Regulated	n/a	130	120 - 130	n/a	Runoff or leaching from natural deposits
Calcium (ppm)	Not Regulated	n/a	56	53 - 61	n/a	Runoff or leaching from natural deposits
Magnesium (ppm)	Not Regulated	n/a	24	21 - 25	n/a	Runoff or leaching from natural deposits
Perchlorate (ppb)	Not Regulated	n/a	4	ND - 5	n/a	Rocket fuel discharged to the Colorado River
Potassium (ppm)	Not Regulated	n/a	3.9	3.5 - 4.2	n/a	Runoff or leaching from natural deposits
Sodium (ppm)	Not Regulated	n/a	78	74 - 83	n/a	Runoff or leaching from natural deposits
Hardness (ppm)	Not Regulated	n/a	237	219 - 255	n/a	Runoff or leaching of natural deposits
Hardness (grains/gal)	Not Regulated	n/a	14	13 - 15	n/a	Runoff or leaching of natural deposits
Vanadium (ppb)	Not Regulated	n/a	3	3	n/a	Runoff or leaching of natural deposits

ppb = parts-per-billion; ppm = parts-per-million; pCi/L = pico curies per liter; ntu = nephelometric turbidity units; ND = not detected; < = less than; MCL = Maximum Contaminant Level; (MCLG) = federal MCL Goal; PHG = California Public Health Goal; n/a = not applicable. * 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	0.5 NTU	0.2	No	Soil run-off
2) Percentage of samples less than 0.5 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.

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

Chemical	Average Amount (ppb)	Range of Detections (ppb)	Typical Source of Contaminant
Disinfection By-Products			
Haloacetic Acids	17	9.5 - 24	Formed by the reaction with chlorine disinfectant
Haloacetonitriles	7.6	5.1 - 11	Formed by the reaction with chlorine disinfectant
Haloketones	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
Total Chlorine Residual*	2.5 ppm	2.1 - 2.9 ppm	Disinfectant residual

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, ppm = parts-per-million, ND = not detected. *Chlorine residuals are for the treatment plant effluent during 2001.