The 2006 **Water Quality Report**

Drinking Water Quality

Cince 1990, California water utilities have been providing an annual Water Quality Report to their customers. This year's report covers calendar year 2005 water quality testing, and has been prepared in compliance with regulations called for in the 1996 reauthorization of the Safe Drinking Water Act. The reauthorization charged the United States Environmental Protection Agency (USEPA) with updating and strengthening the tap water regulatory program and changed the report's due date to July 1.

USEPA and the California Department of Health Services (CDHS) are the agencies responsible for establishing drinking water quality standards. To ensure that your tap water is safe to drink, USEPA and CDHS prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDHS 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.

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 USEPA determine where certain contaminants occur and whether it needs to establish regulations for those contaminants.

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 U.S. Environmental Protection Agency hotline at (800) 426-4791.

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City of Garden Grove

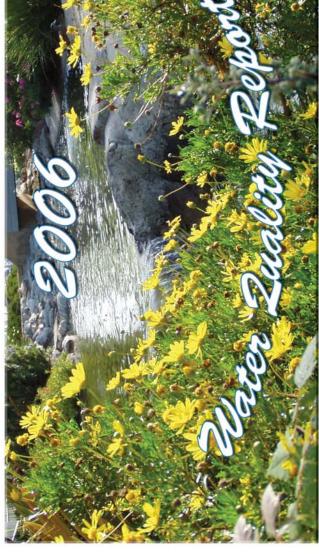
about your drinking Translate it, or speak with someone who understands it. contains important information This report

water.

ARDEN



POSTAL CUSTOMER



What You Need to Know About Your Water, and How it May Affect You

Cascading from its source high in the San Bernardino

San Bernardino

Garden Grove

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 USEPA 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.

Basic Information About Drinking Water Contaminants

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 land or through the layers of the ground it

bugh 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 animal and human activity.

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.

State Water Project

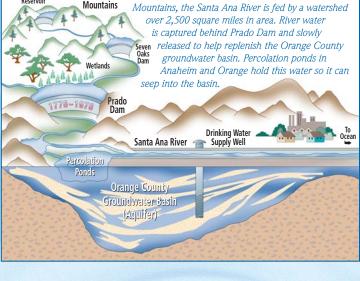
L.A. Aqueduct

Colorado River

marvels, the State
Water Project and
Colorado River Aqueduct,
make our way of life possible
by delivering water to millions
Orange
County

Engineering

of people in Orange County.



- ▶ 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, agricultural application and septic systems.

In order to ensure that tap water is safe to drink, USEPA and the CDHS prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDHS regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. 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 at (800) 426-4791.

For Your Information...

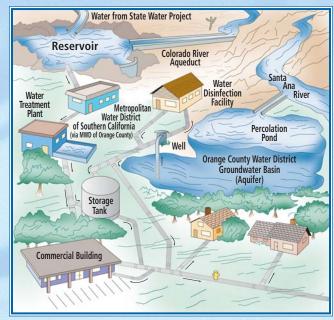
Disinfection: Water provided by the City of Garden Grove contains chlorine used for disinfection and chloramines used by Metropolitan Water District; also for disinfection purposes. Customers on kidney dialysis should consult their physicians.

Fish or Amphibians: If you have fish or amphibians, make sure to remove any chloramines and chlorine before changing or adding water to the tanks. Remember, allowing drinking water to stand will not remove chloramines. Consult your local aquarium store for products that will remove the disinfectants.

Fluoride: Fluoride does occur at low levels averaging about .5 ppm naturally in the well water. The City of Garden Grove does not currently add fluoride to the water supply.

Water Hardness: The City's well water is of high quality, but is considered very hard. After boiling water your pots may have a chalky white residue. This is normal and does not pose any health concern. The residue is mainly calcium carbonates and magnesium. Water Hardness and Installing Water Softeners: The hardness level of the City of Garden Grove's water averages 19 grains per gallon. Set your softener's dial or indicator setting to 19. Hot Water Heaters: Many odor complaints may be traced to the homes hot water heater. Remember to follow manufacturers instructions and flush hot water heaters regularly. This will flush out any sediments that may have accumulated, provide good water turnover to maximize water quality, and help keep your unit in good working order.

Point of Use or Home Water Filtration Units: Be vigilant in changing or cleaning any filters or media on your home units. Always follow the manufacturers instructions. Remember, the water is only as clean as the filter allows. Improperly maintained filters can deliver very poor quality water.



Imported water — from the Colorado River and northern California — travels hundreds of miles to meet the needs of Orange County. Water is also pumped from the groundwater basin that spans 350 square miles under north and central Orange County.

The Continuing Quality of Your Water is Our Primary Concern

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 tested their treated water for Cryptosporidium in 2005 but did not detect it. Any Cryptosporidium in Metropolitan's source water is eliminated by an effective treatment combination including sedimentation, filtration and disinfection.

The USEPA 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 USEPA'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 contaminants in drinking water than

Source Water Assessments

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.

Want Additional Information?

There's a wealth of information on the internet about Drinking Water Quality and water issues in general. Some good sites both local and national — to begin your own investigation are:

> Municipal Water District of Orange County www.mwdoc.com

> > Orange County Water District

www.ocwd.com

Metropolitan Water District of Southern California www.mwdh2o.com

California Department of Health Services, Division of Drinking

Water and Environmental Management

www.dhs.ca.gov/ps/ddwem

U.S. Environmental Protection Agency www.epa.gov/safewater/

Table Definitions

MCL (Maximum Contaminant Level): 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 (2nd MCL) are set to protect the odor, taste, and appearance of drinking water

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 are set by the U.S. Environmental

MRDL (Maximum Residual Disinfectant Level): The level of a disinfectant added for water treatment that may not be exceeded at a consumer's tap.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set

PHG (Public Health Goal): 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

Primary Drinking Water Standard or PDWS: MCLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in

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

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): • 1 second in 12 days
- Parts per billion (μ g/L): · 1 second in 32 years
- 1 penny in \$10,000
- 1 penny in \$10 million
- 1 inch in 16,000 miles • 1 inch in 16 miles

adversely affect a water supply.

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.

It is important to note, however, that even a small concentration of certain contaminants can

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 from infections. These people should seek advice about drinking water from their health care providers.

Nitrate

The maximum allowable level of nitrate in drinking water, also called the maximum contaminant level or MCL, is 45 milligrams per liter as nitrate (mg/L as NO_3). The nitrate MCL can also be expressed as 10 milligrams per liter as nitrogen (mg/L as N). Both numbers are equivalent values. At times, nitrate in your tap water may have exceeded one-half the MCL, but it was never greater than the MCL. The following advisory is issued because in 2005 we recorded nitrate measurements in the drinking water supply which exceeded one-half the nitrate MCL.

Nitrate in drinking water at levels above 45 mg/L (or the equivalent 10 mg/L as N) 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 blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 parts-per-million 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.

Lead

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

2005 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	(0)	8.3	ND - 12	No	2005	Erosion of Natural Deposits
Uranium (pCi/L)	20	0.43	9.3	2.3 – 15	No	2005	Erosion of Natural Deposits
Inorganic Chemicals							
Aluminum (ppm)	1 / 0.2*	0.6	< 0.05	ND - 0.07	No	2005	Erosion of Natural Deposits
Arsenic (ppb)	50	0.004	<2	ND - 4.0	No	2005	Erosion of Natural Deposits
Barium (ppm)	1	2	<0.1	ND - 0.14	No	2005	Erosion of Natural Deposits
luoride (ppm)	2	1	0.42	0.32 - 0.52	No	2005	Erosion of Natural Deposits
litrate (ppm as NO₃)	45	45	31	29 – 31	No	2005	Fertilizers, Septic Tanks
litrate+Nitrite (ppm as N)	10	10	7	6.6 - 7.0	No	2005	Fertilizers, Septic Tanks
selenium (ppb)	50	(50)	<5	ND - 6.0	No	2005	Erosion of Natural Deposits
Secondary Standards*							
Chloride (ppm)	500*	n/a	64	14 – 106	No	2005	Erosion of Natural Deposits
Color (color units)	15*	n/a	<1	ND - 3	No	2005	Erosion of Natural Deposits
Odor (threshold odor number)	3*	n/a	<1	ND - 1	No	2005	Erosion of Natural Deposits
pecific Conductance (µmho/cm)	1,600*	n/a	794	436 - 1,150	No	2005	Erosion of Natural Deposits
ulfate (ppm)	500*	n/a	114	38 - 181	No	2005	Erosion of Natural Deposits
Total Dissolved Solids (ppm)	1,000*	n/a	487	276 - 732	No	2005	Erosion of Natural Deposits
urbidity (ntu)	5*	n/a	0.3	0.1 - 0.9	No	2005	Erosion of Natural Deposits
Zinc (ppm)	5*	n/a	< 0.05	ND - 0.06	No	2005	Erosion of Natural Deposits
Inregulated Contaminants Re	equiring Monitor	ing					
Bicarbonate (ppm)	Not Regulated	n/a	222	199 – 269	n/a	2005	Erosion of Natural Deposits
Boron (ppm)	Not Regulated	n/a	< 0.1	ND - 0.2	n/a	2005	Erosion of Natural Deposits
Calcium (ppm)	Not Regulated	n/a	97	55 – 134	n/a	2005	Erosion of Natural Deposits
Hexavalent Chromium (ppb)	Not Regulated	n/a	1.1	ND - 2.1	n/a	2005	Erosion of Natural Deposits
Perchlorate (ppb)	Not Regulated	n/a	<4	ND - 4.9	n/a	2005	Industrial Waste Discharge
Magnesium (ppm)	Not Regulated	n/a	18	9.1 – 28	n/a	2005	Erosion of Natural Deposits
H (pH units)	Not Regulated	n/a	8.2	8.1 - 8.3	n/a	2005	Acidity, hydrogen ions
otassium (ppm)	Not Regulated	n/a	3.7	2.5 - 5.4	n/a	2005	Erosion of Natural Deposits
odium (ppm)	Not Regulated	n/a	50	32 - 84	n/a	2005	Erosion of Natural Deposits
otal Alkalinity (ppm as CaCO ₃)	Not Regulated	n/a	184	163 – 221	n/a	2005	Erosion of Natural Deposits
otal Hardness (ppm as CaCO ₃)	Not Regulated	n/a	316	174 – 448	n/a	2005	Erosion of Natural Deposits
otal Hardness (grains per gallon)	Not Regulated	n/a	19	10 – 26	n/a	2005	Erosion of Natural Deposits
/anadium (ppb)	Not Regulated	n/a	<3	ND - 4.7	n/a	2005	Erosion of Natural Deposits

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

2005 City of Garden Grove Distribution System Water Quality

Disinfection	MCL (MARRIES)	Average	Range of	MCL	Typical Source
Byproducts	(MRDL/MRDLG)	Amount	Detections	Violation?	of Contaminant
Total Trihalomethanes (ppb)	80	21	ND - 77	No	Byproducts of chlorine disinfection
Haloacetic Acids (ppb)	60	12	ND - 42	No	Byproducts of chlorine disinfection
Chlorine Residual (ppm)	(4 / 4)	0.9	0.7 - 1.4	No	Disinfectant added for treatment
Aesthetic Quality		<u> </u>			
Turbiditu* (ntu)	E*	0.2	0.1 0.2	No	Erosion of natural donosits

Sixteen locations in the distribution system are tested quarterly for total trihalomethanes and haloacetic acids; thirty-three locations are tested each month for color, odor and turbidity Color and odor were not detected. 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	ND<5	0 out of 50	No	Corrosion of household plumbing
Copper (ppm)	1.3	0.17	0.33	0 out of 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 2004. Lead was detected in one home This positive sample did not exceed the lead action level. Copper was detected in forty-four (44) samples, none of which exceeded the regulatory action leve

2005 Metropolitan Water District of Southern California Treated Surface Water

Chemical	PHG, or MCL	Average (MCLG)	Range of Amount	MCL Detections	Violation?	Typical Source of Contaminant
Radiologicals – Tested in 2005	WICE	(IVICEO)	Amount	Detections	violation:	Typical Source of Contaminant
Alpha Radiation (pCi/L)	15	(0)	<3	ND - 3.2	No	Decay of man-made or natural deposits
Beta Radiation (pCi/L)	50	(0)	4.8	ND - 6.4	No	Erosion of natural deposits
Inorganic Chemicals – Tested i	n 2005	()			-	
Aluminum (ppm)	1 / 0.2*	0.6	<0.05	ND - 0.1	No	Erosion of natural deposits
Barium (ppm)	1	2	<0.1	ND - 0.1	No	Erosion of natural deposits
Fluoride (ppm)	2	1	0.19	0.15 - 0.22	No	Erosion of natural deposits
Nitrate as NO ₃ (ppm)	45	45	2.3	ND - 3.6	No	Agriculture runoff and sewage
Nitrate and Nitrite as N (ppm)	10	10	0.5	ND - 0.8	No	Agriculture runoff and sewage
Secondary Standards* – Tester	d in 2005					
Chloride (ppm)	500*	n/a	77	67 – 85	No	Runoff or leaching from natural deposits
Color (color units)	15*	n/a	2	1 – 2	No	Runoff or leaching from natural deposits
Corrosivity (LSI)	non-corrosive	n/a	0.27	0.15 - 0.39	No	Elemental balance in water
Odor (odor units)	3*	n/a	2	2	No	Naturally-occurring organic materials
pecific Conductance (µmho/cm)	1,600*	n/a	792	734 – 871	No	Substances that form ions in water
Sulfate (ppm)	500*	n/a	171	151- 202	No	Runoff or leaching of natural deposits
otal Dissolved Solids (ppm)	1,000*	n/a	468	426 – 528	No	Runoff or leaching of natural deposits
urbidity (NTU)	5*	n/a	0.06	0.05 - 0.07	No	Runoff or leaching of natural deposits
Jnregulated Chemicals – Teste	ed in 2005					
Alkalinity (ppm)	Not Regulated	n/a	91	83 – 101	n/a	Runoff or leaching from natural deposits
Boron (ppb)	Not Regulated	n/a	160	130 – 200	n/a	Runoff or leaching from natural deposits
Calcium (ppm)	Not Regulated	n/a	45	39 – 53	n/a	Runoff or leaching from natural deposits
lardness, total (ppm)	Not Regulated	n/a	197	176 – 225	n/a	Runoff or leaching of natural deposits
lardness, total (grains/gal)	Not Regulated	n/a	12	10 – 13	n/a	Runoff or leaching of natural deposits
Magnesium (ppm)	Not Regulated	n/a	21	19 – 23	n/a	Runoff or leaching from natural deposits
I-Nitrosodimethylamine (ppt)	Not Regulated	n/a	<2	ND - 2.2	n/a	By-product of drinking water chlorination
H (pH units)	Not Regulated	n/a	8.2	8.1 – 8.2	n/a	Hydrogen ion concentration
Potassium (ppm)	Not Regulated	n/a	3.8	3.5 – 4.1	n/a	Runoff or leaching from natural deposits
odium (ppm)	Not Regulated	n/a	82	73 – 90	n/a	Runoff or leaching from natural deposits
/anadium (ppb)	Not Regulated	n/a	3.3	3.2 - 3.4	n/a	Runoff or leaching from natural deposits

ppb = parts-per-billion; ppm = parts-per-million; ppt = parts-per-trillion; pCi/L = picoCuries per liter; ntu = nephelometric turbidity units; µmho/cm

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; *Contaminant is regulated by a secondary standard.

Turbidity – combined filter effluent Treatment Technique **Turbidity Measurements** TT Violation? **Typical Source of Contaminant** 1) Highest single turbidity measurement 1 NTU 0.06 Soil run-off 2) Percentage of samples less than 0.3 NTU 95% 100% 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. 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.