The 2007 Water Quality Report

Drinking Water Quality

C ince 1990, California water utilities have provided an annual Water Quality Report to their customers. This year's report covers calendar year 2006 water quality testing, and has been prepared in compliance with regulations called for in the 1996 reauthorization of the Safe Drinking Water Act (SDWA). 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 East Orange County Water District 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 accordance with the SDWA, the District monitors over 100 compounds in your water supply. This report includes only the compounds actually detected in the water.

In some cases, the District goes beyond what is required to monitor for additional contaminants that have known health risks. For example, the Orange County Water District, which manages our groundwater basin, monitors our groundwater for the solvent 1,4-dioxane. 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 Jerry Mendzer at (714) 538-5815.

The Water District Board of Directors meets on the 3rd Thursday of each month at 5:00 p.m. Meetings are held at 185 N. McPherson Road, Orange.

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.

185 North McPherson Road East Orange County Orange, California 92869 Water District



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traducción, favor de r a Mr. Jerry Mendzer. (714) 538-5815 (714) Este informe

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

Sources of Supply

Orange County's water supplies are a blend of groundwater provided by the Orange County Water District (OCWD) and water imported from Northern California and the Colorado River by the Municipal Water District of Orange County (MWDOC) via the Metropolitan Water District of Southern California (MET). Groundwater comes from a natural underground aquifer that is replenished with water from the Santa Ana River, local rainfall and imported water. The groundwater basin is 350 square miles and lies beneath north and central Orange County from Irvine to the Los Angeles border and from Yorba Linda to the Pacific Ocean. More than 20 cities and retail water districts draw from the basin to provide water to homes and businesses. In south Orange County, nearly 100 percent of the water is imported and delivered to the cities and retail water districts, where it is stored in above-ground reservoirs and tanks before being sent to homes and businesses.

Orange County's Water Future

For years, Orange County has enjoyed an abundant, seemingly endless supply of high-quality water. However, as water demand continues to increase statewide, we must be even more conscientious about our water supply and maximize the efficient use of this precious natural resource.

OCWD and MWDOC work cooperatively to evaluate new and innovative water management and supply development programs, including water reuse and recycling, wetlands expansion, recharge facility construction, ocean and brackish water desalination, surface



storage and water use efficiency programs. These efforts are helping to enhance longterm countywide water reliability and water quality.

A healthy water future for Orange County rests on finding and developing new water supplies, as well as protecting and improving the quality of the water that we have today. Your local and regional water agencies are committed to making the necessary

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

State Water Project L.A. Aqueduct Colorado River Aqueduct investments today in new water management projects to ensure an abundant and high-quality water supply for our future.

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 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.
- 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.

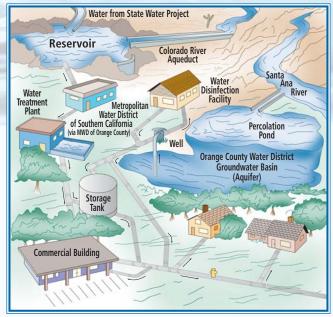
Immuno-Compromised People

Some people may be more vulnerable to contaminants in drinking 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 from infections. These people should seek advice about drinking water from their health care providers.

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 source water and treated surface water for *Cryptosporidium* in 2006 but did not detect it. If it ever is detected, *Cryptosporidium* 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).



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

Disinfection and Disinfection Byproducts

Disinfection of drinking water was one of the major public health advances in the 20th century. Disinfection was a major factor in reducing waterborne disease epidemics caused by pathogenic bacteria and viruses, and it remains an essential part of drinking water treatment today.

Chlorine disinfection has almost completely eliminated the risks of microbial waterborne diseases from our lives. Chlorine is added to your drinking water at the source of supply (groundwater well or surface water treatment plant). Enough chlorine is added so that it does not completely dissipate through the distribution system pipes. This "residual" chlorine helps to prevent the growth of bacteria in the pipes that carry drinking water from the source into your home.

However, chlorine can react with naturally-occurring materials in the water to form unintended chemical byproducts, called disinfection byproducts (DBPs), which may pose health risks. A major challenge is how to balance the risks from microbial pathogens and DBPs. It is important to provide protection from these microbial pathogens while simultaneously ensuring decreasing health risks from disinfection byproducts. The Safe Drinking Water Act requires the U.S. Environmental Protection Agency (USEPA) to develop rules to achieve these goals.

Trihalomethanes (THMs) and Haloacetic Acids (HAAs) are the most common and most studied DBPs found in drinking water treated with chlorine. In 1979, the USEPA set the maximum amount of total THMs allowed in drinking water at 100 parts per billion as an annual running average. Effective in January 2002, the Stage 1 Disinfectants / Disinfection Byproducts Rule lowered the total THM maximum annual average level to 80 parts per billion and added HAAs to the list of regulated chemicals in drinking water. Your drinking water complies with the Stage 1 Disinfectants / Disinfection Byproducts

Source Water Assessments

Imported (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 East Orange County Water District was completed in December 2002. The groundwater sources are considered most vulnerable to the following activities associated with nitrates detected in the water supply: Historic waste dumps/landfills, and past agricultural activities and application of fertilizers. The groundwater sources are considered most vulnerable to the following activities not associated with detected contaminants: Dry cleaners and gas stations.

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 Jerry Mendzer at the East Orange County Water District, (714) 538-5815.

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 research 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/

Rule. In 2003, the USEPA proposed a Stage 2 regulation that will further control allowable levels of DBPs in drinking water without compromising disinfection itself. This regulation was finalized by USEPA in January 2006.

Drinking Water Fluoridation

"Community water fluoridation continues to be the most cost-effective, practical and safe means for reducing and controlling the occurrence of tooth decay in a community." ~ U.S. Surgeon General

In fall 2007, the Metropolitan Water District of Southern California is scheduled to join a majority of the nation's public water suppliers in adding fluoride to drinking water in order to prevent tooth decay. In line with recommendations from the California Department of Health Services, as well as the U.S. Centers for Disease Control and Prevention, Metropolitan will adjust the natural fluoride level in the water, which ranges from 0.1 to 0.4 parts per million, to the optimal range for dental health of 0.7 to 0.8 parts per million. Fluoride levels in drinking water are limited under California state regulations at a maximum dosage of 2 parts per million.

Fluoride has been added to U.S. drinking water supplies since 1945. Of the 50 largest cities in the U.S., 43 fluoridate their drinking water. There are many places to go for additional information about the fluoridation of drinking water. They include:

U.S. Centers for Disease Control and Prevention 1-888-CDC-2306 www.cdc.gov/Oralhealth/factsheet/fl-background.htm American Dental Association www.ada.org/public/topics/fluoride/fluor-links.html American Water Works Association www.awwa.org

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; you could also 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).

Ozone Disinfection

The Metropolitan Water District of Southern California is upgrading all five of its drinking water treatment plants with ozonation equipment. Ozone, a form of oxygen, is a colorless gas added to drinking water as an alternative to chlorine disinfection. Ozone has been used as a water disinfectant in Europe and America for more than a century. Ozone will improve water quality and it results in fewer disinfection byproducts that are a health concern than chlorination.

Ozone is an excellent disinfectant. It is able to destroy a wider range of organisms in drinking water than chlorine. Ozone has the added benefit of removing objectionable tastes and odors from the water. After primary disinfection with ozone, Metropolitan will continue to add a small amount of chlorine and ammonia to your drinking water, called chloramines, as a "residual" to prevent the growth of bacteria in the pipes that carry drinking water from the treatment plant into your home.

Upgrading of Metropolitan's treatment plant serving Orange County is scheduled to be completed by 2010.

2006 East Orange County Water District Groundwater Quality

Chemical	MCL	PHG (MCLG)	Average Amount	Range of Detections	MCL Violation?	Most Recent Sampling Date	Typical Source of Contaminant
Radiologicals						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Uranium (pCi/L)	20	0.43	< 1	ND - 1.6	No	2002	Erosion of Natural Deposits
Inorganic Chemicals							
Nitrate (ppm as NO ₃)	45	45	21	20 - 22	No	2006	Fertilizers, Septic Tanks
Nitrate+Nitrite (ppm as N)	10	10	4.8	4.5 - 5.0	No	2006	Fertilizers, Septic Tanks
Secondary Standards*							1
Chloride (ppm)	500*	n/a	99	98 - 100	No	2006	Erosion of Natural Deposits
Specific Conductance (µmho/cm)	1,600*	n/a	938	930 - 946	No	2006	Erosion of Natural Deposits
Sulfate (ppm)	500*	n/a	131	130 - 131	No	2006	Erosion of Natural Deposits
Total Dissolved Solids (ppm)	1,000*	n/a	608	604 - 612	No	2006	Erosion of Natural Deposits
Turbidity (ntu)	5*	n/a	0.4	0.4 - 0.4	No	2006	Erosion of Natural Deposits
Unregulated Contaminants R	equiring Monitor	ing					
Bicarbonate (ppm as HCO ₃)	Not Regulated	n/a	230	230 - 230	n/a	2006	Erosion of Natural Deposits
Boron (ppm)	Not Regulated	n/a	< 0.1	ND - 0.1	n/a	2006	Erosion of Natural Deposits
Calcium (ppm)	Not Regulated	n/a	103	102 - 103	n/a	2006	Erosion of Natural Deposits
Dichlorodifluoromethane (ppb)	Not Regulated	n/a	0.6	ND - 0.7	n/a	2006	Discharge from Industrial Source
Magnesium (ppm)	Not Regulated	n/a	26	25 - 26	n/a	2006	Erosion of Natural Deposits
oH (pH units)	Not Regulated	n/a	8.1	8.0 - 8.1	n/a	2006	Acidity, hydrogen ions
Potassium (ppm)	Not Regulated	n/a	2.4	2.3 - 2.4	n/a	2006	Erosion of Natural Deposits
Sodium (ppm)	Not Regulated	n/a	62	61 - 62	n/a	2006	Erosion of Natural Deposits
Total Alkalinity (ppm as CaCO ₃)	Not Regulated	n/a	188	188 - 188	n/a	2006	Erosion of Natural Deposits
Total Hardness (ppm as CaCO ₃)	Not Regulated	n/a	361	357 - 365	n/a	2006	Erosion of Natural Deposits

ppo = parts per-binon, ppm = parts per-iminon, pcm = processing per men, who = nepreforment durbative units, who = not dependence, ma = not applicable, MCL = Maximum Contaminant Level, (MCL) = federal MCL Goal; HPG = California Public Health Goal; x = less than the detection limit for reporting purposes;µmho/cm = micromho per centimeter; *Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color).

2006 East Orange County Water District Distribution System Water Quality

Disinfection Byproducts	MCL (MRDL/MRDLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Total Trihalomethanes (ppb)	80	38	8.8 – 53	No	Byproducts of chlorine disinfection
Haloacetic Acids (ppb)	60	21	4.9 - 37	No	Byproducts of chlorine disinfection
Chlorine Residual (ppm)	(4 / 4)	1.6	0.6 - 2.0	No	Disinfectant added for treatment
Aesthetic Quality					
Color (color units)	15*	<1	ND – 1	No	Erosion of natural deposits
Turbidity (ntu)	5*	<0.1	ND - 0.11	No	Erosion of natural deposits

Two locations in the distribution system are tested quarterly for total trihalomethanes and haloacetic acids; one location is tested monthly for color, odor and turbidity. MRDL = Maximum Residual Disinfectant Level; MRDLG = Maximum Residual Disinfectant Level Goal; ntu = nephelometric turbidity units; ND = not detected Color and odor were not detected in any sample. *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	4.8	0 / 21	No	Corrosion of household plumbing
Copper (ppm)	1.3	0.17	0.16	0 / 21	No	Corrosion of household plumbing

Inventive-one restructives were testeen for lead and copper at-the-tap during 2000. Lead was detected in eleven samples; none of the samples exceeded the ac Copper was detected in all samples but never exceeded the action level. The regulatory action level is the concentration of lead or copper which, if exceeded in more than ten percent of the homes tested, triggers treatment or other requirements that a water system must follow.

2006 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 200	6		- 11 M 1 1 1 1		144 A	
Alpha Radiation (pCi/L)	15	(0)	3.6	ND - 7.2	No	Erosion of natural deposits
Beta Radiation (pCi/L)	50	(0)	<4	ND – 4.7	No	Decay of man-made or natural deposits
Inorganic Chemicals – Tested	in 2006				NON DE	
Aluminum (ppm)	1 / 0.2*	0.6	< 0.05	ND - 0.06	No	Erosion of natural deposits
Fluoride (ppm)	2	1	0.15	0.12 - 0.18	No	Erosion of natural deposits
Nitrate as NO ₃ (ppm)	45	45	2.0	ND - 3.0	No	Agriculture runoff and sewage
Nitrate and Nitrite as N (ppm)	10	10	0.45	ND - 0.68	No	Agriculture runoff and sewage
Secondary Standards* – Teste	ed in 2006				1	19 A.
Chloride (ppm)	500*	n/a	66	47 – 97	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	0.20	0.07 - 0.29	No	Elemental balance in water
Odor (odor units)	3*	n/a	2	2	No	Naturally-occurring organic materials
Specific Conductance (µmho/cm)	1,600*	n/a	652	536 - 810	No	Substances that form ions in water
ulfate (ppm)	500*	n/a	132	106 - 159	No	Runoff or leaching from natural deposits
Total Dissolved Solids (ppm)	1,000*	n/a	378	307 - 458	No	Runoff or leaching from natural deposits
Turbidity (NTU)	5*	n/a	0.05	0.04 - 0.06	No	Runoff or leaching from natural deposits
Unregulated Chemicals – Test	ted in 2006	Contraction of the	1		AND STREET	
Alkalinity (ppm)	Not Regulated	n/a	77	71 – 84	n/a	Runoff or leaching from natural deposits
Boron (ppb)	Not Regulated	n/a	130	ND - 160	n/a	Runoff or leaching from natural deposits
Calcium (ppm)	Not Regulated	n/a	37	31 - 43	n/a	Runoff or leaching from natural deposits
Hardness, total (ppm)	Not Regulated	n/a	161	134 - 185	n/a	Runoff or leaching from natural deposits
Hardness, total (grains/gal)	Not Regulated	n/a	9	8 - 11	n/a	Runoff or leaching from natural deposits
Magnesium (ppm)	Not Regulated	n/a	17	13 - 20	n/a	Runoff or leaching from natural deposits
N-Nitrosodimethylamine (ppt)	Not Regulated	3	<2	ND - 2.3	n/a	By-product of drinking water chlorination
oH (pH units)	Not Regulated	n/a	8.2	8.1 - 8.3	n/a	Hydrogen ion concentration
Potassium (ppm)	Not Regulated	n/a	3.2	2.8 - 3.9	n/a	Runoff or leaching from natural deposits
Sodium (ppm)	Not Regulated	n/a	65	52 - 85	n/a	Runoff or leaching from natural deposits
Total Organic Carbon (ppm)	Not Regulated	TT	2.3	1.9 - 2.7	n/a	Various natural and man-made sources
Vanadium (ppb)	Not Regulated	n/a	<3	ND - 3.5	n/a	Runoff or leaching from natural deposits

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 Protection Agency.
- 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 by the USEPA. 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 Agency. 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

drinking water.

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):

- Parts per billion (µg/L): 1 second in 32 years
 1 penny in \$10 million
- 1 second in 12 days
- 1 penny in \$10,000
- 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.

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.

ppb = parts-per-billion; ppm = parts-per-million; ppt = parts-per-trillion; pCl/L = picoCuries per liter; ntu = nephelometric turbidity units; µmho/cm = micro 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. micromhos per centimeter;

Turbidity – combined filter effluent	Treatment Technique	Turbidity Measurements	TT Violation?	Typical Source of Contaminant
1) Highest single turbidity measurement	1 NTU	0.08	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.