The 2008 **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 2007 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.

USEPA and the California Department of Public Health (CDPH) are the agencies responsible for establishing drinking water quality standards. To ensure that your tap water is safe to drink, USEPA and CDPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDPH 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 (EOCWD) 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, EOCWD goes beyond what is required by testing for unregulated contaminants that may 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 EOCWD 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.

Water District

North McPherson Road Orange, California 92869



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

2008 Water Quality Report East Orange County
Water Oistrict

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

Sources of Supply

Prange County's water supplies are a blend of groundwater managed 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. 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

Engineering

marvels, the State

Water Project and

Colorado River Aqueduct,

make our way of life possible Angeles

by delivering water to millions

of people in Orange County.

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 long-term 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 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 CDPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDPH 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.

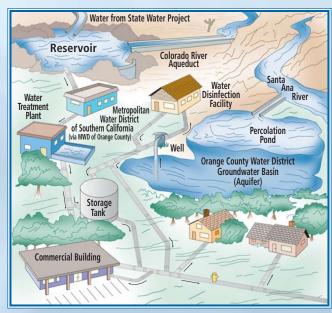
Immuno-Compromised People

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 2007 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 from our lives the risks of microbial waterborne diseases. 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 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



Chemical

Radiologicals

Uranium (pCi/L)

Potassium (ppm)

Total Alkalinity (ppm as CaCO₃)

Sodium (ppm)

Inorganic Chemicals

Nitrate+Nitrite (ppm as N)

Nitrate (ppm as NO₃)

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 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.

Lead

Infants and young children are typically more vulnerable to lead in

PHG (MCLG)

0.43

45

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

20

45

10

Not Regulated

Not Regulated

Drinking Water Fluoridation

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. In December 2007, the Metropolitan Water District of Southern California joined 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 CDPH, as well as the U.S. Centers for Disease Control and Prevention, Metropolitan adjusted the natural fluoride level in imported treated water from the Colorado River and State Project water to the optimal range for dental health of 0.7 to 1.3 parts per million. Our local water is not supplemented with fluoride. Fluoride levels in drinking water are limited under California state regulations at a maximum dosage of 2 parts per million.

There are many places to go for additional information about the fluoridation of drinking water.

> U.S. Centers for Disease Control and Prevention 1-800-232-4636

www.cdc.gov/Oralhealth/publications/factsheets/

American Dental Association www.ada.org/public/topics/fluoride/index.asp

American Water Works Association www.awwa.org

For more information about the Metropolitan's fluoridation program, please contact Edgar G. Dymally at (213) 217-5709 or at edymally@mwdh2o.com.

Sampling Date

2002

2007

2006

2006

2006

Typical Source of Contaminant

Erosion of Natural Deposits

Fertilizers, Septic Tanks

Fertilizers, Septic Tanks

Erosion of Natural Deposits

Erosion of Natural Deposits

Erosion of Natural Deposits

Erosion of Natural Deposits

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 Public Health 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 Public Health,

Division of Drinking Water and Environmental Management

www.cdph.ca.gov/certlic/drinkingwater U.S. Environmental Protection Agency www.epa.gov/safewater/

What are Water Quality Standards?

Drinking water standards established by USEPA and CDPH set limits for substances that may affect consumer health or aesthetic qualities of drinking water. The chart in this report shows the following types of water quality standards:

- Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible.
- . Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.
- \bullet $Secondary\ MCLs$ are set to protect the odor, taste, and appearance of drinking water.
- Primary Drinking Water Standard: MCLs for contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements
- · Regulatory Action Level (AL): The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

How are Contaminants Measured?

Water is sampled and tested throughout the year. Contaminants are measured in:

- parts per million (ppm) or milligrams per liter (mg/l) • parts per billion (ppb) or micrograms per liter ($\mu g/l$)
- parts per trillion (ppt) or nanograms per liter (ng/l)
- If this is difficult to imagine, think about these comparisons:

Parts per million Parts per billion Parts per trillion (ppm or mg/L): (ppb or $\mu g/L$): (ppt or ng/L) • 3 drops in 42 gallons • 3 drops in 14,000 gallons • 10 drops in a Rose Bowl-sized pool • 1 second in 12 days • 1 second in 32 years • 1 second in 32,000 years

• 1 inch in 16,000 miles • 1 inch in 16 miles What is a Water Quality Goal?

In addition to mandatory water quality standards, USEPA and CDPH have set voluntary water quality goals for some contaminants. Water quality goals are often set at such low levels that they are not achievable in practice and are not directly measurable. Nevertheless, these goals provide useful guideposts and direction for water management practices. The chart in this report includes three types of water quality goals:

• 1 inch in 16 million miles

- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by USEPA.
- . Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by USEPA.
- Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Secondary Standards* Chloride (ppm) 500* 99 98 - 100 No 2006 Erosion of Natural Deposits n/a Specific Conductance (µmho/cm) Erosion of Natural Deposits n/a Erosion of Natural Deposits Sulfate (ppm) 130 - 131 No 2006 Total Dissolved Solids (ppm) Frosion of Natural Deposits 1,0003 608 604 - 612Nο 2006 n/a Turbidity (ntu) n/a 0.4 2006 Erosion of Natural Deposits **Unregulated Contaminants Requiring Monitoring** Bicarbonate (ppm as HCO₃) 230 230 - 2302006 Erosion of Natural Deposits Not Regulated n/a 2006 Erosion of Natural Deposits Boron (ppm) Not Regulated ND - 0.1n/a n/a Calcium (ppm) Erosion of Natural Deposits Not Regulated 102 - 1032006 n/a n/a Dichlorodifluoromethane (ppb) ND - 1.0 n/a 2007 Discharge from Industrial Source Magnesium (ppm) Not Regulated n/a 26 25 - 26n/a 2006 **Erosion of Natural Deposits** Not Regulated pH (pH units) n/a 8.0 - 8.1n/a 2006 Acidity, hydrogen ions

2007 East Orange County Water District Groundwater Quality

Range of Detections

ND - 1.6

Average Amount

< 1

188

MCL Violation?

No

n/a

n/a

Not Regulated Total Hardness (ppm as CaCO₃) 361 n/a ppb = parts-per-billion; ppm = parts-per-million; pCi/L = picoCuries per liter; NTU = nephelometric turbidity units; ND = not detected; n/a = not applicable; MCL = Maximum Contaminant Level; (MCLG) = federal MCL Goal; PHG = California Public Health Goal; <= 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).

n/a

n/a

2007 East Orange County Water District Distribution System Water Quality

61 – 62

188 – 188

357 - 365

Disinfection Byproducts	MCL (MRDL/MRDLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Total Trihalomethanes (ppb)	80	40	5.4 - 64	No	Byproducts of chlorine disinfection
Haloacetic Acids (ppb)	60	21	2.8 – 26	No	Byproducts of chlorine disinfection
Chlorine Residual (ppm)	(4 / 4)	1.5	0.3 - 2.7	No	Disinfectant added for treatment

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).

PHG, or

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

Twenty-One residences were tested for lead and copper at-the-tap during 2006.
Lead was detected in 11 samples; none exceeded the action level. 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.

Average

2007 Metropolitan Water District of Southern California Treated Surface Water

Chemical	MCL	(MCLG)	Amount	Detections	Violation?	Typical Source of Contaminant
Radiologicals – Tested in 2006						
Alpha Radiation (pCi/L)	15	(0)	<3	ND - 7.2	No	Erosion of natural deposits
Beta Radiation (pCi/L)	50	(0)	<4	ND - 6.4	No	Decay of man-made or natural deposits
Inorganic Chemicals – Tested	in 2007					
Aluminum (ppm)	1 / 0.2*	0.6	0.08	ND - 0.1	No	Treatment process residue, natural deposits
Arsenic (ppb)	10	0.004	<2	ND - 2.8	No	Erosion of natural deposits
Barium (ppm)	1	2	<0.1	ND - 0.1	No	Erosion of natural deposits
Fluoride (ppm) naturally-occurring	2	1	0.2	0.1 - 0.2	No	Erosion of natural deposits
Fluoride (ppm) treatment-related	Optimal Rang	ge 0.7 – 1.3	0.6	- 0.9	No	Water additive for dental health
Nitrate as N (ppm)	10	10	0.5	ND - 0.7	No	Agriculture runoff and sewage
Perchlorate (ppb)	6	6	<4	ND - 4.1 (1)	No	Industrial waste discharge
Secondary Standards* – Teste	d in 2007					
Chloride (ppm)	500*	n/a	88	75 – 101	No	Runoff or leaching from natural deposits
Color (color units)	15*	n/a	2	1 – 2	No	Runoff or leaching from natural deposits
Odor (odor units)	3*	n/a	2	2	No	Naturally-occurring organic materials
Specific Conductance (µmho/cm)	1,600*	n/a	801	674 – 893	No	Substances that form ions in water
Sulfate (ppm)	500*	n/a	158	122 – 179	No	Runoff or leaching of natural deposits
Total Dissolved Solids (ppm)	1,000*	n/a	469	394 – 519	No	Runoff or leaching of natural deposits
Turbidity (NTU)	5*	n/a	0.04	0.03 - 0.05	No	Runoff or leaching of natural deposits
Unregulated Chemicals – Test	ed in 2007					
Alkalinity (ppm)	Not Regulated	n/a	93	82 - 103	n/a	Runoff or leaching from natural deposits
Boron (ppb)	Not Regulated	n/a	140	130 - 150	n/a	Runoff or leaching from natural deposits
Calcium (ppm)	Not Regulated	n/a	46	36 – 55	n/a	Runoff or leaching from natural deposits
Hardness, total (ppm)	Not Regulated	n/a	201	158 – 228	n/a	Runoff or leaching of natural deposits
Hardness, total (grains/gal)	Not Regulated	n/a	12	9.2 – 13	n/a	Runoff or leaching of natural deposits
Magnesium (ppm)	Not Regulated	n/a	21	16 – 23	n/a	Runoff or leaching from natural deposits
pH (pH units)	Not Regulated	n/a	8.2	8.1 – 8.3	n/a	Hydrogen ion concentration
Potassium (ppm)	Not Regulated	n/a	3.9	3.4 - 4.4	n/a	Runoff or leaching from natural deposits
Sodium (ppm)	Not Regulated	n/a	83	73 – 91	n/a	Runoff or leaching from natural deposits
Total Organic Carbon (ppm)	Not Regulated	TT	2.2	1.9 - 2.9	n/a	Various natural and man-made sources
Vanadium (ppb)	Not Regulated	n/a	3.3	ND - 3.7	n/a	Runoff or leaching from natural deposits
(1) Developes detection in from a HCEPA Harmonist description by Maritanian Police and in 2002 Developes over a detected in translation in the second of the						

(1) Perchlorate detection is from a USEPA Unregulated Contaminant Monitoring Rule test in 2003. Perchlorate was not detected in treated water samples tested in 2007. Perchlorate became a regulated chemical in California drinking water in 2007.

ppb = parts-per-billion; ppm = parts-per-million; ppt = parts-per-trillion; pCi/L = picoCuries per liter; ntu = nephelometric turbidity units; µmho/cm = micromhos per centimeter; 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	0.3 NTU	0.05	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" (ITI).

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.