2012 Water Quality Report

EAST ORANGE COUNTY WATER DISTRICT

Your 2012 Water Quality Report

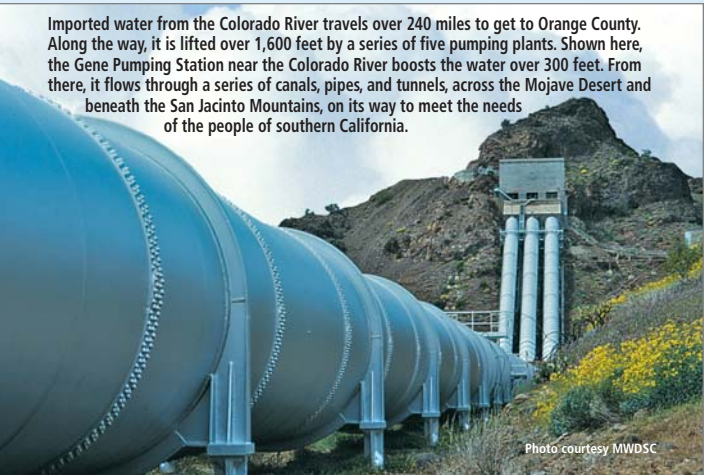
Drinking Water Quality

Since 1990, California public water utilities have been providing an annual Water Quality Report to their customers. This year's report covers calendar year 2011 drinking water quality testing and reporting. 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 quality standards required by federal and state regulatory agencies. The U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) are the agencies responsible for establishing and enforcing drinking water quality standards.

In some cases, EOCWD goes beyond what is required by testing for unregulated chemicals that may have known health risks but do not have drinking water standards. For example, the Orange County Water District (OCWD), which manages the groundwater basin, and the Metropolitan Water District of Southern California (MWDSC), which supplies treated imported surface water to EOCWD, test for unregulated chemicals in our water supply. Unregulated chemical monitoring helps USEPA and CDPH determine where certain chemicals occur and whether new standards need to be established for those chemicals to protect public health.

Through drinking water quality testing programs carried out by OCWD for groundwater, MWDSC for treated surface water and EOCWD for the water distribution system, your drinking water is constantly monitored from source to tap for regulated and unregulated constituents.

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.



Imported water from the Colorado River travels over 240 miles to get to Orange County. Along the way, it is lifted over 1,600 feet by a series of five pumping plants. Shown here, the Gene Pumping Station near the Colorado River boosts the water over 300 feet. From there, it flows through a series of canals, pipes, and tunnels, across the Mojave Desert and beneath the San Jacinto Mountains, on its way to meet the needs of the people of southern California.

Photo courtesy MWDSC

We Go to Great Lengths to Ensure the Continued Quality of Your Water

Sources of Supply

Orange County's water supplies are a blend of groundwater managed by the OCWD and water imported from Northern California and the Colorado River by the Municipal Water District of Orange County (MWDOC) via MWDSC. 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 covers 350 square miles and lies beneath north and central Orange County from Irvine to the Los Angeles County 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. Normally, EOCWD imports 36% of its water and pumps groundwater for the other 64%; however, due to abundant precipitation in Northern California last winter, these figures were reversed for 2011.

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.

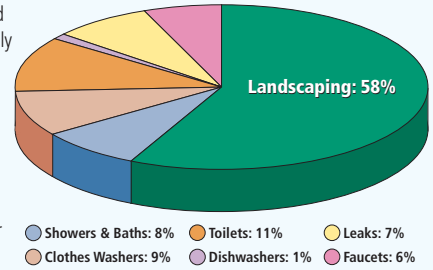
OCWD and MWDOC work cooperatively to evaluate new and innovative water management and supply development programs, including water reuse and recycling, wetlands expansion, recharge facility construction, ocean and brackish water desalination, surface storage and water use efficiency programs. These efforts are helping to enhance 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.

How Residential Water is Used in Orange County

Outdoor watering of lawns and gardens makes up approximately 60% of home water use. By cutting your outdoor watering by 1 or 2 days a week, you can dramatically reduce your overall water use.

Visit www.bewaterwise.com for water saving tips and ideas for your home and business.



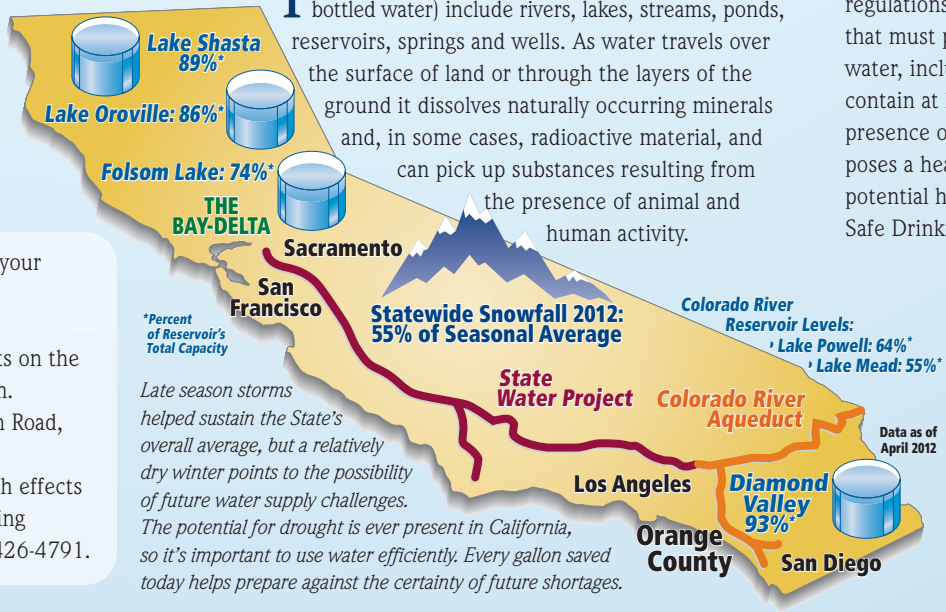
Basic Information About Drinking Water Contaminants

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:

- 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.
- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- 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 stormwater 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 stormwater 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.



Late season storms helped sustain the State's overall average, but a relatively dry winter points to the possibility of future water supply challenges. The potential for drought is ever present in California, so it's important to use water efficiently. Every gallon saved today helps prepare against the certainty of future shortages.

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.

Questions about your water? 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 USEPA hotline at (800) 426-4791.

Information You Should Know About the Quality of Your Drinking Water

Disinfectants 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 water-borne 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 DBPs. The Safe Drinking Water Act requires 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 Rule.

Stage 2 of the regulation was finalized by USEPA in 2006, which further controls allowable levels of DBPs in drinking water without compromising disinfection itself. A required distribution system evaluation was completed in 2008 and a Stage 2 monitoring plan has been approved by CDPH. Full Stage 2 compliance begins in 2012.

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. MWDSC tested their source water and treated surface water for *Cryptosporidium* in 2011 but did not detect it. If it ever is detected, *Cryptosporidium* is eliminated by an effective treatment combination including sedimentation, filtration and disinfection.

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 highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **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 (µg/L)
- parts per trillion (ppt) or nanograms per liter (ng/L)

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:

- **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 drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **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.

2011 East Orange County Water District Drinking Water Quality
Local Groundwater and Metropolitan Water District Treated Surface Water

Chemical	MCL	PHG (MCLG)	Avg. Groundwater Amount	Avg. Imported MWD Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Radiologicals – Tested in 2008 and 2011							
Alpha Radiation (pCi/L)	15	(0)	ND	3.0	ND – 3.0	No	Erosion of natural deposits
Beta Radiation (pCi/L)	50	(0)	NR	<4.0	ND – 4.0	No	Decay of man-made or natural deposits
Uranium (pCi/L)	20	0.43	1.5	2.0	1.5 – 2.0	No	Erosion of natural deposits
Inorganic Chemicals – Tested in 2009 and 2011							
Aluminum (ppm)	1	0.6	ND	0.14	ND – 0.24	No	Treatment Process Residue, Natural Deposits
Fluoride (ppm) naturally-occurring	2	1	0.11	NR	0.11	No	Erosion of natural deposits
Fluoride (ppm) treatment-related	Control Range 0.7 – 1.3 ppm Optimal Level 0.8 ppm		NR	0.80	0.50 – 1.0	No	Water additive for dental health
Nitrate as NO_3 (ppm)	45	45	16	<2.0	ND – 18	No	Agriculture runoff and sewage
Nitrate and Nitrite as N (ppm)	10	10	3.6	<0.40	ND – 4.1	No	Agriculture runoff and sewage
Secondary Standards* – Tested in 2009 and 2011							
Aluminum (ppb)	200*	600	ND	140	ND – 240	No	Treatment Process Residue, Natural Deposits
Chloride (ppm)	500*	n/a	100	72	70 – 100	No	Runoff or leaching from natural deposits
Color (color units)	15*	n/a	ND	1.0	ND – 1.0	No	Runoff or leaching from natural deposits
Odor (odor units)	3*	n/a	ND	2.0	ND – 2.0	No	Naturally-occurring organic materials
Specific Conductance (µmho/cm)	1,600*	n/a	910	690	320 – 960	No	Substances that form ions in water
Sulfate (ppm)	500*	n/a	130	160	130 – 170	No	Runoff or leaching of natural deposits
Total Dissolved Solids (ppm)	1,000*	n/a	570	470	440 – 580	No	Runoff or leaching of natural deposits
Turbidity (NTU)	5*	n/a	0.45	0.050	0.030 – 0.70	No	Runoff or leaching of natural deposits
Unregulated Chemicals – Tested in 2009 and 2011							
Alkalinity (ppm)	Not Regulated	n/a	190	89	48 – 190	n/a	Runoff or leaching from natural deposits
Boron (ppb)	NL = 1,000	n/a	ND	130	ND – 130	n/a	Runoff or leaching from natural deposits
Calcium (ppm)	Not Regulated	n/a	100	51	47 – 100	n/a	Runoff or leaching from natural deposits
Dichlorodifluoromethane (ppm)	NL = 1	n/a	<0.00050	ND	ND – 0.00070	n/a	Runoff or leaching from natural deposits
Hardness, total (ppm)	Not Regulated	n/a	350	190	57 – 350	n/a	Runoff or leaching of natural deposits
Hardness, total (grains/gal)	Not Regulated	n/a	20	11	3.0 – 20	n/a	Runoff or leaching of natural deposits
Magnesium (ppm)	Not Regulated	n/a	22	20	19 – 24	n/a	Runoff or leaching from natural deposits
pH (pH units)	Not Regulated	n/a	7.5	8.0	7.0 – 8.6	n/a	Hydrogen ion concentration
Potassium (ppm)	Not Regulated	n/a	2.3	3.8	2.0 – 4.0	n/a	Runoff or leaching from natural deposits
Sodium (ppm)	Not Regulated	n/a	58	72	54 – 77	n/a	Runoff or leaching from natural deposits
Total Organic Carbon (ppm)	TT	n/a	0.49	2.4	0.46 – 3.0	n/a	Various natural and man-made sources

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; **NR** = not required to be tested; **ND** = not detected; **NL** = Notification Level; **<** = 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; **TT** = treatment technique *Contaminant is regulated by a secondary standard.

Turbidity – combined filter effluent Metropolitan Water District Diemer Filtration Plant	Treatment Technique	Turbidity Measurements	TT Violation?	Typical Source of Contaminant
1) Highest single turbidity measurement	0.3 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.

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 10 a.m. and 4 p.m. Eastern Time (7 a.m. to 1 p.m. in California).

Chloramines

EOCWD imports water from MWDSC and produces water using chloramines, a combination of chlorine and ammonia, as its drinking water disinfectant. Chloramines are effective killers of bacteria and other microorganisms that may cause disease. Chloramines form fewer disinfection byproducts and have no odor when used properly. People who use kidney dialysis machines may want to take special precautions and consult their physician for the appropriate type of water treatment. Customers who maintain fish ponds, tanks or aquaria should also make necessary adjustments in water quality treatment, as these disinfectants are toxic to fish. For further information or if you have any questions about chloramines please visit www.eocwd.com or call (714) 538-5815.

About Lead in Tap Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. East Orange County Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline, (800) 426-4791 between 9 a.m. and 5 p.m. Eastern Time (6 a.m. to 2 p.m. in California), or at: www.epa.gov/safewater/lead.

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, MWDSC 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, MWDSC 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
www.cdc.gov/fluoridation/

California Department of Public Health
www.cdph.ca.gov/certlic/drinkingwater/Pages/Fluoridation.aspx

American Water Works Association
www.awwa.org

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

Source Water Assessments

Imported (MWDSC) Water Assessment

Every five years, MWDSC is required by CDPH to examine possible sources of drinking water contamination in its State Water Project and Colorado River source waters.

MWDSC has submitted to CDPH its 2010 updates to the Watershed Sanitary Surveys for the Colorado River and State Water Project, which include suggestions for how to better protect these source waters. Both source waters are exposed to stormwater runoff, recreational activities, wastewater discharges, wildlife, fires, and other watershed-related factors that could affect water quality.

Water from the Colorado River is considered to be most vulnerable to contamination from recreation, urban/stormwater runoff, increasing urbanization in the watershed, and wastewater. Water supplies from Northern California's State Water Project are most vulnerable to contamination from urban/ stormwater runoff, wildlife, agriculture, recreation, and wastewater.

USEPA also requires MWDSC to complete one Source Water Assessment (SWA) that utilizes information collected in the watershed sanitary surveys. MWDSC completed its SWA in December 2002. The SWA is used to evaluate the vulnerability of water sources to contamination and helps determine whether more protective measures are needed.

A copy of the most recent summary of either Watershed Sanitary Survey or the SWA can be obtained by calling MWDSC at (213) 217-6850.

Groundwater Assessment

An assessment of the drinking water sources for EOCWD 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 CDPH 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 EOCWD, (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:

East Orange County Water District: www.eocwd.com • **Water Education Foundation:** www.watereducation.org
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/
California Department of Water Resources: www.water.ca.gov
Water Conservation Tips: www.bewaterwise.com • www.wateruseitwisely.com

2011 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	48	7.3 – 60	No	Byproducts of Chlorine Disinfection
Haloacetic Acids (ppb)	60	29	3.3 – 44	No	Byproducts of Chlorine Disinfection
Chlorine Residual (ppm)	(4 / 4)	1.3	0.2 – 2.3	No	Disinfectant Added for Treatment
Aesthetic Quality					
Color (Color Units)	15*	0.06	ND – 3.0	No	Erosion of Natural Deposits
Turbidity (ntu)	5*	0.015	ND – 0.27	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
Odor was not detected in any sample in 2011. *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	0.2	2.2	0 / 21	No	Corrosion of Household Plumbing
Copper (ppm)	1.3	0.3	0.21	0 / 21	No	Corrosion of Household Plumbing

Twenty-one residences were tested for lead and copper at-the-tap during 2009. Lead was detected in 10 samples; none exceeded the lead 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.

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

يحتوي هذا التقرير على معلومات هامة عن نوعية ماء الشرب في منطقتك. يرجى ترجمته، أو ابحث التقرير مع صديق لك يفهم هذه المعلومات جيداً.

Arabic

这份报告中有些重要的信息，讲到关于您所在社区的水的品质。请您找人翻译一下，或者请能看得懂这份报告的朋友给您解释一下。

Chinese

Ce rapport contient des informations importantes sur votre eau potable. Traduisez-le ou parlez en avec quelqu'un qui le comprend bien.

French

Der Bericht enthält wichtige informatienen über die Wasser-qualität in threr Umgebung. Der Bericht sollte entweder offiziell uebersetzt werden, oder sprechen Sie mit Freunden oder Bekannten, die gute Englischkenntnisse besitzen

German

Questo rapporto contiene informazioni inportanti che riguardano la vostra aqua potabile. Traducetelo, o parlate con una persona qualificata in grado di spiegarvelo.

Italian

この資料には、あなたの飲料水についての大切な情報が書かれています。内容をよく理解するために、日本語に翻訳して読むか説明を受けてください。

Japanese

이 보고서에는 귀하가 거주하는 지역의 수질에 관한 중요한 정보가 들어 있습니다. 이것을 번역하거나 충분히 이해하시는 친구와 상의하십시오.

Korean

Este informe contiene información muy importante sobre su agua potable. Para mas información ó traducción, favor de contactar a Customer Service Representative. Telefono: (714) 538-5815.

Spanish

Bản báo cáo có ghi những chi tiết quan trọng về phẩm chất nước trong cộng đồng quý vị. Hãy nhờ người thông dịch, hoặc hỏi một người bạn biết rõ về vấn đề này.

Vietnamese

East Orange County Water District

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Orange, California 92869