The 2008 Water Quality Report

Drinking Water Quality

S ince 1990, California water utilities have been providing 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. The re-authorization charged the United States Environmental Protection Agency (USEPA) with updating and strengthening the tap water regulatory program.

The City of San Clemente 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, the City goes beyond what is required by testing for unregulated contaminants that may have known health risks.



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 Andrew J. Howard, Utilities Manager, at (949) 366-1553. The San Clemente City Council meets at 7:00 p.m. on the first and third Tuesdays of each month in the City Council Chambers, located at 100 Ave. Presidio in the City of San Clemente. 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.

For further information about the City, please visit our website: http://san-clemente.org

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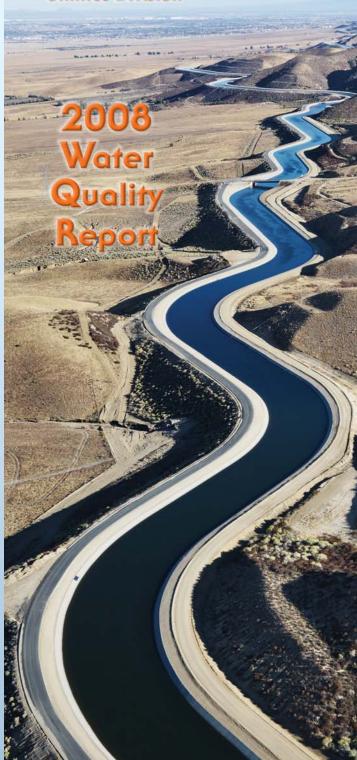
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City of San Clemente Utilities Division

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

The City of San Clemente **Utilities Division**



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

Sources of Supply

Your drinking water is a blend of surface water imported by the Metropolitan Water District of Southern California and ground water extracted from City wells located in the southern part of the City of San Clemente. The ground water represents 5 to 8 percent of the total water source. Metropolitan's imported water sources are the Colorado River and the State Water Project, which draws water from the Sacramento-San Joaquin Delta.

During the last week in March 2007, the City received 17 million gallons of drinking water through an emergency interconnection with the Irvine Ranch Water District (IRWD) while Metropolitan's filtration plant was shut down for a major construction project that will improve water supply reliability in the future. IRWD's annual water quality report may be accessed through its web site at www.irwd.com.

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.

State Water Project

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.

Engineering

• 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 California Depatment of Public Health (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.

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).

Immuno-Compromised People

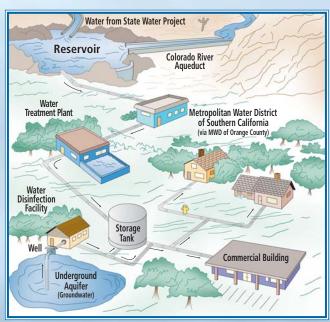
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as those with cancer who are undergoing chemotherapy, persons who have had organ transplants, people with HIV/AIDS or other immune system disorders, some elderly persons and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

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



Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.



Imported water — from the Colorado River and northern California — travels hundreds of miles, across deserts and mountains, to meet the needs of Orange County. Water is also pumped from local groundwater basins, then treated and sent to homes and businesses.

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



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

The City of San Clemente Utilities Division completed an assessment of drinking water sources for its water supply in October 2001. The two sources are considered vulnerable to the following Possible Contamination Activities (PCAs) associated with some contaminants detected in the water supply: Maintenance yards, above-ground fuel tanks, an historic dump site, an electrical switching station, and a site for temporary deposition of street sweeper debris. Residences, parks, sewers, roads and storm drains represent additional PCAs. While PCAs exist within the source water assessment area, the water sources are protected from immediate contamination threats by the confining nature of the aquifer, and the significant depth of well perforations at each water source.

Copies of each water assessment are located at the City of San Clemente Utilities Division administration office, 380 Avenida Pico, Building N, San Clemente, California. You may inspect these water source assessments by contacting the Utilities Manager at (949) 366-1553.

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:

> City of San Clemente http://san-clemente.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/

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.
- 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 (μ 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 million 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:

- 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.

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 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.

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

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

maximum dosage of 2 parts per million.

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

| 2007 City of San Clemente Groundwater Quality | | | | | | | |
|---|------------------|---------------|-------------------|------------------------|-------------------|------------------------------|-------------------------------|
| Chemical | MCL | PHG (MCLG) | Average Amount | Range of Detections | MCL Violation? | Most Recent Sampling Date | Typical Source of Contaminant |
| Radiologicals | | | | | | | |
| Combined Radium (pCi/L) | 5 | (0) | 1.2 | 0.9 - 1.4 | No | 2006 | Erosion of Natural Deposits |
| Inorganic Chemicals | | | | | | | |
| Fluoride (ppm) | 2 | 1 | 0.47 | 0.32 - 0.62 | No | 2007 | Erosion of Natural Deposits |
| Nitrate (ppm as NO ₃) | 45 | 45 | 7.1 | 7.1 | No | 2007 | Fertilizers, Septic Tanks |
| Nitrate+Nitrite (ppm as N) | 10 | 10 | 1.4 | 1.0 - 1.9 | No | 2006 | Fertilizers, Septic Tanks |
| Secondary Standards* | | | | | | | |
| Chloride (ppm) | 500* | n/a | 90 | 82 – 98 | No | 2007 | Erosion of Natural Deposits |
| Color (color units) | 15* | n/a | 1 | 1 | No | 2006 | Erosion of Natural Deposits |
| Manganese (ppb) | 50* | n/a | <20 | ND - 30 | No | 2007 | Erosion of Natural Deposits |
| Odor (threshold odor number) | 3* | n/a | 1 | 1 | No | 2006 | Erosion of Natural Deposits |
| pecific Conductance (µmho/cm) | 1,600* | n/a | 704 | 704 | No | 2006 | Erosion of Natural Deposits |
| Sulfate (ppm) | 500* | n/a | 105 | 81 – 124 | No | 2007 | Erosion of Natural Deposits |
| Total Dissolved Solids (ppm) | 1,000* | n/a | 496 | 458 - 530 | No | 2007 | Erosion of Natural Deposits |
| Turbidity (ntu) | 5* | n/a | 0.11 | 0.60 - 0.22 | No | 2007 | Erosion of Natural Deposits |
| Jnregulated Contaminants R | equiring Monitor | ing | | | | | |
| Bicarbonate (ppm) | Not Regulated | n/a | 168 | 168 | n/a | 2006 | Erosion of Natural Deposits |
| Boron (ppm) | Not Regulated | n/a | 0.18 | 0.17 - 0.18 | n/a | 2007 | Erosion of Natural Deposits |
| Calcium (ppm) | Not Regulated | n/a | 41 | 41 | n/a | 2006 | Erosion of Natural Deposits |
| Magnesium (ppm) | Not Regulated | n/a | 25 | 25 | n/a | 2006 | Erosion of Natural Deposits |
| H (pH units) | Not Regulated | n/a | 7.3 | 7.2 – 7.4 | n/a | 2007 | Erosion of Natural Deposits |
| Potassium (ppm) | Not Regulated | n/a | 5.4 | 5.4 | n/a | 2006 | Erosion of Natural Deposits |
| Sodium (ppm) | Not Regulated | n/a | 44 | 43 – 46 | n/a | 2007 | Erosion of Natural Deposits |
| Total Alkalinity (ppm as CaCO ₃) | Not Regulated | n/a | 168 | 168 | n/a | 2006 | Erosion of Natural Deposits |
| Total Hardness (ppm as CaCO ₃) | Not Regulated | n/a | 213 | 203 – 216 | n/a | 2007 | 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 umho/cm = micromho per centimeter: *Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color).

2007 City of San Clemente Distribution System Water Quality

| Disinfection Byproducts | MCL (MRDL/MRDLG) | Average Amount | Range of Detections | MCL Violation? | Typical Source of Contaminant |
|------------------------------|---------------------|-------------------|------------------------|-------------------|-------------------------------------|
| Total Trihalomethanes (ppb) | 80 | 50 | 2.7 – 67 | No | Byproducts of chlorine disinfection |
| Haloacetic Acids (ppb) | 60 | 22 | ND - 33 | No | Byproducts of chlorine disinfection |
| Chlorine Residual (ppm) | (4 / 4) | 1.5 | 0.3 – 2.3 | No | Disinfectant added for treatment |
| Aesthetic Quality | | | | | |
| Color (color units) | 15* | 1 | 1 | No | Erosion of natural deposits |
| Odor (threshold odor number) | 3* | 1 | 1 | No | Erosion of natural deposits |
| T 1 1 10 10 11 1 1 1 1 | | 0.4 | 0.05.00 | | F 1 6 1 1 1 1 |

Twelve locations in the distribution system are tested quarterly for total trihalomethanes and haloacetic acids; twenty locations are tested monthly for color, odor and turbidity

MRDL = Maximum Residual Disinfectant Level; MRDLG = Maximum Residual Disinfectant Level Goal; ntu = nephelometric turbidity units; ND = not det *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<4 | 0 / 30 | No | Corrosion of household plumbing |
| Copper (ppm) | 1.3 | 0.17 | 0.21 | 0 / 30 | No | Corrosion of household plumbing |

Lead was detected in 1 of the samples. Copper was detected in all 30 samples. None of the samples exceeded the regulatory action level. A regulatory action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water sy

PHG, or

2007 Metropolitan Water District of Southern California Treated Surface Water

Range of

Average

MCL

| Chemical | MCL | (MCLG) | Amount | Detections | Violation? | Typical Source of Contaminant |
|------------------------------------|---------------|--------------|--------|--------------|------------|---|
| Radiologicals – Tested in 2006 | 5 | | | | | |
| 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 | ed 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) 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.