



Yorba Linda Water District  
Public Health Goals Report

July 2007

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*“Yorba Linda Water District  
will provide reliable, high quality water and sewer services  
in an environmentally responsible manner  
at the most economical cost to our customers.”*

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## Introduction:

Requirements of the California Health and Safety Code specify that every three years water utilities with more than 10,000 service connections prepare a report in plain language by July 1, and hold a public hearing if water quality measurements have exceeded any Public Health Goals (PHGs). PHGs are non-enforceable goals established by the California-Environmental Protection Agency's (Cal-EPA) Office of Environmental Health Hazard Assessment (OEHHA). The law also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the Maximum Contaminant Level Goals (MCLGs) adopted by the United States Environmental Protection Agency (USEPA). Only constituents which have primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed. Appendix 1 is a list of California's PHGs and Appendix 2 is a list of the Federal MCLGs.

If a constituent was detected in the District's water supply from year 2004 to 2006 at a level exceeding an applicable PHG or MCLG, this report provides the information required by law. Included is the numerical public health risk associated with the PHG and/or MCLG, the category or type of risk to health that could be associated with constituent, the best treatment technology available that could be used to reduce the constituent level, and an estimate of the cost to install that treatment if it is appropriate and feasible.

The purpose of the law is to give water system customers access to information on levels of contaminants even below the enforceable mandatory drinking water standard known as Maximum Contaminant Levels (MCLs). In addition, the law intends to provide an idea of the cost to totally eliminate any trace of the contaminant from drinking water regardless of how minimal the risk might be. The required report is unique to California.

## What are Public Health Goals?

The PHG is a level of drinking water contaminant at which adverse health effects are not expected to occur from a lifetime of exposure. PHGs are based solely on public health risk considerations. None of the practical risk-management factors (such as analytical detection capability, treatment technology available, benefits and costs) that are considered by the USEPA and the California Department of Health Services (CDHS) in setting the enforceable drinking water standards, the MCLs, are considered in setting the Public Health Goals. *The PHGs are not enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent to PHGs.*

## Water quality data considered:

All of the water quality data collected by the District in the years 2004, 2005, and 2006 for purposes of determining compliance with drinking water standards was considered. This data was all summarized in the District's 2007 Consumer Confidence Report.

## Guidelines followed:

The Association of California Water Agencies (ACWA) formed a workgroup which prepared guidelines for water utilities to use in preparing these newly required reports. The ACWA guidelines were used in preparation of this report.

### Best available treatment technologies and cost estimates:

Both the USEPA and CDHS adopted what are known as Best Available Technologies (BATs). BATs are the best known methods of reducing contaminant levels to below MCL. Costs can be estimated for such technologies. Since many PHGs and all MCLGs are set much lower than the MCL, it is not always possible or feasible to determine what treatment is needed to further reduce a constituent downward to or near the PHG or MCLG, many of which are set at zero. Estimating costs to reduce a constituent to zero is difficult, if not impossible, to verify by analytical means that the level has been lowered to zero. Additionally, in some cases, installing treatment to try and further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

### Constituents detected that exceed a PHG or MCLG:

The following is a discussion of the constituents that were detected in the District's drinking water sources and water distributions system above the PHG, or if no PHG, above the MCLG.

#### Total Coliform Bacteria

Total coliform (TC) bacteria are indicator organisms that indicate a potential microbial water quality problem that requires confirmation follow-up sampling, testing, and investigation. When the District receives a positive TC result from the contract laboratory, a repeat sample set is immediately taken for a retest, an investigation of the area where the sample was acquired and the section of the water distribution system are conducted, and disinfection procedures are analyzed. *There is no certain action that could be taken that could assure that the water system would always have 0% coliform-presence every single month.*

The MCLG for total coliform (TC) bacteria is zero percent (0%) of samples with presence of coliform per month. **The MCL for TC is not to exceed five percent (5%) of positive or coliform-presence samples per month.**

During the years 2004, 2005, 2006, combined staff and an independent certified testing laboratory collected and analyzed from the District's water distribution system an average of 160 TC samples each month, for a total of 5778 samples from the last three years.

Thus, for purposes of this report, the District's 3-year average monthly percentage of TC positive samples is **0.52%**, which exceeds the **MCLG of zero percent (0%)**.

Factors that can produce positive TC test besides degraded water quality include, but are not limited to, the weather and environmental conditions when samples are taken, and the human factor associated with the collection methods, handling, and test procedures.

#### Numerical Health Risks

Because total coliform is only a surrogate indicator of the potential presence of pathogens, it is not possible to state a specific numerical public health risk.

#### Category of Risk to Public Health

The California Department of Health Services has determined that the presence of TC bacteria is a possible health concern. TCs are common in the environment and are *generally not harmful themselves*. State of California Health and Safety Code Section 64470(a) states: “The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however are not just associated with disease causing organisms in drinking water, but may also be caused by a number of factors other than your drinking water.”

Best Available Technology to Remove or Reduce the Presence of Total Coliform

The addition of disinfectants to the drinking water is the best available technology to eliminate or reduce the presence of TC. The District disinfects and monitors chlorine at our sources and water system to assure that the water served is microbiologically safe. The chlorine level is balanced to provide the best health protection. The District also has an effective cross-connection program, maintains positive pipeline pressures, and, a regular water distribution system dead-ends mains flushing program. The District has already taken necessary steps associated with best management practices and the best available technology for the prevention and control of TC in our water distribution system.

Cost to Reduce the Level of Total Coliform to a Level at or below the MCLG

Since we are applying a disinfectant and conducting a thorough effort to eliminate or prevent the presence of TC, it is not prudent to initiate additional treatment, therefore no estimate of cost has been included.

Lead

Lead occurs in drinking water as a result of leaching from household plumbing and plumbing fixtures containing lead. The District’s well water and import water sources do not contain lead. Lead found inside homes is a chemical reaction of the District’s water with household plumbing fixtures which contain lead.

There is no Maximum Contaminant Level for lead. United States Environmental Protection Agency and the California Department of Health Services **Notification Level** for lead is **0.015 milligrams per liter**. The notification level for lead is measured at the 90<sup>th</sup> percentile lead level of all samples taken from inside the customer’s household taps every three years.

The California Office of Environmental Health Hazard Assessment established a **Public Health Goal of 0.002 milligrams per liter**. The **District’s 90<sup>th</sup> percentile** of all samples taken from inside the customers’ houses in 2006 sampling for lead is **0.006 milligrams per liter**.

Category of Risk to Public Health

The Office of Environmental Health Hazard Assessment and the Department of Health Services has determined the following health risk for lead:

“Based on human data, the category of health risk for lead is neurotoxicity (decreased learning ability). Neurotoxicity is lead’s capability of destroying or

adversely affecting the nervous system, or interfering with the nerve signal transmission. Infants and children who drink water containing lead in excess of the Environmental Protection Agency and California Department of Health Services Notification Level of 0.015 mg/L could experience delays in their physical or mental development and show slight deficits in attention span and learning abilities. Adults who drink water containing lead in excess of the Environmental Protection Agency California Department of Health Services Notification Level of 0.015 mg/L over many years could develop kidney problems, high blood pressure, and cancer.”

### Numerical Health Risks

The Office of Environmental Health Hazard Assessment has a numerical cancer risk of  $3 \times 10^{-7}$  for the 0.002 mg/L PHG, and a cancer risk of  $2 \times 10^{-6}$  for the California Department of Health Services Notification Level of 0.015 mg/L.

*NOTE: Cancer Risk = theoretical 70-year lifetime excess cancer risk at a statistical confidence limit. Actual cancer risk may be lower or zero. Cancer risk is stated in terms of excess cancer per million (or fewer) population, e.g.,  $3 \times 10^{-7}$  means 3 excess cancer cases per 10,000,000 people;  $2 \times 10^{-6}$  means 2 excess cancer cases per 1,000,000 people. (3 and 2 excess cases mean 3 and 2 more people will get cancer than if the population had not been exposed to the chemical.)*

### Best Available Technology to Remove or Reduce the Concentration of Lead

In general, optimizing corrosion control is the best available technology to reduce the level of lead in drinking water. This is achieved through evaluations of the effectiveness of adjusting alkalinity, pH, and calcium hardness, and the addition of phosphate or silica-based corrosion inhibitors, or a combination of all. Optimizing corrosion control also includes an intensive process of collection and analyses of water quality data to determine the effectiveness of corrosion control.

Our water system is in full compliance with the Federal and State Lead and Copper Rule. Based on our 2006 extensive sampling, it was determined according to State regulatory requirements that we meet the Notification Levels for lead and copper, and therefore deemed by the State Health to have optimized corrosion control.

### Cost to Reduce the Concentration of Lead to a Level at or below the Public Health Goal

The District meets the “optimized corrosion control” requirements, it is not prudent to initiate additional corrosion control treatment as it involves the addition of other chemicals and there could be additional water quality issues raised, therefore, no estimate of cost has been included.

### Copper

The District’s well water and import water sources do not contain copper. Copper found inside homes is a chemical reaction of the District’s water with household plumbing fixtures containing copper and brass. The District’s well water and import water sources do not contain copper. Copper found inside homes is a chemical reaction of the District’s water with household plumbing fixtures containing copper and brass.

There is no Maximum Contaminant Level for copper. United States Environmental Protection Agency and the California Department of Health Services **Notification Level for copper is 1.3 milligrams per liter**. The notification level for copper is measured at the 90<sup>th</sup> percentile of all samples taken from plumbing fixtures inside the customer's home.

The California Office of Environmental Health Hazard Assessment has established a Public **Health Goal of 0.17 milligrams per liter**. The **District's 90<sup>th</sup> percentile** of all samples taken from inside the customers' houses in 2006 sampling for copper is **0.21 milligrams per liter**.

#### Category of Risk to Public Health

The Office of Environmental Health Hazard Assessment and the Department of Health Services have determined the following risk for copper:

“Based on human data, the health risk category for copper is acute toxicity. Acute toxicity is adverse health effects that develop after a short-term exposure to copper. Short term exposure to high levels of copper can temporarily cause problems in the gastrointestinal system.”

#### Numerical Health Risks

The Office of Environmental Health Hazard Assessment has determined that, in the case of copper, there is no numerical public health risk associated with the Public Health Goal. Numerical public health risks are not calculated for chemicals considered *non-cancer causing*.

#### Best Available Technology

Both the U.S. Environmental Protection Agency and California Department of Health Services adopt what are known as Best Available Technologies which are the best-known methods of reducing contaminant levels to the Maximum Contaminant Level. Since many of the Public Health Goals and Maximum Contaminant Level Goals are set much lower than the Maximum Contaminant Level, it is not always possible or feasible to determine what treatment is needed to further reduce a substance to or near the Public Health Goal or Maximum Contaminant Level Goal.

Similar to lead, optimizing corrosion control is the best available technology to reduce the level of copper in drinking water. This is achieved through evaluations of the effectiveness of adjusting alkalinity, pH, and calcium hardness, and the addition of phosphate or silica-based corrosion inhibitors, or a combination of all. Optimizing corrosion control also includes an intensive process of collection and analyses of water quality data to determine the effectiveness of corrosion control.

#### Arsenic

Arsenic is a naturally occurring element in the earth's crust and is very widely distributed in the environment. All humans are exposed to small quantities of arsenic (inorganic and organic) largely from food and to a lesser degree from drinking water and air. Some edible seafood may contain higher concentrations of arsenic which is predominantly in less acutely toxic organic forms.

YLWD's Well No. 15 exceeds the 10 parts per billion (ppb) arsenic primary drinking water standards, the MCL. Currently, Well No. 15's 2-year average arsenic level is approximately 16 ppb. Other District wells have an average of 2 ppb arsenic level. Whenever in operation, staff blends Well 15 water with other District wells in compliance with State Health approved blending plan. Blended well water has an arsenic level of about **3.0 ppb** and meets the current not-to-exceed level of **10 ppb arsenic MCL**.

The California Office of Environmental Health Hazard Assessment has established a **Public Health Goal of 0.004 micrograms per liter or parts per billion (ppb)**.

#### Category of Risk to Public Health

The Office of Environmental Health Hazard Assessment has determined arsenic as a carcinogen.

#### Numerical Health Risks

The Office of Environmental Health Hazard Assessment has a numerical cancer risk of  $1 \times 10^{-6}$  for the 0.004 ppb PHG, and 1 in a hundred for the EPA Maximum Contaminant Level of 10 ppb.

*NOTE: Cancer Risk = theoretical 70-year lifetime excess cancer risk at a statistical confidence limit. Actual cancer risk may be lower or zero. Cancer risk is stated in terms of excess cancer per million (or fewer) population, e.g.,  $1 \times 10^{-6}$  means 1 excess cancer cases per 1,000,000 people. (1 excess case means 1 person will get cancer than if the population had not been exposed to the chemical.)*

#### Best Available Technology to Remove or Reduce the Concentration of Arsenic and Approximate Treatment Cost

Activated alumina, ion exchange, reverse osmosis, lime softening, coagulation/filtration are the technologies available for achieving compliance with the MCL for arsenic.

It will cost the District approximately \$9 million dollars in capital cost excluding operation and maintenance to reduce the arsenic levels of all its well water to the PHG level of 0.004 ppb.\*

\* based on HDR-Southern California Arsenic Workshop, 2002, using granular ferric hydroxide with removal limit up to <0.002 ppb.

### Uranium

Naturally occurring uranium is found in groundwater supplies as a result of leaching from uranium-bearing sandstone, shale, and other rock formation. Uranium may also be present in surface water, carried through runoff from areas with mining operations.

The **Public Health Goal** for uranium is **0.43 pico-Curies per liter (pCi/L)**, and the **Maximum Contaminant Level (MCL)** is **20 pCi/L**. The **District's average uranium level** is at **8 pCi/L**. The levels detected were below MCL at all times.

#### Category of Risk to Public Health

The Office of Environmental Health Hazard Assessment has determined uranium as a carcinogen.

#### Numerical Health Risks

The Office of Environmental Health Hazard Assessment has a numerical cancer risk of  $1 \times 10^{-6}$  for the 0.43 pCi/L PHG, and a cancer risk of  $5 \times 10^{-5}$  for the California Department of Health Maximum Contaminant Level of 20 pCi/L.

*NOTE: Cancer Risk = theoretical 70-year lifetime excess cancer risk at a statistical confidence limit. Actual cancer risk may be lower or zero. Cancer risk is stated in terms of excess cancer per million (or fewer) population, e.g.,  $1 \times 10^{-6}$  means 1 excess cancer cases per 1,000,000 people;  $5 \times 10^{-5}$  means 5 excess cancer cases per 100,000 people. (1 and 5 excess cases mean 1 and 5 persons respectively will get cancer than if the population had not been exposed to the chemical.)*

#### Best Available Technology to Remove or Reduce the Concentration of Uranium and Approximate Treatment Cost

Ion exchange, reverse osmosis, lime softening, coagulation/filtration are the technologies available for achieving compliance with the MCL for uranium. Using reverse osmosis (RO), it will cost the District about \$40 million dollars in annualized capital, and operation and maintenance cost\*\*.

\*\*estimates based on CH2M Hill Study, for a 1.0 mgd plant operated at 40% design capacity, October 1991.

#### Gross Alpha

Radionuclides such as alpha in water supplies are from erosion of natural deposits. The term radionuclide refers to naturally occurring elemental radium, radon, uranium, and thorium with unstable atomic nucleus that spontaneously decays producing ionizing radiation. Exposure to ionizing radiation in concentrations exceeding of the maximum contaminant level may have carcinogenic (cancer causing), mutagenic (causing mutation of cells) or teratogenic (causing abnormalities in offspring) effects.

The EPA's **Maximum Contaminant Level Goal (MCLG)** for gross alpha particle is **0** and the California **Maximum Contaminant Level (MCL)** is **15 pCi/L**. The **District's** average level of gross alpha is **8 pCi/L**. The levels detected were below MCL at all times.

#### Category of Risk to Public Health

Health risk category based on experimental animal testing data evaluated in the U.S. EPA MCLG document and California MCL has determined gross alpha particle as a carcinogen.

#### Numerical Health Risks

None for the EPA's MCLG of 0, and a cancer risk of  $1 \times 10^{-3}$  for the California Department of Health Maximum Contaminant Level of 15 pCi/L.

*NOTE: Cancer Risk = theoretical 70-year lifetime excess cancer risk at a statistical confidence limit. Actual cancer risk may be lower or zero. Cancer risk is stated in terms of excess cancer per million (or fewer) population, e.g.,  $1 \times 10^{-3}$  means 1 excess cancer cases per 1,000 people. (1 excess case means 1 person will get cancer than if the population had not been exposed to the chemical.)*

#### Best Available Technology to Remove or Reduce the Concentration of Gross Alpha Particles and Approximate Treatment Cost

Similar to uranium, reverse osmosis, lime softening, and coagulation/filtration are the technologies available for achieving compliance with the MCL for uranium. Removal and reduction could be achieved concurrently with uranium.

Conclusion:

The District meets 94% and 89% of all water quality constituents with California Public Health Goal levels, and Federal Maximum Contaminant Level Goals respectively. Public Health Goal levels are not enforceable water quality standards, and no action to meet them is mandated.

Drinking water provided by the Yorba Linda Water District meets 100% of all enforceable State of California, Department of Health Services, and United States Environmental Protection Agency primary drinking water standards.

For total coliform bacteria, the staff does not recommend further action. The District has already taken all steps associated with the best available technology and multi-barrier approach for control and occurrence prevention of total coliform bacteria such as an effective cross-connection program, maintenance and monitoring of proper disinfectant level, wells and reservoirs regular water quality monitoring, source water protection, and maintenance of positive pipeline pressures throughout the distribution system.

For lead and copper, the District already has optimized corrosion control, and District's water is non-corrosive. Staff does not recommend undertaking additional corrosion control efforts. It is not recommended for two reasons: 1) the United States Environmental Protection Agency and California Department of Health Services classified the District's system has optimized corrosion control, and 2) adding chemicals for more corrosion control will cause other water quality problems, such as reducing the effectiveness of the current disinfection which could increase the presence of total coliforms. In addition, contributing factors such as type and age of plumbing and plumbing fixtures, point-of-use and point-of-entry water treatment devices, and electro-chemical induced pipe corrosion could change the water chemistry in customers' taps thus increasing water lead and copper content.

For arsenic, state health approved blending plan and performance requirements are being met to keep the level of arsenic below the enforceable standard. Providing treatment for 100% removal to meet the PHG involves a tremendous cost.

For uranium and gross alpha particle, staff does not recommend costly installation of uranium and gross alpha removal, and their associated waste disposal system that will not provide complete reduction and removal to meet the level of the public health goals at this time. In the future, if available removal technology can be achieved, staff will explore and conduct the necessary studies and related costs.

In summary, the effectiveness of the treatment processes to provide any significant reduction in constituent levels at already low values is uncertain. The health protection benefits of the hypothetical reductions are not all clear and may not be quantifiable. In addition, the funds that would be required for the additional treatment, approximately \$50 million, might provide public health protection benefits if spent on other water system operation, surveillance, and monitoring

program. The process of determining risks from contaminants, although theoretical, offers a valuable tool to decision makers who wish to focus on public health improvements in drinking water supplies.

# APPENDICES

# Appendix 1

## California Public Health Goals (PHGs) Comparison with YLWD Water Quality Measurement Test Results

(Expressed in mg/L)<sup>4</sup>

<u>Constituent</u>	<u>MCL</u> <sup>2</sup>	<u>State PHG</u> <sup>1</sup>	<u>YLWD Test Result (Wells)</u>	<u>(Imported Water) Result</u>
<i>Organics</i>				
Alachlor	0.002	0.004	ND <sup>3</sup>	ND <sup>3</sup>
Atrazine	0.001	0.00015	ND	ND
Bentazon	0.018	0.2	ND	ND
Benzene	0.001	0.00015	ND	ND
Benzo (a) pyrene	0.0002	0.000004	ND	ND
Carbofuran	0.018	0.0017	ND	ND
Carbon Tetrachloride	0.0005	0.0001	ND	ND
Chlordane	0.0001	0.00003	ND	ND
Chloro-ethylene (Vinyl Chloride)	0.0005	0.00005	ND	ND
Cis-1,2-Dichloroethylene	0.006	0.1	ND	ND
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.07	ND	ND
Dalapon	0.2	0.79	ND	ND
Dibromochloropropane (DBCP)	0.0002	0.000007	ND	ND
1,2-Dichlorobenzene (ortho)	0.6	0.6	ND	ND
1,4-Dichlorobenzene (Para)	0.005	0.006	ND	ND
1,1-Dichloroethane (1,1-DCA)	0.005	0.003	ND	ND
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0004	ND	ND
1,1-Dichloroethene (1,1-DCE)	0.006	0.01	ND	ND
Dichloromethane	0.005	0.004	ND	ND
1,2-Dichloropropane	0.005	0.0005	ND	ND
1,3-Dichloropropene	0.0005	0.0002	ND	ND
Di (2-ethylhexyl) adipate	0.4	0.2	ND	ND
Di (2-ethylhexyl) pthalate (DEHP)	0.004	0.012	ND	ND
Dinoseb	0.007	0.014	ND	ND
Diquat	0.02	0.015	ND	ND
Endothall	0.1	0.58	ND	ND
Endrin	0.002	0.0018	ND	ND
Ethylbenzene	0.3	0.3	ND	ND
Ethylbenzene Dibromide (EDB)	0.00005	0.00001	ND	ND
Glyphosate	0.7	1	ND	ND
Heptachlor	0.00001	0.000008	ND	ND
Heptachlor Epoxide	0.00001	0.000006	ND	ND
Hexachlorobenzene	0.001	0.00003	ND	ND
Hexachlorocyclopentadiene	0.05	0.05	ND	ND
Lindane	0.0002	0.000032	ND	ND
Methoxychlor	0.03	0.03	ND	ND
Methyl Tertiary Butyl Ether (MTBE)	0.013	0.013	ND	ND
Monochlorobenzene	0.07	0.2	ND	ND
Oxamyl	0.05	0.05	ND	ND
Pentachlorophenol (PCP)	0.001	0.0004	ND	ND

<u>Constituent</u>	<u>MCL</u> <sup>2</sup>	<u>State PHG</u> <sup>1</sup>	<u>YLWD Test Result (Wells)</u>	<u>(Imported Water) Result</u>
<u>Organics:</u>				
Picloram	0.5	0.5	ND <sup>3</sup>	ND
Silvex (2,4,5-TP)	0.05	0.025	ND	ND
Simazine	0.004	0.004	ND	ND
1,1,2,2-Tetrachloroethane	0.001	0.0001	ND	ND
Tetrachloroethylene (PCE)	0.005	0.0006	ND	ND
Thiobencarb	0.07	0.07	ND	ND
Toluene	0.15	0.15	ND	ND
Toxaphene	0.003	0.00003	ND	ND
Trans-1,2-Dichloroethylene	0.01	0.06	ND	ND
1,2,4-Trichlorobenzene	0.005	0.005	ND	ND
1,1,1-Trichloroethane (1,1,1-TCA)	0.2	1.0	ND	ND
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0003	ND	ND
Trichloroethylene (TCE)	0.005	0.0008	ND	ND
Trichlorofluoromethane (Freon 11)	0.15	0.7	ND	ND
Trichlorotrifluoroethane (Freon 113)	1.2	4	ND	ND
Xylenes (sum of isomers)	1.75	1.8	ND	ND
<u>Inorganics:</u>				
Aluminum	1	0.60	0.004	ND
Antimony	0.006	0.02	ND	ND
<b>Arsenic</b>	<b>0.01</b>	<b>0.000004</b>	<b>0.003</b>	ND
Barium	1	2	ND	ND
Beryllium	0.004	0.0001	ND	ND
Cadmium	0.005	0.00004	ND	ND
<b>Copper (customer's tap: 90th percentile)<sup>5</sup></b>	<b>1.3</b>	<b>0.17</b>	<b>0.21</b>	
Cyanide	0.15	0.15	ND	ND
Fluoride	1.4 to 2.4	1	0.4	0.15
<b>Lead (at-the-tap: 90th percentile)<sup>5</sup></b>	<b>0.015</b>	<b>0.002</b>	<b>0.006</b>	
Mercury	0.002	0.0012	ND	ND
Nickel	0.1	0.012	ND	ND
Nitrate as Nitrate	45	45	14	2
Nitrite as Nitrogen	1	1	ND	ND
Thallium	0.002	0.0001	ND	ND
<u>Radiological</u> <sup>6</sup>				
<b>Uranium</b>	<b>20</b>	<b>0.43</b>	<b>8</b>	ND

## NOTES:

1. PHG - Public Health Goals, established by the California Office of Environmental Health Hazard Assessment. They are the estimated level of a substance in drinking water that pose no significant risk to individuals, including the most sensitive sub-populations, consuming water over an entire lifetime.
2. Maximum Contaminant Levels are enforceable standards established by the California Department of Health Services and the U.S. Environmental Protection Agency.
3. ND - Not Detected in YLWD and Imported Water Sources
4. mg/L - milligrams per liter (equivalent to parts per million)

5. 90th percentile - the lead or copper level at the 90th percent of the sample collected and arranged in an increasing order in accordance with the guidelines established by the Federal and State Lead and Copper Rule. These samples were collected inside homeowners' taps.
6. All units in pCi/L, Pico Curies per Liter (0.9 pCi = 1microgram)

## Appendix 2

### Federal Maximum Contaminant Level Goals (MCLGs) Comparison with YLWD Water Quality Measurement Test Results

(Expressed in mg/L)<sup>4</sup>

<b>Constituent</b>	<b><u>MCL</u><sup>2</sup></b>	<b><u>Federal MCLG</u><sup>1</sup></b>	<b><u>YLWD Test Result (Wells)</u></b>	<b><u>(Imported Water) Result</u></b>
<b><i>Organics:</i></b>				
Acrylamide	TT <sup>9</sup>	0	ND <sup>3</sup>	ND
Bromate	0.01	0	ND	ND
Chlorite	1	0.8	ND	ND
Dioxin (2,3,7,8 – TCDD)	3 x 10 <sup>-8</sup>	0	ND	ND
Epichlorohydrin	TT <sup>9</sup>	0	ND	ND
Molinate	0.02	NS	ND	ND
Polychlorinated Biphenyls (PCBs)	0.0005	0	ND	ND
Styrene	0.1	0.1	ND	ND
Trihalomethanes, Total (TTHMs)	0.100	NS	0.054	0.054
<b><i>Inorganics:</i></b>				
Asbestos, in fibers / liter	7 million	7 million	waived by DHS <sup>7</sup>	Not Required
Chromium (Total)	0.05	withdrawn	ND	ND
Selenium	0.05	0.05	ND	ND
<b><i>Microbiological:</i></b>				
<b>Coliform (% positive samples/month)</b>	<b>5%</b>	<b>zero</b>	<b>1%</b> <sup>8</sup>	
Cryptosporidium	TT <sup>9</sup>	zero	NR	ND
Giardia Lamblia	TT <sup>9</sup>	zero	NR	ND
Legionella	TT <sup>9</sup>	zero	NR	NA
Viruses	TT <sup>9</sup>	zero	NR	ND
<b><i>Radiological<sup>11</sup>:</i></b>				
<b>Alpha Activity, Gross</b>	<b>15</b>	<b>0</b> <sup>10</sup>	<b>8</b>	ND
Beta Activity, Gross	50	NS	NR	4.13
Radium 226 & 228, Total	5	0 <sup>10</sup>	ND	ND
Strontium 90	8	NS	NR	ND
Tritium	20,000	NS	NR	ND

#### NOTES

1. MCLGs - Maximum Contaminant Level Goals, are estimates of levels of the contaminants in drinking water, below which there are no known or expected health risks. These levels are set by the United States Environmental Protection Agency.

2. Maximum Contaminant Levels are enforceable standards established by the California Department of Health Services and the U.S. Environmental Protection Agency.
3. ND - Not Detected in YLWD and Imported water sources
4. mg/L - milligrams per liter (equivalent to parts per million)
5. NS - Not Set.
6. NR - Analysis not required.
7. Monitoring waived by the Department of Health Services (DHS), because District water sources are not susceptible to asbestos contamination.
8. District highest monthly percentage of coliform positive in the water distribution samples from 2004 to 2006
9. TT - Treatment Techniques are the water treatment processes and methods required by the California Department of Health Services and Environmental Protection Agency under the Surface Water Treatment Rule in lieu of establishing a Maximum Contaminant Level. The processes and methods are intended to reduce and/or eliminate the contaminants in drinking water.
10. Effective 12/8/03
11. All units in pCi/L, Pico Curies per Liter (0.9 pCi = 1microgram)