



Mid-Peninsula Water District 2011 Annual Water Quality Report

Water Quality: Contaminants and Regulations

SFPUC Water Quality Division regularly collects and tests water samples from reservoirs and designated sampling points throughout the system to ensure that the water delivered to you meets or exceeds federal and state drinking water standards. In 2011, Water Quality staff conducted more than 69,875 drinking water tests in the transmission and distribution systems. This monitoring effort is in addition to the extensive treatment process control monitoring performed by our certified and knowledgeable treatment plant staff and online instruments.

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Such substances are called contaminants. 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.

In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (USEPA) and California Department 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 provide the same protection for public health. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline 800-426-4791.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides that 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, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally occurring or be the result of oil and gas production and mining activities.

Cryptosporidium is a parasitic microbe found in surface water. The SFPUC regularly tests for this waterborne pathogen, and found it at very low levels in source water and treated water in 2010. However, current test methods approved by the USEPA do not distinguish between dead organisms and those capable of causing disease. If ingested these parasites may produce symptoms of nausea, abdominal cramps, diarrhea, and associated headaches. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Reducing Lead from Plumbing Fixtures

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. The Mid-Peninsula Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in your household or building 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 it 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 or at www.epa.gov/safewater.

Special Health Needs

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) or at www.epa.gov/safewater.

This report contains important information about your drinking water. Have someone translate it for you or speak with someone who understands it.

Chinese(traditional):

“此報告包含有關您的飲用水的重要資訊。請人幫您翻譯出來，或請能看懂 此報告的人將內容說給您聽。”

Spanish: “Este informe contiene información muy importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda bien.”

Tagalog: “Naglalaman ang report na ito ng importanteng impormasyong tungkol sa iyong iniinom na tubig. Magkaroon ng isang tao na isasalin ito sa iyong wika para sa iyo, o makipag-usap sa isang tao na nakakaintindi dito.”

The Mid-Peninsula Water District(MPWD) is pleased to present its 2011 Annual Water Quality Report (Consumer Confidence Report) to our customers. It is important to our Board of Directors and Staff that our customers are informed about the quality of their drinking water. The Mid-Peninsula Water District exists to serve our customers by obtaining and distributing a safe, reliable, high quality supply of water for current and future needs in the most cost efficient manner. Should you have any questions or concerns regarding this report, please feel free to call the District Office at (650) 591-8941 and one of our Customer Service Representatives or Technicians will be happy to assist you.

Our Drinking Water Sources

The sources of drinking water (both tap water and bottled water) include rivers, lakes, oceans, streams, ponds, reservoirs, springs, and wells. The major source of your water supply originates from spring snowmelt flowing down the Tuolumne River to the Hetch Hetchy Reservoir, where it is stored. This pristine Sierra water source meets all federal and state criteria for watershed protection. The SFPUC maintains stringent disinfection treatment practices, extensive bacteriological-quality monitoring, and high operational standards. As a result, the CDPH and USEPA have granted the Hetch Hetchy water source a filtration exemption. In other words, the source is so clean and protected that filtration of water from the Hetch Hetchy Reservoir is not required.

The Hetch Hetchy water is supplemented with surface water from two local watersheds. Rainfall and runoff from the Alameda Watershed - within the greater 128,424-acre Southern Alameda Creek Watershed and spanning more than 35,000 acres in Alameda and Santa Clara counties - are collected in the Calaveras and San Antonio reservoirs and treated at the Sunol Valley Water Treatment Plant. Rainfall and runoff from the 23,000-acre Peninsula Watershed in San Mateo County are stored in Crystal Springs, San Andreas, and Pilarcitos reservoirs and treated at the Harry Tracy Water Treatment Plant. In 2011, the Hetch Hetchy Watershed provided the majority of the total water supply, with the remainder contributed by the two local watersheds.

Watershed Protection

The SFPUC actively protects the water resources entrusted to its care. Hetch Hetchy Watershed is surveyed annually to evaluate the sanitary conditions, water quality, potential contamination sources, and the results of watershed management activities conducted by SFPUC and its partner agencies (including National Park Service and US Forest Service). Once every five years the local watersheds and the approved standby water sources in Early Intake Watershed, which includes Cherry Lake and Lake Eleanor are surveyed. The latest 5-year survey was completed in 2011 for the period of 2006-2010. These surveys identified wildlife, stock, and human activities as potential contamination sources. The reports are available for review at the CDPH San Francisco District office (510) 620-3474.

The attached table lists all 2011 detected drinking water contaminants and the information about their typical sources. Contaminants below detection limits are not shown, in accord with the California Department of Public Health (CDPH) guidance. The CDPH allows the SFPUC to monitor for some contaminants less than once per year because their concentrations do not change frequently. We received from the CDPH a monitoring waiver for some contaminants that were absent in the water.

MPWD Board Meetings Held Every 4th Thursday of Every Month

The Mid-Peninsula Water District Board of Directors hold a Board Meeting on the 4th Thursday of each month. Customers are encouraged to attend these meetings. The meetings are held at our District Office at 3 Dairy Lane, Belmont commencing at 6:30p.m.

| DETECTED CONTAMINANTS | UNIT | PHG or (MCLG) | MCL | RANGE or LEVEL FOUND | AVERAGE or MAXIMUM | Major Sources in Drinking Water |
|--|--------|---------------|----------|----------------------|--------------------|---|
| TURBIDITY | | | | | | |
| Unfiltered Hetch Hetchy Water | NTU | N/A | 5 | 0.2-0.7 (2) | [2.1] (3) | Soil run-off |
| Filtered Water from Harry Tracy Water Treatment Plant (HTWTP) | NTU | N/A | 1 (4) | - | [0.18] | Soil run-off |
| min 95% of samples ≤ 0.3 NTU (4) | - | N/A | | 100% | - | Soil run-off |
| Filtered Water from Sunol Valley Water Treatment Plant (SVWTP) | NTU | N/A | 1 (4) | 99.9%-100% | [0.36] | Soil run-off |
| min 95% of measurements ≤ 0.3 NTU (4) | - | N/A | | | - | Soil run-off |
| DISINFECTION BY-PRODUCTS (SFPUC Reginal System) | | | | | | |
| Total Trihalomethanes (TTHMs) | ppb | N/A | 80 | 10-84 | [45] (5) | By-product of drinking water chlorination |
| Total Haloacetic Acids (HAAs) | ppb | N/A | 60 | 5-59 | [23] (5) | By-product of drinking water chlorination |
| Total Organic Carbon (TOC) (6) | ppm | N/A | TT | 2.6 - 2.9 | 2.7 | Various natural and man made sources |
| DISINFECTION BY-PRODUCTS AND PRECURSOR | | | | | | |
| Total Trihalomethanes (TTHMs) | ppb | N/A | 80 | 40.1- 62.9 | 52.7 (5) | By-product of drinking water chlorination |
| Total Haloacetic Acids (HAAs) | ppb | N/A | 60 | 36.1-56.9 | 45.9 (5) | By-product of drinking water chlorination |
| Total Organic Carbon (TOC) (6) | ppm | N/A | N/A | 2.6 - 2.9 | 2.7 | Various natural and man made sources |
| MICROBIOLOGICAL (MPWD) | | | | | | |
| Total Coliform (7) | - | (0) | ≤5.0% | - | 0 | Naturally present in the environment |
| Giardia lamblia | cyst/L | (0) | TT | ND - 0.07 | [0.07] | Naturally present in the environment |
| INORGANIC CHEMICALS | | | | | | |
| Fluoride (source water) (8) | ppm | 1 | 2.0 | ND - 0.8 | 0.3 (9) | Erosion of natural deposits |
| Chlorine (as chlorine) | ppm | MRDLG=40 | MRDL=4.0 | .06 - 2.7 | [2.0] | Drinking water disinfectant added for treatment |
| RADIONUCLIDES | | | | | | |
| Radium - 226 | pCi/L | 0.05 | N/A | ND - 1.2 | <1 | Erosion of natural deposits |
| CONSITUENTS WITH SECONDARY STANDARDS | | | | | | |
| | | PHG | SMCL | RANGE | AVERAGE | |
| Aluminum (10) | ppb | 600 | 200 | ND - 53 | <50 | Erosion of natural deposits |
| Chloride | ppm | N/A | 500 | 3 - 20 | 11 | Runoff / leaching from natural deposits |
| Color | unit | N/A | 15 | <5 - 9 | <5 | Naturally occurring organic materials |
| Specific Conductance | µS/cm | N/A | 1600 | 39 - 289 | 181 | Substances that form ions when in water |
| Sulfate | ppm | N/A | 500 | 1.3 - 36 | 18 | Runoff / leaching from natural deposits |
| Total Dissolved Solids | ppm | N/A | 1000 | 83 - 194 | 132 | Runoff / leaching from natural deposits |
| Turbidity | NTU | N/A | 5 | 0.06 - 0.35 | 0.16 | Soil runoff |
| LEAD AND COPPER | | | | | | |
| | | PHG | AL | RANGE | 90th PERCENTILE | |
| Copper | ppb | 300 | 1300 | 11.5 - 129.8 (11) | 76.7 | Corrosion of household plumbing systems |
| Lead | ppb | 0.2 | 15 | <1.0 - 9 (11) | 6.2 | Corrosion of household plumbing systems |
| OTHER WATER QUALITY PARAMETERS | | | | | | |
| | | RANGE | ORL | AVERAGE | | |
| Alkalinity (as CaCO3) | ppm | 10 - 84 | N/A | 49 | | |
| Calcium (as Ca) | ppm | 3 - 24 | N/A | 13 | | |
| Chlorate (12) | ppb | 36. - 488 | (800) NL | 89 | | |
| Hardness (as CaCO3) | ppm | 10 - 98 | N/A | 57 | | |
| Magnesium | ppm | <0.04 - 8.2 | N/A | 4.9 | | |
| pH | - | 6.7 - 9.7 | N/A | 8.6 | | |
| Sodium | ppm | 3 - 20 | N/A | 13.5 | | |

Key Water Quality Terms

Following are definitions of key terms noted on the adjacent water quality data table. These terms refer to the standards and goals for water quality described below.

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. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

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 the 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.

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.

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.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Regulatory Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Turbidity: A water clarity indicator that is also used to indicate the effectiveness of the filtration plants. High turbidity can hinder the effectiveness of disinfectants.

< / ≤ = less than / less than or equal to

AL = Action Level

Max = Maximum

Min = Minimum

N/A = Not Available

ND = Non-detect

NL = Notification Level

NTU = Nephelometric Turbidity Unit

ORL = Other Regulatory Level

ppb = parts per billion

ppm = parts per million

µS/cm = microSiemens/centimeter

K
E :
Y

2011 Water Quality Accomplishments

In the summer of 2011, the SFPUC began using ultraviolet (UV) light as an additional disinfection step for the Hetch Hetchy water supply. The new Tesla Treatment Facility uses state-of-the-art UV treatment equipment to provide advanced disinfection for the Hetch Hetchy supply in the Regional Water System which serves 2.5 million customers. The facility was built to comply with the USEPA regulation that requires an additional disinfectant by April 2012 to protect the water supply from the Cryptosporidium parasite. The facility can treat up to 315 million gallons of water per day – making it the largest UV drinking water treatment plant in California and the third largest in the U.S.

(2) Turbidity is measured every four hours. These are monthly average turbidity values.

(3) This is the highest turbidity of the unfiltered water served to customers in 2011. This turbidity spike was the result of flow rate change, and it was observed downstream at Alameda East.

(4) There is no turbidity MCL for filtered water. The limits are based on the TT requirements in the State drinking water regulations.

(5) This is the highest quarterly running annual average value.

(6) Total Organic Carbon is a precursor for disinfection by-product formation. The TT requirement applies to the filtered water from the SVWTP only. These are compliance data for SVWTP raw water.

(7) The Mid-Peninsula Water District had 0 positive samples in 2011

(8) The SFPUC adds fluoride to the naturally occurring level to help prevent dental caries in consumers. The CDPH requires our fluoride levels in the treated water to be maintained within a range of 0.8 ppm- 1.5 ppm. In 2011, the range and average of our fluoride levels were 0.6ppm - 1.3ppm and 1.0ppm, respectively.

(9) The naturally occurring fluoride levels in the Hetch Hetchy and SVWTP raw water were ND and 0.12 ppm, respectively. The HTWTP raw water had elevated fluoride levels of 0.6 ppm-0.8 ppm due to the continued supply of the fluoridated Hetch Hetchy and SVWTP treated water into the lower Crystal Springs Reservoir, which supplies water via the San Andreas Reservoir to the HTWTP for treatment.

(10) Aluminum also has an MCL of 1000 ppb

(11)The most recent Lead and Copper Rule monitoring was in 2009. 0 out of 33 water samples collected at consumer taps had lead concentrations above the action levels

(12) The detected chlorate in treated water is a degradation byproduct of sodium hypochlorite, the primary disinfectant used by SFPUC for water disinfection.

Note: Additional water quality data may be obtained by calling the Mid-Peninsula Water District phone number at (650) 591-8941.