



CITY OF REDWOOD CITY 2016 ANNUAL WATER QUALITY REPORT

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Tuolumne River — SFPUC Website

OUR DRINKING WATER SOURCES AND TREATMENT

Supplied by the San Francisco Regional Water System (SFRWS), which is owned and operated by the San Francisco Public Utilities Commission (SFPUC), our major water source originates from spring snowmelt flowing down the Tuolumne River to storage in the Hetch Hetchy Reservoir. This well protected Sierra water source is exempt from filtration requirements by the United States Environmental Protection Agency (USEPA) and State Water Resources Control Board's Division of Drinking Water (SWRCB-DDW). Water from the Hetch Hetchy reservoir receives the following treatments to meet appropriate drinking water standards: disinfection by ultraviolet light and chlorine, corrosion control by adjustment of the water pH value, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing disinfection byproduct formation.

Hetch Hetchy water is supplemented with surface water from two local watersheds. Rainfall and runoff from the 35,000 acre Alameda Watershed in Alameda and Santa Clara counties are collected in the Calaveras and San Antonio reservoirs, and delivered to the Sunol Valley Water Treatment Plant (SVWTP). Rainfall and runoff from the 23,000 acre Peninsula Watershed in San Mateo County are stored in the Crystal Springs, San Andreas and Pilarcitos reservoirs, and are delivered to the Harry Tracy Water Treatment Plant. In addition to these local sources, the SWRCB-DDW approved the SFPUC to use the surface water in Lake Eleanor, Lake Cherry and the associated creeks all conveyed via the Lower Cherry Aqueduct, Early Intake Reservoir and Tuolumne River (collectively known as Upcountry Non-Hetch Hetchy Sources, or UNHHS) as additional drinking water sources to the SFRWS. The UNHHS water, if used, will be treated at the SVWTP prior to service to customers. In 2016, the SFRWS did not use UNHHS. Water at the two local treatment plants is subject to filtration, disinfection, fluoridation, and pH adjustment for corrosion control optimization. Redwood City receives water from Hetch Hetchy reservoir and Alameda Watershed.

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

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.



LAWN BE GONE!

Save water by removing your grass! Redwood City residents and businesses are eligible to receive rebates of \$1 per square foot for replacing lawn with a beautiful, drought tolerant landscape.

How do I receive a rebate?

To receive the rebate, you must submit an application and receive a Notice to Proceed from your water provider before removing your lawn. Visit www.redwoodcity.org/conservation for more information and program requirements.



Get Paid to Transform Your Landscaping!

CONTAMINANTS AND REGULATIONS

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 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. 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.

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline 800-426-4791, or at www.epa.gov/safewater.

WATER QUALITY

The SFPUC's Water Quality Division (WQD) regularly collects and tests water samples from reservoirs and designated sampling points throughout the system to ensure the water delivered to you meets or exceeds federal and state drinking water standards. In 2016, WQD staff conducted more than 50,200 drinking water tests in the transmission and distribution systems. This is in addition to the extensive treatment process control monitoring performed by the SFPUC's certified operators and online instruments.

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 USEPA and SWRCB-DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health.



TO LEARN MORE

Additional water quality data may be obtained by contacting Justin Chapel at Redwood City Public Works Services (650) 780-7464.

Want to learn more about drinking water regulations? Visit the SWRCB Division of Drinking Water at www.swrcb.ca.gov/drinkingwater or the U.S. Environmental Protection Agency at www.epa.gov.

Water quality policies are decided at public hearings held at regularly scheduled City Council meetings. For more information visit www.redwoodcity.org.

Key Water Quality Terms

Following are definitions of key terms referring to water quality standards and goals noted on the adjacent data table.

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 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.

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 (SMCLs) are set to protect the odor, taste, and appearance of drinking water.

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.

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

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

Turbidity: A water clarity indicator that measures cloudiness of the water, and is also used to indicate the effectiveness of the filtration system. High turbidity can hinder the effectiveness of disinfectants.

Cryptosporidium is a parasitic microbe found in most surface water. The SFPUC regularly tests for this waterborne pathogen, and found it at very low levels in source water and treated water in 2015. However, current test methods approved by the USEPA do not distinguish between dead organisms and those capable of causing disease. Ingestion of *Cryptosporidium* 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.

KEY

< / ≤ = less than / less than or equal to **NL** = Notification level

AL = Action Level **NoP** = Number of Coliform-Positive Sample

Max = Maximum **NTU** = Nephelometric Turbidity Unit

Min = Minimum **ORL** = Other Regulatory level

N/A = Not Available **ppb** = part per billion

ND = Non-Detect **ppm** = part per million

µS/cm = microSiemens/ centimeter

City of Redwood City—Water Quality Data for Year 2016 ⁽¹⁾

| Detected Contaminants | Unit | MCL | PHG or (MCLG) | Range or Level Found | Average or [Max] | Major Sources in Drinking Water |
|--|-------------|---|---------------|---------------------------|------------------------|---|
| Turbidity | | | | | | |
| Unfiltered Hetch Hetchy Water | NTU | 5 | N/A | 0.3 - 0.5 ⁽²⁾ | [3.2] | Soil Runoff |
| Filtered Water from Sunol Valley Water Treatment Plant (SVWTP) | NTU - | 1 ⁽³⁾ Min 95% of samples ≤ 0.3 NTU ⁽³⁾ | N/A N/A | - 98% - 100% | [1] - | Soil Runoff Soil Runoff |
| Disinfection Byproducts and Precursors | | | | | | |
| Total Trihalomethanes | ppb | 80 | N/A | 43 - 75.8 | [63.1] ⁽⁴⁾ | Byproduct of drinking water disinfection |
| Haloacetic Acids | ppb | 60 | N/A | 23 - 81.7 | [55.3] ⁽⁴⁾ | Byproduct of drinking water disinfection |
| Total Organic Carbon ⁽⁵⁾ | ppm | TT | N/A | 1.6 - 5.3 | 2.1 | Various natural and man-made sources |
| Microbiological | | | | | | |
| Total Coliform | - | NoP ≤5.0% of monthly samples | (0) | - | [0%] | Naturally present in the environment |
| <i>Giardia lamblia</i> | Cyst/L | TT | (0) | 0 - 0.11 | 0.03 | Naturally present in the environment. |
| Inorganics | | | | | | |
| Fluoride (source water) ⁽⁶⁾ | ppm | 2.0 | 1 | ND - 0.8 | 0.3 ⁽⁷⁾ | Erosion of natural deposits; water additive to promote strong teeth |
| Chloramine (as chlorine) | ppm | MRDL=4.0 | MRDLG=4 | 0.01 - 2.9 | [2.44] ⁽⁸⁾ | Drinking water disinfectant added for treatment |
| Constituents with Secondary Standards | | | | | | |
| | Unit | SMCL | PHG | Range | Average | Major Sources of Contaminant |
| Aluminum ⁽⁹⁾ | Ppb | 200 | 600 | ND—55 | ND | Erosion of natural deposits; some surface water treatment residue |
| Chloride | ppm | 500 | N/A | <3 - 16 | 8.8 | Runoff / leaching from natural deposits |
| Color | unit | 15 | N/A | <5 –11 | <5 | Naturally-occurring organic materials |
| Specific Conductance | µS/cm | 1600 | N/A | 31 - 218 | 146 | Substances that form ions when in water |
| Sulfate | ppm | 500 | N/A | 1 - 30 | 16 | Runoff / leaching from natural deposits |
| Total Dissolved Solids | ppm | 1000 | N/A | <20 - 95 | 63 | Runoff / leaching from natural deposits |
| Turbidity | NTU | 5 | N/A | 0ND - 0.5 | 0.2 | Soil runoff |
| Lead and Copper | | | | | | |
| | Unit | AL | PHG | Range | 90th Percentile | Major Sources in Drinking Water |
| Copper | ppb | 1300 | 300 | < 1 - 107 ⁽¹⁰⁾ | 27.4 | Internal corrosion of household water plumbing systems |
| Lead | ppb | 15 | 0.2 | <1 - 6.9 ⁽¹¹⁾ | 3.8 | Internal corrosion of household water plumbing systems |

City of Redwood City—Water Quality Data for Year 2016

| Other Water Quality Parameters | Unit | ORL | Range | Average |
|------------------------------------|------|-----------|------------|---------|
| Alkalinity (as CaCO ₃) | ppm | N/A | 7 - 112 | 39 |
| Boron | ppb | 1000 (NL) | ND-123 | ND |
| Bromide | ppb | N/A | <5-19 | 8 |
| Calcium (as Ca) | ppm | N/A | 2 - 18 | 10 |
| Chlorate ⁽¹²⁾ | ppb | 800 (NL) | 47 - 250 | 143 |
| Hardness (as CaCO ₃) | ppm | N/A | 8 - 76 | 44 |
| Magnesium | ppm | N/A | 0.2 - 6 | 3.6 |
| pH | - | N/A | 8.2 - 9.8 | 9.4 |
| Phosphate (Ortho) | ppm | N/A | <0.03-0.11 | 0.04 |
| Potassium | ppm | N/A | 0.2 - 1 | 0.6 |
| Silica | ppm | N/A | 5.1 - 5.7 | 5.3 |
| Sodium | Ppm | N/A | 2.6 - 17 | 11 |
| Strontium | ppb | N/A | 13 - 204 | 13 |

Footnotes:

- (1) All results met State and Federal drinking water health standards.
- (2) These are monthly average turbidity values measured every 4 hours daily.
- (3) There is no turbidity MCL for filtered water. The limits are based on the TT requirements for filtration systems.
- (4) This is the highest locational running annual average value.
- (5) Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only.
- (6) In May 2015, the SWRCB recommended an optimal fluoride level of 0.7 ppm be maintained in the treated water. In 2016, the range and average of the fluoride levels were 0.5 ppm - 0.8 ppm and 0.6 ppm, respectively.
- (7) The natural fluoride levels in the upcountry sources were ND. Elevated fluoride levels in the SVWTP and HTWTP raw water are attributed to the transfer of fluoridated Hetch Hetchy water into the local reservoirs.
- (8) This is the highest running annual average value.
- (9) Aluminum also has a primary MCL of 1,000 ppb
- (10) The most recent Lead and Copper Rule monitoring was in 2015. 0 of 31 site samples collected at consumer taps had copper concentrations above the AL.
- (11) The most recent Lead and Copper Rule monitoring was in 2015. 0 of 31 site samples collected at consumer taps had lead concentrations above the AL.
- (12) The detected chlorate in the treated water is a degradation product of sodium hypochlorite used by the SFPUC for water disinfection.



WATER USE PROGRAM - "MYWATER"

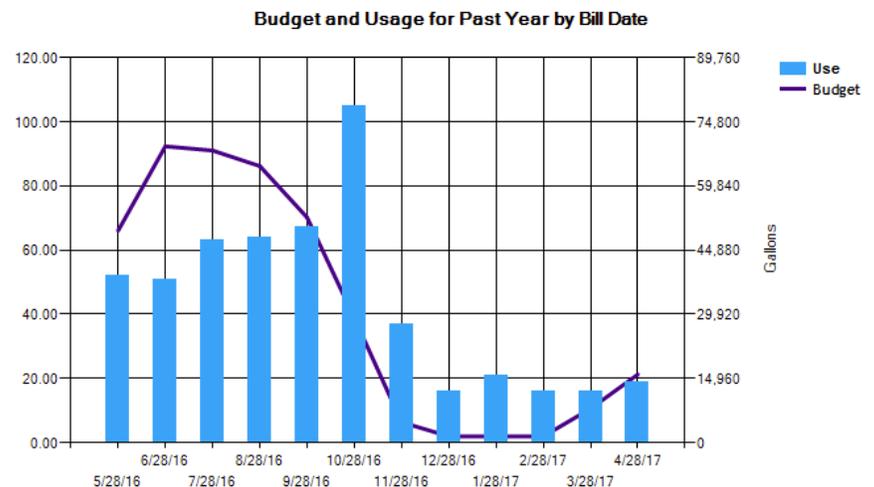
Conserving water can be a difficult task, but by using the tools in the MyWater Program, you will find it much easier. View water use compared to your water budget, sign up for leak alerts, water use reports and much more.

MyWater is a useful tool provided to you by Redwood City's Water Utility Services Division. MyWater allows you to view your water budget and consumption information on an hourly, daily, or monthly basis.

MyWater's purpose is to empower the customer through better customer service so that we may use water more wisely, and in turn, save money and help the environment.

MyWater allows you to:

- View hourly water use
- Sign up for leak alerts
- View water use reports
- View water use compared to a customized water budget





DRINKING WATER AND LEAD

SPECIAL HEALTH NEEDS

FLUORIDATION AND DENTAL FLUOROSIS

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. There are no known lead service lines in the SFRWS. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. It is possible that lead levels at your home may be higher than at others because of plumbing materials used in your property.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and young children are typically more vulnerable to lead in drinking water than the general population. You can minimize the potential for lead exposure, when your water has been sitting for several hours, by flushing your tap for 30 seconds to 2 minutes (or until the water temperature has changed) before using water for drinking or cooking. If you are concerned about lead levels in your water, you may wish to have your water tested. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the USEPA's Safe Drinking Water Hotline 800-426-4791, or at www.epa.gov/lead.

Some people may be more vulnerable to contaminants in drinking water than the general population.

Immuno-compromised persons, such as:

- * Those with cancer undergoing chemotherapy,
- * Persons who have undergone organ transplants,
- * People with HIV/AIDS or other immune system disorders
- * Some elderly people and infants,

can be particularly at risk from infections.

These people should seek advice about drinking water from their health care providers. USEPA and 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 USEPA's Safe Drinking Water Hotline 800-426-4791 or at www.epa.gov/safewater.

Mandated by State law, water fluoridation is a widely accepted practice proven to be safe and effective for preventing and controlling tooth decay. The SFPUC's fluoride target level in the water is 0.7 milligram per liter, consistent with the May 2015 State regulatory guidance on optimal fluoride level.

Infants fed formula mixed with water containing fluoride at this level may still have a chance of developing tiny white lines or streaks in their teeth. These marks are referred to as mild to very mild fluorosis, and are often only visible under a microscope. Even in cases where the marks are visible, they do not pose any health risk. The CDC considers it safe to use optimally fluoridated water for preparing infant formula.

To lessen this chance of dental fluorosis, you may choose to use low-fluoride bottled water to prepare infant formula. Nevertheless, children may still develop dental fluorosis due to fluoride intake from other sources such as food, toothpaste and dental products.

Contact your health provider or SWRCB-DDW if you have concerns about dental fluorosis. For additional information about fluoridation or oral health, visit the CDC website www.cdc.gov/fluoridation or SWRCB-DDW website www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml.

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