



# Annual Water Quality Report

## SFPUC Drinking Water Sources

The sources of drinking water (both tap water and bottled water) include rivers, lakes, oceans, streams, ponds, reservoirs, springs, and wells. For the San Francisco Regional Water System, the major water source 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 also 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.

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.

In 2012, the Hetch Hetchy Watershed provided the majority of the total water supply, with the remainder contributed by the local watersheds.

## Protecting Our Watersheds

The SFPUC actively protects the water resources entrusted to its care. It's annual update of Hetch Hetchy Watershed Sanitary Survey evaluates the sanitary conditions, water quality, potential contamination sources, and the results of watershed management activities with partner agencies (such as the National Park Service and US Forest Service). The SFPUC also conducts sanitary surveys every five years to detect and track sanitary concerns for the Bay Area watersheds and the approved standby water sources in Early Intake Watershed, which includes Cherry Lake and Lake Eleanor. The latest 5-year surveys were completed in 2011 for the period of 2006-2010. These surveys identified wildlife, live stock, and human activities as potential contamination sources. They are available for review at the CDPH San Francisco District office, **510-620-3474**.

## Toilet Rebates of up to \$100!

Do you have a toilet manufactured prior to 1992 which uses 3.5 gallons or more per flush? If so, through June 30th, 2014, the City will give you a rebate of up to \$100 when you replace that old water-wasting toilet! Please visit [www.redwoodcity.org/conservation](http://www.redwoodcity.org/conservation) and click on "Conserving Water at Home" for more information on this and other water and money-saving ideas.



## Water Quality: Contaminants and Regulations

SFPUC's Water Quality Division (WQD) 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 2012, WQD staff conducted more than 60,640 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.

# Water Quality Data for Year 2012

The attached table lists all 2012 detected drinking water contaminants and the information about their typical sources. Contaminants below detection limits are not shown, in accord with CDPH regulatory guidance. The CDPH allows the SFPUC to monitor for some contaminants less than once per year because their concentrations do not change frequently.

## City of Redwood City – Water Quality Data for Year 2012 <sup>(1)</sup>

DETECTED CONTAMINANTS	Unit	MCL	PHG or (MCLG)	Range or Level Found	Average or [Max]	Major Sources in Drinking Water
<b>TURBIDITY</b>						
Unfiltered Hetch Hetchy Water	NTU	5	N/A	0.2 - 0.5 <sup>(2)</sup>	[2.8] <sup>(3)</sup>	Soil run-off
Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	NTU	1 <sup>(4)</sup>	N/A	–	[0.26]	Soil run-off
	-	min 95% of samples ≤ 0.3 NTU <sup>(4)</sup>	N/A	100%	–	Soil run-off
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	NTU	1 <sup>(4)</sup>	N/A	–	[0.17]	Soil run-off
	-	min 95% of samples ≤ 0.3 NTU <sup>(4)</sup>	N/A	100%	–	Soil run-off
<b>DISINFECTION BYPRODUCTS AND PRECURSOR</b>						
Total Trihalomethanes	ppb	80	N/A	32.8 - 52.0	[47.7] <sup>(13)</sup>	Byproduct of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	21.0 - 43.2	[37.4] <sup>(13)</sup>	Byproduct of drinking water disinfection
Total Organic Carbon <sup>(6)</sup>	ppm	N/A	N/A	2.6 - 2.9	2.7	Various natural and man-made sources
<b>MICROBIOLOGICAL</b>						
Total Coliform	-	≤ 5	(0)	-	[0]	Naturally present in the environment
Giardia lamblia	cyst/L	TT	(0)	<0.01 - 0.06	<0.01	Naturally present in the environment
<b>INORGANIC CHEMICALS</b>						
Fluoride (source water) <sup>(7)</sup>	ppm	2.0	1	ND - 0.8	0.3 <sup>(8)</sup>	Erosion of natural deposits
Chloramine (as chlorine)	ppm	MRDL = 4.0	MRDLG = 4	1.0 - 3.0	[2.39] <sup>(5)</sup>	Drinking water disinfectant added for treatment
<b>CONSTITUENTS WITH SECONDARY STANDARDS</b>						
Aluminum <sup>(9)</sup>	ppb	200	600	ND - 90	ND	Erosion of natural deposits / some water treatment residue
Chloride	ppm	500	N/A	2 - 20	11	Runoff / leaching from natural deposits
Color	unit	15	N/A	<5 - 7	<5	Naturally-occurring organic materials
Specific Conductance	µS/cm	1600	N/A	31 - 344	202	Substances that form ions when in water
Sulfate	ppm	500	N/A	0.9 - 40	20	Runoff / leaching from natural deposits
Total Dissolved Solids	ppm	1000	N/A	<20 - 195	108	Runoff / leaching from natural deposits
Turbidity	NTU	5	N/A	0.1 - 0.2	0.1	Soil runoff
<b>LEAD AND COPPER</b>						
Copper	ppb	1300	300	17.3 - 75.2 <sup>(10)</sup>	46.5	Corrosion of household plumbing systems
Lead	ppb	15	0.2	<1 - 16 <sup>(11)</sup>	2.5	Corrosion of household plumbing systems

OTHER WATER QUALITY PARAMETERS	Unit	ORL	Range	Average
Alkalinity (as CaCO <sub>3</sub> )	ppm	N/A	10 - 111	61
Bromide	ppb	N/A	<10 - 24	<10
Calcium (as Ca)	ppm	N/A	3 - 28	15
Chlorate <sup>(12)</sup>	ppb	(800) NL	53 - 399	221
Hardness (as CaCO <sub>3</sub> )	ppm	N/A	8 - 114	62
Magnesium	ppm	N/A	0.2 - 10.8	6.1
pH	-	N/A	6.7 - 9.7	8.5
Silica	ppm	N/A	3.2 - 5.3	4.1
Sodium	ppm	N/A	3 - 25	15.7

**KEY**  
 < / ≤ = less than / less than or equal to  
 AL = Action Level  
 Max = Maximum  
 Min = Minimum  
 N/A = Not Available  
 N/D = 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

- (1) All results met State and Federal drinking water health standards.
- (2) Turbidity is measured every four hours. These are monthly average turbidity values.
- (3) The highest turbidity of the unfiltered water in 2012 was 2.9 NTU but the water was not served to customers. The brief turbidity spike indicated in the table was not observed upstream in San Joaquin Pipelines.
- (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 byproduct formation. The TT requirement applies to the filtered water from the SVWTP only. These are compliance data for SVWTP raw water.
- (7) 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 2012, the range and average of our fluoride levels were 0.4 ppm - 1.3 ppm and 1.0 ppm, respectively.
- (8) 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 & SVWTP treated water into the Lower Crystal Springs Reservoir, which supplies water via the San Andreas Reservoir to the HTWTP for treatment.
- (9) Aluminum also has a primary MCL of 1000 ppb.
- (10) The most recent Lead and Copper Rule monitoring was in 2012. 0 of 35 water samples collected at consumer taps had copper concentrations above the Action Level.
- (11) The most recent Lead and Copper Rule monitoring was in 2012. 1 of 35 water samples collected at consumer taps had lead concentrations above the Action Level.
- (12) The detected chlorate in treated water is a degradation byproduct of sodium hypochlorite, the primary disinfectant used by SFPUC for water disinfection.
- (13) This is the highest locational running annual average value.

*Note: Additional water quality data may be obtained by calling the City of Redwood City at (650) 780-7464.*

## Emerging Contaminant Monitoring

Unregulated microorganisms and synthetic or naturally-occurring chemicals that are not commonly monitored by the water utilities are termed contaminants of emerging concern (CEC). More than 100,000 chemicals are registered in the US. New chemicals are registered and new microorganisms are identified everyday. Some of these contaminants can be detected at extremely low levels in the environment by ever-improving laboratory methods. The health significance of these trace contaminants is typically unknown. The SFPUC Water Quality Division (WQD) has been proactive in addressing CEC through participation in national research projects and conducting independent monitoring of our source waters. To help focus the resources, WQD developed its own approach to organize and prioritize work on the CECs in drinking water and enhance public engagement in CEC issues. Evaluation is conducted every three years and reviewed by the San Francisco Department of Public Health, SFPUC Citizens' Advisory Committee and the Commission. By virtue of its pristine drinking water sources, the SFPUC water has not been vulnerable to many CECs that may concern other water suppliers; e.g., pesticides and pharmaceutical products. Periodic review will allow WQD to adjust priorities based on new information and conditions; e.g., new information on the health significance, occurrence and treatment of CECs. See the link below for SFPUC's CEC approach.

<http://sfwater.org/modules/showdocument.aspx?documentid=1691>

## To Learn More

Want to learn more about drinking water regulations? Visit the California Department of Health Services at [www.cdph.ca.gov](http://www.cdph.ca.gov) or the U.S. Environmental Protection Agency at [www.epa.gov](http://www.epa.gov).

Additional water quality data may be obtained by calling the City of Redwood City Water Utility Services Division at (650) 780-7464.

## 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.

### 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.

### Treatment Technique (TT):

A required process intended to reduce the level of a contaminant in drinking water.

### 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.

### Regulatory Action Level:

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

*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 2012. 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.

## Reducing Lead from Plumbing Fixtures

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. 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 levels in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline **800-426-4791**, or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## 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 guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline **800-426-4791** or at [www.epa.gov/safewater](http://www.epa.gov/safewater).



### “Water – Use it Wisely”

For more information about the contents of this report, contact **Justin Chapel at (650) 780-7464** or visit us online at [www.redwoodcity.org/waterquality](http://www.redwoodcity.org/waterquality).

Water quality policies are decided at public hearings held at regularly scheduled City Council meetings. For more information visit [www.redwoodcity.org](http://www.redwoodcity.org)

This state-mandated annual report contains important information on the quality of your drinking water.

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

## 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.

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