



FROM OUR SYSTEM TO YOURS

2016 ANNUAL WATER QUALITY REPORT

San Francisco Public Utilities Commission

Every day we deliver high-quality drinking water from the Hetch Hetchy Regional Water System to 2.6 million people in San Francisco, Alameda, Santa Clara and San Mateo counties.

We generate clean, reliable hydroelectricity that powers 100% of San Francisco's vital services, including police and fire stations, street lights, MUNI, SF General Hospital and more.



For more information about this report, contact Michele Liapes at **415-554-3211** or email **Mliapes@sfgwater.org**.

Water quality policies are decided at Commission hearings, held the second and fourth Tuesdays of each month at 1:30 pm in San Francisco City Hall, Room 400.

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San Francisco Regional Water System - Water Quality Data for 2016

The table below lists all 2016 detected drinking water contaminants and the information about their typical sources. Contaminants below detection limits for reporting are not shown, in accord with regulatory guidance. We hold a SWRCB-DDW monitoring waiver for some contaminants and therefore their monitoring frequencies are less than annual.

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 ⁽¹⁾	[3.2]	Soil runoff
Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	NTU	1 ⁽²⁾	N/A	-	[1]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU ⁽²⁾	N/A	98% - 100%	-	Soil runoff
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	NTU	1 ⁽²⁾	N/A	-	[0.06]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU ⁽²⁾	N/A	100%	-	Soil runoff
DISINFECTION BYPRODUCTS AND PRECURSOR						
Total Trihalomethanes	ppb	80	N/A	12 - 67	[58] ⁽³⁾	Byproduct of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	4 - 48	[39] ⁽³⁾	Byproduct of drinking water disinfection
Total Organic Carbon ⁽⁴⁾	ppm	TT	N/A	1.6 - 5.3	2.4	Various natural and man-made sources
MICROBIOLOGICAL						
Total Coliform	-	NoP ≤5.0% of monthly samples	(0)	-	[0.6%]	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) ⁽⁵⁾	ppm	2.0	1	ND - 0.8	0.3 ⁽⁶⁾	Erosion of natural deposits; water additive to promote strong teeth
Chloramine (as chlorine)	ppm	MRDL = 4.0	MRDLG = 4	0.3 - 3.2	[2.4] ⁽⁷⁾	Drinking water disinfectant added for treatment
CONSTITUENTS WITH SECONDARY STANDARDS	UNIT	SMCL	PHG	RANGE	AVERAGE	MAJOR SOURCES OF CONTAMINANT
Aluminum ⁽⁸⁾	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	ND - 0.5	0.2	Soil runoff
LEAD AND COPPER ⁽⁹⁾	UNIT	AL	PHG	RANGE	90 TH PERCENTILE	MAJOR SOURCES IN DRINKING WATER
Copper	ppb	1300	300	<1 - 265	77	Internal corrosion of household water plumbing systems
Lead	ppb	15	0.2	<1 - 41.3	3.1	Internal corrosion of household water plumbing systems
OTHER WATER QUALITY PARAMETERS	UNIT	ORL	RANGE	AVERAGE	KEY	
Alkalinity (as CaCO ₃)	ppm	N/A	7 - 112	39	< / ≤ AL Max Min N/A ND NL NoP NTU ORL ppb ppm µS/cm	= less than / less than or equal to = Action Level = Maximum = Minimum = Not Available = Non-Detect = Notification Level = Number of Coliform-Positive Sample = Nephelometric Turbidity Unit = Other Regulatory Level = part per billion = part per million = microSiemens / centimeter
Boron	ppb	1000 (NL)	ND-123	ND		
Bromide	ppb	N/A	<5 - 19	8		
Calcium (as Ca)	ppm	N/A	2 - 18	10		
Chlorate ⁽¹⁰⁾	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	95		

FOOTNOTES: (1) These are monthly average turbidity values measured every 4 hours daily. (2) There is no turbidity MCL for filtered water. The limits are based on the TT requirements for filtration systems. (3) This is the highest locational running annual average value. (4) Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only. (5) 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. (6) The natural fluoride level in the Hetch Hetchy source was 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. (7) This is the highest running annual average value. (8) Aluminum also has a primary MCL of 1,000 ppb. (9) The most recent Lead and Copper Rule monitoring was in August 2015. One of the 26 site samples collected at consumer taps had lead concentration above the AL. (10) The detected chlorate in the treated water is a degradation product of sodium hypochlorite, which we use for water disinfection. **Note:** The different water sources blended at different ratios throughout the year have resulted in varying water quality. Additional water quality data may be obtained by calling our Water Quality Division toll-free number at (877) 737-8297.

Key Water Quality Terms

Following are definitions of key terms referring to standards and goals of water quality 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. We regularly test for this waterborne pathogen, and found it at very low levels in source water and treated water in 2016. 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.

This 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.
Mahalaga ang impormasyong ito. Mangyaring ipasalin ito.
این اطلاعیه شامل اطلاعات مهمی را جمع به آب آشامیدنی است. اگر نمیتوانید این اطلاعات را بزبان انگلیسی بخوانید لطفاً از کسی که میتواند یاری بگیرد تا مطالب را برای شما به فارسی ترجمه کند.
Cé rapport contient des information importantes concernant votre eau potable. Veuillez traduire, ou parlez avec quelqu' un qui peut le comprendre.
”هذا التقرير يحتوي على معلوما ت مهمّة تتعلق بمياه الشفة (أو الشرب). ترجم التقرير , أو تكلم مع شخص يستطيع أن يفهم التقرير.“
Этот отчет содержит важную информацию о вашей питьевой воды. Переведите его или поговорите с тем, кто это понимает.
הדו"ח הזה מכיל מידע חשוב לגבי מי השתייה שלך תרגם את הדו"ח או דבר עם מישהו שמבין אותו
此份水質報告, 內有重要資訊。請找他人為你翻譯和解說清楚。
Chi tiết này thật quan trọng. Xin nhờ người dịch cho quý vị.
Dieser Bericht enthält wichtige Information über Ihr Trinkwasser. Bitte übersetzen Sie ihn oder sprechen Sie mit jemandem, der ihn versteht.
Questo rapporto contiene informazioni importanti che riguardano la vostra acqua potabile. Traducetelo, o parlate con una persona qualificata in grado di spiegarvelo.
この報告書には上水道に関する重要な情報が記されています。翻訳を御依頼なされるか、内容をご理解なさっておられる方にお尋ね下さい。
यह सूचना महत्वपूर्ण है । कृपा करके किसी से :सका अनुवाद करायें ।
이 안내는 매우 중요합니다. 본인을 위해 번역인을 사용하십시오.

Η κατοθεν αναφορα παρουσιαζηι σπουδαιες πληροφορειες για το ποσιμο νερο σας. Πρακακλω να το μεταφρασετε η να το σζολιασετε με καποιον που το καταλαβρινη απολτηωζ.

Our Drinking Water Sources and Treatment

For our system, the major water source originates from spring snowmelt flowing down the Tuolumne River to storage in the Hetch Hetchy Reservoir. Our 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.

The 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 our use of Upcountry Non-Hetch Hetchy Sources (UNHHS), which consist of surface water in Lake Eleanor, Lake Cherry and the associated creeks all conveyed via the Lower Cherry Aqueduct, Early Intake Reservoir and Tuolumne River as additional drinking water sources. The UNHHS water, if used, will be treated at the SVWTP prior to service to customers. Water at the two local treatment plants is subject to filtration, disinfection, fluoridation, and pH adjustment for corrosion control optimization. In 2016, we did not use the UNHHS.

Water Quality

We regularly collect and test 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, we conducted more than 50,270 drinking water tests in the transmission and distribution systems. This is in addition to the extensive treatment process control monitoring performed by our 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.



Protecting Our Watersheds

We conduct watershed sanitary surveys for the Hetch Hetchy source annually and local water sources every five years. The last local sanitary survey was done in 2016. We conducted a special watershed sanitary survey for the UNHHS in 2015 as part of our drought response plan efforts. These surveys evaluate the sanitary condition, water quality, potential contamination sources and the results of watershed management activities, and were completed with support from partner agencies including National Park Service and US Forest Service.

These surveys identified wildlife, stock, and human activities as potential contamination sources. Contact the San Francisco District Office of SWRCB-DDW at 510-620-3474 for review of these reports.

Special Health Needs

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 healthcare 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 USEPA’s Safe Drinking Water Hotline 800-426-4791 or at www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline.

Fluoridation and Dental Fluorosis

Mandated by State law, water fluoridation is a widely accepted practice proven to be safe and effective for preventing and controlling tooth decay. Our 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 healthcare provider or SWRCB-DDW if you have concerns about dental fluorosis. For additional information about fluoridation or oral health, visit the SWRCB-DDW website www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml, or the CDC website www.cdc.gov/fluoridation.

Contaminants and Regulations

The sources of drinking water (both tap water and bottled water) include rivers, lakes, oceans, 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. Such substances are called contaminants, and may be present in source water as:

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, which 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, which 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.



Drinking Water and Lead

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 our water distribution system. 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.

