

For More Information

WATER QUALITY

- City of Palo Alto Utilities, Water Transmission (650) 496-6967
- City of Palo Alto www.cityofpaloalto.org/utilities
- San Francisco Public Utilities Commission (SFPUC) www.sfwater.org
- U.S. Environmental Protection Agency (U.S. EPA) Drinking Water www.epa.gov/safewater
- U.S. EPA Safe Drinking Water Hotline (800) 426-4791

HEALTH CONCERNS & REGULATIONS

- California Department of Public Health (CDPH) www.cdph.ca.gov
- U.S. EPA www.epa.gov

EMERGENCY PREPAREDNESS

- California Department of Public Health <http://bepreparedcalifornia.ca.gov>

Water Quality

ANNUAL REPORT 2010



WE ARE PROUD to provide you with some of the nation's highest quality water that meets or exceeds all state and federal standards for drinking water.

THIS BROCHURE HIGHLIGHTS important information about your drinking water and our commitment to providing excellence in water quality.

THE STATE OF CALIFORNIA mandates that we send an Annual Water Quality Report to you and this report is prepared according to Safe Drinking Water Act requirements.

Tap Versus Bottled?

City of Palo Alto Utilities (CPAU) customers are fortunate to have access to high quality water flowing from the faucet - the pristine snowmelt from the Hetch Hetchy reservoir. **Avoid the high cost, lower quality and environmental impact of buying bottled water, and enjoy a glass of tap water today!**

Where Our Water Comes From

Over 80% of the water we purchased in 2010 from the San Francisco Public Utilities Commission (SFPUC) came from high Sierra snowmelt in Yosemite National Park. The remaining SFPUC regional water system supply comes from local watersheds in Alameda and Santa Clara counties.

Our Drinking Water Sources

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. For the regional water system operated by the SFPUC, the major water source originates from

spring snowmelt flowing down the Tuolumne River to the Hetch Hetchy Reservoir, where it is stored. This pristine water source is located in the well-protected Sierra region and meets all federal and state criteria for watershed protection. Based on the SFPUC's disinfection treatment practice, extensive bacteriological-quality monitoring and high operational standards, the State has granted the Hetch Hetchy water source a filtration exemption. **In other words, the source is so clean and protected that the SFPUC is not required to filter water from the Hetch Hetchy Reservoir.**

The Hetch Hetchy water is supplemented with surface water collected from two local watersheds. Rainfall and runoff collected from the Alameda Watershed, which spans more than 35,000 acres in Alameda and Santa Clara Counties, are captured in Calaveras and San Antonio Reservoirs. Prior to distribution, the water from these two reservoirs is treated at the Sunol Valley Water Treatment Plant (SVWTP). Treatment processes include coagulation, flocculation, sedimentation, filtration and disinfection. Fluoridation, chloramination and corrosion control treatments are provided for the combined Hetch Hetchy and SVWTP water at the Sunol Chloramination and Fluoridation Facilities.

Rainfall and runoff captured in the 23,000-acre Peninsula Watershed, located in San Mateo

County, are stored in four reservoirs: Crystal Springs (Lower and Upper), San Andreas, Pilarcitos and Stone Dam. The water from these reservoirs is treated at the Harry Tracy Water Treatment Plant (HTWTP). Treatment processes include ozonation, coagulation, flocculation, filtration, disinfection, fluoridation, chloramination and corrosion control treatment.

Protecting Our Watershed

The SFPUC actively and aggressively protects the natural water resources entrusted to its care. Its annual Hetch Hetchy Watershed survey evaluates the sanitary conditions, water quality, potential contamination sources, and the results of watershed management activities by the SFPUC and its partner agencies, including the National Park Service, to reduce or eliminate contamination sources. The SFPUC also conducts sanitary surveys of the local Alameda and Peninsula watersheds every five years. These surveys identified wildlife and human activity as potential contamination sources. The reports are available for review at the CDPH's San Francisco District office (510) 620-3474.



Ensuring the Highest Water Quality

The SFPUC Water Quality Division regularly collects and tests water samples from reservoirs and designated sampling points throughout the system to ensure that the SFPUC's water meets or exceeds federal and state drinking water standards. In 2010, Water Quality staff conducted 58,750 drinking water tests in the transmission and distribution systems. This monitoring effort is in addition to the extensive treatment process control monitoring performed by its certified and knowledgeable treatment plant staff and online instruments.

As water travels over the surface of the land or through the ground, it will dissolve 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 contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

Contaminants that may be present in source water include:

MICROBIAL CONTAMINANTS, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

INORGANIC CONTAMINANTS, such as salts and metals, 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 may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.

CHEMICAL CONTAMINANTS—ORGANIC, including synthetic and volatile organic chemicals, are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application and septic systems.

RADIOACTIVE CONTAMINANTS can be naturally occurring or be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the 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 must provide the same protection for public health. More information on contaminants and potential health effects can be obtained by calling the U.S. EPA Safe Drinking Water Hotline at (800) 426-4791.



Protecting the SFPUC Water System from Seismic Disaster

More than \$4 billion is being invested in seismic-related water infrastructure repairs, replacements or retrofits to protect the SFPUC's regional water system in the event of an earthquake. **The SFPUC and CPAU are making this investment in the Water System Improvement Program (WSIP) to ensure that the regional water system will be able to deliver water for public health, fighting fires and disaster recovery as quickly as possible following a seismic event.** To date, over half of the 84 water infrastructure projects are in preconstruction or have been completed.

The U.S. Geological Survey has commended the SFPUC and its regional partners for taking the initiative to address the seismic threats in the region with this massive water infrastructure program. However, despite these significant efforts to safeguard the Hetch Hetchy regional system from an earthquake, there is a chance that up to 30% of the regional turnouts that supply water to your service area could be without service for up to one month. There is no way to predict where the next earthquake might strike or what areas could be impacted.

Palo Alto Emergency Water Supply Project Update

In 1997, the California Department of Public Health (CDPH) directed all local water systems to evaluate their storage capacities and plans for ensuring water supply needs in both normal and emergency operations. **In 1999, the City Council approved a plan for protecting Palo Alto's water supply through a series of capital projects in three phases:**

1) Rebuild existing water pump stations to improve water quality and increase water flow to and from existing foothill reservoirs, 2) rehabilitate up to five existing wells and construct three new wells to provide reliable water supply in the event of a service disruption from the SFPUC regional water system and 3) upgrade the Mayfield pumping station to allow increased water delivery to the City's urban areas.

In addition to the projects outlined above, 92% of voters supported the recommendation to construct a 2.5 million-gallon underground reservoir in El Camino Park, in the November 6, 2007 advisory ballot measure, to ensure continuous supply during a brief emergency. An easement for the land at El Camino Park was approved on January 12, 2009. Estimated completion of the Emergency Water Supply Project is 2012.

For more information, please visit: www.cityofpaloalto.org/emergencywater

Prepare Yourself for Emergencies

Recent earthquakes in the news are fitting reminders to prepare ourselves with emergency provisions.

Although the SFPUC and CPAU strive to ensure a reliable supply of water for our customers, a natural disaster such as a major earthquake could interrupt water delivery. **As a result, it is imperative that everyone be prepared for the unexpected both in your homes and place of business.**

- Store tap water in a dark, cool place — at least three to five days worth of water (one gallon of water per person, per day, including pets) in clean, plastic, airtight food grade containers, such as two-liter soda bottles.
- Label each container with a date, and replace the water every six months.
- At the time of usage, add 16 drops of bleach to each gallon to ensure disinfection. (Use pure household bleach only—not products with scents or other additives.) Mix and allow to stand for 30 minutes before use. If a camp stove is available, you can also disinfect the water by bringing to a rolling boil for 5 to 10 minutes.

- If you run out of stored drinking water, strain and treat water from your water heater. To strain, pour it through a clean cloth or layers of paper towels. Treat with household bleach, as directed above. Other sources of water inside the home are ice cubes, and the reservoir tank of your toilet (not the bowl).
- If your water supply is not sufficient for hand washing, use antiseptic hand gel or wipes.

Palo Alto Infrastructure Improvements

CPAU began implementing a long term infrastructure replacement plan for aging pipes, after studies indicated that much of the water distribution and supply system was deteriorating. Nearly 75 miles of aging cast iron water mains were identified as needing



replacement in order to increase the reliability of the local system, improve water quality and increase fire protection capacity.

Since 1993, CPAU has made steady progress and should complete its small-diameter cast iron pipe replacement work in 2018, based on its current replacement rate of nearly 3 miles per year.

Recycled Water Pipeline

The City has used recycled water since 1980 at the municipal golf course, Greer Park, the Emily Renzel Marsh, the duck pond and the Regional Water Quality Control Plant. The City is evaluating expanding the distribution system for recycled water to customers in Palo Alto. The target area for the project being evaluated is primarily irrigation in the Stanford Research Park area and City parks along a proposed pipeline route. Funding from state and federal grant and loan programs is being pursued to reduce the City's cost.

Reducing Lead from Plumbing Fixtures

Some homes in the community may have increased levels of lead in their tap water caused by the deterioration of household plumbing materials that contain lead. CPAU provides high-quality drinking water, but cannot control the variety of materials associated with your home plumbing. Pregnant women, infants and young children are typically at the greatest health risk. If you are concerned about lead levels in your water, you may wish to have your water tested. Or you can flush

your tap for 30 seconds to 2 minutes before using the water whenever the tap has not been used for several hours. 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

Cryptosporidium

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 U.S. EPA do not distinguish between dead organisms and those capable of causing disease. If ingested, live parasites may produce symptoms of nausea, stomach cramps, diarrhea and associated headaches.

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.** U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available by calling:

Safe Drinking Water Hotline (800) 426-4791

Or visiting: www.epa.gov/safewater

Este reporte contiene información muy importante acerca del agua que usted toma. Si necesita ayuda en español, por favor llame al teléfono (650) 496-6967.

For more information about the contents of this report, contact John Reinert at (650) 496-6967 or visit us online at www.cityofpaloalto.org/utilities

Individuals with disabilities who require accommodations to access City facilities, services or programs, or who would like information on the City's compliance with the Americans with Disabilities Act (ADA) of 1990, may contact the City's ADA Coordinator at (650) 329-2550 (voice) or e-mail ada@cityofpaloalto.org

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DETECTED CONTAMINANTS	UNIT	MCL	PHG OR [MCLG]	RANGE OR LEVEL FOUND	AVERAGE OR [MAX]	TYPICAL SOURCES IN DRINKING WATER
TURBIDITY⁽²⁾						
For Filtered Water from Sunol Valley WTP	NTU	1 ⁽⁵⁾	N/A	-	[0.54]	Soil runoff
	-	min 95% of samples	N/A	7.6% - 100%	-	Soil runoff
For Filtered Water from Harry Tracy WTP	NTU	1 ⁽⁵⁾	N/A	-	[0.19]	Soil runoff
	-	min 95% of samples	N/A	100%	-	Soil runoff
For Unfiltered Hetch Hetchy Water	NTU	5	N/A	0.2 - 0.6 ⁽³⁾	[4.9] ⁽⁴⁾	Soil runoff
DISINFECTION BYPRODUCTS AND PRECURSOR (SFPUC Regional System) - For Information Only						
Total Trihalomethanes	ppb	80	N/A	14 - 92	[40] ⁽⁶⁾	Byproduct of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	7 - 55	[25] ⁽⁶⁾	Byproduct of drinking water disinfection
Total Organic Carbon ⁽⁷⁾	ppm	TT	N/A	2.4 - 3.2	2.7	Various natural and man-made sources
DISINFECTION BYPRODUCTS AND PRECURSOR						
Total Trihalomethanes	ppb	80	N/A	5 - 52	[41.4] ⁽⁶⁾	Byproduct of drinking water disinfection
Haloacetic Acids	ppb	60	N/A	18 - 40	[28.4] ⁽⁶⁾	Byproduct of drinking water disinfection
Total Organic Carbon ⁽⁷⁾	ppm	N/A	N/A	N/A	N/A	Various natural and man-made sources
MICROBIOLOGICAL						
Total Coliform	-	≤5.0% of monthly samples	[0]	-	[1% avg; 7% July] ⁽¹²⁾	Naturally present in the environment
<i>Giardia lamblia</i>	cyst/L	TT	[0]	ND - 0.06	[0.0]	Naturally present in the environment
INORGANIC CHEMICALS						
Fluoride (source water) ⁽⁸⁾	ppm	2.0	1	< 0.1 - 0.8	0.3 ⁽⁹⁾	Erosion of natural deposits
Chlorine (including free chlorine and chloramine)	ppm	MRDL = 4.0	MRDLG = 4	0.43 - 2.46	2.07	Drinking water disinfectant added for treatment
CONSTITUENTS WITH SECONDARY STANDARDS						
Chloride	ppm	500	N/A	3 - 16	9.5	Runoff / leaching from natural deposits
Color	unit	15	N/A	<5 - 6	<5	Naturally-occurring organic materials
Specific Conductance	µS/cm	1600	N/A	33 - 316	179	Substances that form ions when in water
Sulfate	ppm	500	N/A	1.6 - 38.7	18.2	Runoff / leaching from natural deposits
Total Dissolved Solids	ppm	1000	N/A	27 - 174	95	Runoff / leaching from natural deposits
Turbidity	NTU	5	N/A	0.08 - 0.33	0.16	Soil runoff
LEAD AND COPPER						
Copper	ppb	1300	300	N/A ⁽¹⁰⁾	N/A	Corrosion of household plumbing systems
Lead	ppb	15	0.2	N/A ⁽¹⁰⁾	N/A	Corrosion of household plumbing systems
OTHER WATER QUALITY PARAMETERS						
Alkalinity (as CaCO ₃)	ppm	N/A	8 - 98	49		
Bromide	ppb	N/A	<10 - 17	<10		
Calcium (as Ca)	ppm	N/A	2 - 26	12		
Chlorate ⁽¹¹⁾	ppb	(800) NL	92 - 357	150		
Hardness (as CaCO ₃)	ppm	N/A	8 - 104	53		
Magnesium	ppm	N/A	0.3 - 9	4.6		
pH	-	N/A	8.2 - 8.7	8.5		
Potassium	ppm	N/A	0.34 - 1.2	0.6		
Silica	ppm	N/A	4.1 - 7.6	5.7		
Sodium	ppm	N/A	3 - 22	13		

KEY

< / ≤ = 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

TT = Treatment Technique

- All results met State and Federal drinking water health standards with the exception of an excessive percent of coliform samples in the limited area near the 600 block of Arastradero Road in July 2010. The City worked closely with State Regulators to implement, record and report corrective measures to ensure all water quality standards were met.
- Turbidity is a water clarity indicator; it also indicates the effectiveness of the filtration plants.
- Turbidity is measured every four hours. These are monthly average turbidity values.
- This is the highest turbidity of the unfiltered water served to customers in 2010. The switch of San Joaquin Pipelines and rate change caused elevated turbidities as a result of sediment resuspension in the pipelines. The turbidity spike was not observed further downstream at Alameda East.
- There is no MCL for turbidity. The limits are based on the TT requirements in the State drinking water regulations.
- This is the highest quarterly running annual average value.
- Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SWWTP only.
- 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 - 1.5 ppm. In 2010, the range and average of our fluoride levels were 0.6 ppm - 1.5 ppm and 1.0 ppm, respectively.
- The naturally occurring fluoride levels in the Hetch Hetchy and SWWTP raw water are ND and 0.15 ppm, respectively. The HTWTP raw water had elevated fluoride levels of 0.7 ppm - 0.9 ppm due to the continued supply of the fluoridated Hetch Hetchy & SWWTP treated water into the Lower Crystal Springs Reservoir, which supplies water via the San Andreas Reservoir to the HTWTP for treatment.
- Palo Alto's previous lead and copper testing results were found to be sufficiently below Action Levels that the California Department of Public Health issued a waiver of further testing until 2011.
- There were no chlorate detected in the raw water sources except the Crystal Springs and San Andreas reservoirs, where the detected chlorate were 81 ppb and 57 ppb, respectively. The chlorate levels in both reservoirs are due to the transfer of the disinfected Hetch Hetchy water and SWWTP effluent into the Crystal Springs Reservoir. The detected chlorate in treated water is a byproduct of the degradation of sodium hypochlorite, the primary disinfectant used by SFPUC for water disinfection.
- Coliform bacteria are naturally present in the environment and indicate that other, potentially-harmful bacteria may be present. Coliforms were found in more samples than allowed during July, 2010. The City worked closely with the SFPUC to correct the situation and restore acceptable coliform levels.

Note: Additional water quality data may be obtained by calling City of Palo Alto Utilities staff at (650) 496-6967.

The adjacent table lists all drinking water contaminants detected in 2010. Contaminants below detection limits, such as arsenic, perchlorate, MTBE and others, are not listed. In 2010, the SFPUC completed four quarters of monitoring of 25 contaminants as required under the U.S. EPA second Unregulated Contaminant Monitoring Regulation. None of the 25 contaminants were detected in the water supplied to you. The list of the 25 contaminants is available at U.S. EPA website:

water.epa.gov/drink/contaminants/#List

The table contains the name of each contaminant, the applicable drinking water standards or regulatory action levels, the ideal goals for public health, the amount detected in water, the typical contaminant sources, and footnotes explaining the findings. The State allows the SFPUC to monitor for some contaminants less than once per year because their concentrations do not change. For certain other contaminants that were absent in the water based on many years of monitoring, the SFPUC received a monitoring waiver from the State.

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 U.S. EPA.

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 (see definitions above) 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 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.

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.

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.



MAKE USING WATER WISELY YOUR WAY OF LIFE

Although 2011 so far has had above-average rainfall and snowpack in the mountains, there are still a number of long-term issues that will continue to affect water supply in many areas of the state. The simple reality is that in order to have a sufficient future supply of water, everyone in California has to make wise water use a priority.

Fortunately there are many easy ways to cut water use and still maintain a comfortable home and beautiful garden. Let us help you discover which methods make the most sense for you.

WATER EFFICIENCY AND REBATE PROGRAMS

City of Palo Alto Utilities
Utility Marketing Services
(650) 329-2241
www.cityofpaloalto.org/resiwater



GET INVOLVED

We welcome your input on important water issues. Visit www.cityofpaloalto.org for details about upcoming public meetings.

- CITY COUNCIL, CITY HALL
Mondays, 7 p.m.
- UTILITIES ADVISORY COMMISSION (UAC), CITY HALL
1st Wednesday of each month, 7 p.m.

