

# OUR WATER, OUR FUTURE

City of Palo Alto 2022 Water Quality Report



CITY OF  
**PALO ALTO**  
UTILITIES





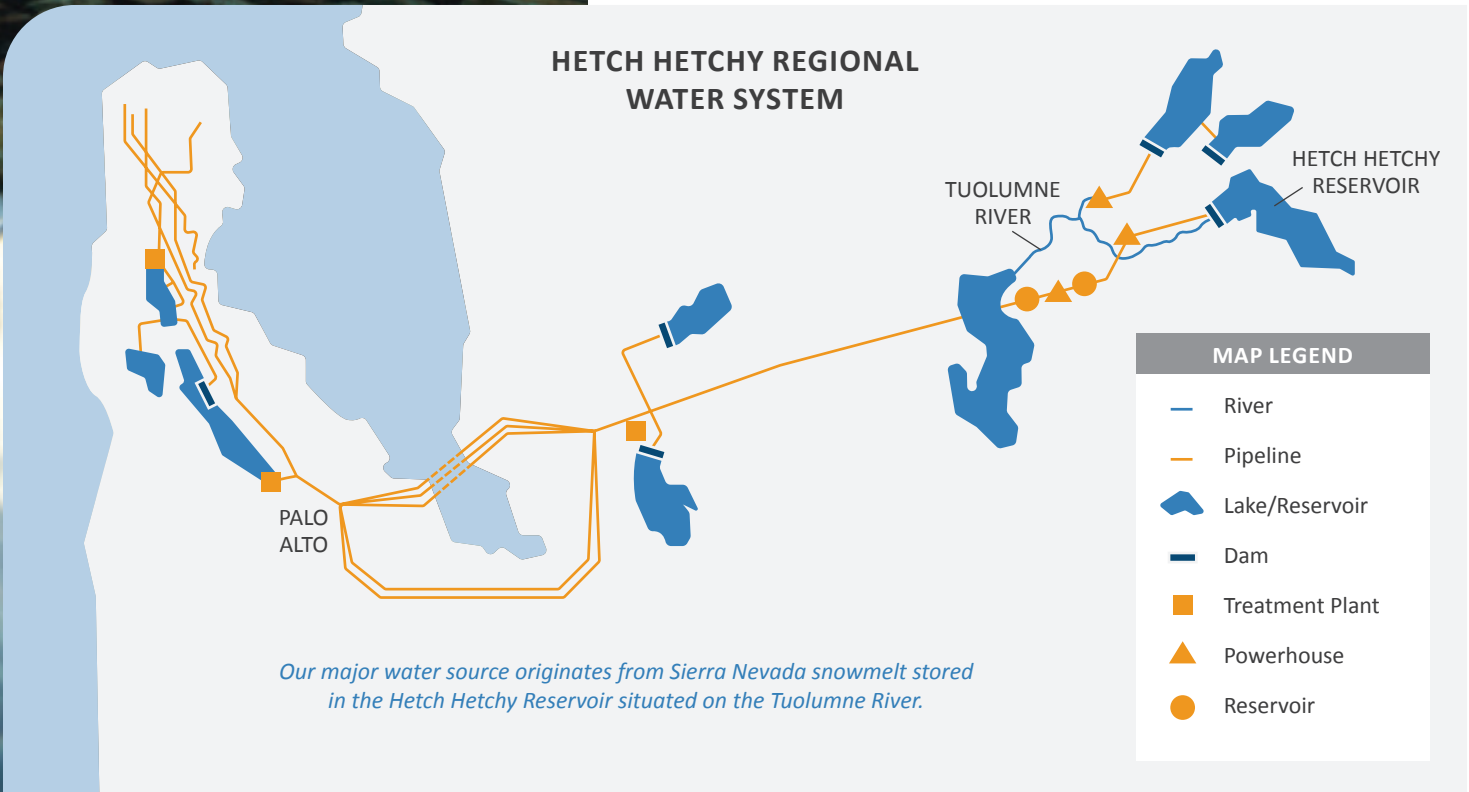
# CLEAN & PURE

Your water is extraordinarily clean and pure. Almost everything that comes out of your tap starts as snow in the Sierra Nevada. The Tuolumne River transports it through Yosemite National Park and the Stanislaus National Park.

The journey further improves the water's quality. As the water runs through sandbars in the river, the sand acts as a natural filter, removing sediments so downstream facilities don't have to.

The water that comes down the Tuolumne and enters our closed pipeline system is so clean and pure that the state and federal governments have exempted it from filtration requirements.

We're proud to say that Palo Alto's water meets all federal and state drinking-water quality standards. And the heavy snows and rains during the winter of 2022-2023 means there will be plenty of clean and pure water for calendar year 2023.





O'Shaughnessy Dam



Hetch Hetchy Reservoir

Images courtesy of the San Francisco Public Utilities  
Photographers Katherine Du Tiel and Robin Scheswohl

## Water Quality AND Water Quantity

Water quality is one thing, but high quantity is another. Fortunately, we had both in 2022. After three years of drought, the state had historic snowfall and rainfall during the 2022-2023 winter season, meaning the lakes, rivers, and streams that bring you water were replenished. But we can't forget about the ongoing need to use water wisely.

Snow and rain were plentiful during the 2022-2023 winter season, but we must continue to use water as wisely as possible.

Palo Alto's water supplier asked the City to reduce its water use by 8% in 2022. During the second half of 2022, from July to December, our community used 11.2% less water than we used for the comparable period in the 2019 baseline year. Even before the City was asked to lower water usage, Palo Alto was working with customers to conserve water and extend the lifetime of that life-sustaining resource. We continue to work with all customer-owners to ensure that wise water use remains a way of life. The City offers a variety of free services, educational resources, and rebates for customer-owners to improve water use efficiency.

### Making Wise Water Use a Way of Life

Stretching our water resources requires collaboration! Homes and businesses, working together with the City, can become even more efficient users of water. Here's how:

- Our Home Efficiency Genie service includes free phone and low-cost virtual or in-person consultation about how to improve water use efficiency inside your home. Visit [cityofpaloalto.org/efficiencygenie](https://cityofpaloalto.org/efficiencygenie) or call **(650) 713-3411** to get started!
- Optimize your water usage with WaterSmart, Palo Alto's new online water management tool. Get started at [cityofpaloalto.org/watersmart](https://cityofpaloalto.org/watersmart).
- The Water-Wise Outdoor Survey program provided by Valley Water is a free survey for outdoor water use. Email [waterwise@valleywater.org](mailto:waterwise@valleywater.org) or call **(408) 630-2000** to schedule an appointment.
- Consider converting your high water-using landscape such as turf grass or a pool to low water-use shrubs and trees. Check out our videos on landscape conversion at [cityofpaloalto.org/workshops](https://cityofpaloalto.org/workshops), then go to the Valley Water Landscape Rebate Program webpage at [watersavings.org](https://watersavings.org) to learn more.
- Rebates are available for rain barrels, cisterns, and rain gardens. It may not rain often in Palo Alto, but when it does, we want to capture every drop!

For a complete list of water efficiency services and rebate programs, visit [cityofpaloalto.org/waystosave](https://cityofpaloalto.org/waystosave) or call **(650) 329-2241**. Valley Water also offers free water conservation devices that can help you save water. Visit [cloud.valleywater.org/shopping-cart](https://cloud.valleywater.org/shopping-cart) to order your free gear and literature today!

Don't stop there. If you want to go the extra mile, we welcome your participation in the discussion of water issues at City Council meetings, which typically take place the first three Mondays of each month, as well as the Utilities Advisory Commission, which typically meets the first Wednesday of each month. Learn more at [cityofpaloalto.org/UAC](https://cityofpaloalto.org/UAC).



## Tap vs. Bottled Water

Some people choose to drink bottled water, thinking it could ease the strain on our community's water resource. It really doesn't. In fact, in addition to being several hundred times more expensive than Palo Alto tap water, bottled water has a large environmental footprint and is not always the healthiest choice.

Did you know it takes at least 32 ounces of water — and in some cases 100 ounces — to manufacture each 16.9-ounce bottle of water? Then there's the plastic used in packaging and the fuel used to transport bottled water to stores, homes, and businesses.

Did you know it takes at least 32 ounces of water — and in some cases 100 ounces — to manufacture each 16.9-ounce bottle of water?

Everyone is free to make their own decisions, but we think Palo Alto tap water, perhaps stored in a reusable bottle, is the better bet on so many levels — purity, taste, convenience, cost, and the environment.

## Protecting Our Watersheds

Palo Alto's water supply comes from the San Francisco Regional Water System (SFRWS), which is managed and protected by the San Francisco Public Utilities Commission (SFPUC). The SFRWS draws an average of 85% of its supply from the Tuolumne River watershed and 15% from local surface waters in the Alameda and Peninsula watersheds.

The SFRWS conducts watershed sanitary surveys for the Hetch Hetchy source annually and for non-Hetch Hetchy surface water sources every five years. The latest sanitary surveys for the non-Hetch Hetchy watersheds were completed in 2021 for the period of 2016–2020. All these surveys, together with SFRWS's stringent watershed protection management activities, were completed with support from partner agencies including the National Park Service and the US Forest Service.

The San Francisco Regional Water System draws an average of 85% of its supply from the Tuolumne River watershed and 15% from local surface waters in the Alameda and Peninsula watersheds.

The purposes of the surveys are to evaluate the sanitary conditions and water quality of the watersheds and to review results of watershed management activities conducted in the preceding years. Wildfire, wildlife, livestock, and human activities continue to be potential contamination sources. You may contact the San Francisco District office of the State Water Resources Control Board's Division of Drinking Water (SWRCB) at (510) 620-3474 to read these reports.



Tuolumne River



Alameda Watershed



Hetch Hetchy Reservoir

## Ensuring That You Receive High-Quality Water

To ensure that your drinking water meets all state and federal standards, surface water undergoes treatment by the SFPUC before it's delivered to water retailers like the City of Palo Alto Utilities. Water from the Hetch Hetchy Reservoir is exempt from state and federal filtration requirements, but it receives the following treatments: disinfection using ultraviolet light and chlorine, pH adjustment for optimum corrosion control, fluoridation for dental health protection, and chloramination for maintaining disinfectant residual and minimizing the formation of regulated disinfection byproducts.

**Water from the Hetch Hetchy Reservoir is so pure that it is exempt from state and federal filtration requirements.**

Water from local Bay Area reservoirs in Alameda and San Mateo counties is delivered to the Sunol Valley Water Treatment Plant and Harry Tracy Water Treatment Plant. Water at the treatment plants is subject to filtration, disinfection, fluoridation, optimum corrosion control, and taste and odor removal.

The SFPUC regularly collects and tests water samples from reservoirs and designated sampling points throughout the sources and transmission system to ensure that the water delivered to you meets or exceeds federal and state drinking-water standards. More than 48,320 drinking-water quality tests were conducted in

the sources and transmission system in 2022. This is in addition to the extensive treatment process control monitoring performed by SFRWS'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. More information about contaminants and potential health effects can be obtained by calling U.S. Environmental Protection Agency's (USEPA) Safe Drinking Water Hotline at **(800) 426-4791**.

*In addition to tests performed by other agencies, Palo Alto performed 11,492 drinking-water quality tests in 2022.*



## How We Keep Your Water Pristine

The SFPUC is finishing capital construction projects with an aggregate cost exceeding \$4 billion. New projects were built and existing assets were expanded and updated to ensure that Palo Alto and the other cities that are part of the San Francisco Regional Water System continue to receive high-quality water for many years into the future.

One cluster of projects in the SFPUC capital program is the Water System Improvement Program (WSIP), which ensures that the regional water system can deliver water for public health, firefighting, and disaster recovery as quickly as possible following a seismic event. The majority of the WSIP infrastructure projects have been completed. The SFPUC has an ongoing capital program to ensure the integrity of the system.

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## Drinking Water and Lead

Lead in drinking water comes primarily from materials and components associated with service lines and home plumbing. The City of Palo Alto is certified there is no lead in our pipelines, connectors, or user service lines between water mains and meters. The City also performed its once-every-three-years private home tap sampling program in August 2020. Of the 38 homes sampled no samples came back with any detectable lead.

While we are responsible for providing high-quality drinking water and removing lead pipelines, connectors, and user service lines if found during maintenance or operations, we cannot control the variety of materials used in plumbing components in your home. Residents must share the responsibility for protecting themselves and their families from lead in home plumbing by identifying and removing lead materials and taking other steps to reduce risk from lead materials.

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 do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants.

Exposure to elevated lead can cause serious health effects in all age groups, especially for pregnant women and young children, who are typically more vulnerable to lead in drinking water than the general population. Information about lead in drinking water, testing methods, and steps you can take to minimize exposure are available at [epa.gov/safewater/lead](https://www.epa.gov/safewater/lead) and the USEPA Safe Drinking Water Hotline at **(800) 426-4791**.

## If You Have Special Health Needs

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people, such as those with cancer who are undergoing chemotherapy, people who have undergone organ transplants, individuals 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 Safe Drinking Water Hotline **(1-800-426-4791)**.

## Water Fluoridation

California law requires that drinking water be fluoridated. Fluoridation is a safe and effective practice that is used in cities across the country to help strengthen teeth and control tooth decay.

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 called fluorosis, and often can only be seen under a microscope. Even in cases where the marks are visible, they do not pose any health risks.

**Fluoridation is a safe and effective practice that is used in cities across the country to help strengthen teeth and control tooth decay.**

The Centers for Disease Control (CDC) considers it safe to use optimally fluoridated water for preparing infant formula.

Contact your healthcare provider or visit the SWRCB webpage on fluoridation (<https://tinyurl.com/bp6bcdps>) or visit the CDC website at [cdc.gov/fluoridation](https://cdc.gov/fluoridation) if you have questions or concerns about fluoride in your water.

*Like tooth brushing and flossing, fluoridated water contributes to overall oral health.*

## Per- and Poly-fluoroalkyl Substances (PFAS)

PFAS is a group of approximately 5,000 man-made, persistent chemicals used in a variety of industries and consumer products. In 2022, our wholesaler conducted a second round of voluntary monitoring using a newer analytical method adopted by the USEPA for some other PFAS contaminants. No PFAS were detected above the SWRCB's Consumer Confidence Report Detection Levels in surface water and groundwater sources. For additional information about PFAS, you may visit the SWRCB website [waterboards.ca.gov/pfas](https://waterboards.ca.gov/pfas), the SFPUC website [sfpub.org](https://sfpub.org), and/or the USEPA website [epa.gov/pfas](https://epa.gov/pfas).







*In 2022, our wholesaler conducted a second round of voluntary monitoring using a newer analytical method adopted by the USEPA for some other PFAS contaminants.*

## State Revised Total Coliform Rule

This report reflects changes in regulatory requirements for drinking water during 2021, in which the State Water Resources Control Board (SWRCB) adopted the California version of the federal Revised Total Coliform Rule. The revised rule, effective on July 1, 2021, maintains the purpose of protecting public health by ensuring the integrity of the drinking-water distribution system and monitoring for the presence of microbials (that is, total coliform and *E. coli* bacteria). We are complying with that rule.

**Greater public health protection is anticipated, as the revised total coliform rule requires water systems that are vulnerable to microbial contamination to identify and fix problems.**

Greater public health protection is anticipated, as the revised rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found, these defects must be corrected by the water system.

## Contaminants and Regulations

Generally, 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.

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, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the State Water Resources Control Board (State Water Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Water Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

# City of Palo Alto Water Quality Data for Year 2022 <sup>(1)</sup>

This report offers a snapshot of last year’s water quality. The tables below list detected contaminants in our drinking water in 2022 as well as information about their typical sources. Contaminants that are below detection limits for reporting are not shown, in accordance with regulatory guidance. The City holds a SWRCB monitoring waiver for some contaminants in the surface water supply and therefore their monitoring frequencies are less than annual.

DETECTED CONTAMINANTS	Unit	MCL/TT	PHG or (MCLG)	Range or Level Found	Average or [Max]	Typical Sources in Drinking Water
<b>TURBIDITY</b>						
Unfiltered Hetch Hetchy Water	NTU	5	N/A	0.2 - 0.4 <sup>(2)</sup>	[3.4]	Soil runoff
Filtered Water from Sunol Valley Water Treatment Plant (SVWTP)	NTU	1 <sup>(3)</sup>	N/A	-	[2.2]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU <sup>(3)</sup>	N/A	99.3% - 100%	-	Soil runoff
Filtered Water from Harry Tracy Water Treatment Plant (HTWTP)	NTU	1 <sup>(3)</sup>	N/A	-	[0.1]	Soil runoff
	-	Min 95% of samples ≤ 0.3 NTU <sup>(3)</sup>	N/A	100%	-	Soil runoff
<b>DISINFECTION BYPRODUCTS AND PRECURSOR</b>						
Total Trihalomethanes	ppb	80	N/A	13 - 47	35.8 <sup>(4)</sup>	Byproduct of drinking water disinfection
Five Haloacetic Acids	ppb	60	N/A	6.4 - 48	34.5 <sup>(4)</sup>	Byproduct of drinking water disinfection
Bromate	ppb	10	0.1	ND - 1.7	[1.3] <sup>(5)</sup>	Byproduct of drinking water disinfection
Total Organic Carbon <sup>(6)</sup>	ppm	TT	N/A	1.3 - 3.9	2.3	Various natural and man-made sources
<b>Microorganisms</b>						
Fecal coliform and <i>E. coli</i>	-	0 PS	(0)	-	0	Human or animal fecal waste
<i>Giardia lamblia</i>	cyst/L	TT	(0)	0 - 0.04	0.01	Naturally present in the environment
<b>INORGANICS</b>						
Fluoride (source water) <sup>(7)</sup>	ppm	2.0	1	ND - 0.8	0.3 <sup>(8)</sup>	Erosion of natural deposits; water additive to promote strong teeth
Chloramine (as chlorine)	ppm	MRDL = 4.0	MRDLG = 4	0.75 - 3.57	2.98 <sup>(5)</sup>	Drinking water disinfectant added for treatment

NON-REGULATED WATER QUALITY PARAMETERS	Unit	ORL	Range	Average
Alkalinity (as CaCO <sub>3</sub> )	ppm	N/A	7.1 - 166	41
Boron	ppb	1000 (NL)	28 - 105	56
Calcium (as Ca)	ppm	N/A	3.2 - 15	9.3
Chlorate	ppb	800 (NL)	45 - 650	147
Chromium (VI)	ppb	N/A	0.22 - 0.27	0.25
Hardness (as CaCO <sub>3</sub> )	ppm	N/A	9.1 - 49	32
Magnesium	ppm	N/A	0.2 - 4.2	2.9
pH	-	N/A	8.2 - 9.6	9.2
Potassium	ppm	N/A	0.3 - 1	0.7
Silica	ppm	N/A	5 - 5.9	5.5
Sodium	ppm	N/A	3.5 - 21	14
Strontium	ppb	N/A	16 - 159	79

KEY	
< / ≤	= less than / less than or equal to
AL	= Action Level
cyst/L	= Cysts per Liter
Max	= Maximum
Min	= Minimum
N/A	= Not Available
ND	= Non-detect
NL	= Notification Level
NTU	= Nephelometric Turbidity Unit
ORL	= Other Regulatory Level
ppb	= part per billion
ppm	= part per million
PS	= Number of Positive Sample
µS/cm	= microSiemens/centimeter

CONSTITUENTS WITH SECONDARY STANDARDS	Unit	SMCL	PHG	Range	Average	Typical Sources in Drinking Water
Chloride	ppm	500	N/A	<3 - 15	8.7	Runoff / leaching from natural deposits
Color	Unit	15	N/A	<5 - 5	<5	Naturally-occurring organic materials
Iron	ppb	300	N/A	<6 - 24	11	Leaching from natural deposits
Manganese	ppb	50	N/A	<2 - 2.4	<2	Leaching from natural deposits
Specific Conductance	µS/cm	1600	N/A	37 - 210	140	Substances that form ions when in water
Sulfate	ppm	500	N/A	1.1 - 29	15	Runoff / leaching from natural deposits
Total Dissolved Solids	ppm	1000	N/A	<20 - 104	61	Runoff / leaching from natural deposits
Turbidity	NTU	5	N/A	0.1 - 0.2	0.1	Soil runoff

LEAD AND COPPER	Unit	AL	PHG	Range	90 <sup>th</sup> Percentile	Typical Sources in Drinking Water
Copper	ppb	1300	300	8.21 - 104 <sup>(9)</sup>	34.78	Internal corrosion of household water plumbing systems
Lead	ppb	15	0.2	0.02 - 1.971 <sup>(10)</sup>	1.971	Internal corrosion of household water plumbing systems

## Key Water-Quality Terms

The following are definitions of key terms referring to standards and goals of water quality noted on the 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 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, MRDLs and treatment techniques (TTs) for contaminants that affect health, along with their monitoring and reporting requirements.

**Regulatory Action Level (AL):** 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. It is also used to indicate the effectiveness of the filtration system. High turbidity can hinder the effectiveness of disinfectants.

**Cryptosporidium:** A parasitic microbe found in most surface water. The San Francisco Regional Water System (SFRWS) regularly tests for this waterborne pathogen and found it at very low levels in source and treated water in 2021. However, current test methods approved by the USEPA do not distinguish between dead organisms and those capable of causing disease. Ingestion of live 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.

## Footnotes:

<sup>(1)</sup> All results met state and federal drinking water health standards.

<sup>(2)</sup> These are monthly average turbidity values measured every 4 hours daily.

<sup>(3)</sup> This is a TT requirement for filtration systems.

<sup>(4)</sup> This is the highest locational running annual average value.

<sup>(5)</sup> This is the highest running annual average value.

<sup>(6)</sup> Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from the SVWTP only.

<sup>(7)</sup> The SWRCB recommended an optimal fluoride level of 0.7 ppm be maintained in the treated water. In 2022, the range and average of the fluoride levels were 0.5 ppm–0.9 ppm and 0.7 ppm, respectively.

<sup>(8)</sup> Natural fluoride in the Hetch Hetchy source was ND. Elevated fluoride levels in raw water at the SVWTP and HTWTP noted were attributed to the transfer of fluoridated Hetch Hetchy water into the local reservoirs.

<sup>(9)</sup> The most recent Lead and Copper Rule monitoring was in 2020. 0 of 38 site samples collected at consumer taps had copper concentrations above the AL.

<sup>(10)</sup> The most recent Lead and Copper Rule monitoring was in 2020. 0 of 38 site samples collected at consumer taps had lead concentrations above the AL.

*Note: Additional water quality data may be obtained by calling the City of Palo Alto phone number at (650) 496-6967.*

# FOR MORE INFORMATION

## WATER QUALITY

**City of Palo Alto Utilities, Water Transmission, David Cordova**

(650) 496-6967

**City of Palo Alto**

[cityofpaloalto.org/WaterResources](http://cityofpaloalto.org/WaterResources)

**San Francisco Public Utilities Commission (SFPUC)**

[sfwater.org](http://sfwater.org)

**U.S. Environmental Protection Agency (USEPA) Drinking Water**

[epa.gov/safewater](http://epa.gov/safewater)

**USEPA Safe Drinking Water Hotline**

(800) 426-4791

**Office of Emergency Services Warning Center**

(800) 852-7550 or (916) 845-8911

When reporting a water quality emergency to the Warning Center, please ask for the State Water Resources Control Board Division of Drinking Water Duty Officer.

## HEALTH CONCERNS & REGULATIONS

**State Water Resources Control Board**

(SWRCB) [swrcb.ca.gov](http://swrcb.ca.gov)

**USEPA**

[epa.gov](http://epa.gov)

## EMERGENCY PREPAREDNESS

**California Department of Public Health**

[bepreparedcalifornia.ca.gov](http://bepreparedcalifornia.ca.gov)

This report containing important information about your drinking water is also available in Spanish and Chinese. For those people more comfortable reading this report in Spanish or Chinese, please feel free to access this report in your preferred language. Para obtener más información sobre la calidad del agua, visite **www.cityofpaloalto.org/waterresources**.

Este informe contiene información importante sobre su agua potable. también está disponible en español y chino. Para aquellas personas que se sientan más cómodas leyendo este informe en español o chino, no duden en acceder a este informe en su idioma preferido.

这篇关于您的饮用水的报告包含重要信息, 请找人为您翻译和解释。



CITY OF  
**PALO ALTO**  
UTILITIES

250 Hamilton Ave  
Palo Alto, CA 94301

(650) 329-2161  
[cityofpaloalto.org/utilities](http://cityofpaloalto.org/utilities)