



CITY OF BENICIA

2024 ANNUAL WATER QUALITY REPORT

The City of Benicia (City) is proud to report that in calendar year 2024, your drinking water quality met or surpassed all Federal and State drinking water health standards. To ensure your tap water is safe to drink, the United States Environmental Protection Agency (USEPA) and the State Water Resources Control Board (State Water Board) prescribe limits that regulate the amount of certain contaminants in water provided by public water systems. This drinking water quality report is provided to our water customers and contains information about the quality and sources of water treated from January 1, 2024, through December 31, 2024. This report and other information can be found on the City's website at www.ci.benicia.ca.us/publicworks

The City encourages customers to participate in City Council meetings which take place every first and third Tuesday of the month. For more information, please visit the City's website: <https://www.ci.benicia.ca.us/citycouncil>

Este informe contiene información es muy importante sobre su agua para beber. Favor de comunicarse City of Benicia 707-746-4336 para asistirlo en español.

If you would like a physical copy of this report have questions or comments regarding this report or would like more information relating to your drinking water quality, please contact Marc Bautista, Water Quality Supervisor, at 707-746-4394



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FROM SOURCE TO TAP

The City owns and operates the Benicia Water Treatment Plant (WTP), transmission system, storage reservoirs, and distribution system, which serve approximately 30,000 customers and numerous visitors to our City. The WTP can produce up to 12 million gallons a day (MGD) of drinking water. Our water supply consists of three surface water sources: State Water Project water via the North Bay Aqueduct (NBA), Lake Berryessa transported through the Putah South Canal (PSC), and our local source, Sulphur Springs Creek diverted at Lake Herman. Each source provides clean and safe water for drinking, fire protection, irrigation, and industry. The City maintains the ability to treat and deliver from any of its sources based on seasonal and operational needs, as well as contractual obligations.

Source Water Assessments evaluate the quality of the water used as a drinking water supply for local communities and examine the water’s vulnerability to possible contamination from activities within the watershed. A copy of each assessment is available at: State Water Resources Control Board, Division of Drinking Water, San Francisco District Office, 850 Marina Bay Parkway Bldg. P, Second Floor Richmond CA 94804-6403, (510) 620-3474.

Source	Last Assessment	Identified Vulnerabilities
State Water Project via the North Bay Aqueduct (NBA)	2021	Cattle and sheep grazing activities
Lake Berryessa via the Putah South Canal	2018	Illegal activities/unauthorized dumping and herbicide application
Sulphur Springs Creek/ Lake Herman	2023	Urban runoff, herbicides and pesticides application, cattle grazing operations, and historic mining operations

SOURCES OF DRINKING WATER AND CONTAMINANTS THAT MAY BE IN SOURCE WATER

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 deriving 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 wastewater treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants such as salts and minerals 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 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.

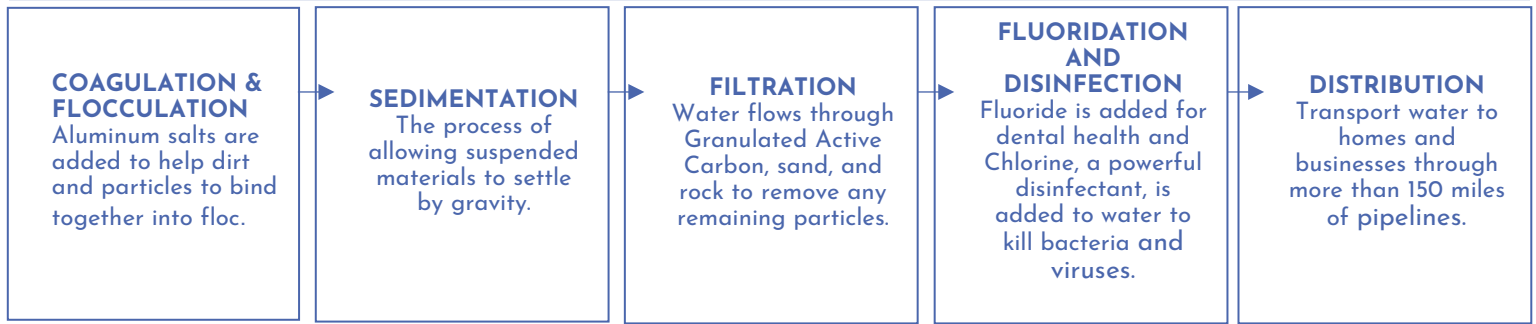
WATER TREATMENT PLANT UPDATE: RESERVOIR 2 RECOATING PROJECT

In May 2024, the City completed a recoating project for Reservoir 2. This project involved applying a new protective coating to the reservoir's interior and exterior, and several modifications to meet the latest safety and regulatory standards.

Reservoir 2 is located off East 2nd Street and has a capacity of 1.8 million gallons of water. Drinking water reservoirs typically require recoating every 25 years, and inspections are conducted every 3 to 5 years to ensure their integrity and functionality.



BENICIA WATER TREATMENT PLANT PROCESS



SPECIAL INFORMATION

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 the EPA's Safe Drinking Water Hotline (800) 426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as those with cancer undergoing chemotherapy, those 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. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (800) 426-4791.



WATER QUALITY

HARDNESS is measured in milligrams per liter (mg/L). Calcium and Magnesium are naturally occurring materials in our water and can cause water to be "hard". The City's water is generally "moderately hard" to "very hard", in the range of 72 to 186 mg/L and averaged 115 mg/L in 2024. Water that is characterized as "soft" (<30 mg/L) can be corrosive to plumbing pipes and water that is too "hard" (>300 mg/L) can cause scale to form on appliances and reduce laundry efficiency.

HEXAVALENT CHROMIUM The City is currently monitoring Hexavalent Chromium but is not required to meet regulatory standards until 2027. In 2024, the observed concentration of hexavalent chromium in your water was 0.068 micrograms per liter (µg/L), which is below the upcoming standard of 10 µg/L. Significant sources include industrial applications and is also found naturally throughout the environment.

TURBIDITY is a measure of the cloudiness of the water, and it is measured in Nephelometric Turbidity Units (NTU). Turbidity is an indicator of the filtration system's effectiveness. The city measures the treated water after filtration at the water plant and in the distribution system. The limits and results for each in 2024 can be found in the table below.

TOTAL ORGANIC CARBON (TOC) has no health effects. However, TOC provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the maximum contaminant levels (MCL) may lead to adverse health effects, including liver or kidney problems, nervous-system effects, and increased cancer risk. In 2024, the average TOC in Benicia drinking water was 1.8 mg/L with an average TOC removal of nearly 50% compared to source water TOC.

FLUORIDE Our water system treats your water by adding fluoride to the naturally occurring level to help prevent dental caries in consumers. State regulations require the fluoride levels in the treated water be maintained within a range of 0.6-1.7 mg/L with an optimum dose of 0.7-1.2 mg/L. Our monitoring showed that the fluoride levels in the treated water ranged from 0.4-1.1 mg/L with an average of 0.7 mg/L. Information about fluoridation, oral health, and current issues is available from:

http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

LEAD AND COPPER

2024 Lead and Copper Sampling Results					
Contaminant	Action Level (AL)	Public Health Goal (PHG)	Benicia's Water 90th Percentile	Number of Sites Above the AL	Contaminant Source
Lead (ug/L)	15	0.2	2.33	0	Corrosion of household plumbing systems
Copper (mg/L)	1.3	0.3	0.07	0	

The Lead and Copper Rule was introduced by USEPA in 1991 to limit the concentration of lead and copper allowed in drinking water at the customer’s tap as well as to limit the corrosivity due to the water. The City’s corrosion control program proactively adjusts the pH of the water to form a calcium carbonate protective layer between the pipe material and the water supply to prevent lead and copper from leaching into the drinking water supply.

Every three years, the City is required to collect a representative set of drinking water samples collected directly from City customers’ indoor faucets. USEPA requires that the 90th percentile value of the samples be below the regulatory action level (AL) of **15 ppb for lead and 1.3 ppm for copper**. In 2024, 37 homes were tested for lead and copper, and no homes were detected above the regulatory action level (see above table). The next lead and copper test is scheduled for late Summer/Fall 2027.

MINIMIZING EXPOSURE TO LEAD

Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula-fed and breastfed), and young children. Lead in drinking water is primarily from materials and parts used in service lines and in-home plumbing. The City of Benicia is responsible for providing high-quality drinking water and removing lead pipes but cannot control the variety of materials used in the plumbing in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time. You can help protect yourself and your family by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Using a filter, certified by an American National Standards Institute accredited certifier to reduce lead, is effective in reducing lead exposure. Follow the instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. Boiling water does not remove lead from water. Before using tap water for drinking, cooking, or making baby formula, flush your pipes for several minutes. You can do this by running your tap, taking a shower, doing laundry or a load of dishes. If you have a lead service line or galvanized requiring a replacement service line, you may need to flush your pipes for a longer period. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at <https://www.epa.gov/safewater/lead>.

According to USEPA, homes built before 1986 are more likely to have lead pipes or fixtures and solders that contain lead. However, due to the City’s corrosion control program and the replacement of lead service lines, very little lead is leached from these plumbing materials. If a customer is concerned about the risk of lead exposure from drinking water, we encourage you to have your water tested by a certified laboratory. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure are available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

In 2024, a stratified random sample of 939 customer service lines was completed. The survey was organized by decade, achieving a 95% confidence level and a margin of error of 5%. Although no lead was found in the inspected lines, 10 lines have been identified for replacement. Staff were unable to determine the material of upstream pipe for 10 galvanized connections. If you would like to review the service line inventory or are concerned about lead in your water, please contact the City at 707-746-4394.

PRIMARY DRINKING WATER STANDARDS <i>Contaminants that may affect your health</i>					
Parameters/ Constituents (units)	Range	Result or Average	MCL or {MRDL}	PHG or {MRDLG}	Major Source in Drinking Water
Inorganics					
Chromium (Hexavalent) (ug/L)		0.068	10	0.02	Erosion of natural deposits, industrial discharges
Fluoride (mg/L)	0.43 - 1.07	0.72	2.0	1	Erosion of natural deposits; water additive to promote strong teeth
Microbial					
Coliform Bacteria (p/a)	1 of 533	0.20%	5%	0	Naturally present in the environment
Disinfection Byproducts					
Chlorine (mg/L)	0.67 - 1.49	1.13	{4.0 as Cl ₂ }	{4.0 as Cl ₂ }	Drinking water disinfectant added for treatment
Total Trihalomethanes (ug/L)	43 - 95	73	{80}	n/a	A by-product of drinking water disinfection
Total Haloacetic Acids (ug/L)	14 - 26	18	{60}	n/a	A by-product of drinking water disinfection

SECONDARY DRINKING WATER STANDARDS <i>Contaminants that may affect the odor, taste, or appearance of water</i>				
Parameters/ Constituents (units)	Range	Result or average	MCL	Major Source in Drinking Water
Color (units)		5	15	Naturally occurring organic materials
Turbidity (NTU) in the water plant at Filtration ¹	0.03 - 0.09	0.05	1	Soil runoff
		100%	≤0.3 in 95% of samples taken	
Turbidity (NTU) in the distribution system		0.45	5	Soil runoff
Total Dissolved Solids (mg/L)	148 - 593	249	1,000	Runoff/leaching of natural deposits
Conductivity (uS/cm)	250 - 807	417	1,600	Substances that form ions when in water, seawater influence
Chloride (mg/L)		9.9	500	Runoff/leaching of natural deposits; seawater influence
Sulfate (mg/L)		34	500	Runoff/leaching of natural deposits; industrial waste

GENERAL WATER QUALITY PARAMETERS <i>Non-regulated parameters of general interest to consumers</i>			
	Range	Result or Average	MCL
Calcium (mg/L)		13	NA
Hardness (mg/L)	66 - 234	115	NA
Magnesium (mg/L)		8.8	NA
Potassium (mg/L)		1.4	NA
Sodium (mg/L)		27	NA
pH	7.55 - 8.61	8.16	NA
Alkalinity (mg/L)	76 - 212	116	NA



Treatment Technique

KEY WATER QUALITY TERMS

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

MCL Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as economically and technologically feasible. Secondary MCLs are set to protect the odor, taste and appearance of drinking water.

MCLG Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by US EPA.

MRDL Maximum Residual Disinfectant Level. 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.

MRDLG Maximum Residual Disinfectant Level Goal. The level of 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.

NA Not Applicable/ available

ND/NS Non-Detect/Not Sampled

NS PDWS Primary Drinking Water Standard. MCLs, MRDLs and Treatment Techniques (TT) for contaminants that affect health along with their monitoring and reporting requirements.

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 CA EPA.

RAA Running Annual Average

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

UNITS

ug/L micrograms per liter or Parts per billion (ppb) Equivalent to one second in 32 years

mg/L milligrams per liter or Parts per million (ppm) Equivalent to one second in 11.5 days

NTU Nephelometric Turbidity Units, a measure of the relative clarity of water

MGD Million Gallons per Day

MG Million Gallons

uS/cm MicroSiemens per centimeter

P/A present/absent from the distribution system