A close-up photograph of water being poured from a glass pitcher into a clear glass. The water is captured mid-pour, creating a dynamic splash and bubbles. The background is softly blurred, showing another glass and a textured surface.

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2018



Presented By
City of Napa

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. Over the years, we have dedicated ourselves to producing drinking water that meets all State and Federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

Where Does My Water Come From?

The City of Napa's customers are fortunate because we enjoy an abundant water supply from 3 sources. Depending on which water treatment plant is in operation, the source comes from: (1) Barker Slough in the Sacramento Delta via the North Bay Aqueduct (treated by the Edward I. Barwick Jamieson Canyon Water Treatment Plant), (2) Lake Hennessey (treated by the Hennessey Water Treatment Plant), or (3) Lake Milliken (treated by the Milliken Water Treatment Plant).

Count on Us

Delivering high-quality drinking water to our customers involves far more than just pushing water through pipes. Water treatment is a complex, time-consuming process. Because tap water is highly regulated by State and Federal laws, water treatment plant and system operators must be licensed and are required to commit to long-term, on-the-job training before becoming fully qualified. Our licensed water professionals' technical knowledge includes a wide range of subjects, including mathematics, biology, chemistry, and physics. Some of the tasks they complete on a regular basis include:

- Operating and maintaining equipment to purify and clarify water;
- Monitoring and inspecting machinery, meters, gauges, and operating conditions;
- Conducting tests and inspections on water and evaluating the results;
- Maintaining optimal water chemistry;
- Applying data to formulas that determine treatment requirements, flow levels, and concentration levels;
- Documenting and reporting test results and system operations to regulatory agencies; and
- Serving our community through customer support, education, and outreach.

So the next time you turn on your faucet, think of the skilled professionals who stand behind each drop.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Community Participation

The City of Napa encourages citizens to participate in our City Council meetings, which take place on the first and third Tuesday of each month at 3:30-5:00 p.m. and again at 6:30-9:00 p.m. in our Council Chambers at City Hall, 955 School Street. For more information concerning City activities, please see our Web site at <http://cityofnapa.org>.

Substances That Could Be in Water

The 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 resulting from the presence of animals or from human activity.

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 Board) 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. 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.

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 can 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 applications, and septic systems;

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

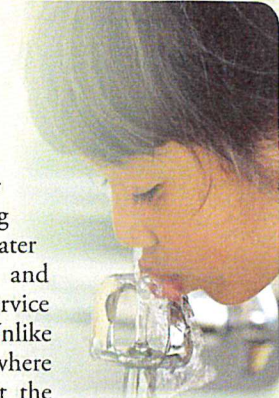
More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Unlike other regions of the U.S. where lead was prevalent, it was not the predominant construction material used in the City of Napa for water service installations.

In addition, years of monitoring show that the existing public system pipe network does not contribute lead to our drinking water. Our next lead and copper collection is scheduled for July 2021. The City of Napa is responsible for providing

high-quality drinking water, but we cannot control the variety of materials used in plumbing components. 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.) If you are concerned about lead 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.



We remain vigilant in delivering the best-quality drinking water

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Erin Kebbas, Water Quality Manager, at (707) 253-0822. For questions concerning the City of Napa Water Division, in general, please call (707) 257-9521. See our Web site for up-to-date information on programs: www.cityofnapa.org/water. For emergencies or customer use during weekends and holidays, please call (707) 253-4451.

Protecting Our Watersheds

The City of Napa is devoted to protecting the land surrounding our local source waters in order to maintain the quality and purity of water used for Napa's drinking water consumers. In the long term, protecting our watersheds is one of the least costly and most important actions we can take to reduce the risk of unwanted constituents in our drinking water. Algal growth due to the addition of nutrients is the number one cause of taste and odor affecting your tap water. Nutrients in the watershed are increased artificially by wastewater systems as well as fertilizers and runoff from agricultural practices. Every five years, the City of Napa conducts Source Water Assessments to evaluate the quality of the water used as the drinking water supply and to examine activities associated with the specific waterway and surrounding areas to determine their contribution to contamination.

These potential contributors are then compiled into a Vulnerability Summary. Results from the Vulnerability Summaries show the following as the most significant potential sources of contaminants for the City of Napa's source waters:

Lake Hennessey (completed April 2018): Pacific Union College Wastewater Treatment Plant, vineyards, fires, invasive species, potential hazardous material spills due to traffic accidents (on Highway 128 near lake), septic tank systems, grazing, and wild animals.

Lake Milliken (completed April 2018): Fires, vineyards, grazing, and wild animals.

Sacramento Delta (updated 2017): Recreational use, urban and agricultural runoff, grazing animals, herbicide application, and seawater intrusion.

Copies of the complete assessments are available through the SWRCB DDW Santa Rosa District Office, 50 D Street, Suite 200, Santa Rosa, CA 95404 or from Ms. Amy Little, Associate Sanitary Engineer, SWRCB, at (707) 576-2145.



Benefits of Chlorination

Disinfection, a chemical process used to control disease-causing microorganisms by killing or inactivating them, is unquestionably the most important step in drinking water treatment. By far the most common method of disinfection in North America is chlorination.

Before communities began routinely treating drinking water with chlorine (starting with Chicago and Jersey City in 1908), cholera, typhoid fever, dysentery, and hepatitis A killed thousands of U.S. residents annually. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in the U.S. Significant strides in public health are directly linked to the adoption of drinking water chlorination. In fact, the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement in human history.

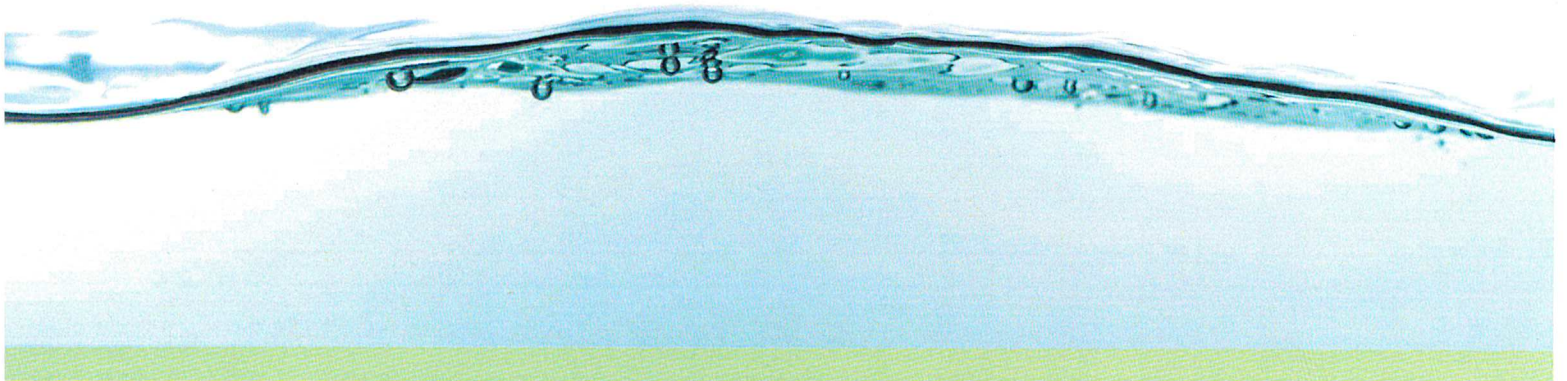
How chlorination works:

Potent Germicide Reduction in the level of many disease-causing microorganisms in drinking water to almost immeasurable levels.

Taste and Odor Reduction of many disagreeable tastes and odors like foul-smelling algae secretions, sulfides, and odors from decaying vegetation.

Biological Growth Elimination of slime bacteria, molds, and algae that commonly grow in water supply reservoirs, on the walls of water mains, and in storage tanks.

Chemical Removal of hydrogen sulfide (which has a rotten egg odor), ammonia, and other nitrogenous compounds that have unpleasant tastes and hinder disinfection. It also helps to remove iron and manganese from raw water.



Test Results

Our water is monitored for hundreds of different kinds of substances (including but not limited to metals or inorganic chemicals, volatile organic chemicals, man-made substances and disinfection by-products) on a very strict schedule and our goal is to keep any detections below their respective maximum allowed levels. Remember that detecting a substance does not mean the water is unsafe to drink. Here we show only those substances that were detected in our water in 2018. **Your water met all U.S. EPA and State standards in 2018.**

We participated in the 4th stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	MCL (MRDL)	PHG (MCLG) (MRDLG)	AMOUNT DETECTED (LRAA) (RAA)	RANGE LOW-HIGH	IN COMPLIANCE	TYPICAL SOURCE
Bromate (ppb)	10	0.1	[2.0]	0.0-2.8	Yes	By-product of drinking water disinfection
Chlorine (ppm)	[4.0 (as Cl ₂)]	[4.0 (as Cl ₂)]	[0.78]	0.00-1.81	Yes	Drinking water disinfectant added for treatment
Control of DBP precursors [TOC] (removal ratio)	TT	NA	2.09	0.63-3.27	Yes	Various natural and man-made sources
Haloacetic Acids (ppb)	60	NA	(31.5)	0.0-37.2	Yes	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	80	NA	(55.6)	28.6-63.3	Yes	By-product of drinking water disinfection
Total Coliform Bacteria (positive samples)	Maximum % of positive samples: <5.0	NA	1/1,328 [0.08%]	Highest monthly % positive = 0.97%	Yes	Naturally present in the environment

Filter Performance (Turbidity—the Standard Measure of Clarity in Water)

SUBSTANCE (UNIT OF MEASURE)	MCL	PHG	AMOUNT DETECTED	IN COMPLIANCE	TYPICAL SOURCE
Turbidity (NTU, highest detected measurement)	TT = 1.0	NA	0.18	Yes	Soil runoff
Turbidity (lowest % of samples <0.3)	TT = Minimum 95% of samples each month	NA	100	Yes	Soil runoff

Tap Water Samples Collected for Copper and Lead Analyses from Sample Sites throughout the Community

SUBSTANCE (UNIT OF MEASURE)	AL	PHG (MCLG)	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	IN COMPLIANCE	TYPICAL SOURCE
Copper (ppm)	1.3	0.3	0.30	0/31	Yes	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	15	0.2	ND	0/31	Yes	Internal corrosion of household water plumbing systems; discharge from industrial manufacturers; erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	SMCL	PHG (MCLG)	AVERAGE	RANGE LOW-HIGH	COMPLIANCE IN	TYPICAL SOURCE
Chloride (ppm)	500	NS	22	10-46	Yes	Runoff/leaching from natural deposits; seawater influence
Specific Conductance ($\mu\text{S}/\text{cm}$)	1,600	NS	300	240-360	Yes	Substances that form ions when in water; seawater influence
Sulfate (ppm)	500	NS	54	38-69	Yes	Runoff/leaching from natural deposits; agricultural and industrial wastes
Total Dissolved Solids (ppm)	1,000	NS	302	120-396	Yes	Runoff/leaching from natural deposits
Turbidity (NTU)	5	NS	0.12	0.00-2.43	Yes	Soil runoff

UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	MCL	PHG	AVERAGE	RANGE LOW-HIGH	TYPICAL SOURCE
Hardness, Total [as CaCO_3] (ppm)	NA	NA	118	63-154	Naturally occurring in ground and surface water
Sodium (ppm)	NA	NA	19	16-21	Naturally occurring in ground and source water

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

AL (Regulatory Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

$\mu\text{S}/\text{cm}$ (microsiemens per centimeter): A unit expressing the amount of electrical conductivity of a solution.

DBP: Disinfection By Product

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

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 is economically and technologically feasible. Secondary MCLs (SMCLs) 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 the U.S. 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 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.

NA: Not applicable

NS: No standard

NTU (Nephelometric Turbidity Units):

Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

PDWS (Primary Drinking Water Standard):

MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

PHG (Public Health Goal): 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 EPA.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

TOC: Total Organic Carbon

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