Annual
Water Quality Report

Water Testing Performed in 2018

City of Vallejo System, CA4810007

City of Vallejo Lakes System, CA4810021

30073-I-0034

The City of Vallejo welcomes this yearly opportunity to provide our customers with the Annual Water Quality Report. We have included information so you know where your drinking water comes from, how it is treated and how its quality compares to drinking water standards.

This report contains information from water quality testing in 2018 and shows how your water compares with primary and secondary standards established by the State Water Resources Control Board and the U.S. Environmental Protection Agency (USEPA). Primary standards are health related standards whereas secondary standards relate to consumer acceptance of the water supply and govern qualities such as taste, odor and color.

The tables in this report show each constituent found, the level at which they occur, how their level compares with standards and their most likely source. For more information about this report, or for any questions relating to your drinking water, please call Danielle Bonham, City of Vallejo, Laboratory Supervisor, at (707) 649-3473.

Public Participation

You are invited to participate in our public forum and voice your opinions and concerns about your drinking water. The Vallejo City Council meets on various Tuesdays, throughout the year, at 7:00 p.m. at 555 Santa Clara Street, Vallejo. You may call the City Clerk at (707) 648-4527 for specific meeting dates.

Your Water Treatment Process

The **City of Vallejo** water system and service area receives its finished water from the forty-two million gallons per day Fleming Hill Water Treatment Plant. This conventional treatment facility utilizes a multi-barrier process to ensure compliance with all State and Federal drinking water regulations and standards.

Initially, ozone is added to help remove dissolved organic matter and to aid in downstream processes. The water then flows to mixing basins where coagulants are added and the water is gently agitated so that fine suspended particles come together to form large 'floc' particles that settle out of the water. This process, known as coagulation, flocculation and sedimentation is followed by the addition of more ozone to disinfect and remove unwanted color, taste and odor.

The next step is filtration, where the water flows through multimedia filters consisting of granular activated carbon and sand in order to meet strict standards for clarity and to reduce the levels of microbial contaminants that could be in the untreated source water. Following filtration, the water receives additions of caustic soda, for pH and alkalinity control; fluoride, for the prevention of dental caries; and finally, chlorine to provide microbial protection throughout Vallejo's distribution system. Quality control and assurance is maintained at all times through uniform adherence to standard operating procedures and a meticulous schedule of laboratory analyses.

The **City of Vallejo Lakes System's** Green Valley Water Treatment Plant, which provides water service to the Lakes service area, can treat up to one million gallons a day.

First, the MIEX™ pretreatment process removes naturally occurring dissolved organic matter. This treatment, using ion exchange resin, enables us to meet the Disinfectant/Disinfection By-products Rule by sufficiently lowering the levels of total organic carbon, therefore limiting the formation of disinfection by-products such as total trihalomethanes. Total trihalomethanes are chemicals formed over time in the distribution system when dissolved organic matter combines with chlorine. Regulations require we use chlorine to disinfect surface water.

The treatment plant's conventional treatment process uses polymer to promote coagulation, flocculation and sedimentation that remove the majority of soil particles from the water. Then, the water gravity flows through multimedia filters consisting of anthracite and sand so that it will meet clarity standards required to decrease microbial contaminants and to aid the disinfection process. Depending on which water source or blend of sources we are treating (Lakes Madigan and Frey and/or Putah South Canal), we may add soda ash in order to increase alkalinity and pH. The last step of the treatment process adds chlorine to disinfect the water supply and to provide continual protection in the distribution system. This treatment plant does not add fluoride to your water.

A Message From the United States Environmental Protection Agency

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.

Contaminants that may be present in source water include:

- Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife;

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Environmental Protection Agency continued from inside

- Inorganic Contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water 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 storm water 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 storm water runoff, agricultural applications and septic systems; and
- Radioactive Contaminants, that 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 (USEPA) 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. State Board regulations also establish limits for contaminants in bottled water that must 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. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

Mahalaga ang impormasyong ito. Mangyaring ipasalin ito.

(707) 648-4307

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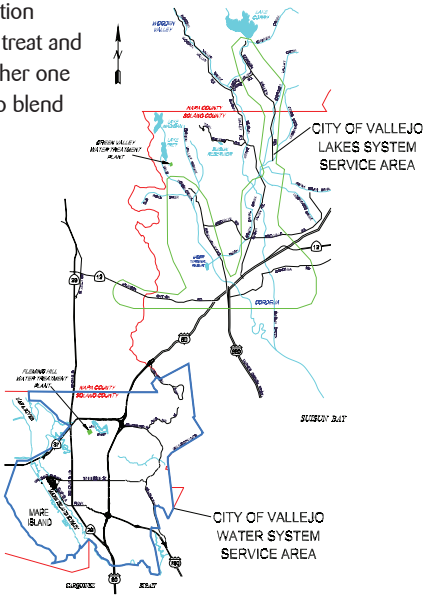
Your Water Sources

The City of Vallejo owns and operates two permitted public water systems for the benefit of our customers in two major service areas. The City of Vallejo Water System and service area provides drinking water to customers within the city limits, to some customers in the unincorporated areas adjacent to City boundaries and to a limited number of customers in the City of American Canyon.

The City of Vallejo Water System customers are fortunate because they receive water supplies from two surface water sources. The Solano Project provides source water from Lake Berryessa, transported to our facilities by the Putah South Canal. The City also receives surface water from the State Water Project. This water, from Lake Oroville, travels through the Sacramento River to the State's North Bay Aqueduct pumping facilities. Our source water pumping and distribution facilities enable us to treat and deliver water from either one of these sources or to blend these sources before treatment at the Fleming Hill Water Treatment Plant and distribution to the Vallejo service area. The City of Vallejo Lakes System and service area is a public water system with its own treatment plant and distribution system that delivers drinking water to customers residing in the Green Valley, Old Cordelia, Jameson Canyon, Suisun Valley, Willotta Oaks and Gordon Valley areas.



This system and service area also has water available from two distinct surface water sources. In addition to the Solano Project's Lake Berryessa water delivered from the Putah South Canal by agreement with the Solano Irrigation District, this system treats water from Lakes Frey and Madigan, which are two interconnected lakes owned by the City of Vallejo. The Green Valley Water Treatment Plant can either treat these two sources separately or blend these two sources before treatment and delivery to our customers. In case of emergencies, portions of this system can receive treated water from the City of Fairfield. For a copy of their Annual Water Quality Report, please call (707) 437-5386.

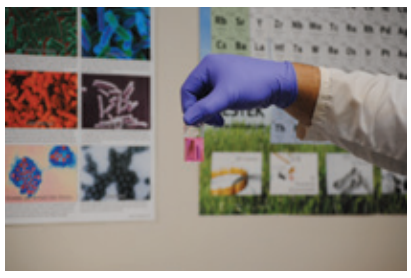
City of Vallejo Annual **Water Quality Report** *Water Testing Performed in 2018*

PRIMARY DRINKING WATER STANDARDS - Health Related Standards

PARAMETER/CONSTITUENTS (units of measurement)	STATE MCL	PHG (MCLG)	VALLEJO SERVICE AREA		LAKES SERVICE AREA		MAJOR SOURCES IN DRINKING WATER
			RANGE	AVG	RANGE	AVG	
INORGANICS							
FLUORIDE (ppm)	2	1	0.6 - 1.1	0.8	0.1	0.1	Water additive or natural minerals
MICROBIAL							
TOTAL COLIFORM (% positive samples or number of samples positive)	5% or 1 sample	(0)	ND	ND	ND	ND	Naturally present in the environment
For the City of Vallejo Water System, no more than 5% of all samples taken during a single month may be positive for total coliform. For the Lakes System, no more than one sample per month may be positive for total coliform bacteria.							
CLARITY							
TURBIDITY (NTU)	TT = 95% of samples ≤ 0.3 Maximum ≤ 1 TT = % reduction ≥ 80%		100% of samples ≤ 0.3 Maximum = 0.09 99% - 100%	99%	100% of samples ≤ 0.3 Maximum = 0.09 99% - 100%	99%	Soil runoff
Turbidity is a measurement of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. MCL compliance is based on all samples taken each month. All samples were in compliance.							
RADIOLOGICAL							
RADIUM 228 (pCi/L)	5	0.019	1.58 - 1.58	1.58	ND	ND	Erosion of natural deposits
City of Vallejo System sampled in 2013 and Lakes System sampled in 2016. The State requires us to monitor for certain substances less than once a year because their concentration does not change frequently.							
DISINFECTANT	MRDL	EPG MRDLG					
CHLORINE, Free Residual as Cl2 (ppm)	4.0*	4*	ND - 1.9	0.8	ND - 1.8	0.6	Drinking water disinfection
DISINFECTION BY-PRODUCTS							
BROMATE (ppb)	10*	0.1	ND	ND	n/a	n/a	Drinking water disinfection
TRIHALOMETHANES, TOTAL (ppb)	80*	n/a	14 - 64	49	22 - 74	63	Drinking water disinfection
HALOACETIC ACIDS (ppb)	60*	n/a	5.4 - 21	15	ND - 19	17	Drinking water disinfection
DISINFECTION BY-PRODUCTS PRECURSOR							
TOTAL ORGANIC CARBON (%Removal Ratio)	TT = Running Annual Average (RAA) ≥ 1*		All RAA ≥ 1 minimum = 1.5		All RAA ≥ 1 minimum = 2.2		Decay of natural organic matter

*Compliance levels for the five parameters listed above are based on a running annual average determined quarterly. This means that every three months, we average all the samples taken during the prior twelve month period. Results for minimum and maximum values are based on single samples.

Monitoring for Cryptosporidium



PRIMARY STANDARDS—LEAD and COPPER STUDY—Monitoring of Customers' Tap Water

PARAMETER/CONSTITUENTS (units of measurement)	AL	PHG	Vallejo Service Area 90th %	Number of Homes Above Action Level	Number of Homes Sampled in 2018	Lakes Service Area 90th %	Number of Homes Above Action Level	Number of Homes Sampled in 2017	MAJOR SOURCE IN DRINKING WATER
COPPER (ppb at the 90th %)	1.3	0.3	ND	0	52	ND	0	15	Internal corrosion of household plumbing
LEAD (ppb at the 90th %)	15	0.2	1.4	0	52	ND	0	15	Internal corrosion of household plumbing

Every three years the City is required to sample at the customers' faucets for lead and copper. This monitoring ensures our water is not too corrosive and does not leach unsafe levels of these metals into your drinking water. Compliance measurements are from the 90th percentile (the highest level measured from 90% of the homes sampled). The latest monitoring, for both water systems, did not detect lead from 90% of the homes sampled.

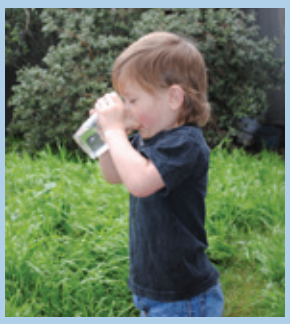
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Vallejo is responsible for providing high quality drinking water, but 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 are concerned about lead in your drinking 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 or at http://www.epa.gov/safewater/lead.

A total of 14 schools were monitored in the Vallejo and Lakes service areas that complied with Lead Testing of Drinking Water in California Schools.

SECONDARY DRINKING WATER STANDARDS - Aesthetics Related Standards

PARAMETER/CONSTITUENTS (units of measurement)	STATE MCL	PHG or (MCLG)	VALLEJO SERVICE AREA WATER		LAKES SERVICE AREA WATER		MAJOR SOURCES IN DRINKING WATER
			RANGE	AVG	RANGE	AVG	
CHLORIDE (ppm)	500	none	9 - 43	18	24 - 90	43	Natural minerals
ODOR-THRESHOLD (units)	3	none	ND - 8	2	ND - 8	2	Natural organic matter
SPECIFIC CONDUCTANCE (µS/cm)	1,600	none	230 - 490	260	290 - 540	400	Natural minerals
SULFATE (ppm)	500	none	27 - 58	34	9 - 22	9	Natural minerals
TOTAL DISSOLVED SOLIDS (ppm)	1,000	none	120 - 260	160	140 - 290	210	Natural minerals
MONITORING FOR SODIUM and HARDNESS							
SODIUM (ppm)	none	none	25	25	29	29	Natural minerals
TOTAL HARDNESS (ppm as $CaCO_3$)	none	none	66 -164	76	29 - 163	140	Natural minerals
TOTAL HARDNESS (grains/gallon as $CaCO_3$)	none	none	4 - 10	4	2 - 10	8	Natural minerals

Special Health Concerns



Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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. The 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 at 1-800-426-4791.

Source Water Assessments and Vulnerability Summaries

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. Source Water Assessments were completed in 2012 for the Putah South Canal and in 2016 for Lakes Frey and Madigan. The North Bay Aqueduct's (Sacramento Delta) assessment was completed in 2016. The adjacent table summarizes the vulnerability of each water source and provides a contact name if you would like copies of the complete assessments.

Vulnerability Assessments Table

Source	Most Vulnerable Activities	Moderately Vulnerable Activities	Contact
Lakes Frey and Madigan	Illegal body contact* Wild animal access* Agricultural drainage*	Other animal operations Wildfires	John Palesi City of Vallejo (707) 648-4519
Putah South Canal	Illegal activities/ Dumping Herbicide applications	Road/Streets Storm drain discharge Recreational area	Alex Rabidoux Solano County Water Agency (707) 451-6090
North Bay Aqueduct	Grazing animals* Runoff from grazing land	Runoff from agricultural land	Alex Rabidoux Solano County Water Agency (707) 451-6090

*Associated with detected contaminants

Pertains to Lakes System Service Area Only - Notice to Customers

If you reside in the Old Cordelia service area please contact City of Fairfield at 707-437-5386 for a copy of their Annual Water Quality Report.

All residences on Willotta Drive received Vallejo Lakes System water in 2018.

USEPA Unregulated Chemical Monitoring Requirements

Throughout 2018, the USEPA required all large public water systems to monitor for additional chemicals, not yet regulated. The purpose of this monitoring identifies the occurrence and levels of these chemicals in the public water supply. The USEPA uses this information to determine whether these chemicals need to be assessed for health effects and future regulations. This table shows the chemicals found and the levels at which they occur. This monitoring program pertains only to the City of Vallejo Service area.

CHEMICAL	RANGE
Manganese (ppb)	ND - 1.9
Total HAA51 (ppb)	7.0 - 23
Total HAA6Br2 (ppb)	4.2 - 8.1
Total HAA93 (ppb)	11 - 30

1 HAA5 (dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, trichloroacetic acid);

2 HAA6Br (bromochloroacetic acid, bromodichloroacetic acid, dibromoacetic acid, chlorodibromoacetic acid, monobromoacetic acid, tribromoacetic acid);

3 HAA9 (bromochloroacetic acid, bromodichloroacetic acid, chlorodibromoacetic acid, dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, tribromoacetic acid, and trichloroacetic acid).

DEFINITION OF TERMS USED IN THIS REPORT

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

Level 1 Assessment: A study of the water system to identify potential problems and determine (if possible) why total coliform have been found in our water system.

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 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.

n/a: Not applicable

ND: Not detected

NTU-Nephelometric Turbidity Units: Particles in water that make it appear cloudy

pCi/L: picoCuries per liter: A measure of radioactivity

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 or micrograms per liter (ug/L)

ppm: parts per million or milligrams per liter (mg/L)

Primary Drinking Water Standards: MCLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards: MCLs for aesthetic characteristics of water (such as color, taste, and odor) that may affect the consumer's acceptance of their water supply.

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

µS/cm-Microsiemens per Centimeter: A measure of electrical conductivity

City of Vallejo Water Conservation Program

Contact us for information on free water-saving devices and services or rebates to help reduce water use.

www.vallejowater.org

(707) 648-5299 or (707) 648-4479