

ANNUAL  
WATER  
QUALITY  
REPORT

*Water testing performed in 2006*

*Proudly Presented By:*



30073-I-0001

City of Vallejo System,  
CA4810007  
City of Vallejo Lakes System,  
CA4810021

## Where Does My Water Come From?

The City of Vallejo owns and operates two separate public water systems for the benefit of our customers.

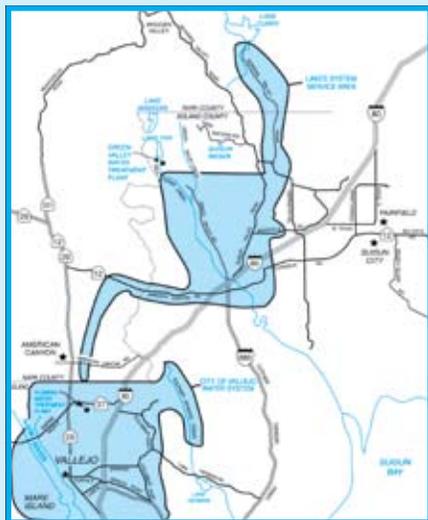
The **City of Vallejo** water system provides drinking water to customers within the city limits, to some customers in the unincorporated areas adjacent to city boundaries, and to a limited number of customers within the City of American Canyon.

City of Vallejo water system customers are fortunate because they enjoy an abundant water supply from two surface water sources. The Solano Water Project provides source water from Lake Berryessa, transported to our facilities by the Putah South Canal. This system 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 independently or to blend these sources before treatment at the Fleming Hill Water Treatment Plant.

The **City of Vallejo Lakes System** (Lakes System) is a separate 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 also has two distinct surface water sources. In addition to Lake Berryessa water from the Solano Water Project, this system treats water from lakes Frey and Madigan - two interconnected lakes owned by the City of Vallejo. Again, the Green Valley Water Treatment Plant can either treat each source separately or blend the two sources before treatment and delivery to our customers.

In case of emergencies, this system can receive treated water from the City of Fairfield. For a copy of their water quality report, call (707) 428-7594.



(courtesy of CSAA)

## 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 occurring within the watershed. A Source Water Assessment was completed in 2001 for the Putah South Canal and Lake Frey and a Sanitary Survey was updated in 2006 for the Putah South Canal. A Source Water Assessment was completed in 2002 for the North Bay Aqueduct (Sacramento Delta). The adjacent table summarizes the vulnerability of each water source and provides a contact name if you would like copies of the complete assessments.

Source	Most Vulnerable Activities	Moderately Vulnerable Activities	Contact
Lake Frey	Illegal body contact* Wild animal access* Agricultural drainage*	Other animal operations Wildfires	Erik Nugteren City of Vallejo (707) 648-4482
Putah South Canal	Illegal activities/ Dumping Herbicide applications	Road/Streets Storm drain discharge Recreational area	Alex Rabidou SCWA (707) 451-6090
North Bay Aqueduct	Grazing animals* Runoff from grazing land*	Runoff from agricultural land	Alex Rabidou SCWA (707) 451-6090

\*Associated with detected contaminants

## 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.

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

*Ang ulat na ito ay nagtataglay ng mahalagang inpormasyon. Kung kayo ay may tanong o nangangailangan ng karagdagang kaalaman ukol sa ulat na ito sa wikang Pilipino, mangyari lamang na tawagan si Jun Malit sa telepono (707) 648-4309.*

## Continuing Our Commitment

Once again, the City of Vallejo is pleased to provide our customers with their annual water quality report. This edition covers all water testing from January through December of 2006 and compares the quality of your drinking water to standards established by state and federal laws. As in the past, we are committed to delivering the best quality drinking water. To that end, we remain vigilant in meeting the challenges of water treatment, source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

For more information about this report, or for any questions relating to your drinking water, please call Sue Littlefield, City of Vallejo, Laboratory Supervisor, at (707) 649-3473.



### Lakes System Violation

The following notice only applies to customers of the **City of Vallejo Lakes System** and these customers received notices when their water had high levels of total trihalomethanes exceeding the MCL. Once the new MIEX™ pretreatment process was operating, the Green Valley Water Treatment Plant met the treatment technique requirement for removing total organic carbon beginning January 2006. This was an important step, since total organic carbon reacts with chlorine in the water to form disinfection byproducts known as trihalomethanes. Starting in May, distribution system monitoring resulted in substantially lower levels of trihalomethanes and by August, the water system was meeting primary drinking water standards for total trihalomethanes.

The **Lakes System** currently meets all drinking water standards. The following health effects statement is required due to the first half of 2006 when the MCL for total trihalomethanes was exceeded. *Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney, or central nervous system problems, and may have an increased risk of getting cancer.*

### How Is My Water Treated?

The **City of Vallejo** water system provides treated water from the Fleming Hill Water Treatment Plant, a conventional treatment plant with a forty-two million gallon per day capacity. The treatment process involves a series of steps in order to comply with surface water treatment rules and to produce water meeting primary and secondary drinking water standards.

Initially, we add ozone as the water enters the treatment plant. The addition of ozone aids in the removal of organic matter. The water flows to mixing basins where we add coagulants and gently agitate the water so that fine suspended particles come together and form large particles known as 'floc', which will settle out of the water supply. After this process, known as coagulation, flocculation, and sedimentation, we again add ozone to disinfect and remove unwanted color, taste, and odor.

At this point, water flows by gravity through multimedia filters consisting of granular activated carbon and sand so that it meets strict standards for clarity. Next, we add chlorine to disinfect the water supply and caustic soda to adjust the pH and alkalinity. Once fluoride is added to help prevent tooth decay, the water is ready for delivery to our customers.

### Community Participation

You are invited to participate in our public forum and voice your 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.

The **City of Vallejo Lakes System** provides customers with water treated at the Green Valley Water Treatment Plant, which has a capacity to treat one million gallons of water per day. Pretreatment of the raw water begins with the MIEX™ process, which incorporates a magnetic ion exchange resin to remove naturally occurring dissolved organic carbon. This process has been successful in bringing the treatment process into compliance with surface water treatment rules and the water quality is currently meeting the primary MCL for total trihalomethanes. Please refer to the article "Lakes System Violation" which is required information since the water did not meet the primary MCL for total trihalomethanes during the first half of 2006.

The treatment plant's conventional treatment process uses polymer to promote coagulation, flocculation, and sedimentation, which removes the majority of soil particles and microorganisms from the water. Then, the water gravity flows through multimedia filters consisting of anthracite and sand so that it will meet clarity standards. Depending on which water source we are treating, soda ash may be added in order to increase alkalinity and pH. The last step of the treatment process adds chlorine to disinfect the water and provide protection as the water travels through the distribution system. Please note that this treatment plant does not add fluoride to the water supply.

## A Message From the U.S. 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;
- Inorganic Contaminants, such as salts and metals, which 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 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 Department of Health Services (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department 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.

## Sampling Results

During the past year we have taken thousands of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. Although the majority of substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water. The state requires us to monitor for certain substances less than once a year because their concentration does not change frequently. In these cases, we've provided the most recent results including the year the monitoring occurred.

### Primary Drinking Water Standard (Regulated In Order To Protect Against Possible Adverse Health Effects)

SUBSTANCE (UNITS)	YEAR SAMPLED	MCL [MRDL]	City of Vallejo		Lakes System		VIOLATION	TYPICAL SOURCE	
			PHG (MCLG) [MRDLG]	AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH	AVERAGE AMOUNT DETECTED			RANGE LOW-HIGH
<b>Aluminum</b> (ppb)	2006	1000	600	82	82-82	ND	NA	No	Erosion of natural deposits; residue from some surface water treatment processes
<b>Chlorine</b> (ppm)	2006	[4.0 (as Cl <sub>2</sub> )]	[4 (as Cl <sub>2</sub> )]	0.8	ND-1.7	0.6	ND-1.6	No	Drinking water disinfectant added for treatment
<b>Combined radium</b> (pCi/L)	2006	15	(0)	1.58	1.58-1.58	ND	NA		
<b>Fecal Coliform/E. coli</b>	2006	<i>Footnote 1</i>	(0)	ND	ND-1	ND	NA	No	Human and animal fecal waste
<b>Fluoride</b> (ppm) <sup>2</sup>	2006	2.0	1	1.0	0.7-1.5	ND	ND-0.1	No	Water additive which promotes strong teeth
<b>Haloacetic Acids</b> (ppb)	2006	60	NA	12	6.6-25	34	ND-110	No	By-product of drinking water disinfection
<b>Nitrate [as NO<sub>3</sub>]</b> (ppm)	2006	45	45	ND	ND-2.6	ND	NA	No	Runoff and leaching from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
<b>Total Coliforms</b> (% positive samples)	2006	No more than 1 positive monthly sample	(0)	ND	ND-1.25%	ND	ND-1	No	Naturally present in the environment
<b>Total Organic Carbon [TOC]</b> (% removal ratio)	2006	TT ≥ 1	NA	2.2	0.8-3.0	1.0	0.9-4.5	No	Various natural and manmade sources
<b>Total Trihalomethanes [TTHMs]</b> (ppb)	2006	80	NA	43	22-74	<b>120</b>	<b>11-130</b>	<b>Yes<sup>3</sup></b>	By-product of drinking water chlorination
<b>Turbidity</b> (NTU) <sup>4</sup>	2006	TT ≤ 0.3	NA	0.05	0.02-0.09	0.02	0.01-0.16	No	Soil runoff

### Secondary Drinking Water Standard (Regulated In Order To Protect the Odor, Taste and Appearance of Drinking Water)

SUBSTANCE (UNITS)	YEAR SAMPLED	MCL	City of Vallejo		Lakes System		VIOLATION	TYPICAL SOURCE	
			PHG (MCLG)	AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH	AVERAGE AMOUNT DETECTED			RANGE LOW-HIGH
<b>Aluminum</b> (ppb)	2006	200	NS	82	82-82	ND	NA	No	Erosion of natural deposits; residual from some surface water treatment processes
<b>Chloride</b> (ppm)	2006	500	NS	14	9-24	30	9-72	No	Runoff/leaching from natural deposits; seawater influence
<b>Odor--Threshold</b> (Units)	2006	3	NS	1.0	1.0-1.4	1.4	1.0-3.0	No	Naturally-occurring organic materials
<b>Specific Conductance</b> (uS/cm)	2006	1600	NS	345	250-450	331	119-612	No	Substances that form ions when in water; seawater influence
<b>Sulfate</b> (ppm)	2006	500	NS	37	24-61	20	6-38	No	Runoff/leaching from natural deposits; industrial wastes
<b>Total Dissolved Solids [TDS]</b> (ppm)	2006	1000	NS	216	156-281	207	74-382	No	Runoff/leaching from natural deposits

# Lead and Copper Study-Monitoring of Customers' Tap Water<sup>5</sup>

To meet compliance for lead and copper, 90% of all samples (the 90th percentile) must not exceed the regulatory Action Levels of 1300 ppb for copper and 15 ppb for lead. We are required to repeat lead and copper monitoring, from the same homes, every three years to ensure lead and copper levels remain low.

## City of Vallejo

In 2006, we collected Lead and Copper tap water samples from 59 homes in the City of Vallejo service area. During this monitoring, neither lead nor copper were detected at the 90th Percentile

SUBSTANCE (UNITS)	YEAR SAMPLED	ACTION LEVEL	PHG (MCLG)	AMOUNT DETECTED (90 <sup>th</sup> %tile)	HOMES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper (ppb)	2006	1300	170	ND	0	No	Internal corrosion of household plumbing systems

## Lakes System

Thirteen homes in The Lakes System were sampled in 2005. These samples resulted in no detection of lead and low levels of copper at the 90th percentile.

SUBSTANCE (UNITS)	YEAR SAMPLED	ACTION LEVEL	PHG (MCLG)	AMOUNT DETECTED (90 <sup>th</sup> %tile)	HOMES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper (ppb)	2005	1300	170	65	0	No	Internal corrosion of household plumbing systems

## Additional Constituents Analyzed

SUBSTANCE (UNITS)	YEAR SAMPLED	City of Vallejo			Lakes System		TYPICAL SOURCE
		AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH	AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH		
Boron (ppm)	2006	0.15	0.15-0.15	0.1	0.1-0.1	Natural minerals	
Calcium (ppm)	2006	20	14-42	16	4-38	Natural minerals	
Hardness as CaCO <sub>3</sub> (ppm) <sup>6</sup>	2006	132	72-170	115	16-170	Natural minerals	
Magnesium (ppm)	2006	20	9-28	18	2-28	Natural minerals	
pH	2006	8.1	7.1-8.7	7.9	6.5-8.7	Natural or water treatment	
Sodium (ppm)	2006	24	24-24	45	45-45	Natural minerals	

## Unregulated Chemicals<sup>7</sup>

SUBSTANCE (UNITS)	YEAR SAMPLED	NOTIFICATION LEVEL	City of Vallejo		Lakes System		TYPICAL SOURCE
			AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH	AVERAGE AMOUNT DETECTED	RANGE LOW-HIGH	
Boron (ppm)	2002-2003	1	0.19	0.14-0.26	0.14	ND-0.26	Natural minerals
Vanadium (ppb)	2002-2003	50	3.1	ND-4.4	1.6	ND-3.2	Natural minerals

## Footnotes:

<sup>1</sup>A positive routine sample may not have a repeat sample that is positive for total or fecal coliform

<sup>2</sup>To be in compliance, 80% of measurements must be within the range of 0.8-1.4 ppm. The water met this standard

<sup>3</sup>Violation occurred only in the Lakes Water System. Refer to the article "Lakes System Violation".

<sup>4</sup>Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. For compliance, 95% of samples must be

≤ 0.3 NTU and during the reporting year, 100% of all samples taken met water quality standards.

<sup>5</sup>The City will be repeating lead and copper monitoring in the Lakes System during the summer of 2008 and in the City of Vallejo during the summer of 2009. We are required to keep sampling at the same homes every three years, so City staff will call upon past volunteers that helped us prove that our drinking water does not leach unsafe levels of lead or copper from home plumbing.

<sup>6</sup>To determine hardness as grains per gallon, divide the amount by 17.1

<sup>7</sup>During 2001 through 2003, state and federal laws required that we complete testing for specific lists of unregulated chemicals. Monitoring of unregulated contaminants helps the California Department of Health Services and the U.S. EPA to determine where certain contaminants occur and whether these contaminants need to be regulated.

## Table Definitions

**AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which 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 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 level of a disinfectant added for water treatment

that may not be exceeded at the consumer's tap.

**MRDLG (Maximum Residual Disinfectant Level Goal):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.

**NA:** Not applicable

**ND:** Not detected

**NS:** No standard

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water.

**pCi/L (picoCuries per liter):** A measure of radioactivity.

**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).

**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 conductance.