

Vacaville

2008 Drinking Water

Quality Report to Consumers



The City of Vacaville wants you, our customers to know that your

water system has met all water quality standards established by the U.S. Environmental Protection Agency (USEPA) and the California State Department of Public Health (DPH) and is a safe and reliable supply.

In 2008 Vacaville distributed over 6 billion gallons of drinking water. This water was subjected to extensive testing, not only for regulated contaminants, but also for non-regulated. More than 57,000 analyses were performed on water samples in 2008.

In order to ensure that tap water is safe to drink, the USEPA and the DPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. DPH regulations 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. 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), or visit the web site at <http://www.epa.gov/safewater/>.

For a full table of analyses of Vacaville's water and other facts, see our web site at <http://www.cityofvacaville.com> and go to the Public Works link. We would like to hear your comments on this report and invite you to join our source water protection efforts. Please contact the City of Vacaville Water Quality Lab Supervisor, Tony Pirondini by phone at (707) 469-6400 or by email at tpirondini@cityofvacaville.com.

SOURCES OF WATER & CONTAMINANTS

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.

Vacaville's water supply consists of two surface water sources and twelve deep groundwater wells. Lake Berryessa surface water, conveyed through Putah South Canal (PSC), provided 30% of the City's total consumption and Sacramento Delta surface water, from the North Bay

Aqueduct (NBA), provided an additional 40% in the year 2008.

Groundwater from the twelve deep wells made-up the balance (30%) of our water needs. Treatment for surface water is divided between the City's own diatomaceous earth (DE) water treatment plant, located on Allison Drive and the North Bay Regional Water Treatment Plant (NBR), located off Peabody Road. The DE plant treats PSC source water only, while the NBR plant, which is jointly-owned by the cities of Vacaville and Fairfield, treats both PSC and NBA source waters. The deep groundwater wells are located on or near Elmira Road, Orange Drive, and VacaValley Parkway.

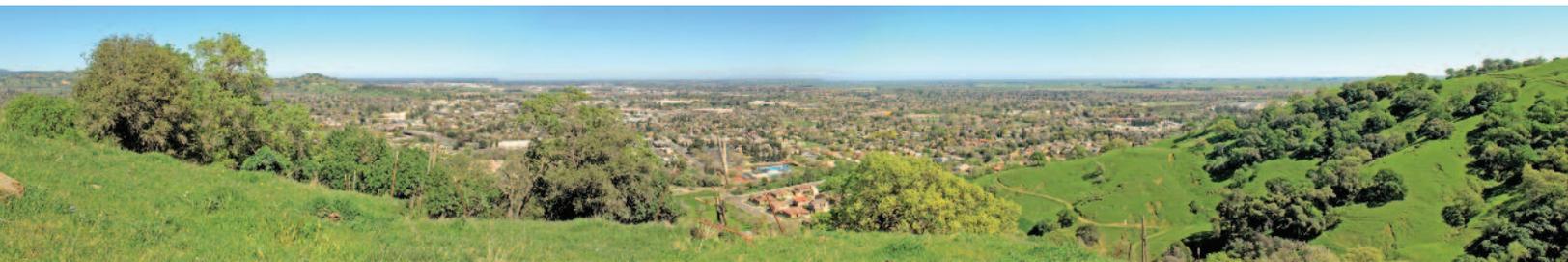
CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:

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

PREVENTING SALT CONTAMINATION OF THE WATER SUPPLY

Salts in the water supply are an increasing problem that threatens water resources in California. If ignored, increasing levels of salt in surface and groundwater supplies can impact drinking water and agricultural uses. Over time, excess salts can accumulate in soil reducing crop yields and ultimately rendering land unsuitable for farming.

Each of us contributes to the increasing salt problem; and eventually, each of us will likely be impacted in some way. Salts get into the water supply through common water uses, such as adding household deter-



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gents, soaps, shampoos, and fabric softeners, which all end up in the sewer. Also, salts end up in storm water and irrigation run-off from yard use of fertilizers and pesticides. Salts in water can also result from chemicals and disinfectants used in different industrial processes.

One of the easiest ways a consumer or business can lower the amount of salt that gets into the water supply is to reduce or eliminate the use of self-regenerating salt-based water softeners. Many of the softeners currently in use are not actually needed as most of the water supply is moderate to low in hardness (7 or less grains). Further, many of these water softeners regenerate on a timed basis, rather than a demand basis, wasting salt to the sewer. Eventually, these wasted salts end up in surface water supplies.

There is no one easy solution to fix the salt problem. There is no cost-effective way to filter salts out of water or wastewater. Pollution prevention and education are the best measures to protect our water supplies. You can help reduce salt pollution and possibly save some money too – by doing one or more of the following:

- If you have a self-regenerating water softener, consider turning it off or switching to an exchange tank water softening system that does not discharge salt to the sewer.
- Use less soap and detergents; use dryer sheets or 1/4 cup of white vinegar instead of liquid fabric softeners.
- Use fertilizers and pesticides sparingly; consider less toxic alternatives.
- Avoid over-watering your lawn or garden and creating run-off.
- Wash your car at a self or full service car wash that has a water recycling system.

ARSENIC IN DRINKING WATER—Vacaville Meets the Limit

While your drinking water meets the federal and State standard for arsenic, the groundwater does contain low levels of arsenic. These results are from samples taken in 2008. The standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The DPH continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

SOURCE WATER ASSESSMENTS AND VULNERABILITY SUMMARIES

A Source Water Assessment evaluates the quality of a source water that is used in a community drinking water supply. It is also used to determine the Potential Contributing Activities (PCAs) that occur within and nearby a source water supply. The PCAs are then compiled into a Vulnerability Summary report. The latest Vulnerability Summary report for the Sacramento Delta, including the Barker Slough North Bay Aqueduct (NBA), was completed in 2003. The source was considered to be most vulnerable to cattle and sheep grazing activities in the watershed associated with turbidity, total organic carbon, and coliform bacteria detected in the water supply. Approximately 85% of the watershed is grazing land or irrigated pastures. The cities treating NBA water, in conjunction with the Solano County Water Agency, have implemented watershed management practices to improve water quality and reduce the significance of the potential contaminant sources.

The latest Vulnerability Summary report for Putah South Canal (PSC) was completed in 2003. PSC was determined to have a physical barrier effectiveness rating of “low.” The results of the assessment survey indicated that PSC is most vulnerable to illegal activities/unauthorized dumping and herbicide application. Management measures along the canal have been implemented that mitigate the risk for each of these PCAs. These measures include restricted access to the canal by installation of security fencing, regular patrolling of the canal, reduction of herbicide use, replanting canal walls with grasses, cleaning of the canal during periods of no water deliveries, and diversion of surface drainage around and away from the canal. The Vulnerability Summaries for Vacaville's groundwater wells were performed in 2002, 2003, and 2005. The wells are considered most vulnerable to automobile gas stations, chemical and petroleum processing and storage, dry cleaners, septic systems, sewer collection systems, agricultural drainage, and agricultural and irrigation wells. The wells offer various levels of protection from PCAs due to factors such as characteristics of the aquifer, deep water table intakes, well construction features and physical barriers. Therefore, although the PCAs listed in the assessment surveys are activities that have the potential to contaminate the wells, the PCAs are not causing nor have historically caused contamination of the water sources. Additionally, Vacaville has a long-standing Source Control Program, whereby inspectors perform audits of commercial and industrial facilities. This is to ensure that no illicit discharges are taking place or have taken place, and to confirm that pollutant disposal practices conform to guidelines and laws.

A copy of the Source Water Assessment(s) and Vulnerability Summaries can be obtained through the California DPH, Drinking Water Field Operations Branch, San Francisco District Office, 850 Marina Bay Parkway, Bldg P, 2nd Floor, Richmond, California 94804. You may request that a summary be sent to you by contacting Alla Lilichenko, District Engineer, California Department of Public Health, at (510) 620-3601.

Protect Your Water Supply

Polluted stormwater potentially affects drinking water sources, which can affect public health and increase drinking water treatment costs. Please help protect your water supply by controlling household and automotive products that contain toxic chemicals. Reduce the use of toxic chemicals wherever possible (including fertilizers and pesticides) and be sure to properly recycle or dispose of waste.

Everything that goes down a storm drain or sewer may potentially affect your local water. Never dispose of household or automotive products and chemicals down the storm drain or in the sewer.



Vacaville's water supply consists of two surface water sources, conveyed through the Putah South Canal and the North Bay Aqueduct, and twelve deep water wells.

■ = Vacaville WTP
■ = North Bay Regional WTP
■ = Well Location
Not To Scale

HEALTH-BASED PRIMARY DRINKING WATER STANDARDS • Constituents Detected in Water

SUBSTANCE	UNITS	MCL	PHG (MCLG)	RANGE	AVG	MAJOR SOURCES IN DRINKING WATER
GROUNDWATER						
Clarity						
Turbidity	ntu	tt	na	0.05 - 2.6	0.29	Soil runoff.
Inorganic Chemicals						
Arsenic	ppb	10	0.004	1.2 - 7.8	3	Erosion of natural deposits, glass and electronics production waste.
Barium	ppb	1000	2000	67 - 120	93	Erosion of natural deposits.
Chromium	ppb	50	100	1.7 - 21	11	Discharge from chrome plating and erosion of natural deposits.
Fluoride, naturally occurring	ppm	2	1	0.1 - 0.2	0.2	Erosion of natural deposits.
Nitrate (as N)	ppm	10	10	0.4 - 4.1	1.7	Runoff and leaching from fertilizer use; leaching from septic tanks; erosion of natural deposits.

SURFACE WATER - NBR						
Clarity						
SUBSTANCE	UNITS	MCL	PHG (MCLG)	Highest Detection	Percent in Compliance (<0.5 ntu)	MAJOR SOURCES IN DRINKING WATER
Turbidity (a)	ntu	tt	na	0.12	100%	Soil runoff.

Regulated Organic Chemicals						
SUBSTANCE	UNITS	MCL	PHG (MCLG)	RANGE	AVG	MAJOR SOURCES IN DRINKING WATER
Total Trihalomethanes	ppb	80	na	3.8 - 21.0	10.7	By-product of drinking water disinfection.
Inorganic Chemicals						
Fluoride, naturally occurring	ppm	2	1	nd - 0.2	0.08	Erosion of natural deposits.
Nitrate (as N)	ppm	10	10	0.8 - 1.2	1.0	Runoff & leaching from fertilizer use; leaching from septic tanks; erosion of natural deposits.
Nickel	ppb	100	1	nd - 20	10	Erosion of natural deposits, discharge from metal factories.
Cryptosporidium (2008 NBA Untreated)	Organisms/L	tt	(0)	nd - 2	0.8	Naturally present in the environment.
Giardia (2008 PSC Untreated)	Organisms/L	tt	(0)	nd - 1	0.2	Naturally present in the environment.
Cryptosporidium (2008 PSC Untreated)	Organisms/L	tt	(0)	nd - 1	0.2	Naturally present in the environment.

SURFACE WATER - VWTP						
Clarity						
SUBSTANCE	UNITS	MCL	PHG (MCLG)	Highest Detection	Percent in Compliance (<0.5 ntu)	MAJOR SOURCES IN DRINKING WATER
Turbidity (a)	ntu	tt	na	0.34	100%	Soil runoff.

Regulated Organic Chemicals						
SUBSTANCE	UNITS	MCL	PHG (MCLG)	RANGE	AVG	MAJOR SOURCES IN DRINKING WATER
Total Trihalomethanes	ppb	80	none	28	28	By-product of drinking water disinfection.
Arsenic	ppb	10	0.004	1.5	1.5	Erosion of natural deposits, glass and electronics production waste.
Barium	ppb	1000	2000	50	50	Erosion of natural deposits.
Chromium	ppb	50	100	2.7	2.7	Discharge from chrome plating and erosion of natural deposits.
Fluoride, naturally occurring	ppm	2	1	0.08	0.08	Erosion of natural deposits.
Nitrate (as N)	ppm	10	10	0.1	0.1	Runoff and leaching from fertilizer use; leaching from septic tanks; erosion of natural deposits.

PRIMARY CONSTITUENTS REPORTED IN DISTRIBUTION SYSTEM						
SUBSTANCE	UNITS	MCL	PHG (MCLG)	RANGE	MAJOR SOURCES IN DRINKING WATER	
Lead (b) (c)	ppb	al = 15	2	2.5 ppb reflects the 90th percentile. Of the 32 samples analyzed, none exceeded the action level. Data is from the last required sampling August of 2008.	Erosion of natural deposits. Internal corrosion of household water plumbing systems.	
Copper (b) (c)	ppm	al = 1.3	0.30	0.17 ppm reflects the 90th percentile. Of the 32 samples analyzed, none exceeded the action level. Data is from the last required sampling August of 2008.	Erosion of natural deposits; Water additive that promotes strong teeth.	
Fluoride (d) (e)	ppm	0.7 - 1.3	0.8	Distribution system-wide highest monthly average = 0.9 ppm with a minimum of 0.7 ppm and a maximum of 1.1 ppm.	Naturally present in the environment.	
Total Coliform Bacteria	MPN/100mL	5%	(0)	Distribution system-wide highest monthly value = 0%		

SUBSTANCE	UNITS	MCL or MRDL	MCLG or MRDLG	LEVEL DETECTED	MAJOR SOURCES IN DRINKING WATER
Disinfectants & Disinfection By-Products (DBP)					
Total Trihalomethanes (d) (f)	ppb	80	na	Average = 20.0 ppb Minimum = nd Maximum = 60.0 ppb	By-product of drinking water chlorination.
Haloacetic Acids (d) (f)	ppb	60	na	Average = 3.5 ppb Minimum = nd Maximum = 31.0 ppb	By-product of drinking water chlorination.
Chlorine	ppm	4	4	Average = 0.77 ppm Minimum = nd Maximum = 1.54 ppm	Drinking water disinfectant added for treatment.
Bromate	ppb	10	0	Average = 1.5 ppb Minimum = nd Maximum = 5.5 ppb	Drinking water disinfectant added for treatment.
Control of DBP Precursors (TOC)	mg/L	tt	-	Average = 2.0 Minimum = 1.1 Maximum = 3.1	Various natural and man made sources.

LEGEND

- al** = Action Level or Notification Level. The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.
- MCL** = Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. Set by the USEPA as close as possible to MCLGs as feasible.
- MCLG** = Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. Set by the USEPA.
- MRDL** = Maximum Residual Disinfectant Level. The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap. Set at 4.0 mg/L as Cl2 for chlorine disinfection.
- 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. MRDL's are set by USEPA.
- na** = Not Applicable or Not Available at this time.
- nd** = Not-Detected.
- ntu** = Nephelometric Turbidity Units. The standard unit for turbidity measurements.
- pCi/L** = Pico Curies per Liter.
- umhos/cm** = unit of measure for conductance.
- 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 Cal/EPA.
- ppm** = Parts Per Million or Milligrams per Liter (mg/L).
- ppb** = Parts Per Billion or Micrograms per Liter (ug/L).
- ton** = Total Odor Number.
- tt** = Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water. No Public Health Goal is defined.
- (a)** = Range is maximum monthly value; 100% represents the lowest percentage of samples which meet monthly compliance limit of 0.5 ntu.
- (b)** = This is the State action level for samples collected from inside homes.
- (c)** = The 90th percentile reflects the concentration of lead or copper at which 90% of the samples tested were found to have not exceeded. Household lead and copper results are from 2005 analyses. The next sampling is scheduled for 2008.
- (d)** = Not possible to differentiate between groundwater or surface water source.
- (e)** = Added as required for dental health protection Standard depends upon temperature.
- (f)** = Compliance is based on a running annual average of samples collected quarterly.
- (g)** = To convert hardness data from ppm to grains per gallon, divide by 17.

AESTHETIC-BASED DRINKING WATER SECONDARY STANDARDS
Constituents Detected in Treated Water

SUBSTANCE	UNITS	MCL	GROUNDWATER		SURFACE WATER NBR		SURFACE WATER VWTP	
			RANGE	AVG	RANGE	AVG	RANGE	AVG
Chloride	ppm	250	8 - 33	15	10 - 54	25	8	8
Color	units	15	nd	nd	nd	nd	5	5
Iron	ppb	300	nd - 35	3	nd	nd	nd	nd
Manganese	ppb	50	nd	nd	nd	nd	2	2
Odor - Threshold	ton	3	1 - 3	1	nd - 1.4	1.1	2	2
Silver	ppb	100	nd	nd	nd - 16	8	nd	nd
Sulfate	ppm	250	24 - 66	41	38 - 88	61	23	23
Specific Conductance	umhos/cm	1600	471 - 846	587	286 - 629	389	357	357
Total Dissolved Solids (g)	ppm	1000	270 - 546	367	163 - 387	238	222	222
Zinc	ppm	5	nd - 0.065	0.005	nd	nd	nd	nd

UNREGULATED CONSTITUENTS REPORTED IN DRINKING WATER

Alkalinity	ppm	No Std	161 - 305	221	51 - 148	94	158	158
Boron	ppb	al = 1000	110 - 310	200	110 - 360	180	170	170
Calcium	ppm	No Std	14 - 85	44	9 - 28	17	19	19
Hardness (g)	ppm	No Std	84 - 330	190	58 - 170	100	171	171
Magnesium	ppm	No Std	12 - 28	20	8 - 24	14	30	30
pH	units	No Std	7.7 - 8.2	7.9	8.0 - 8.8	8.3	8.4	8.4
Potassium	ppm	No Std	2.3 - 6.1	3.9	2.0 - 3.5	2.5	1.2	1.2
Sodium	ppm	No Std	39 - 82	55	29 - 76	44	11	11
Vanadium	ppb	al = 50	8 - 26	14	nd - 5	3.0	6	6
Molybdenum	ppb	No Std	nd - 2.5	0.2	nd - 1.4	0.7	nd	nd

HEALTH RELATED INFORMATION PRECAUTIONS FOR PEOPLE WITH WEAKENED IMMUNE SYSTEMS:

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, people 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. USEPA and Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants can be obtained by calling USEPA's Safe Drinking Water Hotline (800-426-4791) or visiting the web site at www.epa.gov/.

POLICY ON NONDISCRIMINATION ON THE BASIS OF DISABILITY

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990, the City of Vacaville ("City") does not discriminate against qualified individuals with disabilities on the basis of disability in the City's services, programs or activities, or employment. Information, comments, requests for accommodations or barrier removal, and/or complaints concerning the accessibility of City programs, services or activities to persons with disabilities should be directed to the City's ADA Coordinator, 650 Merchant Street, 449-5409, 449-5162 (TTY), or ada@cityofvacaville.com.

PHARMACEUTICALS

The occurrence of trace pharmaceuticals and personal care products in drinking water supplies has been a water quality and public health concern for many years. Pharmaceuticals and personal care products (PPCPs) refer to thousands of chemicals used by individuals for health or cosmetic reasons, including prescriptions, over-the-counter therapeutic drugs, fragrances and lotions, and veterinary drugs.

The City's first priority is to protect public health and as part of that commitment, the City of Vacaville provides a safe and reliable supply of drinking water in accordance with strict federal and State requirements. Most of Vacaville's water supply is not subject to PPCP contamination, as the City's groundwater wells are deep and have protective sanitary seals. Of the two surface water supplies, Lake Berryessa is not subject to PPCPs, whereas the Sacramento Delta surface water supply may be vulnerable to PPCPs.

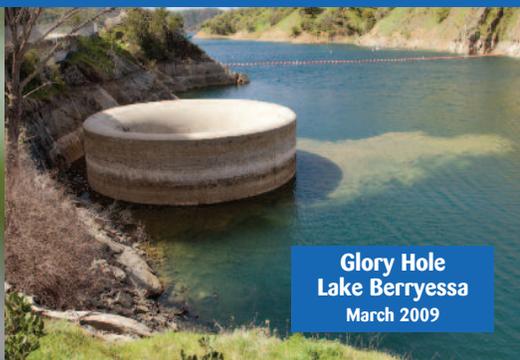
One way you can prevent PPCPs from getting into the water supply is by proper disposal of these substances. Pharmaceuticals should never be flushed down the drain or toilet, as sewer treatment may not be effective at removing all traces of these compounds. "No Drugs Down the Drain" pharmaceutical "Take-Back" waste collection events are routinely scheduled by the City each year. The purpose of these events is to provide residents with the opportunity to dispose of pharmaceuticals which have expired or are no longer needed.

Currently, strict federal regulations require law enforcement personnel to be present during pharmaceutical take back events to oversee disposal of the medications collected. The USEPA has proposed new waste rules for pharmaceuticals which will ease disposal requirements and allow for "Take-Back" programs under the Universal Waste Rule. This rule currently encompasses disposal of batteries, oil, paint, pesticides, mercury-containing equipment, electronics waste, and fluorescent lamps. The Universal Waste site is located at the household hazardous waste facility at 855 1/2 Davis Street (next to Winco) and is open every Saturday from 9 a.m. - 3 p.m.

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) or by visiting the web site at <http://www.epa.gov/safewater>.

GET INVOLVED!

The City Council meets on the second and fourth Tuesdays of each month at 7:00 p.m. in the Council Chambers at City Hall, located at 650 Merchant Street. All residents are encouraged to participate in these meetings. Agendas and minutes for the meeting are available on line at the City of Vacaville web site: <http://www.cityofvacaville.com>.



Este informe contiene información muy importante Sobre su agua bebr. Tradúzcalo o hable con alguien que lo entienda bien.

Itong ulat ay mayroong mahalagang impormasyon tungkol sa inumin na tubig. Isalin mo o makipagusap sa makaunawa.

For assistance in translating this, please call Mark Mazzaferro, Public Information Officer, at 449-5371.