

**PRIMARY DRINKING WATER STANDARDS** **Table of Detected Contaminants for January 1, 2015 to December 31, 2015**

CONTAMINANT	Untreated Source Waters						Treated Water			CONTAMINANT SOURCE		
	North Bay Aqueduct		Lake Berryessa		Lake Herman		Benicia's Treated Water		Maximum Contaminant Levels (MCL)		Public Health Goal	
	Range	Average	Range	Average	Range	Average	Range	Average				
Aluminum (ppm)	0.2—1.0	0.5		0.05		0.23		ND	1	0.6	Erosion of natural deposit; water treatment residue	
Arsenic (ppb)	3.1—4.5	3.9		2.8		6.8		ND	10	0.004	Erosion of natural deposit; orchard runoff	
Fluoride (ppm)	0.1—0.2	0.15		ND	0.3—0.4	0.3	0.2—1	0.9	2	1	Erosion; water treatment additive	
Barium (ppm)		ND		ND		0.09		ND			Erosion; industrial waste	
Total Chromium (ppb)	ND—34	8.5		ND		ND		ND			Erosion, Discharge from steel or pulp mills, chrome plating	
Nickel (ppb)	ND—13	3.3		ND		ND		ND				
Coliform Bacteria	Present in Source Water						0—2.6%	0.2%	5% Positive	0		Naturally present in the environment
<b>Byproducts of Chlorination</b>							<b>RAA</b>					
Total Trihalomethane (ppb)		ND		ND		ND	52—79	72	80	NA	By-product of drinking water chlorination	
Total Haloacetic Acids (ppb)		NA		NA		NA	8—26	15	60	NA	By-product of drinking water chlorination	

**SECONDARY CONSUMER ACCEPTANCE STANDARDS**

CONTAMINANT	Range	Average	Range	Average	Range	Average	Range	Average	Notification Level	CONTAMINANT SOURCE	
Aluminum (ppb)	180—1,000	488		55		230		ND	200		Erosion; residue from water treatment
Color (units)	109—403	198		25		25	0—5	1	15		Naturally occurring organic materials
Iron (ppb)	500—2,600	1,145		120		330		ND	300		Erosion; industrial waste
Manganese (ppb)	35—54	46		ND		28		ND	50	500	Leaching from natural deposits
Threshold Odor (units)	3—4	3.5		17		17		2	3		Naturally occurring organic materials
Turbidity (NTU)	5—23	10.5		3.6	9—22	15	0.02—0.11	0.04	TT		Soil runoff
Total Dissolved Solids (ppm)	184—285	233		220	257—400	358	190—520	266	1,000		Runoff/leaching from natural deposits
Conductivity (µS/cm)	294—469	374		380	563—667	607	256—973	450	1,600		Substances that form ions in water
Chloride (ppm)	25—39	32		6.6		41		23	500		Runoff/leaching of natural deposits
Sulfate (ppm)	17—42	30		23		42		53	500		Runoff of natural deposits; industrial waste

**ADDITIONAL CONSTITUENTS ANALYZED**

CONTAMINANT	Range	Average	Range	Average	Range	Average	Range	Average	Notification Level
Boron (ppb)	140—290	203		NA		NA		NA	1,000
Vanadium (ppb)	4—6	5		NA		NA		NA	50
Calcium (mg/l)	17—23	19		19		40		14	
Free Chlorine Residual (ppm)		NA		NA			0.8—1.6	1.2	4.0
Total Hardness (ppm)	98—152	118		190	192—227	202	72—192	127	
Magnesium (ppm)	13—22	17		34		29		12	
Potassium (ppm)	2.6—3.6	2.9		1.3		NA		NA	
Sodium (ppm)	25—53	38		11		57		39	
pH	7—8	7.8		9	7.3—8.3	7.8	7.7—8.6	8.1	
Alkalinity (ppm)	96—145	116		180	195—241	216	74—174	120	

**Landscape Water Restrictions**  
 The Benicia City Council has adopted emergency outdoor watering restrictions that limit watering by automatic sprinkler systems.

The following restrictions are in effect from April 1st to October 15th:

- Customers with addresses ending in an odd number (1, 3, 5, 7, 9) can water on Monday, Wednesday, and Fridays.
- Customers with addresses ending in an even number (0, 2, 4, 6, 8) can water on Tuesday, Thursday, and Saturdays.
- Customers are allowed to water on their designated days only, before 8:00 am or after 7:00 pm to minimize evaporation.

From October 16th to March 31st sprinklers will be limited to one day per week, either Saturday or Sunday, customers choice.

# Lead and Copper

Lead and copper were last tested in September 2015 in 34 customer's homes. We will test again in September of 2018. The EPA's Action Levels (ALs) for lead are 15 ppb and 1,300 ppb for copper. Results from the 2015 monitoring are below.

Contaminant	Action Level	PHG	Benicia's Water 90th Percentile Value	Number of Sites Above the AL	Contaminant Source
Lead (ppb)	15	2	1.6	0	Corrosion of household plumbing systems
Copper (ppb)	1,300	300	110	0	

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 material and components associated with service lines and home plumbing. The City of Benicia proactively controls the water chemistry in order to prevent lead and copper from leaching into the drinking water. We accomplish this by increasing the pH of the water to form a calcium carbonate protective liner between the pipe material and the water supply. This has been most effective for controlling corrosion, as noted by the low lead and copper results each year.

The City has replace all of its lead service lines (installed during the early 20<sup>th</sup> century), so the only other sources of lead is from brass fixtures and solder joints. Because of the City's effective corrosion control program, very little lead is leached from these two plumbing materials. As of January 1, 2016, all brass plumbing fixtures (including water meters and corporation valves) must be lead-free. This assures our customers that lead contamination is a high priority with the City and that we effectively minimize its contamination into your drinking water.

If a family believes it is at risk of lead exposure from drinking water, we encourage you to have your water tested by a certified laboratory. The City has a list of certified environmental labs that can conduct this testing and the cost is reasonable. Other options available to the customer is to install a "point-of-use" treatment device (such as reverse osmosis filtration or ion exchange) at their kitchen faucet to remove lead in your drinking water supply. And finally, avoid consuming water from the hot water where there is a higher likelihood of lead leaching. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/lead>.

## Legend

- AL** - Action Level. The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.
- NA** - Not Applicable or not available
- ND** - Not Detected
- MCL** - Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. Set by the USEPA as close to the 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 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 disinfectant added to water treatment 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.
- PHG** - Public Health Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. PHG are set by the CA EPA
- ppm** - Parts per million or milligrams per liter (mg/L)
- ppb** - Parts per billion or micrograms per liter (µg/L)
- RAA** - Running Annual Average
- NTU** - Nephelometric Turbidity Units. The standard unit for turbidity measurements
- TT** - Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water. No public health goal is defined.
- TON** - Threshold Odor Number
- PDWS** - Primary Drinking Water Standard. MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

## Benicia Home Efficiency Program—No Cost Home Water and Energy Consultations

Take advantage of the City sponsored Benicia Home Efficiency Program designed to help residents save energy, water and money. Through a partnership with WattzOn, Benicia residents receive **free** home water and energy audits from professional energy consultants. You can sign up at [www.beniciahomeefficiency.org](http://www.beniciahomeefficiency.org). If you have any questions please call (650) 948-2004.

## SOURCES OF WATER AND 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.

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

Our water supply consist of three surface water sources: Sacramento Delta water via the North Bay Aqueduct (NBA), Lake Berryessa transported through the Putah South Canal (PSC), and Lake Herman, the City's emergency supply.

A source water assessment of the NBA was completed in March 2003. The source is considered 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 assessment of PSC was completed in March 2003. The source is considered most vulnerable to the following activities associated with a contaminant detected in the water supply: Illegal activities, unauthorized dumping, and herbicide application. In addition, PSC is considered moderately vulnerable to the following activities not associated with detected contaminants: roads, storm drain discharges, and surface water recreation.

The assessment of Lake Herman was completed in June 2002. Lake Herman is considered most vulnerable to the following activities associated with contaminants detected in the water supply: urban runoff, herbicides and pesticides used at Hiddenbrooke Golf Course and by residents and ranchers in Sky Valley, and historic mining operations.

Even though the water sources are considered vulnerable to these activities all drinking water standards are met in the treated water delivered to customers.

A copy of the completed assessment is available at the Benicia Public Library or the Water Quality Division Offices at 614 East 5th Street, or the State Water Resources Control Board, Division of Drinking Water, 850 Marina Bay Parkway, Richmond, CA. You may request that a summary be sent to you by contacting Division of Drinking Water district engineer at (510) 620-3454. You may also contact David Wenslawski, Water Quality Technician at 746-4792 or by e-mail at [dwenslawski@ci.benicia.ca.us](mailto:dwenslawski@ci.benicia.ca.us).

**Should you have any problems with your drinking water, please let us know by calling the Water Treatment Plant at 746-4394.**

## 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 USEPA's Safe Drinking Water Hotline (1-800-426-4791).

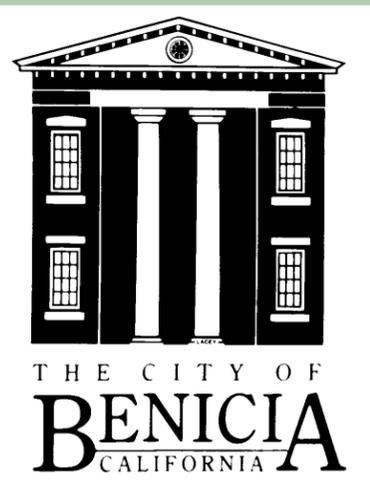
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. 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 (1-800-426-4791).



### CRYPTOSPORIDIUM, GIARDIA, AND TURBIDITY EXPLAINED

*Cryptosporidium* and *Giardia* are microbial pathogens found in surface water throughout the U.S. Both have been detected in our sources, the Sacramento River and Lake Berryessa, prior to our treatment process. Benicia, like many other treatment plants, provides a multiple barrier treatment process of filtering the water, then disinfecting with chlorine. Although filtration removes over 99.9% of *Cryptosporidium* and *Giardia*, even the most commonly used filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* can cause Cryptosporidiosis and *Giardia* can cause Giardiasis; both are abdominal infections. Symptoms include nausea, diarrhea, and abdominal cramps. *Cryptosporidium* and *Giardia* must be ingested to cause disease, and may be spread through means other than drinking water.

Turbidity is a measure of the cloudiness of water. We test for turbidity because it is the best indicator of how well our filters are working. The State limit for turbidity is less than 0.3 NTUs in 95% of the samples taken. Benicia's treated water turbidity was less than 0.1 NTUs for all of 2015. Turbidity is measured in NTUs or Nephelometric Turbidity Units. The filtered water is analyzed continuously and sampled by an operator at a minimum of every four hours throughout the day.



# 2015 City of Benicia Consumer Confidence Report of Drinking Water Quality

In order to ensure that tap water is safe to drink, the United States 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 the public water systems.

State Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

A primary purpose of this drinking water quality report is to provide our water customers detailed information regarding where your water comes from, what it contains and how it compares to Federal and State standards for the period of January 1, 2015 through December 31, 2015.

If you have any questions after reading this report please call Water Quality Technician, David Wenslawski at 707-746-4792 or the City of Benicia Water Treatment Plant at 707-746-4394.

This report and other information can be found on our website at [www.ci.benicia.ca.us](http://www.ci.benicia.ca.us).

The City of Benicia also encourages citizens to participate in our City Council meetings which take place on the first and third Tuesday of each month at 7:00 pm in the Council Chambers at City Hall, 250 East L Street. Council Meetings provide an opportunity to participate in decisions that affect your drinking water.

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



**Last year, as in years past, your tap water met all USEPA and State drinking water health standards.** The City of Benicia vigilantly safeguards its water supplies and once again, we are proud to report that our water system has not violated a maximum contaminant level or any other water quality standard.

### WATER CONSERVATION

The City of Benicia encourages its citizens to use water wisely. Rebates are available for high efficiency washing machines, turf replacement and smart irrigation controllers. Due to the drought and increased program participation some rebate programs are out of funds temporarily until July 1, 2016. **Please check the website below for the current status of rebate programs.**

#### SOLANO COUNTY WATER AGENCY CURRENT REBATES!

High-Efficiency Washing Machine \$150  
Turf Replacement up to \$1,000  
Smart Irrigation Controllers up to \$1,000

For more information go to:  
[www.solanosaveswater.org](http://www.solanosaveswater.org)

