

BELLA VISTA WATER DISTRICT

2016 CONSUMER CONFIDENCE REPORT

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

The District is pleased to present the 2016 Consumer Confidence Report. Our unvarying goal is to provide a safe and dependable supply of drinking water to all of our customers. Last year, as in years past, your tap water met all EPA and State drinking water health standards. Once again we are proud to report that our water system has never violated a maximum contaminant level or any other water quality standard.

WHERE OUR WATER COMES FROM

In 2016 our water sources included surface water from the Sacramento River and some groundwater from our five wells. For the 2016 water year which included the months of April 2016 through February 2017, the District received a 100% Water Supply Allocation for both agricultural use and for municipal and industrial use from the Central Valley Project as a result of vastly improved precipitation and water storage from prior years of drought that had resulted in historically low water allocations. The drought that spanned water years 2012 through 2016 included the driest four-year statewide precipitation on record (2012-2015) and the smallest Sierra-Cascades snowpack on record (2015, with 5 percent of average). It was marked by extraordinary heat: 2014, 2015 and 2016 were California's first, second and third warmest years in terms of statewide average temperatures.

In his April 1, 2015 [Executive Order B-29-15](#), Governor Brown mandated a 25 percent water use reduction by users of urban water supplies across California. In May 2015, the State Water Board adopted an emergency regulation requiring an immediate 25 percent reduction in overall potable urban water use. The regulation used a sliding scale for setting conservation standards, based on a premise that communities that had already reduced their residential gallons per capita per day (R-GPCD) through past conservation had lower mandates than those that had not made such gains since the last major drought. For the District, this resulted in a monthly 36% conservation target as compared to the same month in 2013.

On Feb. 2, 2016, based on Governor Brown's November 2015 [Executive Order B-36-15](#), the State Water Board approved an updated and extended emergency regulation to continue mandatory reductions through October 2016. The extended regulation took into account some factors that influence water use: climate, population growth and significant investments in new local, drought-resilient water supplies such as wastewater reuse and desalination. This resulted in a 33% conservation target as compared to 2013 for the District. In 2016 and throughout the drought, the District's customers achieved extraordinary conservation that topped the State Water Board's ranking for conservation achieved as compared to 2013 water use. On May 9, 2016, Governor Brown issued [Executive Order B-37-16](#) extending the drought water restrictions through January 2017.

Following historically high precipitation and snow accumulation, on April 7, 2017, the Governor rescinded the drought state of emergency in most of California, while maintaining water reporting requirements and prohibitions on wasteful practices. In a related action, state

agencies issued a plan to continue to [make conservation a way of life in California](#), as directed by Governor Brown in May 2016. The framework requires [new legislation](#) to establish long-term water conservation measures and improved planning for more frequent and severe droughts.

In 2016, surface water from the Sacramento River made up 92.8% of the treated water supply of approximately 2.4 billion gallons (7,354 acre-feet) compared with 77.8% of the treated water supply and 1.75 billion gallons (5,378 acre-feet) in 2015. The maximum daily flow through the Water Treatment Plant in 2016 was 18.5 million gallons (56.8 acre-feet) on August 17th. In 2016 the District captured and recycled approximately 124.5 million gallons (382 acre-feet) of filter backwash water, supplying approximately 5.2% of the treated water supply in 2016. This recycled water reduces the amount of water that the District diverts from the Sacramento River or pumps from groundwater wells and provides a much needed reliable source of water during shortages.

The District's wells draw from the [Redding Groundwater Basin, Enterprise Subbasin](#). The wells made up 7.2% of the total supply, or approximately 186.7 million gallons (573 acre-feet) in 2016 compared with 22.2% of the treated water supply and 499.8 million gallons (1,534 acre-feet) in 2015. The treatment process at each of the five wells consists of oxidation of iron and manganese using chlorine, followed by absorption of the iron and manganese oxides in pressure filters. A chlorine residual is carried through the entire process to aid in maintaining a chlorine residual in the distribution system. No iron or manganese was detected in any of the treated well water samples collected in 2016. Well water is warmer than the treated surface water and has a different taste due to its higher mineral content. At times, the mixing of chlorinated well water with treated river water in the distribution system generates a more noticeable taste due to the different physical and chemical properties of the different waters. To ensure the safety of the water the same microbiological testing is completed weekly at various sites throughout the water distribution system, regardless of the water source.

The District received no water through its interties with the Cities of Redding and Shasta Lake during all of 2016.

Source water assessments were performed by the State Water Resources Control Board (State Board), Division of Drinking Water between January 2002 and April 2003. The District's Sacramento River source is considered most vulnerable to the following activities associated with contaminants detected in the water supply: (1) metal plating/finishing/ fabricating, (2) wood/pulp/paper processing and mills, and (3) drinking water treatment plants. The source is considered most vulnerable to the following activities not associated with any detected contaminants: (1) concentrated aquatic animal production facilities, (2) historic waste dumps/landfills, (3) landfills/dumps, (4) historic mining operations, and (5) wastewater treatment plants and disposal facilities (above Shasta Dam). The District's well sources are considered most vulnerable to the following activities not associated with any detected contaminants: (1) lumber processing and manufacturing; (2) septic systems - low density; (3) sewer collection systems; (4) historic waste dumps/landfills; (5) automobile - gas stations; and (6) utility stations - maintenance areas.

A copy of the complete assessment may be viewed at Bella Vista Water District, 11368 E. Stillwater Way, Redding, CA 96003. You may request a summary of the assessment be sent to you by contacting our office at info@bvwd.org or (530) 241-1085, ext. 105.

In 1989 the Federal Surface Water Treatment Rule set forth specific regulations requiring proper treatment of surface waters, as well as specific license requirements for water treatment operators. Although the regulations have changed dramatically, the overall process has not. Currently the District's staff includes 10 individuals with state certification as water treatment operators and 18 with certification as water distribution operators (including 12 individuals with certification as both) who contribute to the operation and maintenance of the District's facilities 365 days per year.

CONTAMINANTS 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. 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.
- 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.

STATE AND FEDERAL REGULATIONS

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.

The tables in this report list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The State Board allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of our water quality, are more than one year old.

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 the 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.

A NOTE TO THE IMMUNO-COMPROMISED FROM THE UNITED STATES EPA

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/Center 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).

REGARDING LEAD IN DRINKING WATER

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. Bella Vista Water District 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 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 or at <http://www.epa.gov/lead>.

ARSENIC IN THE DISTRICT'S WATER

Analysis of the District's surface and well waters has shown that it contains low levels of arsenic (less than 10 parts per billion). The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The U.S. Environmental Protection Agency 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.

ABOUT THE WATER QUALITY TABLES

Bella Vista Water District routinely monitors for constituents in your drinking water according to federal and state laws. The tables in this report show the results of our monitoring for the period through December 31, 2016. Where contaminants are monitored less than once per year, the values included in the report tables represent the results of the most recent analyses. In this table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms, the following definitions are provided:

Non-Detects (ND) - laboratory analysis indicates that the constituent is not detectable at current testing limits.

Parts per million (ppm) or Milligrams per liter (mg/L) - one part per million corresponds to one minute in 1.9 years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter ($\mu\text{g/L}$) - one part per billion corresponds to one minute in 1,900 years, or a single penny in \$10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Microsiemens per centimeter ($\mu\text{S/cm}$) is a unit for reporting the specific electrical conductance of the water.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements. Turbidity in excess of 5 NTU is just noticeable to the average person.

Maximum Contaminant Level (MCL) – 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.

Maximum Contaminant Level Goal (MCLG) - 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. Environmental Protection Agency (USEPA).

Maximum Residual Disinfectant Level (MRDL) - 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.

Maximum Residual Disinfectant Level Goal (MRDLG) - 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.

Public Health Goal (PHG) ■ 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 Environmental Protection Agency.

Primary Drinking Water Standards (PDWS) - MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

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

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

2016 RESULTS OF WATER QUALITY ANALYSES

Results of Sampling for Microbial Contamination					
Contaminant	MCL	Unit of Measurement	PHG (MCLG)	Highest Number of Detections	
				Treated Surface Water	Treated Well Water
1. Total Coliform Bacteria (Total Coliform Rule)	Presence of coliform bacteria in no more than one sample per month	presence/absence	0	None	None
2. Fecal coliform and <i>E.coli</i> (Total Coliform Rule)	A routine sample and repeat sample are total coliform positive, and one is also fecal coliform or <i>E. coli</i> positive	presence/absence	0	None	None
3. Fecal Indicators (<i>E.coli</i> , enterococci or coliphage) (Total Coliform Rule)	Treatment Technique	n/a	n/a	None	None

Note: BVWD analyzes a minimum of 5 water samples per week throughout the year in the water distribution system for coliform bacteria. A total of 260 coliform bacteria monitoring samples were taken during calendar year 2016.

2016 RESULTS OF WATER QUALITY ANALYSES (continued)

Sampling Results Showing Treatment of Surface Water Source (Sacramento River)					
Contaminant	Performance Standard / MCL (Treatment Technique)	Unit of Measurement	Level Found	Range	Violations
4. Turbidity	(1) Shall at no time exceed 1 NTU	Based on measurements made at 4 hour intervals while the plant is in operation	Less than 1 NTU at all times	0.021 NTU to 0.286 NTU	None
	(2) Less than 0.1 NTU in 95% of the measurements taken each month	Lowest Monthly % of measurements meeting the standard	99	99 - 100	None
	(3) Reduction in turbidity of 80% or more	Average monthly percentage reduction in turbidity	99.1	98.7 - 99.5	None
<i>Note: 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.</i>					

Sampling Results Showing the Detection of Contaminants with a Primary Drinking Water Standard							
Contaminant	MCL	PHG (MCLG)	Unit of Measurement	Sacramento River*		Well Water**	
				Average Value	Range	Average Value	Range
5. Gross Alpha	15	(0)	pCi/L	ND	-	0.18	ND - 0.47
6. Aluminum	1	0.6	ppm	ND	-	ND	All ND
7. Arsenic	10	0.004	ppb	ND	-	4.2	ND – 8.1
8. Barium	1	2	ppm	ND	-	0.2	ND - 0.3
9. Chromium	50	(100)	ppb	ND	-	ND	All ND
10. Fluoride	2.0	1	ppm	ND	-	0.04	ND - 0.1
Sacramento River and Well Water							
				2016 Highest Locational Running Annual Average		Range for Samples taken in 2016	
11. TTHM [Total trihalomethanes]***	80	N/A	ppb	50.1		43 - 65	
12. HAA5- Haloacetic acids***	60	N/A	ppb	49.7		51.6 – 64.7	
<i>Note: TTHM and HAA5 results are from samples collected from the Distribution System which may include water from both the river and wells.</i>							

* All results from the surface water source (which represents 92.8% of the water produced by the District in 2016) are from samples collected in 2016, except for Gross Alpha which is from 2010.

**Well water results reflect the latest results taken from each well; the results include samples collected over the period 2009 through 2016. The dates of the latest samples may be obtained by contacting the District's office.

*** The "Running Annual Average" includes samples collected in 2015 and 2016, while the Range includes the results of analysis of samples collected in 2016 only. While the HAA5 highest running annual average did not exceed the mcl, the District completed an evaluation to identify potential actions that could reduce chlorine by-product formation and has implemented changes in its operations to lower both TTHM and HAA5 formation.

2016 RESULTS OF WATER QUALITY ANALYSES (continued)

Sampling Results Showing the Detection of Contaminants with a Secondary Drinking Water Standard							
(Aesthetic standards, established by the State Board - Division of Drinking Water)							
Contaminant or Analyte	MCL	PHG (MCLG)	Unit of Measure- ment	Sacramento River*		Well Water**	
				Average Level Detected	Range	Average Level Detected	Range
13. Foaming Agents (MBAS)	500	N/A	µg/L	ND	-	ND	ALL ND
14. Total dissolved solids	1,000	N/A	mg/L	76	-	198	149 - 243
15. Specific conductance	1,600	N/A	µS/cm	107	-	318	245 - 415
16. Chloride	500	N/A	mg/L	4.0	-	36	11 - 70
17. Sulfate	500	N/A	mg/L	3.8	-	2.2	0.8 – 4.9

Sampling Results for Unregulated Contaminants***							
(Unregulated contaminant monitoring helps the USEPA and the State Board to determine where certain contaminants occur and whether the contaminants need to be regulated.)							
Contaminant or Analyte	MCL	PHG (MCLG)	Unit of Measure- ment	Sacramento River*		Well Water**	
				Average Level Detected	Range	Average Level Detected	Range
18. Vanadium	Notification Level = 50 ppb	N/A	ppb	4.72		0.4	ND – 0.74
19. Chromium VI	10	0.02	ppb	.218	ND- 0.436	ND	ND

Sampling Results for Sodium, Hardness and pH							
Contaminant or Analyte	MCL	PHG (MCLG)	Unit of Measurement	Sacramento River*		Well Water**	
				Average Level Detected	Range	Average Level Detected	Range
20. Sodium	N/A	N/A	ppm	5	-	43	25 - 66
21. Hardness	N/A	N/A	ppm	43	-	63	45 - 87
22. pH	6.5 - 8.5	N/A	pH units	7.62	-	8.0	7.8 – 8.1

* All results from the surface water source (which represents 92.8% of the water produced by the District in 2016) are from samples collected in 2016.

**Well water results reflect the latest results taken from each well; the results include samples collected over the period 2007 through 2016. The dates of the latest samples may be obtained by contacting the District's office.

***In 2013 and 2014 the District sampled for a number of additional unregulated contaminants in the water. The results of these samples were either non-detectable or below notification levels. Additional information regarding unregulated contaminants is available by contacting the District's office.

2016 RESULTS OF WATER QUALITY ANALYSES (continued)

Sampling Results Showing the Detection of Lead and Copper						
Contaminant	PHG (MCLG)	Action Level (AL)	90 th percentile level detected	No. of samples collected	No. of Sites exceeding Action Level	Typical Source of Contaminant
Lead (ppb)	0.2	15	ND	30	0	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppb)	300	1300	287	30	0	Internal corrosion of household water plumbing systems; erosion of natural deposits; leaching from wood preservatives
<i>Note: The District is required to conduct lead and copper sampling every three years. These results are from the most recent round of sampling conducted in May and June of 2013. The next round of sampling is scheduled for July of 2016.</i>						

Disinfectant Residuals found in the Distribution System during 2016						
Contaminant	MCL [MRDL]	PHG (MRDLG)	Average Value	Range	Major Sources in Drinking Water	Health Effects
Chlorine (ppm)	4.0 (as Cl ₂)	4	0.87	0.18 to 1.62	Drinking water disinfectant added for treatment	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

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 the control of microbial contaminants.)

MRDLG = 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.

TYPICAL SOURCES OF DETECTED CONTAMINANTS

Contaminant	Typical Source of Contaminant
1. Total Coliform Bacteria	Naturally present in the environment
2. Fecal Coliform and <i>E. coli</i>	Human and animal fecal waste
3. Fecal	Human and animal fecal waste
4. Turbidity	Soil runoff
5. Gross Alpha	Erosion of natural deposits
6. Aluminum	Erosion of natural deposits; residue from some surface water treatment
7. Arsenic	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
8. Barium	Discharge of oil drilling wastes and from metal refineries; erosion of natural deposits
9. Chromium	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
10. Fluoride	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
11. TTHM [Total trihalomethanes]	By-products of drinking water chlorination
12. Haloacetic Acids	By-products of drinking water chlorination
13. Foaming Agents (MBAS)	Municipal and industrial waste discharges
14. Total dissolved solids	Runoff/ leaching from natural deposits
15. Specific conductance	Substances that form ions when in water; seawater influence
16. Chloride	Runoff/leaching from natural deposits; seawater influence
17. Sulfate	Runoff/leaching from natural deposits; seawater influence
18. Vanadium	Natural sources and from the burning of fuel oils
19. Hexavalent Chromium	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits

OTHER TEST RESULTS OF INTEREST

Constituent	Description and Source Information
20. Sodium	Refers to the salt present in the water and is generally naturally-occurring
21. Hardness	Is the sum of polyvalent cations present in the water, generally magnesium and calcium. These cations are generally naturally-occurring.
22. pH	The pH of a water is a measure of its hydrogen ion activity or acidity. By definition the pH of pure water is 7.0. The pH range of most natural waters is about 6.0 to 8.5.

YOUR VIEWS ARE WELCOME

If you have any questions about this report, please contact Don Groundwater, District Engineer, at (530) 241-1085, ext. 114. We want our valued customers to be informed about their water district. If you want to learn more, please visit the District's web site: www.bvwd.org or attend any of our regularly scheduled Board of Directors meetings. The meetings are typically held on the fourth Monday of each month at 5:30 p.m. at the District office, located at 11368 E. Stillwater Way, Redding, CA 96003. Agendas are posted on the District's website at www.bvwd.org.

Bella Vista Water District is an equal opportunity employer and provider.