Annual Water Quality Report

Water Testing Performed in 2016

THE CITY OF BRENTWOOD

PUBLIC WORKS DEPARTMENT

Where Does My Water Come From?

The City of Brentwood utilizes ground water and surface water for its fresh water sources. The ground water is pumped from the City's operations of seven ground water wells. Surface water originates from rivers within the Sierra Mountain Range; the water flows into the Sacramento - San Joaquin Delta. The surface water is treated at the City of Brentwood's Water Treatment Plant and/or Contra Costa Water District's Randall-Bold Water Treatment Plant. The average Brentwood water customer receives a blend of surface and ground water from these sources.

In 2016, the City of Brentwood delivered water to about 19,000 connections; the Brentwood Water Treatment Plant provided over 1.7 billion gallons and City wells supplied 0.43 billion gallons. An additional 0.57 billion gallons were purchased from the Randall-Bold Water Treatment Plant.

The City of Brentwood's distribution system consists of six water tanks with a total storage capacity of 18.8 million gallons, three pressure zones, and six water booster pump stations located within the city limits.

Brentwood Wastewater Treatment Plant supplied over 164.8 million gallons of recycled water to customers, City parks, parkways and medians for irrigation. An additional 214.9 million gallons of untreated surface water was used to irrigate golf courses and medians. This wise use of non-potable water is one of the many ways that Brentwood is able to conserve water and help the City irrigate parks, parkways and medians during times of drought.

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** 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** can be naturally-occurring or 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. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health.

Community Participation
The City Council meets at 7 p.m. on the second and fourth Tuesday of each month at the City Council Chambers located at City Hall, 150 City Park Way.

Educational Information

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. Water can also pick up substances resulting from the presence of animal or human activity.

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) or visit EPA's web site http://water.epa.gov/drink/standards/hascience.cfm.

Consumers who would like more information on water quality should contact Jaci Parsons, *Regulatory Compliance Supervisor*, at (925) 516-6060.

The Lead and Copper Rule

In Brentwood, the greatest chance of exposure to lead is from the piping and fixtures used in older homes, usually those built before 1986. The most common problem is with brass or chrome plated brass fixtures which can leach significant amounts of lead into the water, especially hot water. None of Brentwood's public water service lines are constructed of lead pipe.

Effectiveness of the City's corrosion control program is tested by collecting and testing over 30 different water samples directly from homeowner's taps every three years throughout the City. This is required under EPA's Lead and Copper Rule which has been in effect since 1991, and enforced by the State of California. The houses selected for testing follow certain criteria, mainly the year the homes were constructed. Older homes are preferred as they may have been built with lead within the structure. Brentwood has always been well below the Action Level (AL) for both lead and copper. This is due to Brentwood's water treatment plants (WTPs) continuously monitoring the pH balance of the water as it is leaving the plants, and using ground water that is naturally noncorrosive due to hardness levels.

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 Brentwood 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 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.

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

Hard copies of the report are available at City Hall or by calling 925-516-6000.

THE CITY OF BRENTWOOD

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The City of Brentwood is proud to produce high quality water that continues to comply with or do better than every federal and state standard for safe drinking water. The tables included in this report have been compiled to show what substances were detected in Brentwood's drinking water during 2016. Although the average readings on all of the substances listed within these tables are under the Maximum Contaminant Level (MCL), the Water Operations Division feels it is important that City water consumers know exactly what was detected and how much of the substance was present in the water.

PRIMARY DRINKING WATER STANDARDS				City of Brentwood Ground Water (Wells)		City of Brentwood Surface Water (Plants)			
Regulated Substance (Unit of Measure)	Year Sampled	MCL	PHG (MCLG)	Average	Range Low–High	Average	Range Low–High	Violation	Typical Source
Arsenic (ppb)	2016	10	0.004	ND	ND – 3.5	ND	ND	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Fluoride (ppm)	2016	2.0	1	0.3	0.2 – 0.4	0.2	ND – 0.7	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particle Activity (pCi/L)	2016	15	(0)	4.4	ND – 13.0	ND	ND	No	Erosion of natural deposits
Gross Beta Particle Activity (pCi/L)	2016	50*	(0)	ND	ND – 5	ND	ND	No	Decay of natural and man-made deposits
Nitrate [as N] (ppm)	2016	10	10	3.5	0.7 – 5.7	ND	ND – 1.1	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium (ppb)	2016	50	30	8.2	ND – 18.0	ND	ND	No	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
Uranium	2008	20	0.43	ND	ND – 4.43	ND	ND	No	Erosion of natural deposits
Regulated Substances (Unit of Measure)	**Year Sampled**	**MCL**	**PHG**	**Maximum Value**	**Lowest monthly % of samples that meet requirements**	**Maximum Effluent Value**	**Lowest monthly % of samples that meet requirements**	**Violation**	**Typical Source**
Turbidity (NTU) Surface Water	2016	n/a	TT=1 NTU TT=95% of sample ≤0.3 NTU	n/a	n/a	0.14	100%	No	Soil Runoff
Regulated Substances in the Distribution System (Unit of Measure)	**Year Sampled**	**MCL [MRDL]**	**PHG [MRDLG]**	**Highest Quarterly LRAA**	**Range of all Distribution Sites Tested**	**Highest Quarterly LRAA**	**Range of all Distribution Sites Tested**	**Violation**	**Major Source in Drinking Water**
Chloramines (ppm)	2016	[4.0 (as Cl_2)]	[4.0 (as Cl_2)]	1.6	0.99 – 2.52	n/a	n/a	No	Drinking water disinfectant added for treatment
HAA5 [Haloacetic Acids] (ppb)	2016	60	n/a	5.0	ND – 7.4	n/a	n/a	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2016	80	n/a	45.0	9.9 – 53.0	n/a	n/a	No	By-product of drinking water disinfection

*State Water Resources Controll Board considers 50 pCi/L to be the level of concern for a beta particles.

SECONDARY DRINKING WATER STANDARDS				City of Brentwood Ground Water (Wells)		City of Brentwood Surface Water (Plants)			
Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	PHG (MCLG) [MRDLG]	Average	Range Low–High	Average	Range Low–High	Violation	Typical Source
Chloride (ppm)	2016	500	NS	192	110 – 340	90	29 – 188	No	Runoff/leaching from natural deposits; seawater influence
Odor (TON)	2016	3	NS	ND	ND	1	1 – 4	No	Naturally-occurring organic materials
Specific Conductance (µS/cm)	2016	1600	NS	1370	920 – 1700	524	302 – 851	No	Substances that form ions when in water; seawater influence
Sulfate (ppm)	2016	500	NS	213	110 – 300	54	37 – 81	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2016	1000	NS	848	580 – 1000	285	169 – 443	No	Runoff/leaching from natural deposits

GENERAL WATER QUALITY PARAMETERS				City of Brentwood Ground Water (Wells)			
Substance (Unit of Measure)	Year Sampled	MCL	PHG	Average	Range Low–High	Violation	Typical Source
Turbidity Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.	2016	5 NTU	n/a	0.11	ND – 0.16	No	Soil Runoff

LEAD COPPER STUDY	Year Sampled	Action Level	PHG	Amount Detected (90th percentile)	Site Above Action Level	Violation	Typical Source
Copper (ppm)	2015	1.3	0.3	0.11	None	No	Internal corrosion of household water plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	2015	15	0.2	ND	None	No	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

Lead and Copper: 37 sites sampled

UNREGULATED SUBSTANCE		City of Brentwood Ground Water (Wells)		City of Brentwood Surface Water (Plant)	
Substance (Unit of Measure)	Year Sampled	Average	Range Low–High	Average	Range Low–High
Alkalinity (ppm)	2016	202	190 – 220	56	41 – 111
Ammonia (ppm)	2016	n/a	n/a	0.5	0.4 – 0.5
Boron (ppm)	2016	1.6	1.1 – 2.1	n/a	n/a
Bromide (ppm)	2016	n/a	n/a	0.2	ND – 0.22
Calcium (ppm)	2016	84	65 – 110	15	11 – 35
Hardness (ppm) Hardness is the sum of positive ions present in the water, generally magnesium and calcium. The ions are usually naturally-occurring.	2016	368	270 – 490	89	58 –142
Hardness in grains	2016	22	16 – 29	5	3 – 8
Magnesium (ppm)	2016	39	27– 52	12	8 – 18
pH (units)	2016	7.9	7.8 – 8.1	8.5	7.7 – 8.8
Potassium (ppm)	2016	3.3	2.6 – 4.1	2.9	1.8 – 4.5
Sodium (ppm) Sodium refers to the salt present in the water and is generally naturally-occurring.	2016	158	90 – 220	68	36 – 120
Vanadium (ppb)	2016	7.1	3.7 – 14	n/a	n/a

Definitions, Acronyms, and Units

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

LRAA: Locational running annual average.

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 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.

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. However, MRDLGs do not reflect the beneficial use of disinfectants to control microbial contaminants.

n/a: Not applicable

ND (Not Detected): Indicates that the substance was not found by laboratory analysis.

NS: No standard

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

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).

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).

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

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.

µS/cm (microsiemens per centimeter): A unit expressing the amount of electrical conductivity of a solution.

TON: Threshold Odor Number.

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

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Water Source Assessment and Sanitary Survey

Sanitary surveys are conducted every three to five years. The sanitary survey conducted in 2015 concludes that Brentwood delivers water meeting all primary drinking water standards and secondary MCLS. No sanitary hazards or deficiencies in the management or operations of the water system were identified. Water assessments are one-time studies conducted to determine how susceptible a water supply is to contamination. An assessment of the drinking water sources for the Brentwood Water System was completed in 2002. The sources are considered to be most vulnerable to the effects of gas stations and septic systems.

For more information contact City offices at (925) 516-5400.

Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.