



CITY OF BLUE LAKE

Consumer Confidence Report for 2016

Water Quality Report

Introduction and Background

In 1996 Congress amended the Safe Drinking Water Act, requiring water systems prepare an Annual Water Quality Report for its customers providing information regarding the quality of water delivered to them. This report represents the City of Blue Lake's 2016 Consumer Confidence Report. California regulations prescribe what information must be presented by public water systems in their Consumer Confidence Report. It is a snapshot of the quality of the water that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to State standards.

If you have any questions about this report or the quality of your drinking water, please call Glenn Bernald at 668-5655.

Water Source

Drinking water delivered by the City of Blue Lake is purchased from **Humboldt Bay Municipal Water District (HBMWD)**. The water is drawn from wells located in the bed of the Mad River northeast of Arcata. These wells, called Ranney Wells, draw water from the sands and gravel below the riverbed at depths of 60 to 90 feet, thereby providing a natural filtration process. In summer this naturally filtered water is then disinfected via chlorination and delivered to the District's wholesale municipal and retail customers in the Humboldt Bay area. In winter it is further treated at a regional Turbidity Reduction Facility (TRF) which reduces the occasional turbidity (cloudiness) in the District's source water. While turbidity itself is not a health concern, the **State Water Resources Control Board (SWRCB)** is concerned that at elevated levels, turbidity could potentially interfere with the disinfection process.

The District's source water has been classified by the State Water Resources Control Board (SWRCB) as groundwater. The classification is important with respect to the regulations that a water system must follow to ensure water quality.

Water Quality in General

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 EPA's Safe Drinking Water Hotline (1-800-426-4791) or visiting their website (<http://water.epa.gov/drink/index.cfm>).

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 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, which 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which 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 United States Environmental Protection Agency (USEPA) and the SWRCB prescribe regulations that limit the amount of certain contaminants in water provided by public water systems.

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 to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) and website (<http://water.epa.gov/drink/index.cfm>).

Regulatory System to Protect Public Health

The federal and state government (USEPA and SWRCB, respectively) are responsible for establishing a comprehensive regulatory program to protect public health. USEPA establishes *primary* drinking water standards for microbiological, chemical and radioactive contaminants that may be found in drinking water and may pose adverse health effects. The *primary* standard, called the Maximum Contaminant Level (MCL), is the maximum allowable concentration of the contaminant in drinking water. States are delegated the primary responsibility for operation and regulatory oversight of the drinking water program. States must establish *primary* drinking water standards that are as stringent as those established by USEPA. SWRCB has adopted the USEPA primary standards, but for some contaminants has established more stringent requirements (e.g. a lower MCL).

USEPA and another state agency (Office of Environmental Health Hazard Assessment) also establish Public Health Goals (PHGs). A PHG is a contaminant's concentration in drinking water that does not pose significant risk to health. This is based on a human health risk assessment assuming lifetime consumption, and established risk assessment principles and methods. PHGs must be established for contaminants which have MCLs established or proposed for adoption.

MCLs take into account not only a contaminant's health risk, but others factors too such as its detectability, treatability and the cost of treatment to remove it. MCLs are established as close as technically and economically feasible to its PHG.

The City Of Blue Lake's Water Quality Results

In order to ensure that tap water is safe to drink, the SWRCB prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Humboldt Bay Municipal Water District treats its water and performs annual monitoring and testing, in accordance with SWRCB regulations and requirements, to ensure its water is safe to drink. In 2016 the District conducted approximately 350 water quality tests for over 50 contaminants. The City of Blue Lake additionally performed 24 water quality tests within the City's water distribution system. The results from the 2016 monitoring and testing program indicate that our water quality is very high, as has consistently been the case in past years.

The attached table lists all the drinking water contaminants that were detected during 2016. It also lists the microbiological contaminants. Additionally, the State 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.

Therefore, results from prior years are included if such a contaminant was detected when it was last tested. As you can see, there are very few entries in the table because very few contaminants were actually detected in 2016 and prior years. It is once again important to note that the presence of these contaminants does not necessarily indicate that the water poses a health risk.

The City and HBMWD also test for microbiological contaminants. Coliform bacteria are naturally present in the environment and are used as an indicator that other bacteria may be present coliform testing is part of the water quality testing program to help signal if there is a problem with the treatment or distribution system which warrants further investigation. In 2016, both the City of Blue Lake and HBMWD had zero positive coliform tests.

Turbidity is a measure of the cloudiness of the water. HBMWD monitors it because it is a good indicator of water quality. Since the Turbidity Reduction Facility (TRF) became operational in late 2002, HBMWD has met the State's secondary maximum contaminant level standard for turbidity.

During 2014, HBMWD was also required to test for unregulated contaminants as part of the Unregulated Contaminant Monitoring Rule (UCMR) 3. This testing and results are described on the last page of this report.

You will find many terms and abbreviations in the attached table. To help you understand these terms, the following definitions are provided:

- **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.
- **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 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 cover the aesthetic quality of the water such as odor, taste, and appearance.
- **Primary Drinking Water Standard (PDWS):** MCLs 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, when exceeded, triggers treatment or other requirements that a water system must follow.
- **Detection Limit for Purposes of Reporting (DLR):** The DLR is a parameter that is set by state regulation for each reportable contaminant. The presence of these contaminants in the drinking water at its DLR does not necessarily indicate that the water poses a health risk and can be below its MCL.
- **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.
- **Minimum Reporting Level (MRL):** The MRL is defined by the USGS National Water Quality Laboratory as the smallest measured concentration of a substance that can be reliably measured by using a given analytical method.
- **Notification Level:** Notification levels are health-based advisory levels established by SWRCB for chemicals in drinking water that lack MCLs. When chemicals are found at concentrations greater than their notification levels, certain requirements and recommendations apply.
- **Primary Drinking Water Standards (PDWS):** MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

- **Secondary Drinking Water Standards (SDWS):** MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect health at the MCL levels and are directed toward the aesthetics of drinking water.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.
- **Variations and Exemptions:** SWRCB permission to exceed an MCL or not comply with a treatment technique under certain conditions.
- **n/a:** not applicable
- **ND:** not detectable at testing limit
- **mg/L:** milligrams per liter
- **mg/L as CaCO₃:** milligrams per liter of calcium carbonate (a measure of hardness)
- **ppb:** parts per billion or micrograms per liter (µg/L)
- **ppm:** parts per million or milligrams per liter (mg/L)
- **ppt:** parts per trillion or nanograms per liter (ng/L)
- **ppq:** parts per quadrillion or picogram per liter (pg/L)
- **pCi/l:** picocuries per liter (a measure of radiation)
- **microhmos:** a measure of specific conductance
- **NTU:** Nephelometric Turbidity Units

Additional Water Characteristics

Sodium and Hardness

Although sodium and hardness do not have MCLs, they are of interest to many consumers who are concerned about sodium intake.

Hardness is the sum of polyvalent cations present in the water, generally magnesium and calcium. (*samples taken in 2016*) The cations are usually naturally-occurring.

Sodium refers to the salt present in the water and is generally naturally occurring. (*samples taken in 2016*)

Sodium (ppm)	3.7
Hardness (mgCaCO ₃ /L)	87

Additional General Information on Drinking Water

Lead-Specific Language for Community Water Systems: 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 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 (or until the water becomes noticeably cooler to the touch) 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>.

Contaminant and Units	Sample Date	Level Detected	MCL	PHG (or MCLG)	Likely Source and Potential Effects (if above MCL)
Total Coliform Bacteria	2016	Zero positive	Zero positive	Zero positive	Coliform bacteria are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.
Fecal Coliform and E. coli.	2016	Zero positive	Zero positive	Zero positive	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes.
TTHMs – Total Trihalomethanes Chlorine HAA5 (Halocetic Acids)	2016	7.7 µg/L Average = 0.72 mg/L 1.1 µg/L	80 µg/L 4 mg/L 60 µg/L	n/a 4 mg/L n/a	By-product of drinking water chlorination Drinking water disinfectant added for treatment By-product of drinking water chlorination
Copper (ppm) ten sites tested	2015	None above the AL. 90 th percentile = 0.840	AL = 1.3mg/L	0.3 mg/l	Internal corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) Ten sites tested	2015	None above the AL 90 th percentile=2.8	AL = 15ug/L	.2ug/l	Internal corrosion of household plumbing, erosion of natural deposits, discharges from industrial manufacturers
Aluminum (mg/l)	2015	0.011 mg/L	1 mg/l	0.6 mg/l	Discharges from industrial manufacturers , erosion of natural deposits.
Chloride (mg/L)	20016	3.9 mg/L	500 mg/L	n/a	Runoff/leaching from natural deposits, or seawater influence
Sulfate (mg/L)	2016	10 mg/L	500 mg/L	n/a	Runoff/leaching from natural deposits; industrial wastes
Specific Conductance (uS/cm)	2015	Average = 160 µS/cm	1,600 µS/cm	n/a	Substances that form ions when in water
Total Dissolved Solids (mg/L)	2016	90 mg/L	1,000 mg/L	n/a	Runoff/leaching from natural deposits
Turbidity (NTU)	2016	Range=0.03-0.25 NTU Average = .07 NTU	5 NTU	n/a	Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Unregulated Contaminant Monitoring Rule (UCMR) 3 – 2013 Testing Results

As part of the federal drinking water program, USEPA issues a list of currently unregulated contaminants to be tested by Public Water Systems throughout the nation. This process occurs every five years pursuant the Unregulated Contaminant Monitoring Rule (UCMR). The purpose of the UCMR program is to determine the prevalence of unregulated contaminants in drinking water. Results of this testing help USEPA determine whether or not to regulate new contaminants for protection of public health.

There have been three cycles of monitoring: UCMR 1 (2001-2003), UCMR 2 (2008-2010), and UCMR 3 (2013-2015). The District participated in UCMR1 and UCMR2 in which 37 constituents were tested; all results were non-detected. The District also participated in the current UCMR 3 testing in 2013. The District tested 28 constituents on USEPA’s List 1 (Assessment Monitoring) and List 2 (Screening Survey). Of the 28 constituents tested, 24 were non-detected and four had results. The table below shows the four constituents with results above their minimum reporting levels (MRL). Although unregulated by USEPA, two of the four have MCLs established or proposed by CDPH. Information on the likely source and potential health effects is also included.

Contaminant and Units	Sample Date	Level Detected	Levels & Goals (see last page for definitions)			Likely Source and Potential Effects (if above MCL)
			MRL	MCL	PHG	
Unregulated Contaminant Monitoring Rule 3 – Detected Chemicals						
Chromium 6+ (µg/L) ** ①	2013	Range = 0.18 – 0.23 µg/L	0.03 µg/L	10 µg/L	0.02 µg/L	Naturally occurring from geological formations, also from manufacturing of textile dyes, wood preservation, leather tanning, and anti-corrosion coatings.
Chromium, Total (µg/L) **	2013	Range = 0.20 – 0.39 µg/L	0.20 µg/L	50 µg/L	n /a	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits. Some people who use water containing chromium in excess of the MCL over many years may experience allergic dermatitis.
Strontium, Total (µg/L) **	2013	Range = 240 – 310 µg/L	0.30 µg/L	n/a	n/a	Strontium is a silvery metal that rapidly turns yellowish in air. Strontium is found naturally as a non-radioactive element. Strontium has 16 known isotopes. Naturally occurring strontium is found as four stable isotopes Sr-84, -86, -87, and -88. Twelve other isotopes are radioactive.
Vanadium, Total (µg/L) **	2013	Range = 0.38 – 0.65 µg/L	0.20 µg/L	n/a	n/a	Naturally-occurring; the primary possible contaminating activity is steel manufacturing and in association with hazardous waste sites. The babies of some pregnant women who drink water containing vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.

①Note: The MCL for Chromium 6+ became effective on July 1, 2014.