



WATER QUALITY REPORT 2016

Umpqua Basin Water Association, Inc. is pleased to present you with the Annual Water Quality Report for 2016. This report gives you a brief look at last year's water quality. You will be happy to know that Umpqua Basin Water Association met or exceeded all State and Federal drinking water health standards in 2016.

Our constant goal is to provide you a safe and dependable supply of drinking water. We want to help you understand the efforts we make to continually improve the water treatment process and to protect our water resources. We are totally committed to ensuring that you receive:

"Drinking Water You Can Trust"

ABOUT THE WATER SYSTEM

Umpqua Basin Water Association is a large, privately owned, non-profit rural drinking water co-operative serving approximately 8800 people through 22 reservoirs and 14 pump stations, supplying 280 miles of pipeline covering some 100 square miles of land lying west and north of Roseburg. Our 3436 service connections are composed primarily of rural residential users together with 95 commercial, industrial and public users.

Umpqua Basin Water Association has a full-treatment water plant located on the banks of the North Umpqua River next to Brown's Bridge on Garden Valley. During 2016, 388 million gallons of water was produced at the treatment plant for an average of 1.06 million gallons per day. The plant is operated by a well trained and State Certified staff. The technology and expertise at the treatment facility allows Umpqua Basin Water Association to consistently exceed all current water quality standards efficiently.

If, after reading this report, you have questions or would like more information, please call Brad Johnson at 541-672-5559, 8:00AM to 4:30PM, Monday thru Friday. We want our valued customers to be informed about their water utility. The Board of Directors meetings are held on the third Tuesday of each month at 12:00 noon at the Association offices, 4972 Garden Valley Rd., Roseburg. Copies of this report may be reviewed at the Association offices.

OUR WATER SOURCE

All water treated and delivered by Umpqua Basin Water Association is surface water taken from the North Umpqua River. Surface water refers to water that comes from an above ground source such as a lake, river, stream or reservoir. We are quite fortunate in that the North Umpqua River is one of the highest quality surface water sources in the entire State of Oregon. It is a high volume, fast flowing, low temperature river that originates nearly 100 miles to the east, high in the snowfields of the Cascade Mountains, at Maidu Lake. There is relatively little industrial, commercial, agricultural or residential activity along its banks and the vast majority of the river's 1400 square mile watershed lies within the Umpqua National Forest.

ABOUT CRYPTOSPORIDIUM

Cryptosporidium is a microscopic pathogen that can cause intestinal illness. It is naturally present in bodies of water throughout the world. Most healthy people can overcome cryptosporidiosis within a week or two but the illness can be life-threatening to persons with impaired immune systems. We have been voluntarily testing both our source water and finished water for the presence of Cryptosporidium since 1994. We have detected this constituent occasionally in the raw untreated source water. None have ever been found in the finished treated water. Three samples were taken in 2010 with only two organism's detected.

DISINFECTION BY-PRODUCTS

Harmful compounds can be formed from reactions between chlorine and organic material. Chlorination is carefully monitored to keep these by-products to a minimum while insuring that disinfection is achieved. Trihalomethanes and Haloacetic acids are the regulated disinfection by-products found in our water.

CHLORINE RESIDUAL

Although there are a variety of methods by which water can be disinfected, some chlorination is utilized by most water systems, including ours. This allows some of the chlorine to remain in the water, providing protection all the way to the customer's tap. Regulations specify that the average chlorine residual levels in the distribution system can be no more than 4.0 ppm. Our water is effectively disinfected with much lower chlorine levels. Our residuals are typically below 1.3 ppm as the water leaves the treatment plant.

TESTING THE WATER

As water passes over the land and through the ground, it dissolves naturally occurring minerals and may pick up substances related to human activity or the presence of animals. This may include microbial organisms such as viruses and bacteria, inorganic substances such as minerals and salts, pesticides and herbicides, organic chemicals such as petroleum products and radioactive substances. All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. It is important to remember that the presence of contaminants in drinking water does not necessarily indicate that the water poses a health risk.

The Environmental Protection Agency (EPA) establishes drinking water standards based on possible health effects that could result from exposure to a wide variety of substances, along with specific testing schedules for these substances. The Food and Drug Administration establishes comparable regulations for bottled water. Of the approximately 120 substances we test for, most have never been found in our water. Our water consistently surpasses the compliance limits by a wide margin. More information about contaminants and potential health effects can be obtained by calling the EPA's "Safe Drinking Water Hotline" at 1-800-426-4791.

WATERSHED PROTECTION

In October, 2002, the Oregon Department of Environmental Quality completed a Source Water Assessment Report that covers Umpqua Basin Water Association's drinking water protection area. Additionally, they produced five other reports covering segments of the watershed running all the way to the crest of the Cascade Mountains. In summary, with much of our water shed lying in undeveloped forested areas, our water is less susceptible to contamination than the water supplies that serve many other communities in Oregon. None the less, given the large size of the watershed, a number of potential sources of contamination have been identified and are being evaluated with the objective of assuring that the risks are minimized.

CHECKING FOR ORGANISMS

Our drinking water is disinfected to kill any microorganisms that might be present. Additionally, because of the potential they pose for immediate illness, checking for the presence of microbiological contaminants is done on a frequent basis throughout our water distribution system.

Testing for coliform bacteria is the primary measure used to confirm the microbial quality of drinking water. Although coliforms themselves do not pose a health threat, they are a good indicator of whether other potentially harmful bacteria might be present. During the year 2016, a total of 120 samples were collected from 29 sampling points within the water distribution system and analyzed for coliform bacteria. None were found to contain coliforms.

LEAD AND COPPER

There is no lead or copper in the Association's water supply. Testing is conducted at the taps of those customers considered to be at risk for leaching of these substances into their water. After testing in June, 2014, our water did not promote significant leaching of these minerals. Our next tests will be in June, 2017. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

RADIOACTIVE CONTAMINATES

As they deteriorate, certain minerals give off radiant energy in various forms. This can be released from the ground and from water that has been exposed to these substances. These contaminants can occur naturally or can result from oil and gas production and mining activities.

TURBIDITY

The Nephelometric Turbidity Unit (NTU) is a measure of the clarity of the water. One of the most important ways to measure how well a treatment process is performing is by turbidity analysis. Turbidity has no health effects, however, high turbidity could interfere with the disinfection process and provide a medium for bacterial growth. The standard for turbidity is 0.3 NTU. Turbidity in excess of 5 NTU's is just noticeable to the average person. Umpqua Basin Water Association's finished water had an average turbidity of 0.021 NTU in 2016 and never exceeded 0.043 NTU.

ABOUT THE RESULTS

Umpqua Basin Water Association is committed to providing our customers with the best quality water possible.

SPECIAL HEALTH CONCERNS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or with other immune system disorders, some elderly people, and some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen their risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

CALL BEFORE YOU DIG! ONE CALL: 811 or (800) 332-2344 IT IS THE LAW! OAR 952-0010 THROUGH OAR 952-001-0090

JANUARY 1, 2016 to DECEMBER 31, 2016 WATER QUALITY TEST RESULTS-PRIMARY STANDARDS

Variable	MCL	MCLG	Maximum Reported Value	Range	Complies?	Typical Source
Turbidity (Finished Water)	TT=95% of sample <0.5 NTU	N/A	0.043 NTU	0.014- 0.043NTU	YES	Soil runoff & stream sediment
Total Trihalomethanes	80 ppb	0 ppb	58.2 ppb	20.5 - 58.2 ppb	YES	By-product of chlorination process
Haloacetic Acids	60 ppb	0 ppb	69.6 ppb	3.7 –69.6 ppb	YES	By-product of chlorination process
Chlorine Residual	4.0 ppm (MRDL)	4.0 ppm (MRDLG)	1.93 ppm	.50 ppm - 1.93 ppm	YES	Treatment additive for disinfection
Microbiological Analysis	Coliform may be present in 5% of monthly samples	Coliform may be present in 5% of monthly samples	0%	0% of 120 Samples	YES	Naturally present in the environment
2013 Nitrite	1ppm	1 ppm	ND	0 ppm	YES	Run off from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
2016 Nitrate	10 ppm	10 ppm	ND	N/A	YES	Run off from agricultural activity.
2010 Arsenic	.010 ppm	0 ppm	ND	0 ppm	YES	Erosion of natural deposits; runoff from orchards, glass and or production waste.
2009 Radium 226/228	4.42 pCi/L	0 pCi/L	0 pCi/L	N/A	YES	Erosion of natural deposits
2013 Asbestos	7.0 MFL	7.0 MFL	ND	N/A	YES	Decay of asbestos cement water mains; Erosion of natural deposits
2014 Lead	Action level-90 th percentile=15ppb	Action level-90 th percentile=15ppb	90 th percentile 11.0 ppb	ND - 19.0 ppb	YES	Household pipes & plumbing. Erosion of natural deposits.
2014 Copper	Action Level-90 th percentile=1.3ppm	Action Level-90 th percentile=1.3ppm	90 th percentile .085 ppm	ND - 0.093 ppm	YES	Household pipes & plumbing. Leaching from wood preservatives.
2016 Synthetic Organic Contaminants	Varies	Varies	ND	Varies	YES	By products from industrial processes and petroleum products

GLOSSARY OF ACRONYMS AND DEFINITIONS

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

Hardness - An indication of the amount of dissolved minerals in water. The EPA uses the following scale: less than 75 ppm=soft; 75-150 ppm=moderately hard; 150-300 ppm=hard; over 300 ppm=very hard; Umpqua Basin Water Association's water is considered moderately soft.

Maximum Contaminants Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

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 allow for a margin of safety.

Millions Fibers Per Liter (MFL)

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.

ND– Not Detected at or above the MRL (minimum reporting limit)

Pico curies per liter (pCi/L) – A measure of radioactivity. One curie is the activity of one gram of radium. There are one trillion (1,000,000,000,000) Pico curies in one curie.

Parts per million (ppm) – One ppm equates to one milligram per liter (mg/l). One ppm corresponds to one minute in two years or one penny in \$10,000.

Parts per billion (ppb) – One ppb equates to one microgram per liter (mcg/l). One ppb corresponds to one minute in 2000 years or one penny in \$10,000,000.

Primary Standards – Legally enforceable standards issued by the EPA. Primary standards limit the levels of specific contaminants that are allowed to be present in public drinking water.

Secondary Standards – Non-enforceable guidelines regarding contaminants that may cause cosmetic or esthetic effects in drinking water.

Saturation Index (SI) – This measure describes the corrosive property of water. Umpqua Basin Water Association's water is considered mildly aggressive.

Synthetic Organic Chemicals (SOC) – Examples include herbicides and insecticides.

Volatile Organic Chemicals (VOC) –Examples include petroleum-based chemicals, industrial by-products and dry cleaning solvents.

Total Organic Carbon (TOC) – Carbon is a precursor to disinfection by-products.

Treatment Technique (TT) – A required process intended to reduce the level of a contaminant in drinking water. It may be required by the EPA or the Oregon Department of Human Services.