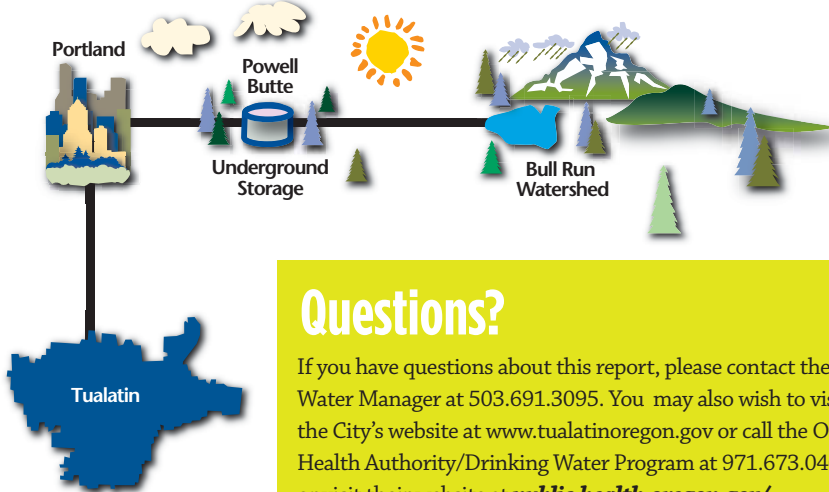




2016 water quality Report

Water Testing

Tualatin and the Portland Water Bureau monitor for approximately 200 regulated and unregulated contaminants in drinking water, including pesticides and radioactive contaminants. All monitoring data in this report is from 2016. If a known health related contaminant is not listed in this report, it was not detected in the drinking water by either agency.



Questions?

If you have questions about this report, please contact the Water Manager at 503.691.3095. You may also wish to visit the City's website at www.tualatinoregon.gov or call the Oregon Health Authority/Drinking Water Program at 971.673.0405 or visit their website at public.health.oregon.gov/healthyenvironments/drinkingwater/pages/index.aspx

City of Tualatin

Operations Department

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tualatinoregon.gov

www.tualatinoregon.gov/waterqualityreport



Visit the Water Quality Report online.

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

2016 water quality Report



TUALATIN, OREGON

Based on data from
the calendar year **2016**

your drinking water 2016

If this information looks familiar, it should. Tualatin has been providing similar information to our customers for years now. Why every year? It's the law. Drinking water regulations require us to produce and provide this information every year.

Most of the language is also required - Congress and the EPA want to be sure every community knows what is in their drinking water. We agree. So, providing residents and businesses in the Tualatin water service area with safe, dependable, high-quality water at a reasonable cost is a top priority. The City of Tualatin delivers water to more than 26,000 people every day and we think it is important for our customers to understand where their water comes from, how safe it is, and what actions we take to ensure its continuing high quality.

The watershed is mainly used for producing drinking water. Federal laws restrict public entry. No recreational, residential or industrial uses occur within its boundaries. The Portland Water Bureau carefully monitors water quality and quantity. The Oregon Health Authority Drinking Water Program regularly inspects the watershed and related treatment and distribution facilities.

The Portland Water Bureau completed a Source Water Assessment for the Bull Run water supply to comply with the 1996 Safe Drinking Water Act Amendments. The only contaminants of concern for the Bull Run water supply are naturally occurring microbial contaminants such as *Giardia*, *Cryptosporidium*, fecal coliform bacteria and total coliform bacteria. These organisms are found in virtually all freshwater ecosystems and may be present in the Bull Run supply at very low levels. The Bull Run supply complies with all applicable state and federal regulations for source water, including the 1989 Surface Water Treatment Rule, filtration-avoidance criteria. The Portland Water Bureau is also operating under a variance for the treatment requirements for *Cryptosporidium*, read further for more information. The Source Water Assessment Report is available at www.portlandoregon.gov/water/sourcewaterassessment or by calling **503-823-7525**.

Tualatin's Water Sources

Based on data from the calendar year 2016

The Bull Run Watershed is a surface water supply within the Bull Run Watershed Management Unit located in the Mt. Hood National Forest. A geological ridge separates the watershed from the National Forest. Current regulations, and the availability of the Columbia South Shore Well Field, allows Portland to meet federal drinking water standards without filtering the high-quality Bull Run water supply. The watershed is an area of 102 square miles, and receives approximately 135 inches of rainfall per year. The heaviest rains occur from late fall through spring. Two reservoirs store water for use year-round, particularly during the dry summer months.

Drinking Water Treatment

The first step in the treatment process for our Bull Run System drinking water is disinfection using chlorine. Next, ammonia is added to form chloramines which ensure that disinfection remains adequate throughout the distribution system.

Portland also adds sodium hydroxide to increase the pH of the water to reduce corrosion of commercial and household plumbing systems. This treatment helps control lead and copper levels at customers' taps, should these metals be present in the customers' plumbing.

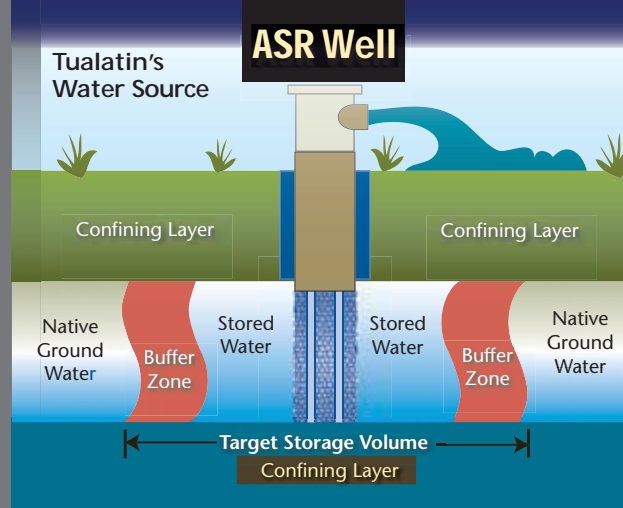


The Columbia South Shore Well Field provides high-quality drinking water from 26 active wells located in three different aquifers. Located on the south shore of the Columbia River, the well field is the second largest water source in Oregon, and can produce up to 95 million gallons of water per day. The well field is used to supplement or as an alternative to the Bull Run supply during routine maintenance, turbidity events, emergencies and when the bureau needs additional summer supply.

Portland's long history of groundwater protection in the Columbia South Shore dates back to the original development of the well field in the early 1980s. In June 2008, the State certified the most recent update of the Columbia South Shore Well Field Protection Program. This program, a collaborative effort of Portland, Gresham and Fairview, has identified commercial and industrial activities as the most significant potential sources of contamination. Together these cities regulate businesses in the groundwater protection area to prevent hazardous material spills that could seep into the ground. Public events such as Aquifer Adventure, Cycle the Well Field and Groundwater 101 educate local residents on how to help protect groundwater. To obtain a copy of Portland's Well Field Protection Program certification, which includes information on potential sources of contamination, call **503-823-7473**. To read program information, find upcoming events, and learn how to help protect groundwater, visit the Water Bureau's groundwater website at www.portlandoregon.gov/water/groundwater.

Our Aquifer Storage & Recovery Program

The ASR Program injects water into an aquifer through wells or by surface spreading and infiltration and then pumps it out when water is needed. The aquifer essentially functions as a water bank. Deposits are made in times of surplus, typically during the rainy season, and withdrawals occur when available water falls short of demand.



The EPA's Views on Drinking Water

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 Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at **800-426-4791** or at www.epa.gov/safewater.

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 in drinking water sources may include:

- Microbial contaminants, such as viruses and bacteria, may come from wildlife or septic systems.
- Inorganic contaminants, such as salts and metals, which can occur naturally or result from urban stormwater runoff, industrial or domestic wastewater discharges or farming.
- Pesticides and herbicides, which may come from a variety of sources such as farming, urban stormwater runoff and home or business use.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes, and can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants, which can occur naturally.

In order to ensure that tap water is safe to drink, the EPA has regulations that limit the amount of certain contaminants in water provided by public water systems and require monitoring for these contaminants. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Definitions

- **Maximum Contaminant Level Goal or 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.
- **Maximum Contaminant Level or 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 Residual Disinfectant Level Goal or 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.
- **Maximum Residual Disinfectant Level or 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.
- **Treatment Technique** - A required process intended to reduce the level of a contaminant in drinking water.
- **Action Level** - The concentration of a contaminant which, if exceeded, triggers treatment and other requirements that a water system must follow.
- **Part Per Million** - One ppm corresponds to one penny in \$10,000 or approximately one minute in two years. One part per million is equal to 1,000 parts per billion.
- **Part Per Billion** - One ppb corresponds to one penny in \$10,000,000 or approximately one minute in 2000 years.
- **Secondary Maximum Contaminant Level (SMCL)** - The level of a secondary contaminant which when exceeded may adversely affect the aesthetic quality of the drinking water which thereby may deter public acceptance of drinking water provided by public water systems or may interfere with water treatment methods.



Special Notice for Immuno-Compromised Persons

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

Water Quality

Regulated Contaminants	Minimum Detected	Maximum Detected	MCL or Treatment Technique	MCLG	Typical Source
REGULATED CONTAMINANTS DETECTED IN 2016					
Turbidity	0.20 NTU	2.99 NTU	Cannot exceed 5 NTU more than 2x per year	N/A	Erosion of natural deposits
Fecal Coliform Bacteria	Not Detected	1 sample had 9 bacterial colonies per 100ml water	90% of samples/last 6 mo. 20 or less colonies per 100ml water	N/A	Animal wastes
NUTRIENTS <i>TREATED DRINKING WATER FROM BULL RUN/COLUMBIA SOUTH SHORE WELL FIELD/ENTRY POINTS TO DISTRIBUTION SYSTEM</i>					
Nitrate Nitrogen	<0.02 ppm	0.22 ppm	10 ppm	10 ppm	Natural aquifer deposits; animal wastes
METALS & MINERALS* <i>TREATED DRINKING WATER FROM BULL RUN/COLUMBIA SOUTH SHORE WELL FIELD/ENTRY POINTS TO DISTRIBUTION SYSTEM</i>					
Arsenic	<0.50 ppb	0.87 ppb	10 ppb	0 ppb	Natural aquifer deposits
Barium	<0.00081 ppm	0.00684 ppm	2 ppm	2 ppm	Natural aquifer deposits
Copper	<0.00050 ppm	0.00116 ppm	N/A	1.3 ppm	Natural aquifer deposits
Fluoride	<0.025 ppm	0.15 ppm	4 ppm	4 ppm	Natural aquifer deposits
Lead	<0.05 ppb	0.25 ppb	N/A	0 ppb	Natural aquifer deposits
MICROBIOLOGICAL <i>TREATED DRINKING WATER FROM BULL RUN/COLUMBIA SOUTH SHORE WELL FIELD/ENTRY POINTS TO DISTRIBUTION SYSTEM</i>					
Total Coliform Bacteria	30 samples/month 0 out of 30 with detectable	0 of samples with detectable	4 ppm	4 ppm	Found throughout the environment
DISINFECTION BYPRODUCTS <i>TUALATIN DISTRIBUTION SYSTEM - RESERVOIRS/TANKS/MAINS</i>					
Haloacetic Acids <i>Annual Average (All)</i> <i>Single Result (one site)</i>	14 ppb 4.8 ppb	28 ppb 44 ppb	60 ppb N/A	N/A N/A	Byproduct of drinking water disinfection
Total Trihalomethanes <i>Annual Average (All)</i> <i>Single Result (one site)</i>	14 ppb 8.8 ppb	28 ppb 39 ppb	80 ppb N/A	N/A N/A	Byproduct of drinking water disinfection
DISINFECTANT RESIDUAL <i>TUALATIN DISTRIBUTION SYSTEM - RESERVOIRS/TANKS/MAINS</i>					
Total Chlorine Residual <i>Annual Average (All)</i> <i>Single Result (one site)</i>	0.55 ppm 0.26 ppm	1.88 ppm 2.14 ppm	4 ppm N/A	4 ppm N/A	Chlorine and ammonia disinfection

* During the year, tests with varying method reporting limits (MRLs) were used to analyze chromium. The sample with a result of <0.5 ppb was analyzed by a test with a less sensitive MRL and is why the minimum appears to be greater than the maximum.

Notes on Regulated Contaminants

Turbidity - The Bull Run is an unfiltered surface water supply. The rules for public water systems have strict standards for unfiltered surface water supplies. Turbidity levels in unfiltered water must not exceed 5 NTU (nephelometric turbidity units) more than two times in a twelve-month period. The typical cause of turbidity is sediment suspended in the water. The sediment can interfere with disinfection and provide an environment for microbial growth. Large storm events can result in increased turbidity, causing the Portland Water Bureau to shut down the Bull Run system and serve water from the Columbia South Shore Well Field.

Fecal Coliform Bacteria - The presence of fecal coliform bacteria in source water indicates that water may be contaminated with animal wastes. The Portland Water Bureau uses chlorine to kill these bacteria.

Nitrate-Nitrogen - Nitrate, measured as nitrogen, can support microbial growth (bacteria and algae). Nitrate levels exceeding the standards can contribute to health problems. At the levels found in Portland's drinking water, nitrate is unlikely to contribute to adverse health effects.

Arsenic, Barium, Chromium (total), Copper, Fluoride and Lead - These metals are elements found in the earth's crust. They can dissolve into water that is in contact with natural deposits. At the levels found in Portland's drinking water, they are unlikely to contribute to adverse health effects. There is no maximum contaminant level (MCL) for copper and lead at the entry point to the distribution system. Copper and lead are regulated at customers' taps.

Total Coliform Bacteria - Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially-harmful bacteria may be present. The Portland Water Bureau uses chlorine to kill these bacteria.

Total Chlorine Residual - Total chlorine residual is a measure of free chlorine and combined chlorine and ammonia in our distribution system. Chlorine residual is necessary to maintain disinfection throughout the distribution system. Adding ammonia to chlorine results in a more stable disinfectant and helps to minimize the formation of disinfection byproducts.

Disinfection Byproducts - During disinfection, certain byproducts form as a result of chemical reactions between chlorine and naturally occurring organic matter in the water. These byproducts can have negative health effects. Trihalomethanes and haloacetic acids are regulated disinfection byproducts that have been detected in Portland's water. The disinfection process is carefully controlled to keep byproduct levels low.



Notes on Unregulated Contaminants

Our water system has sampled for a series of unregulated contaminants. Unregulated contaminants are those that don't yet have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. As our customers, you have a right to know that this data is available.

Radon - Radon is a naturally occurring radioactive gas that cannot be seen, tasted or smelled. Radon was detected at very low levels in the Bull Run water supply. It was also detected at varying levels in Portland's groundwater supply. For information about radon, call the EPA's Radon Hotline (**800-SOS-RADON**) or www.epa.gov/radon/rnwater.html.

Sodium - There is currently no drinking water standard for sodium. Sodium is an essential nutrient. At the levels found in drinking water, it is unlikely to contribute to adverse health effects.

Water Quality Data 2016

UNREGULATED CONTAMINANTS

Contaminant/Unit	Minimum Detected	Average Detected	Maximum Detected	Typical Source
Radon Radon @ ASR	340 picocuries per liter 210 picocuries per liter	340 picocuries per liter 410 picocuries per liter	340 picocuries per liter 610 picocuries per liter	Found in natural deposits
Sodium Sodium @ ASR	3.36 ppm 8.8 ppm	6.70 ppm 15.6 ppm	16.3 ppm 19.4 ppm	

MONITORING RAW WATER INTAKE

Contaminant Source	# of Samples	Total Volume	Detections
Cryptosporidium	208	5,368.9L	0

Bull Run Treatment Variance

In March 2012, the Oregon Health Authority (OHA) issued the Portland Water Bureau a variance from the state and federal drinking water rules requiring the treatment of raw water from Bull Run for the parasite, *Cryptosporidium*. A variance is state permission not to meet an MCL or a treatment technique under certain conditions. A state may grant a variance if a water system demonstrates that the required treatment is not necessary to protect public health because of the nature of the water system's raw water source.



As a result of the treatment variance, the following are among the state-mandated conditions that must be met in order to maintain the variance:

- **Watershed Protection**
- **Raw Water Intake Monitoring** (Total volume 5,664.1 L with no detections)
- **Reporting and Notification**

The treatment variance is valid for a period of 10 years from the date it was issued. OHA may revoke the variance if the conditions of the variance are not met.

In 2016, there were no detections of Cryptosporidium during Raw Water Monitoring. In January 2017, two samples from the intake collected during observation monitoring were positive for *Cryptosporidium*. As a result, on January 8th, the Portland Water Bureau began increased demonstration monitoring. These and additional results, as well as updated information on the status of the treatment variance can be found at www.portlandoregon.gov/water/cryptoresults.

Water Testing

In the most recent round of testing, more than 10 percent of homes, 14 of 112, exceeded the lead action level. As a result of exceeding the action level, Portland Water Bureau has been informing customers and encouraging them to follow the easy steps to reduce exposure to lead in the water.

Additional information on Portland Water Bureau's treatment variance can be found at www.portlandoregon.gov/water/treatmentvariance.

IMPORTANT INFORMATION ABOUT LEAD

Tualatin has removed all known lead service connections from its distribution system. Exposure to lead through drinking water is possible if materials in a building's plumbing contain lead. The level of lead in water can increase when water stands in contact with lead-based solder and brass faucets containing lead.

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 Tualatin, along with the Portland Water Bureau, 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. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the **LeadLine, 503-988-4000, www.leadline.org** or the **Safe Drinking Water Hotline 800-426-4791, www.epa.gov/safewater/lead**.

People are exposed to lead in many other ways. Dust from paint in homes built before 1978 is the most common source of exposure to lead. Other sources include soil, pottery, traditional folk medicines or cosmetics, some sports equipment such as fishing weights and ammunition and some occupations and hobbies.

Corrosion Treatment. The Portland Water Bureau's corrosion control treatment reduces corrosion in plumbing by increasing the pH of the water. Comparison of monitoring results with and without pH adjustment shows over 50 percent reduction in lead at the tap with pH adjustment. Since 1997, The Portland Water Bureau has been adding sodium hydroxide to increase the pH of the drinking water to make it less corrosive. This treatment has resulted in up to a 70 percent reduction in lead in water levels at customer taps.

Water Testing. Twice each year, the City of Tualatin, along with all other wholesale water users and the Portland Water Bureau, monitor for lead in tap water from a sample group of more than 100 homes. These are homes in our service area where the plumbing is known to contain lead solder, which is more likely to contribute to elevated lead levels. Samples are collected after the water has been standing in the household plumbing for more than six hours. These houses represent a worst-case scenario for lead in water. A Lead and Copper Rule exceedance for lead is when more than 10 percent of these homes exceed the lead action level of 15 parts per billion.



If you are concerned that your home tap water may have lead, contact the LeadLine for a free lead-in-water test kit and to learn ways to reduce your exposure to all sources of lead. This program targets testing the water in households most at-risk from lead in water. These are homes built between 1970 and 1985 with pregnant women or children ages six or younger in the home.

LEAD AND COPPER

SAMPLING AT RESIDENTIAL WATER TAPS

90th Percentile Values	Number of Sites Over AL	Exceeding Lead & Copper Rule	Maximum Detected	Typical Source
Copper 0.314 ppm	0 of 112 samples exceeded AL (1.3 ppm)	Over 10% of homes tested had levels > 1.3 ppm	1.3 ppm	Corrosion of household and commercial plumbing systems
Lead 17.4 ppb	14 of 112 samples (9.6%) exceeded AL (15 ppb)	Over 10% of homes tested had levels > 15 ppb	0 ppb	Corrosion of household and commercial plumbing systems

Reduce Your Exposure To Lead

The City of Tualatin encourages you to follow these easy steps:

- 1. RUN YOUR WATER TO FLUSH OUT LEAD.** Before drinking or cooking, run water for 30 seconds to 2 minutes (or until colder) when the tap has not been used for several hours.
- 2. USE COLD, FRESH WATER FOR COOKING AND PREPARING BABY FORMULA.** Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water.
- 3. DO NOT BOIL WATER TO REMOVE LEAD.** Boiling water will not reduce lead.
- 4. CONSIDER USING A FILTER.** One that reduces lead – not all filters do. Contact NSF International at 800-NSF-8010 or www.nsf.org for more information on filters.
- 5. TEST YOUR WATER FOR LEAD.** Call the LeadLine at 503-988-4000 to find out how to get a FREE lead-in-water test.
- 6. TEST YOUR CHILD FOR LEAD.** Ask your physician or call the LeadLine to find out how to have your child tested for lead. A blood lead level test is the only way to know if your child is being exposed to lead.
- 7. REGULARLY CLEAN YOUR FAUCET AERATOR.** Particles containing lead from solder or household plumbing can become trapped in your faucet aerator. Regular cleaning every few months will remove these particles and reduce your exposure to lead.
- 8. CONSIDER BUYING LOW-LEAD FIXTURES.** As of January 2014, all pipes, fittings and fixtures are required to contain less than 0.25% lead. When buying new fixtures, consumers should seek out those with the lowest lead content.