



Drinking Water Quality Report for 2019

Federal regulations require Lake Grove Water District to provide for our customers a yearly report of our drinking water quality. We're very pleased to provide you with this year's Annual Water Quality Report for data collected in 2019. We want to keep you informed about the excellent water we have delivered to you over the past year. Our goal is and always has been, to provide to you a safe and dependable supply of drinking water. Our water source comes from the City of Portland, which primarily gets its water from the Bull Run Reservoir and City of Lake Oswego, which gets its water from the Clackamas River. The City of Lake Oswego's Water Quality Report and the City of Portland's Water Quality Report continue after Lake Grove Water District's report. We are pleased to report that our drinking water is safe and meets federal and state requirements.

We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held the third Monday of every month at 6:00 PM at 15555 Bangy Rd, Lake Oswego, OR 97035. The District office is located at 4550 Kruse Way, Suite 360, Lake Oswego, OR 97035.

Lake Grove Water District routinely monitors for microbiological constituents in your drinking water and for disinfection by-products, according to federal and state laws. In 2017, we started monitoring for lead and copper apart from the City of Portland. All test results are within the allowable levels. Please review the reports from both the City of Lake Oswego and the City of Portland. The test results demonstrate the high quality of the water we purchase from each of those cities. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It is important to remember that the presence of these constituents does not necessarily pose a health risk. The residual of disinfection by-products was well below the Maximum Contaminate Level (MCL) of 80 parts per billion (ppb). On the basis of our own testing no contaminated water from Portland was introduced into our distribution system.

Lake Grove Test Results for 2019

Variable	Amount Detected		MCL	MCLG	Possible Source of Contamination
	Minimum	Maximum			
Microbiological Contaminants					
Total Coliform Bacteria	N/D	N/D	0	0	Naturally present in the environment
Fecal Coliform and E.coli	N/D	N/D	0	0	Human and animal fecal waste

Contaminant	MCL	MCLG	Maximum Detected (Average)	Violation Yes/No	Source of Contamination
TTHM	80 ppb	0	40.8	No	By-product of drinking water chlorination
HAA5	60 ppb	0	30.2	No	By-product of drinking water chlorination

Contaminant	Action Level	Date Range	Number of Samples	90 th Percentile Level (mg/L)	Violation Yes/No	Possible Source of Contamination
Lead	0.015	June 2019	21	0.0040	No	Home plumbing
Copper	1.300	June 2019	21	0.0840	No	Home plumbing
Lead	0.015	Sept 2019	20	0.0070	No	Home plumbing
Copper	1.300	Sept 2019	20	0.0820	No	Home plumbing

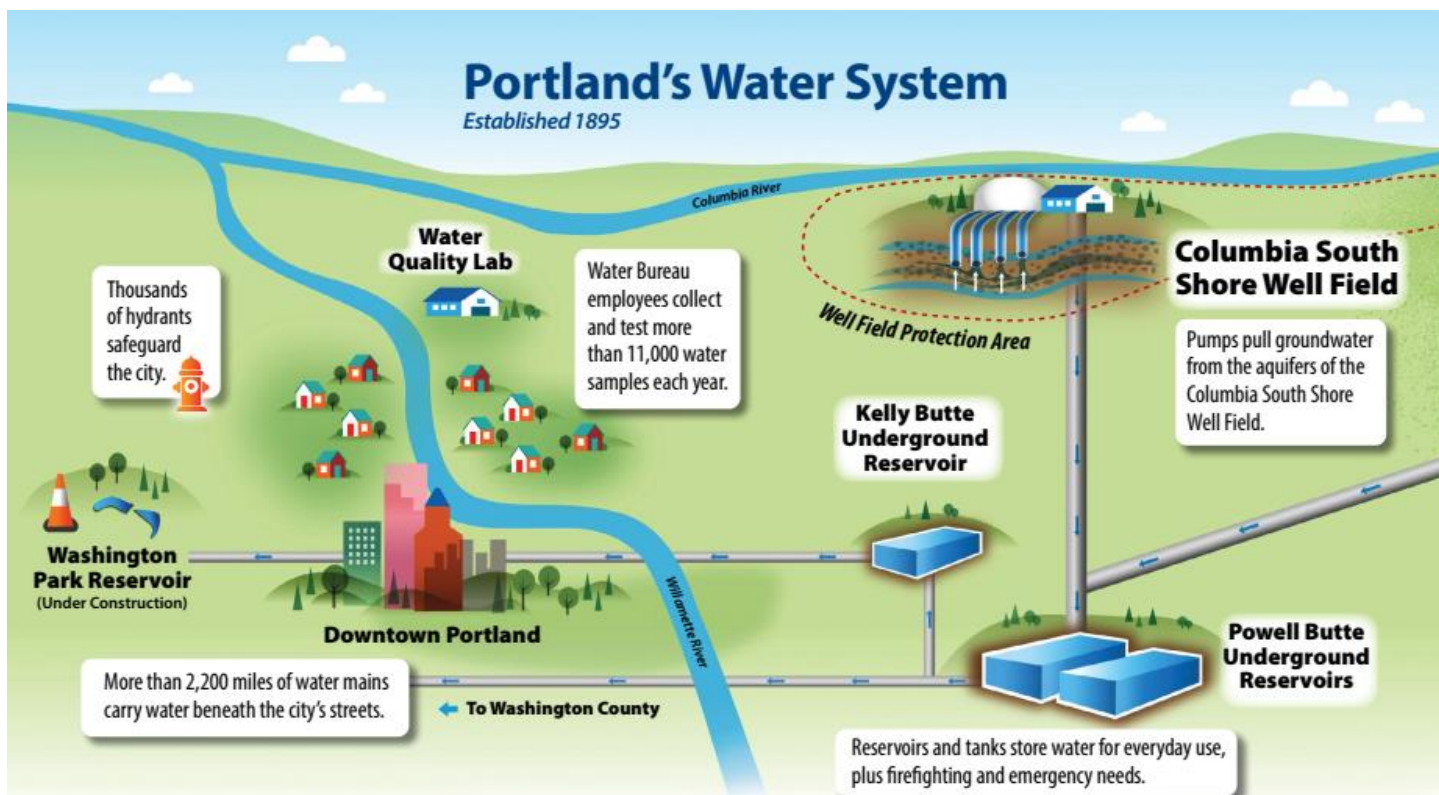
Lake Grove Water District had no violations in 2019.

Water Quality Reports from the City of Portland and the City of Lake Oswego are on the following pages.



PORTLAND WATER BUREAU
2020 Drinking Water Quality Report





Portland's Drinking Water Sources

The Bull Run Watershed, Portland's protected surface water supply, is in the Mount Hood National Forest, 26 miles from Portland. The Portland Water Bureau and the U.S. Forest Service carefully manage the watershed to sustain and supply clean drinking water. In a typical year, the watershed receives an astounding 135 inches of precipitation (rain and snow), which flows into the Bull Run River and then into two reservoirs that store nearly 10 billion gallons of drinking water.

Source water assessments are completed to identify contaminants of concern for drinking water. For the Bull Run, the only contaminants of concern are naturally occurring microorganisms, such as *Giardia*, *Cryptosporidium*, fecal coliform bacteria, and total coliform bacteria. The Portland Water Bureau regularly tests Bull Run water for these microorganisms that live in virtually all freshwater ecosystems.

The Portland Water Bureau treats water to control organisms that would make people sick but does not currently treat for *Cryptosporidium*. Portland is installing filtration to remove *Cryptosporidium* and other contaminants from drinking water by 2027. Learn more on pages 8 and 9.

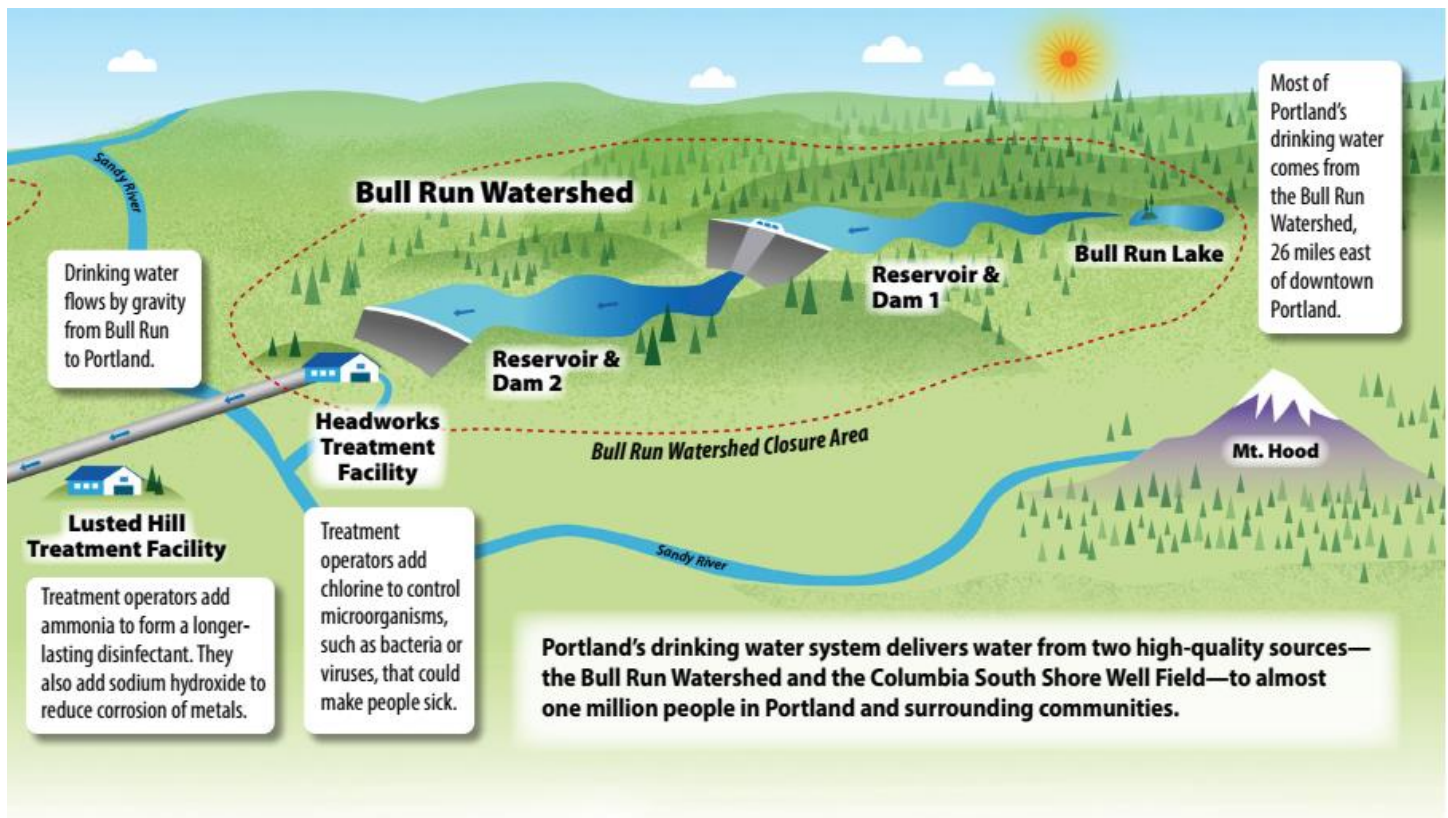
Portland's source water assessment is available at portlandoregon.gov/water/sourcewaterassessment or by calling 503-823-7525.

The Columbia South Shore Well Field

Portland's protected groundwater supply, provides drinking water from 25 active wells located in three different aquifers. The well field is between Portland International Airport and Blue Lake Park. Portland uses the well field for two purposes: to supplement the Bull Run supply in the summer, and to temporarily replace the Bull Run supply during turbidity events, maintenance activities, and emergencies.

The Columbia South Shore Well Field is beneath homes and businesses with a variety of potential contaminant sources. The deep aquifers that are the primary sources of water supply have natural geologic protection from pollutants present at the land surface. Portland, Gresham, and Fairview work together to protect the well field. The cities' Groundwater Protection Programs work with residents and businesses in the well field to ensure that pollutants from this urban area do not impact the groundwater source.

To learn more about groundwater protection and find upcoming groundwater education events, visit portlandoregon.gov/water/groundwater.



Water for People, Water for Fish

The Bull Run River, Portland's primary drinking water source, is also home to four runs of threatened salmon and steelhead. The Portland Water Bureau developed forty-nine specific measures to address the flow, temperature, and habitat impacts the drinking water system has on salmon habitat and water quality in the lower Bull Run River. These measures include restoring salmon habitat, improving access for fish, managing stream temperature and flow in the lower Bull Run River, and working with partners in the greater Sandy River Basin to improve salmon and steelhead populations.



Engineered logjams help create habitat for fish to live and spawn.



Large pipes with natural stream bottoms, called culverts, are used under roads in the watershed so that fish have access to their spawning streams.



Portland Water Bureau fish biologists use smolt traps, seen in the background, to count young fish in the Bull Run River.



Get email updates when we make changes to our source water or treatment. Sign up at portlandoregon.gov/water/notification.

What the EPA Says Can Be Found in Drinking Water

Across the United States, 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.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (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.

Contaminants in drinking water sources may include: **microbial contaminants**, such as viruses, bacteria, and protozoa from wildlife; **inorganic contaminants**, such as naturally occurring salts and metals; **pesticides and herbicides**, which may come from farming, urban stormwater runoff, or home and business use; **organic chemical contaminants**, such as byproducts from industrial processes or the result of chlorine combining with naturally occurring organic matter; and **radioactive contaminants**, such as naturally occurring radon.

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 at **800-426-4791** or at [epa.gov/safewater](https://www.epa.gov/safewater).

Additional Testing Completed in 2019

Every five years, the EPA requires the Portland Water Bureau and other water utilities across the country to test their water for contaminants that do not have a federal standard or limit. These are called unregulated contaminants. After testing rounds are complete, the EPA evaluates the test results and the potential health risks of the contaminants to determine if a standard is needed to protect public health.

In 2019, the Portland Water Bureau tested its water for the following unregulated contaminants: 10 cyanotoxins; 2 metals; 4 unregulated disinfection byproduct groups and precursors; 1 regulated disinfection byproduct group; 9 pesticides and pesticide byproducts; 3 alcohols; and 3 semivolatile chemicals. Of these, only manganese, disinfection byproducts, and one precursor were detected.

Manganese is a metal found in the earth's crust. It can dissolve into water that is in contact with natural deposits. Low levels of manganese in water can cause discolored water or staining. High levels of manganese can lead to negative health effects. At the levels in Portland's water, it is unlikely to lead to negative health effects.

Disinfection byproducts form when precursors, which are naturally present in the environment, combine with chlorine, which is added to water as disinfection. High levels of disinfection byproducts could cause health problems in people. At the levels in Portland's water, these are unlikely to lead to negative health effects.

Contaminant	Detected in Portland's Water			Source of Contaminant
	Minimum	Average	Maximum	
Metal				
Manganese (ppm)	0.0017	0.016	0.062	Found in natural deposits
Disinfection Byproducts and Precursors				
Total Organic Carbon (ppm)	0.89	1.37	1.70	Naturally present in the environment
Haloacetic Acids–5 (ppb) ¹	17	29.7	43	Byproduct of drinking water disinfection
Haloacetic Acids–6Br (ppb)	<0.2	0.92	1.5	
Haloacetic Acids–9 (ppb)	18	30.4	44	

¹Haloacetic Acids-5 are a group of regulated disinfection byproducts. Additional results for this group are on page 6.
Definitions for ppm and ppb are on page 7.

Contaminants Detected in 2019

Regulated Contaminant		Detected in Portland’s Water		EPA Standard		Sources of Contaminant
		Minimum	Maximum	MCL or TT	MCLG	
Untreated Source Water						
Turbidity (NTU)		0.19	1.32	5	N/A	Erosion of natural deposits
Fecal coliform bacteria (% >20 colonies/100 mL in 6 months)		Not Detected	0%	10%	N/A	Animal wastes
Giardia (#/L)		Not Detected	0.08	TT	N/A	Animal wastes
Treated Drinking Water						
Metals and nutrients at the entry point						
Arsenic (ppb)		<0.50	1.09	10	0	Found in natural deposits
Barium (ppm)		0.00082	0.01350	2	2	
Fluoride (ppm)		<0.025	0.140	4	4	
Nitrate – Nitrogen (ppm)		<0.010	0.054	10	10	Found in natural aquifer deposits, animal wastes
Microbial contaminants in the distribution system						
Total coliform bacteria (% positive per month)		Not Detected	0.38%	N/A	N/A	Found throughout the environment
Disinfectant residual and byproducts in the distribution system						
Total chlorine residual (ppm)	Running annual average	1.76	1.80	4 [MRDL]	4 [MRDLG]	Chlorine used to disinfect water
	Range of single results at all sites	0.17	2.57	N/A	N/A	
Haloacetic acids (ppb)	Running annual average at any one site	23.3	34.3	60	N/A	Byproduct of drinking water disinfection
	Range of single results at all sites	17	43	N/A	N/A	
Total trihalomethanes (ppb)	Running annual average at any one site	22.1	30.8	80	N/A	Byproduct of drinking water disinfection
	Range of single results at all sites	17.3	45.4	N/A	N/A	

Unregulated Contaminant	Detected in Portland's Water			Sources of Contaminant
	Minimum	Average	Maximum	
Treated Drinking Water				
Radon (pCi/L)	<50	140	280	Found in natural deposits
Sodium (ppm)	3.2	8.1	13	

The Portland Water Bureau publishes reports with more details three times a year: portlandoregon.gov/water/triannual.



Definitions

MCL: Maximum Contaminant Level

The highest level of a contaminant in drinking water below which there is no known or expected risk to health. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG: Maximum Contaminant Level Goal

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.

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 control of microbial contaminants.

MRDLG: Maximum Residual Disinfectant Level Goal

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.

N/A: not applicable

Some contaminants do not have a health-based level or goal defined by the EPA.

NTU: Nephelometric Turbidity Unit

A unit for measuring the turbidity, or cloudiness, of a water sample.

ppm: parts per million

Water providers use ppm to describe a small amount of a substance within the water. In time measurement, one part per million is about 32 seconds out of one year.

ppb: parts per billion

Water providers use ppb to describe a very small amount of a substance within the water. In time measurement, one part per billion is about 3 seconds out of 100 years.

pCi/L: picocuries per liter

Picocurie is a measurement of radioactivity.

TT: Treatment Technique

A required process intended to reduce the level of a contaminant in drinking water.

About These Contaminants

Arsenic, barium, and fluoride

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 lead to negative health effects.

Fecal coliform bacteria

As part of Portland's compliance with the filtration avoidance criteria of the Surface Water Treatment Rule, water is tested for fecal coliform bacteria before disinfectant is added. The presence of fecal coliform bacteria in source water indicates that water may be contaminated with animal wastes. This is measured in percent of samples with more than 20 colonies in 100 milliliters of water during any six-month period. The Portland Water Bureau uses chlorine to control these bacteria.

Giardia

Wildlife in the watershed may be hosts to *Giardia*, a microorganism that can cause gastrointestinal illness. The treatment technique is to remove 99.9 percent of *Giardia* cysts. The Portland Water Bureau uses chlorine to control *Giardia*.

Haloacetic acids and total trihalomethanes

Disinfection byproducts form when chlorine interacts with naturally occurring organic material in the water. High levels of disinfection byproducts can cause health problems in people. Portland adds ammonia to form a more stable disinfectant, which helps minimize disinfection byproducts.

Nitrate – Nitrogen

Nitrate, measured as nitrogen, can lead to bacterial and algal growth in the water. At levels that exceed the standard, nitrate can contribute to health problems. At the levels found in Portland's drinking water, nitrate is unlikely to lead to negative health effects.

Radon

Radon is a naturally occurring radioactive gas that cannot be seen, tasted, or smelled. Radon can be detected at very low levels in the Bull Run water supply and at varying levels in Portland's groundwater supply. Based on the historical levels of radon in groundwater combined with the limited amount of groundwater used, people in Portland are unlikely to have negative health effects from radon in water. Find more information about radon from the EPA at [epa.gov/radon](https://www.epa.gov/radon).

Sodium

There is currently no drinking water standard for sodium. At the levels found in drinking water, it is unlikely to lead to negative health effects.

Total chlorine residual

Total chlorine residual is a measure of free chlorine and combined chlorine and ammonia in Portland's distribution system. Chlorine residual is a low level of chlorine remaining in the water and is meant to maintain disinfection through the entire distribution system.

Total coliform bacteria

Coliforms are bacteria that are naturally present in the environment. Coliform bacteria usually do not make people sick. They are used as an indicator that other potentially harmful bacteria may be present. If more than 5 percent of samples in a month are positive for total coliforms, an investigation must be conducted to identify and correct any possible causes. The Portland Water Bureau uses chlorine to control these bacteria.

Turbidity

Turbidity is the cloudiness of a water sample. In Portland's system, increased turbidity usually comes from large storms, which suspend organic material in Bull Run water. Increased turbidity can interfere with disinfection and provide an environment for microorganisms to grow. Since the Portland Water Bureau does not yet filter Bull Run water, the treatment technique is that turbidity cannot exceed 5 NTU more than two times in 12 months. When turbidity rises in the Bull Run source, Portland switches to its Columbia South Shore Well Field source.

Monitoring for *Cryptosporidium*

Drinking water treatment for *Cryptosporidium*, a potentially disease-causing microorganism, is required by state and federal regulations. For five years, the Oregon Health Authority (OHA) did not require the Portland Water Bureau to treat for *Cryptosporidium* based on data showing that *Cryptosporidium* was rarely found in the Bull Run Watershed. Since 2017, test results have shown low-level detections of *Cryptosporidium* during the rainy season. As a result, OHA determined that treatment is now necessary. Portland has made several decisions about how to treat for *Cryptosporidium*, including choosing filtration as the treatment method and deciding on the location of the future treatment plant. The Portland Water Bureau is on track to have the filtration plant built and running by 2027. Learn more on page 9.

The Portland Water Bureau does not currently treat for *Cryptosporidium*, but is required to do so under drinking water regulations. Portland is working to install filtration by 2027 under a compliance schedule with OHA. In the meantime, the Portland Water Bureau is implementing interim measures such as watershed protection and additional monitoring to protect public health. Consultation with public health officials continues to conclude that the general public does not need to take any additional precautions.

Exposure to *Cryptosporidium* can cause cryptosporidiosis, a serious illness. Symptoms can include diarrhea, vomiting, fever, and stomach pain. People with healthy immune

systems recover without medical treatment. According to the Centers for Disease Control and Prevention (CDC), people with severely weakened immune systems are at risk for more serious disease. Symptoms may be more severe and could lead to serious life-threatening illness. Examples of people with weakened immune systems include those with AIDS, those with inherited diseases that affect the immune system, and cancer and transplant patients who are taking certain immunosuppressive drugs.

The Environmental Protection Agency has estimated that a small percentage of the population could experience gastrointestinal illness from *Cryptosporidium* and advises that customers who are immunocompromised and receive their drinking water from the Bull Run Watershed consult with their health care professional about the safety of drinking the tap water.

2019 Results of *Cryptosporidium* Monitoring at the Raw Water Intake

Number of Samples		Concentration Detected (oocysts/L)	
Total tested	Positive for <i>Cryptosporidium</i>	Minimum	Maximum
179	41	Not detected	0.06

More information: portlandoregon.gov/water/crypto

Special Notice for Immunocompromised Persons

Some people may be more vulnerable to contaminants in drinking water than the general population.

Immunocompromised 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 people, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency (EPA)/Centers for Disease Control and Prevention (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 at **800-426-4791**.



Bull Run Treatment Projects

Our water: Safe and abundant for generations to come

By 2022: Improved Corrosion Control Treatment

This summer, the Portland Water Bureau will break ground on a new facility designed to further reduce the amount of lead and other metals that can get into drinking water. Lead enters drinking water from home plumbing; learn more on page 10. Here's how treatment of the Bull Run supply will work in 2022:



Since 1895, clean and safe water has started with the highly protected Bull Run Watershed.



Since 1929, water has been disinfected to control microorganisms that can make people sick.



Since 1998, the pH of the water has been raised to reduce levels of lead in water at the tap. **By 2022, Portland will install Improved Corrosion Control Treatment**, which will adjust the pH and alkalinity in order to lower the levels of lead even more.

By 2027: A new Bull Run filtration facility

By 2027, the Portland Water Bureau will provide safe, reliable water with a new filtration facility that will:

- Make Portland's water safer by removing *Cryptosporidium* and other contaminants
- Provide consistent, high-quality drinking water
- Make the Bull Run water supply more reliable
- Prepare the Portland Water Bureau to respond to future regulations



The Bull Run Watershed will remain highly protected.



Filtration will remove *Cryptosporidium* and other potential contaminants.



Disinfection will control microorganisms.



Corrosion control treatment will continue to lower lead levels at the tap.

More information: portlandoregon.gov/BullRunProjects

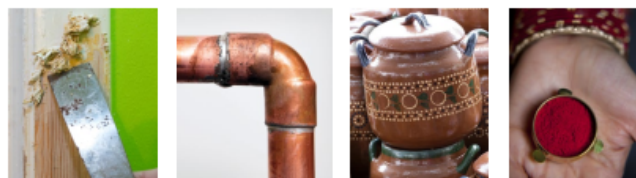
Reducing Exposure to Lead

The Portland Water Bureau cares about the health of the families in our community and is committed to helping you. If present, lead at elevated levels can cause serious health problems, especially for pregnant people and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Portland Water Bureau is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components in homes or buildings. Lead is rarely found in Portland's source waters and there are no known lead service lines in the water system. In Portland, lead enters drinking water from the corrosion (wearing away) of household plumbing materials containing lead. These materials include lead-based solder used to join copper pipe—commonly used in homes built or plumbed between 1970 and 1985—and brass components and faucets installed before 2014.

When your water has been sitting for several hours, such as overnight or while you are away at work or school, 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 drinking water, you can request a free lead-in-water test from the LeadLine. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from

- **LeadLine:** 503-988-4000 or [leadline.org](https://www.leadline.org)
- **Safe Drinking Water Hotline:** 800-426-4791 or [epa.gov/safewater/lead](https://www.epa.gov/safewater/lead).

In Portland, the most common sources of lead exposure are lead-based paint, household dust, soil, and plumbing materials. Lead is also found in other household objects such as toys, cosmetics, pottery, and antique furniture.



Protecting Public Health

The Portland Water Bureau's Lead Hazard Reduction Program takes a comprehensive approach to reducing exposure to lead. Through this program, the Portland Water Bureau provides the following:

• Corrosion Control Treatment

This treatment reduces corrosion of lead in plumbing by adding sodium hydroxide to the water, which increases the pH. To further reduce corrosion, Portland has begun the process of improving corrosion control treatment by 2022. Learn more on page 9.

• Lead-in-Water Testing

Anyone in the service area can test their water for lead for free through the Portland Water Bureau. The Portland Water Bureau targets outreach to households most at risk from lead in water (houses built between 1970 and 1985).

• Education, Outreach, and Testing

Agencies and organizations receive grant funds to help people reduce their exposure to all sources of lead.

• Home Lead Hazard Reduction

The Portland Housing Bureau's Lead Hazard Control Program, through support from the Portland Water Bureau, removes lead paint hazards in homes.

Routine Testing at Homes with Higher Risk of Lead in Water

The Portland Water Bureau offers free lead-in-water tests to anyone in the service area. Twice each year, the Portland Water Bureau also collects water samples from a group of over 100 homes that have lead solder and are more likely to have higher levels of lead in water. Testing results exceed the federal action level for lead when more than 10 percent of results from these homes are above 15 parts per billion. In the most recent round of testing, less than 10 percent of homes exceeded the lead action level.

Lead and Copper Testing Results from High-Risk Residential Water Taps

Regulated Contaminant	Detected in Residential Water Taps		EPA Standard		Sources of Contaminants
	Fall 2019 Results ¹	Homes Exceeding Action Level ²	Action Level ²	MCLG ³	
Lead (ppb) ³	11.6	6 out of 105 (5.7%)	15	0	Corrosion of household and commercial building plumbing systems
Copper (ppm) ³	0.216	0 out of 105 (0%)	1.3	1.3	

¹ 90th Percentile: 90 percent of the sample results were less than the values shown.

² Action Level definition: The concentration of a contaminant which, if exceeded, triggers treatment or requirements of which a water system must follow.

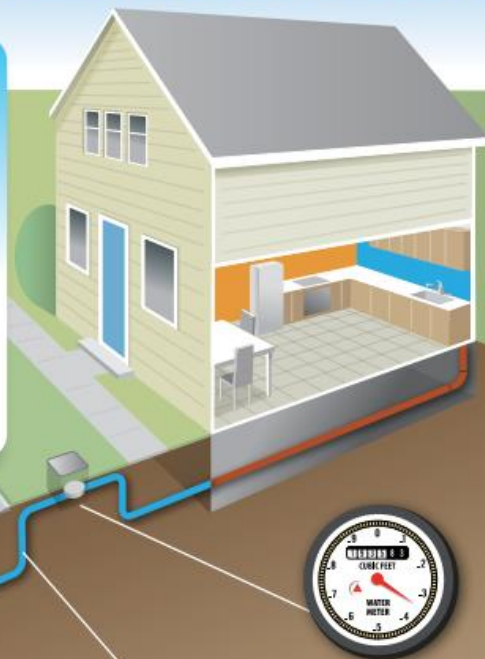
³ See page 7 for definitions.

Home Plumbing Can Add Lead to Your Drinking Water

Reduce your exposure to all sources of lead.

Contact the
LeadLine
leadline.org
503-988-4000

- Free lead-in-water testing
- Free blood lead testing for children
- Free lead reduction services



Water Main
Portland Water Bureau never used lead pipes in water mains.

Lead Pigtails
Used prior to WWII. All known pigtails removed by 1998.

Service Lines
Portland Water Bureau never used lead pipes for service lines.

Water Meter
Portland Water Bureau has used lead-free meters since 1986. As a result, over 95% of homes have a lead-free meter.

MAY CONTAIN LEAD



Faucets and Fixtures
Faucets installed before 2014 could contain leaded brass.



Lead Solder
Lead solder was commonly used to join copper pipe before 1985.

Easy Steps to Reduce Possible Exposure to Lead from Household Plumbing



Run your water to flush the lead out. If no one has used your water in several hours, run the tap for 30 seconds to 2 minutes or until the water becomes colder before using the water for drinking or cooking. Running the tap flushes water that could contain lead.



Use cold, fresh water for cooking, drinking, and preparing baby formula. Lead dissolves more easily into hot water. Do not use water from the hot water tap for cooking, drinking, or to make baby formula.



Do not boil water to remove lead. Boiling water will not reduce lead.



Test your child for lead. Ask your doctor or contact 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.



Test your water for lead. Contact the **LeadLine** to find out how to get a FREE lead-in-water test.



Consider using a filter. Check to make sure it reduces lead—not all filters do. To protect your water quality, follow the manufacturer's instructions for maintaining and replacing your filter. To find out more about water filter performance standards: nsf.org or 800-NSF-8010.



Clean your faucet aerators every few months. Faucet aerators can trap particles from household plumbing and the particles may contain lead. Every few months, unscrew and rinse your aerators.



Consider replacing old fixtures. Since 2014, all pipes, fittings, and fixtures are required to contain less than 0.25 percent lead.



1120 SW Fifth Avenue / Suite 405
Portland, Oregon 97204

Amanda Fritz, Commissioner-in-Charge
Michael Stuhr, PE, Director

Cover photo credits: Roman Johnston, Sally Painter

Questions? We're here to help.

Central Information Line

For general information about projects, programs, and public meetings.
503-823-7404

Water Quality Line

For questions regarding water quality or water pressure.
503-823-7525
WBWaterLine@portlandoregon.gov

Customer Service and Financial Assistance

For questions or information about your account or to apply for financial assistance.
503-823-7770
PWBCustomerService@portlandoregon.gov

Emergency Line

Hotline for water system emergencies.
503-823-4874
24 hours a day, 7 days a week



portlandoregon.gov/water



facebook.com/portlandwaterbureau



[@portlandwater](https://twitter.com/portlandwater)

Additional Drinking Water Information

Oregon Health Authority
Drinking Water Services: 971-673-0405
public.health.oregon.gov/HealthyEnvironments/DrinkingWater

Portland Water Bureau's Water System ID: 4100657

Commissioner Amanda Fritz's Office

Amanda@portlandoregon.gov
Contact Yesenia Carrillo: 503-823-3008 (Hablo español)

Regional Water Providers Consortium

The Portland Water Bureau is a member.
Find out more at regionalh2o.org.



Para obtener una copia del informe de calidad del agua potable en español, comuníquese con:

Здесь можно получить копию отчёта о качестве воды на русском языке:

Để có bản sao báo cáo chất lượng nước uống này bằng tiếng Việt, vui lòng liên lạc:

欲索取此饮用水报告的中文版本，请联系：

portlandoregon.gov/water/wqreport
503-823-7525

Please contact us for translation or interpretation, or for accommodations for people with disabilities.

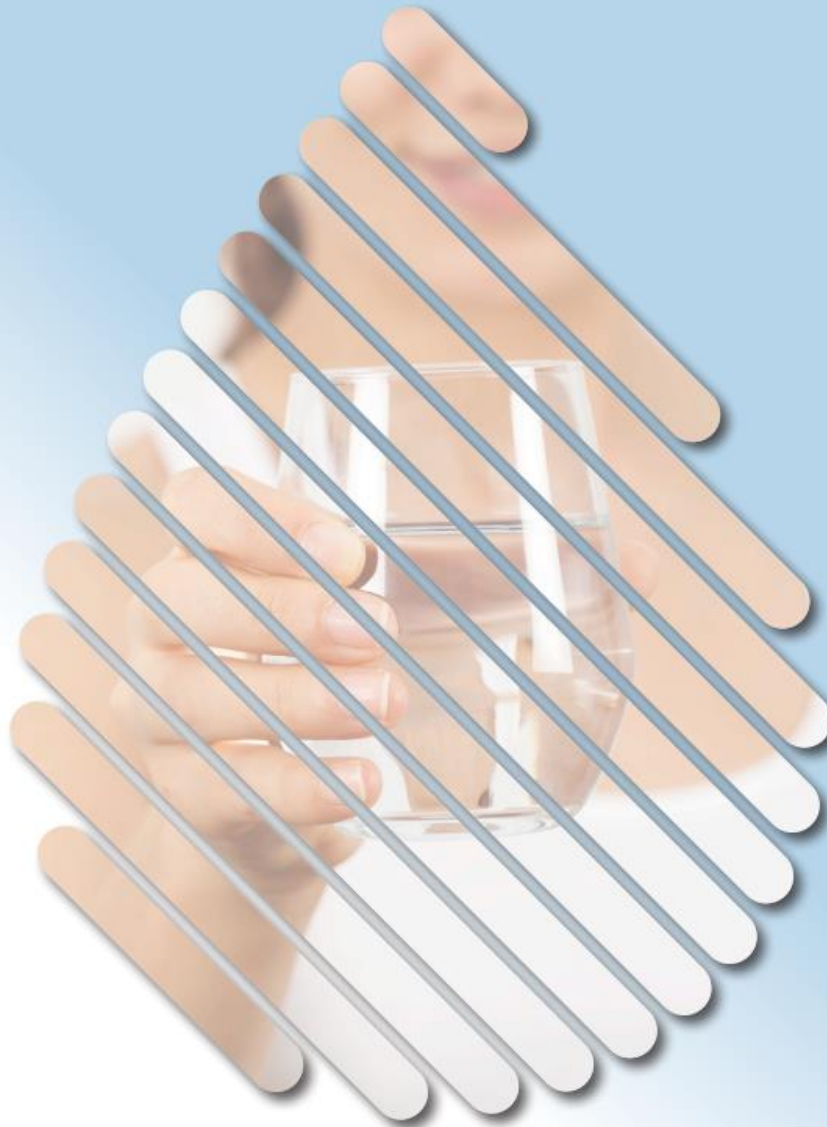
More information · Más información
Дополнительная информация
Thêm thông tin · 欲了解更多信息
Mai multe informații · Macluumaad dheeri ah
Подробиці · Tichikin Poraus · अधिक सूचना

portlandoregon.gov/water/access
503-823-7525 (Relay Service: 711)

Copies of this report and past reports are available at:
portlandoregon.gov/water/wqreport



2020



WE'RE HERE FOR YOU

Through Every Emergency

City of Lake Oswego Water Quality Report
Drinking water quality data from 2019

 LOOREGON  @CITYOFLAKEOSWEGO  @LAKEOSWEGOINFO

WE'RE HERE FOR YOU, THROUGH EVERY EMERGENCY

The 2020 Water Quality Report is based on data collected during the 2019 calendar year. The City prepares this report in accordance with Federal and State regulations to bring our citizens the best available information about the water they drink.



Welcome to the City of Lake Oswego's 2020 Water Quality Report.

KNOW YOUR WATER:

YOUR WATER SOURCE AND TREATMENT PROCESS	PAGE 3
YOUR 2019 WATER QUALITY TEST RESULTS	PAGE 4
GLOSSARY OF TERMS	PAGE 5
FAQ & LEAD SAFETY	PAGE 6
BACKFLOW TESTING	PAGE 6
CYANOTOXIN RESULTS	PAGE 7
WATER AUDITS	PAGE 7
ENTER TO WIN \$100 TOWARDS YOUR NEXT UTILITY BILL	PAGE 8

Clean drinking water is an essential resource that we rely on every day. It is easy to take for granted when we turn on our taps and always get clean, fresh water. Knowing where your water comes from, how it is treated and purified, what it is tested for and how it reaches your tap is important to understand.

A message about COVID-19 to our water customers

We have all experienced an unprecedented public health crisis as a result of the coronavirus global pandemic. The City has been actively tracking and responding to this emergency by protecting and isolating essential workers so they can safely do their jobs to keep your water safe and available 24/7.

Your Water is Safe

The treatment process we use is specifically designed to kill viruses, and this includes the COVID-19 virus. Find out more from the Environmental Protection Agency: epa.gov/coronavirus/coronavirus-and-drinking-water-and-wastewater and the Centers for Disease Control: cdc.gov/coronavirus/2019-ncov/php/water.html about COVID-19 and drinking water.

We'll keep the water on

Water is a key element to staying healthy and safe during the COVID-19 pandemic. We want to assure you that water service is reliable and will continue to flow to your tap during this pandemic.

We're here to help

Customers that are concerned about their ability to pay their upcoming water bills should contact us at 503-635-0265 or utility@lakeoswego.city to find out what resources are available.



Sourced from the Clackamas River

Your drinking water originates in the Clackamas River watershed, which is one of the highest quality in the state.

This watershed encompasses 940 square miles and begins in the Mount Hood National Forest. Water is withdrawn from the Clackamas River, then pumped through a pipeline buried beneath the Willamette River to the Lake Oswego-Tigard Water Treatment Plant located in West Linn.

A Clackamas River Watershed Source Water Assessment was completed in 2019. The report is available at www.deq.state.or.us/wq/dwp/docs/uswareports/USWA_00187.00580.00591Clackamas.pdf.



The Clackamas River, your water source, is one of the highest quality in the state.

How is your drinking water treated?

The water treatment process completed in 2017 is conventional treatment using ballasted flocculation, intermediate ozone, and biological filtration.

- **Ballasted flocculation** uses micro-sand and a coagulant to settle dirt, sediment and contaminants out of the water.
- **Ozone** is then added to remove unpleasant taste and odor compounds and to provide advanced treatment.
- **Biological Filtration** through a deep bed of granular activated carbon and silica sand removes any remaining tiny microbes and contaminants, such as cryptosporidium. Beneficial biological activity remove organic molecules that can produce disinfection byproducts.
- Once filtered, the water is **disinfected** using a small amount of chlorine and the **pH is adjusted** to prevent **corrosion** of household plumbing.



For more information on how your drinking water is treated, visit www.lotigardwater.org

YOUR LO WATER BY THE NUMBERS

Your Drinking Water Meets or Exceeds Every State and Federal Standard

Your drinking water is tested every day. More than 90 contaminants are regularly sampled, both before and after the water is treated, to ensure it meets the more than 120 water quality standards for drinking water set by the Environmental Protection Agency (EPA) and the State of Oregon.

The accompanying table shows the results of water quality testing for 2019. Every regulated substance detected in Lake Oswego's drinking water is listed. All of the substances were either not detected or were detected at levels well below limits set by the EPA and State of Oregon for safe drinking water.

Contaminants (Units)	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
Chlorine (CL ²) (ppm)	4	4	0.93 (average)	0.31	1.38	2019	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60	9.1 (highest quarterly average)	0.0	14	2019	No	By-product of drinking water chlorination
Total Trihalomethanes/ (TTHMs) (ppb)	NA	80	14.7 (highest quarterly average)	2.6	16.0	2019	No	By-product of drinking water disinfection
Bromate (ppb)	0	10	1.2	ND	1.2	2019	No	By-product of drinking water treatment with Ozone
Microbiological								
Fecal Coliform/E. Coli (positive samples)	0	0	0	Not Detected		2019	No	Human and animal waste
Total Coliform (% positive samples/ month)	0	5	0	Not Detected		2019	No	Naturally present in the environment
Turbidity (NTU)	NA	TT 0.3 in 95% of	100% of samples meet turbidity standards	Highest single measurement: 0.13		2019	No	Soil runoff
Inorganic Contaminants								
Copper - action level at consumer taps (ppm)	1.3	AL=1.3	90 th percentile: .039 Homes exceeding AL: 0			2017	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead - action level at consumer taps (ppb)	0	AL=15	90 th percentile: 3 Homes exceeding AL: 2			2017	No	Corrosion of household plumbing systems; erosion of natural deposits
HAA6 Br (ppb) Haloacetic Acid group of 6, Bromate		N/A	2.24 average			2019	No	By-product of drinking water disinfection
BHAA9 (ppb) Haloacetic Acid group of 9		N/A	6.35 average			2019	No	By-product of drinking water disinfection
Unregulated Disinfectants & Disinfection By-Products								
HAA6 Br (ppb) Haloacetic Acid group of 6, Bromate		N/A	2.24 average	0.54	4.8	2019	No	By-product of drinking water disinfection
HAA9 (ppb) Haloacetic Acid group of 9		N/A	6.35 average	3.08	10.87	2019	No	By-product of drinking water disinfection

Unregulated Contaminant Monitoring Rule 2019 Results

The Lake Oswego-Tigard Water Supply Partnership has complied with the fourth round of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR 4). A full list of contaminants tested and their results are available upon request. Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the U.S. EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. The unregulated contaminants that were detected in Lake Oswego sampling are listed below, along with their level of detection. For more information, call 503-635-0394 or email watertest@lakeoswego.city.

For a complete listing of all test results, go to the Oregon Drinking Water Service website: <https://yourwater.oregon.gov/inventory.php?pwsno=00457>.

What Else Do We Look For In Our Water?

The following list of chemicals and compounds are what we test for on a regular basis. Most chemicals are measured in parts per billion (ppb) or parts per million (ppm).

- **Volatile Organic Compound:** (21 compounds) manmade chemical compounds such as cleaning fluids, degreasers and plastics.
- **Synthetic Organic Compounds:** (30 compounds) manmade chemicals, including insecticides and herbicides.
- **Inorganic Compounds:** (16 compounds) naturally occurring minerals and chemicals that are released into water through erosion and leaching of mineral deposits.

Cryptosporidium in Untreated Clackamas River Water

Cryptosporidium is a harmful micro-organism found in surface water throughout the U.S. Two years of monthly Cryptosporidium monitoring of raw, untreated water was conducted from October 2016 through September 2018. Of the 24 samples collected during this sampling period, only one had detectable Cryptosporidium at 0.1 Oocyst per liter of water. Comparable with historical results, the samples from this recent testing indicate very low occurrence of Cryptosporidium. The water treatment process used includes coagulation, settling, ozonation and filtration processes.

Sources of Contaminants

In order to ensure that tap water is safe to drink, the EPA sets regulatory limits on the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration sets limits for contaminants in bottled water which must provide the same protection for public health.

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 earth's surface or through the ground it dissolves naturally occurring minerals and, in some cases, radioactive material. Drinking water can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water throughout the United States include:

- Microbial contaminants, such as viruses and bacteria, which may come from wildlife or septic systems e.g. coliform and Giardia.
- 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 may come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can occur naturally, e.g. radon.

Reporting Violation

The water system submitted a late report for Bromate in February 2019 due to a labeling error. This resulted in a late report violation. The report was submitted and a revised process was developed to avoid future reporting errors.

Glossary: EPA Water Quality Definitions

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

Maximum Contaminant 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 technology.

Maximum Contaminant Level Goal (MCLG): the level of a contaminant in drinking water below which there is no known risk to health. MCLGs allow for a margin of safety.

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 contamination.

Nephelometric Turbidity Units (NTU): the standard unit of measurement used in water analysis to measure turbidity in a water sample. Turbidity is a measure of how clear the water looks.

Parts per Million (ppm): one part per million is equivalent to half of an aspirin tablet dissolved in a full bathtub of water (approximately 50 gallons).

Parts per Billion (ppb): one part per billion is equivalent to half of an aspirin tablet dissolved in 1,000 bathtubs of water (approximately 50,000 gallons).

pH: a scale that measures how acidic or basic drinking water (or another substance) is.

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

Smart Water Meter Project

In the summer of 2019, the City of Lake Oswego began replacing outdated, manually-read water meters with new, wireless-read water meters. These new "smart meters" provide efficiency gains for our water system and customer service. This includes more frequent and accurate recording of water usage, leak detection, and maintenance alerts to the City. Smart water meters will also allow customers to monitor their water consumption in near real time. Overall, the City will replace nearly 12,000 residential meters. These water system upgrades are funded through cost savings from Capital Infrastructure Projects. For more information and project updates, please visit <https://www.ci.oswego.or.us/publicworks/smart-water-meter-project> or email smartmeter@lakeoswego.city.



Special Notice for Immuno-Compromised Persons

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 persons, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the **Safe Drinking Water Hotline** 1-800-426-4791 or visiting www.epa.gov/safewater.

Drinking and Bottled Water Notice

Drinking water, including bottled water, may be reasonably expected to contain small amounts of some contaminants. However, 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 EPA's **Safe Drinking Water Hotline** at 1-800-426-4791.

Lake Oswego offers FREE lead testing to its water customers.

Lead Safety

Lake Oswego water system meets State and Federal requirements for lead. Results from customer sampling demonstrate that the system is optimized to prevent lead from getting into the water.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead is rarely found above detectable levels in the City of Lake Oswego's source water, the Clackamas River.

The main source of lead in drinking water is typically from household plumbing or components associated with water service lines. The City of Lake Oswego is responsible for providing high-quality drinking water, but cannot control the variety of materials used in private 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 two minutes before using water for drinking or cooking.

Free Lead Testing

If you are concerned about lead in your water, you may wish to have your water tested. The City offers FREE lead testing to its water customers— you can pick up a test kit and instructions at the 3rd floor reception desk at City Hall.

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 www.epa.gov/safewater/lead.



BACKFLOW TESTING

It is once again time to think about backflow testing. Backflow assemblies separate potable water from non-potable water sources such as irrigation systems, medical equipment and private pump systems to name a few. These devices help protect the public water system from possible contamination. Backflow devices are required by the City of Lake Oswego and the State of Oregon and must be tested annually.

As of 2017, all backflows must be tested **no later than July 15th** of each calendar year. For more information and a complete list of certified backflow testers, please visit City of Lake Oswego's website at www.lakeoswego.city/backflow or call 503-534-5674.

OREGON HEALTH AUTHORITY

Cyanotoxin Monitoring Rule:

In 2018, the Oregon Health Authority developed a new drinking water rule that requires many drinking water systems in the state to test for cyanotoxins, and notify the public about the test results.

What are cyanotoxins?

Cyanobacteria, naturally occur in lakes and streams. Under certain conditions, such as in warm water containing an abundance of nutrients, they can rapidly form harmful algal blooms (HABs). These blooms are capable of producing toxins known as cyanotoxins. Cyanotoxins are compounds that are capable of harming humans. The Oregon Health Authority has issued safe drinking water limits for the cyanotoxins microcystins and cylindrospermopsin, listed below.

ALGAL TOXIN	HEALTH ADVISORY (VULNERABLE POPULATION)	HEALTH ADVISORY (ALL POPULATION)	HEALTH ADVISORY (RECREATIONAL ADVISORY)	SAMPLE DATE	YOUR WATER
TOTAL MICROCYSTINS	0.3 MG/L	1.6 MG/L	4 MG/L	2019	NOT DETECTED
CYLINDROSPERMOPSIN	0.7 MG/L	3 MG/L	8 MG/L	2019	NOT DETECTED

Is there Cyanotoxin in my drinking water?

No, there has never been any toxin detected in the Lake Oswego drinking water. The Lake Oswego Tigard Water Partnership, along with the Clackamas River Water Providers have monitored the Clackamas Watershed for many years for cyanotoxins. Although we have detected low levels of these compounds in the North Fork Reservoir and on the Clackamas, no toxin has been detected in the finished drinking water.

Can the water treatment plant remove cyanotoxins?

The answer is yes! In fact, the improved, state-of-the-art treatment process that was completed in 2017 includes the best available technology for treatment of these compounds. Ballasted Flocculation, Ozone treatment, Biological Filtration, and final disinfection with chlorine in combination has been tested to effectively treat these compounds.

Unregulated Contaminant Monitoring Rule 2019 Results

Cyanotoxins were also tested in 2018 under the Environmental Protection Agency unregulated contaminant monitoring rule. Finished water samples were collected and analyzed for microcystin, cylindrospermopsin and anatoxin-A from May - September 2018. No toxins were detected in any of the samples collected.



LOOKING TO SAVE MONEY ON YOUR WATER BILL?

From your kitchen to your garden, there are little things you can do to make a big difference on your bill. Get all the tips at:
www.lakeoswego.city/publicworks/water

To schedule a FREE water audit with Water Conservation Specialist Kevin McCaleb, call 503-675-3747.

A Penny Per Gallon

You pay less than a penny per gallon of high-quality tap water, delivered to your home. By comparison, a 16-ounce container of bottled water costs approximately \$1.00.

THANK YOU FOR TAKING THE TIME TO KNOW YOUR WATER!

WWW.LAKEOSWEGO.CITY/2020-WATER-REPORT

WIN \$100 TOWARDS YOUR NEXT UTILITY BILL

To enter to win, visit
<https://bit.ly/2I29TsX>
then complete and submit
the form by July 30, 2020

Contest Rules:

- Entrants must be a Lake Oswego water customer to win.
- Only one entry is allowed per customer.
- Entrants must complete and submit all the required information on the online form by July 30, 2020.
- One winner will be randomly selected and announced in August 2020.

MORE INFORMATION?

The City of Lake Oswego is here for you!

www.lakeoswego.city/publicworks

Water Quality and Treatment: 503-635-0394

or watertest@lakeoswego.city

Utility Billing: 503-635-0265

Water Operations: 503-635-0280

Water Conservation: 503-675-3747

or kmccaleb@lakeoswego.city

**Lake Oswego Tigard Water
Partnership**

www.lotigardwater.org

**United States Environmental
Protection Agency**

Safe Drinking Water Hotline

1-800-426-4791

www.epa.gov

Oregon Health Authority

Drinking Water Services

1-503-731-4010

[www.public.health.oregon.gov/](http://www.public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/index.aspx)

[HealthyEnvironments/](http://www.public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/index.aspx)

[DrinkingWater/Pages/index.aspx](http://www.public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Pages/index.aspx)

**Regional Water Providers
Consortium**

www.regionalh2o.org

Clackamas River Water Providers

www.clackamasproviders.org

Clackamas River Basin Council

www.clackamasriver.org

Get Involved

Interested citizens are invited to attend Lake Oswego City Council meetings or Lake Oswego – Tigard Water Partnership Oversight Committee meetings. Visit www.lakeoswego.city/citycouncil or www.lotigardwater.org for details.

Due to the COVID-19 gathering restrictions, we are not currently offering public tours of the Water Treatment Plant.

Contact watertest@lakeoswego.city for future tour opportunities.

