

2020

WATER QUALITY REPORT



PALATINE HILL WATER DISTRICT

6/8/2020



Palatine Hill Water District 2020 Drinking Water Quality Report

Palatine's Drinking Water Sources

Palatine Hill Water District purchases water from the City of Portland, who provides treated surface water from the Bull Run Watershed and groundwater from the Columbia South Shore Well Field located east of the Portland International Airport. The water is conveyed through Portland's water distribution system to Palatine Hill's main pump station on Highway 43 at Carey Lane and/or from the Upper Reservoir connection on Palatine Hill Rd.

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 could make people sick but does not currently treat for *Cryptosporidium*. Portland is installing filtration to remove *Cryptosporidium* from drinking water by 2027.

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 the 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 Program 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.

The Clackamas River Water District, City of Gresham, City of Lake Oswego, City of Milwaukie, Rockwood Water People's Utility District, Sunrise Water Authority, and Tualatin Valley Water District provide drinking water to some Portland customers who live near service area boundaries. Customers who receive water from these providers will also receive detailed water quality reports about these sources in addition to this report.

Frequently Asked Questions About Water Quality

What test results will I find in this report?

The Palatine Hill/Portland Water Bureau monitors drinking water for over 200 regulated and unregulated contaminants. This report lists all of the regulated contaminants the bureau detected in drinking water in 2019. **If a known, health-related contaminant is not listed in this report, the Palatine Hill/Portland Water Bureau did not detect it in drinking water.**

How is Portland's drinking water treated?

Currently, Portland's drinking water treatment is a three-step process. **1) Chlorine** disinfects against organisms that could otherwise make people sick. **2) Ammonia** stabilizes chlorine to form a longer-lasting disinfectant. **3) Sodium hydroxide** reduces corrosion of metals like lead. Portland's treatment is changing in the coming decade.

Is Portland's water filtered?

No. Neither of Portland's sources is filtered. In response to a series of low-level detections of *Cryptosporidium* in 2017, Portland is installing a filtration plant to treat for *Cryptosporidium*. Bull Run water will be filtered by 2027.

Does the Portland Water Bureau add fluoride to the water?

No. Fluoride naturally occurs in Portland's water at very low levels. You may want to ask your dentist or doctor about supplemental fluoride for preventing tooth decay. This is especially important for young children.

Is Portland's water soft or hard?

Bull Run water—Portland's main water supply—is very soft. It typically has a total hardness of 3–8 parts per million (ppm), or ¼ to ½ a grain of hardness per gallon.

Portland's groundwater supply is moderately hard: about 80 ppm, or about 5 grains per gallon.

What is the pH of Portland's water?

The pH of Portland's drinking water typically ranges between 7.5 and 8.5.



How can I get my water tested?

For free lead-in-water testing, contact the LeadLine at leadline.org or **503-988-4000**. For other testing, you can pay a private laboratory to test your tap water. Not all labs are accredited to test for all contaminants. For information about accredited labs, contact the Oregon Health Authority at ORELAP.Info@state.or.us or **503-693-4100**.

What causes temporary discolored water?

Since Portland's water is not filtered, sediment and organic material from the Bull Run Watershed is present in Portland's water supply. This can sometimes be seen when construction, hydrant use, firefighting, or water main breaks stir up the sediment that has settled at the bottom of the water mains. It can also be seen in the fall as a harmless tea-colored tint. Another source of discolored water are older pipes in buildings. These pipes can add rust to water when no one has used the water for several hours. Find out more at portlandoregon.gov/water/discoloredwater.

Have water quality or pressure issues or concerns? Contact Palatine Hill Water District at:

503-639-5096

info@palatinehillwaterdistrict.com

If you turned on your faucet and the water was discolored, or the flow was less than normal, would you know what to do?

Check out Portland's **Customer Guide to Water Quality and Pressure** for maintenance and troubleshooting tips. Find it online: portlandoregon.gov/water/guide.

Call 503-823-7525 to request a paper copy.

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.

Monitoring for Unregulated Substances

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, 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; 5 disinfection byproducts and precursors; 9 pesticides and pesticide byproducts; 3 alcohols; and 3 semivolatle chemicals. Of these contaminants, only manganese, disinfection byproducts and one precursor were detected in Portland’s water.

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			Sources of Contaminant
	Minimum	Average	Maximum	
Metals				
Manganese (ppm)	0.0017	0.016	0.062	Found in natural deposits
Disinfection Byproduct and Precursors				
Total Organic Carbon (ppm)	0.89	1.37	1.70	Naturally present in the environment
Haloacetic Acids-5 (ppb)	X	X	X	Byproduct of drinking water disinfection
Haloacetic Acids-6Br (ppb)	X	X	X	
Haloacetic Acids-9 (ppb)	X	X	X	

Contaminants Detected in 2019



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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	
<i>Giardia</i> (#/L)	Not Detected	0.08	TT	N/A	Animal wastes	
Treated Drinking Water						
Metals and nutrients at the entry points						
Arsenic (ppb)	<0.50	1.09	10	0	Found in natural deposits	
Barium (ppm)	0.00082	0.01350	2	2	Found in natural deposits	
Fluoride (ppm)	<0.025	0.140	4	4	Found in natural deposits	
Nitrate – Nitrogen (ppm)	<0.010	0.054	10	10	Found in natural deposits; animal wastes	
Microbial contaminants in the distribution system						
Total Coliform Bacteria (% positive per month)	0%	0%	N/A	N/A	Found throughout the environment	
Disinfection residual and byproducts in the distribution system						
Total Chlorine Residual (ppm)	Running annual average	0.03	2.00	4 [MRDL]	4 [MRDLG]	Chlorine used to disinfect water
	Range of single results at all sites	0.03	2.00	N/A	N/A	
Haloacetic Acids (ppb)	Running annual average at any one site	24.7	24.7	60	N/A	Byproduct of drinking water disinfection
	Range of single results at all sites	24.7	24.7	N/A	N/A	
Total Trihalomethanes (ppb)	Running annual average at any one site	54.9	54.9	80	N/A	Byproduct of drinking water disinfection
	Range of single results at all sites	54.9	54.9	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 Water Bureau publishes more detailed water reports three times a year. Find these at portlandoregon.gov/water/triannual.

Definitions

MCL: Maximum Contaminant Level

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.

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

The 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 gastro-intestinal illness. The treatment technique (TT) 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, in Portland, people 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 (TT) is that turbidity cannot exceed 5 NTU more than 2 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** showed low-level detections of *Cryptosporidium*, as a result OHA has determined that treatment is now necessary. Since then, 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 September 2027.

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 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 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**.

Reducing Exposure to Lead

The Portland Water Bureau cares about the health of the families in our community and is committed to help you limit your exposure to lead in drinking water. 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 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 the **LeadLine—503-988-4000** or leadline.org—or the **Safe Drinking Water Hotline—800-426-4791** or 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:

- **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 methods by 2022.
- **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, with 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 Contaminant
	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 6 for definitions.

Reduce your exposure to all sources of lead.

Contact the LeadLine:

leadline.org

503-988-4000

- Free lead-in-water testing
- Free childhood blood lead testing
- Free lead reduction services

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](https://www.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% lead.