



Portland Water Bureau’s 2019 Drinking Water Quality Report

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From the Commissioner

Thank you for your interest in the Portland Water Bureau's *2019 Drinking Water Quality Report*. Portlanders have two reliable and safe sources of drinking water: the Bull Run Watershed and the Columbia South Shore Well Field. Our drinking water is some of the best in the world! Your ratepayer dollars are dedicated to ensuring the delivery system is reliable, and delicious water is available to everyone - now, and for generations to come. Please read on to learn more about how the system works and the many projects underway to further protect your water resources and health.

Note: The federal Environmental Protection Agency requires specific wording for much of this Report. For more information, or if you have concerns about water quality or paying your bill, see [Portland Water Bureau's webpage \(portlandoregon.gov/water\)](http://portlandoregon.gov/water), call 503-823-7770, or contact me at Amanda@portlandoregon.gov, 503-823-3008.

Amanda Fritz

Commissioner-In-Charge

From the Director

I am proud to share the *2019 Drinking Water Quality Report* with you. In this report, you will learn how the Portland Water Bureau protects, monitors and treats the water that flows from the Bull Run Watershed and the Columbia South Shore Well Field to your home, school or workplace. You will also get a glimpse of the work being done to improve our system to ensure that we can provide high-quality drinking water that meets or surpasses all drinking

water standards for decades to come. Read on to learn more about the water system and how you can join us in protecting and conserving this valuable resource.

Michael Stuhr, PE

Director

Portland's Drinking Water Sources

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

A [Source Water Assessment Report \(available at \[portlandoregon.gov/water/sourcewaterassessment\]\(http://portlandoregon.gov/water/sourcewaterassessment\)](#) or by calling **503-823-7525**) completed in 2003 identifies the only contaminants of concern as naturally-occurring microbes 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 low levels. The Bull Run Watershed is an unfiltered drinking water source that is currently not treated for *Cryptosporidium*. However, the

Portland Water Bureau is working to install drinking water filtration by September 2027. See page 25 for more information.

The Columbia South Shore Well Field, Portland's protected groundwater supply, provides high-quality drinking water from 25 active wells located in three different aquifers. Located on the south shore of the Columbia River, the well field is the second largest drinking water source in Oregon and can produce up to 80 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 Portland needs additional summer supply.

In collaboration with Gresham and Fairview, the Portland Water Bureau works with businesses in the area to prevent hazardous material spills that could seep into the ground and impact groundwater. Portland also holds public events such as Aquifer Adventure, Cycle the Well Field, and Groundwater 101 to educate residents on how they can get involved. To learn more about the Well Field Protection Program or find upcoming events, visit [Portland Water Bureau's groundwater webpage](https://portlandoregon.gov/water/groundwater) portlandoregon.gov/water/groundwater or call **503-823-7473**.

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.

[Get email updates when we make changes to our source water or treatment. Sign up at \[portlandoregon.gov/water/notification\]\(http://portlandoregon.gov/water/notification\).](#)

Facts about Our Drinking Water System

- Portland's water system was established in 1895
- Portland's drinking water system delivers water from two high-quality sources – the Bull Run Watershed and the Columbia South Shore Well Field – to almost one million people in Portland and surrounding communities.
- Portland's drinking water system begins in the Bull Run Watershed, 26 miles east of downtown Portland.
- Chlorine is added to the water to control bacteria and microorganisms.
- Ammonia and sodium hydroxide are added to the water to sustain chlorine levels and adjust the pH.
- Drinking water flows by gravity from Bull Run to Portland.
- Pumps pull groundwater from the aquifers of the Columbia South Shore Well Field.
- Reservoirs and tanks store water for household, fire, and emergency supply needs.

- More than 11,000 water samples are collected and tested each year.
- More than 2,200 miles of water mains lie beneath the city's streets.
- Thousands of fire hydrants safeguard the city.

Frequently Asked Questions About Water Quality

What test results are included in this report?

The Portland Water Bureau monitors for over 200 regulated and unregulated contaminants in drinking water. All monitoring data in this report are from 2018. **If a known, health-related contaminant is not listed in this report, the 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** is added for disinfection. **2) Ammonia** is added to form chloramines, which ensure that disinfection remains adequate throughout the distribution system. **3) Sodium hydroxide** is added to increase the pH of the water, reduce corrosion of plumbing materials, and control lead and copper levels when present in plumbing materials. See page 27 for more information about lead. See page 25 for upcoming treatment changes.

Is Portland's water treated by filtration?

No. Neither the groundwater nor the Bull Run source water is currently filtered. Groundwater is not required to be filtered. Since 1992, the Bull Run

source has continued to meet the filtration avoidance criteria of the Surface Water Treatment Rule. However, in response to a series of *Cryptosporidium* detections in 2017, Portland is installing filtration for Bull Run by 2027. See pages 22 and 27 for more information.

Is fluoride added to Portland’s drinking water?

No, fluoride is not added to the water. Fluoride is a naturally occurring trace element in surface water and groundwater. You may want to consult with your dentist about fluoride treatment to help prevent tooth decay, especially for young children.

Is Portland’s water soft or hard?

Portland’s water is very soft. The hardness of Bull Run water is typically 3–8 parts per million (ppm), or approximately $\frac{1}{4}$ to $\frac{1}{2}$ a grain of hardness per gallon. Portland occasionally supplements the Bull Run supply with groundwater. Portland’s groundwater hardness is approximately 80 ppm (about 5 grains per gallon), which is considered moderately hard.

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 \[leadline.org\]\(http://leadline.org\) or 503-988-4000.](#) For more extensive testing, private laboratories can test your tap water for a fee. Not all labs are accredited to test for all contaminants. [For information about accredited labs, contact the Oregon Health Authority at \[ORELAP.Info@state.or.us\]\(mailto:ORELAP.Info@state.or.us\) 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 in the fall as a harmless tea-colored tint. Sediment that has settled at the bottom of the water mains can be temporarily stirred up when the flow of water changes due to hydrant use, construction activities, firefighting, or main breaks. Corrosion of older pipes inside buildings can also cause rusty water after water has been sitting in the pipes for several hours. [More information is available at Portland Water Bureau's discolored water webpage \(portlandoregon.gov/water/discoloredwater\).](http://portlandoregon.gov/water/discoloredwater)

Have water quality or pressure issues or concerns?

[Contact the Water Quality Line: WBWaterLine@portlandoregon.gov](mailto:WBWaterLine@portlandoregon.gov)

503-823-7525

[Water quality frequently asked questions:](http://portlandoregon.gov/water/WQfaq)

portlandoregon.gov/water/WQfaq

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 our Customer Guide to Water Quality and Pressure for maintenance and troubleshooting tips at portlandoregon.gov/water/guide.](http://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 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 Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791 or visit the [Environmental Protection Agency's drinking water website at epa.gov/safewater](https://www.epa.gov/safewater).

Portland's New Flushing Program

New flushing crews are hitting the streets to start the ambitious task of cleaning the inside of Portland's water distribution pipes – all 2,200 miles of them! This project is part of an effort to prepare Portland's drinking water infrastructure for improved treatment and a new filtration plant in 2027. See page 25 for more information.

Across the country, water providers clean the inside of water mains by flushing water out of hydrants at high speeds. In unfiltered water systems, such as Portland's, silt and other organic material accumulates at the bottom of the water mains. This material can impact water quality and cause customers to see discolored water at the tap when it is stirred up by construction or other activities. The high-speed flushing, called unidirectional flushing, scours the insides of the pipes and removes the accumulated materials from the water mains. This routine cleaning improves the health of Portland's system now and ensures the health and integrity of the system for the future.

Typically, customers will not see an impact to their tap water while unidirectional flushing is happening in their neighborhood. However, there may be rare instances when customers report discolored water or lower pressure. If you experience either of these, contact the Water Quality Line to report it. See page 8 for contact information.

[More information at Portland Water Bureau's Hydrant Flushing webpage \(portlandoregon.gov/water/flushing\)](http://portlandoregon.gov/water/flushing)

[Find out where crews are flushing on Portland Water Bureau's WaterWorks map \(portlandoregon.gov/water/WaterWorks\)](http://portlandoregon.gov/water/WaterWorks)

Definitions of Acronyms used in the *Contaminants Detected in 2018* Data Table

This section is an index of the acronyms used in the following **Contaminants Detected in 2018** data table (see page 14). The definitions of the acronyms are also provided in this index. Notes providing more information about the contaminants follows the data table (see page 19).

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 Units

The unit of measurement of turbidity or cloudiness in water as measured by the amount of light passing through a sample.

ppm: Parts Per Million

One part per million 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.

ppb: Parts Per Billion

One part per billion corresponds to one penny in \$10,000,000 or approximately one minute in 2,000 years.

piC/L: Picocuries Per Liter

Picocurie is a measurement of radioactivity. One picocurie is one trillion times smaller than one curie.

TT: Treatment Technique

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

Contaminants Detected in 2018

Data Table of Regulated Contaminants Detected in Portland's Untreated Source Water from the Bull Run Watershed

Regulated Contaminant	Minimum Detected	Maximum Detected	EPA Standard: MCL or TT	EPA Standard: MCLG	Sources of Contaminant
Turbidity (NTU)	0.19	1.01	5	N/A	Erosion of natural deposits
Fecal Coliform Bacteria (% >20 colonies per 100 milliliters in 6 months)	Not Detected	1.64%	10%	N/A	Animal wastes
<i>Giardia</i> (# per liter)	Not Detected	0.18	TT	N/A	Animal wastes

Data Table of Regulated Contaminants Detected in Portland’s Treated Drinking Water from Bull Run Watershed and Columbia South Shore Well Field Entry Points to the Distribution System

Regulated Contaminant	Minimum Detected	Maximum Detected	EPA Standard: MCL or TT	EPA Standard: MCLG	Sources of Contaminant
Arsenic (ppb)	<0.50	1.31	10	0	Found in natural deposits
Barium (ppm)	0.00074	0.01240	2	2	Found in natural deposits
Copper (ppm)	<0.00050	0.00071	N/A	1.3	Found in natural deposits
Fluoride (ppm)	<0.025	0.150	4	4	Found in natural deposits
Nitrate – Nitrogen (ppm)	<0.010	0.450	10	10	Found in natural aquifer deposits; animal wastes

Data Table of Regulated Contaminants Detected in Portland's Treated Drinking Water from Points throughout the Distribution System of Reservoirs, Tanks and Mains

Regulated Contaminant	Minimum Detected	Maximum Detected	EPA Standard: MCL or TT	EPA Standard: MCLG	Sources of Contaminant
Total Coliform Bacteria (% positive per month)	Not Detected	0.74%	N/A	N/A	Found throughout the environment
Total Chlorine Residual running annual average (ppm)	1.71	1.74	4 [MRDL]	4 [MRDLG]	Chlorine used to disinfect water
Total Chlorine Residual at any one site (ppm)	0.30	2.42	N/A	N/A	Chlorine used to disinfect water

**Data Table of Regulated Contaminants Detected in Portland's Treated Drinking Water
from Points throughout the Distribution System of Reservoirs, Tanks and Mains**

Regulated Contaminant	Minimum Detected	Maximum Detected	EPA Standard: MCL or TT	EPA Standard: MCLG	Sources of Contaminant
Haloacetic Acids Running annual average at any one site (ppb)	21.3	37.7	60	N/A	Byproduct of drinking water disinfection
Haloacetic Acids Single result at any one site (ppb)	11.5	51.2	N/A	N/A	Byproduct of drinking water disinfection
Total Trihalomethanes Running annual average at any one site (ppb)	23.6	37.7	80	N/A	Byproduct of drinking water disinfection
Total Trihalomethanes Single result at any one site (ppb)	14.2	44.5	N/A	N/A	Byproduct of drinking water disinfection

Data Table of Unregulated Contaminants Detected in Portland’s Treated Drinking Water from Bull Run Watershed and Columbia South Shore Well Field Entry Points to the Distribution System

Unregulated Contaminant	Minimum Detected	Average Detected	Maximum Detected	Sources of Contaminant
Radon (picocurie per liter)	<50	150	300	Found in natural deposits
Sodium (ppm)	3.4	6.8	16	Found in natural deposits

[For more detailed water quality analyses, view our Triannual Reports at portlandoregon.gov/water/triannual.](http://portlandoregon.gov/water/triannual)

Notes on Contaminants

Arsenic, Barium, Copper, 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 contribute to adverse 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*, the organism that causes giardiasis. The treatment technique (TT) is to remove 99.9 percent of the organisms. The Portland Water Bureau uses chlorine to control these organisms.

Haloacetic Acids and Total Trihalomethanes

Haloacetic acids and trihalomethanes are regulated disinfection byproducts that have been detected in Portland's water. 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. Adding ammonia to chlorine results in a more stable disinfectant and helps to minimize the formation of disinfection byproducts.

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.

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, radon is unlikely to contribute to adverse health effects. For information about radon, call the EPA's Radon Hotline (800-SOS-RADON) or visit the [EPA's Radon webpage \(epa.gov/radon\)](https://www.epa.gov/radon).

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.

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 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. 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 a measure of the water's clarity. Increased turbidity is typically caused by large storms that suspend organic material in the Bull Run source water. This can interfere with disinfection and provide an environment for microbial growth. Since Bull Run water is not filtered, the treatment technique (TT) is that turbidity cannot exceed 5 NTU more than 2 times in 12 months. The Portland Water Bureau shuts down the Bull Run system and serves water from the Columbia South Shore Well Field when turbidity in the Bull Run rises.

Monitoring for *Cryptosporidium*

Drinking water treatment for *Cryptosporidium*, a potentially disease-causing microorganism, is regulated by the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2). This rule requires systems that use an unfiltered surface water source, such as the Portland Water Bureau's Bull Run, to treat for *Cryptosporidium*. In March 2012, based on the results of a year-long intensive sampling for *Cryptosporidium* and the limited sources and low occurrence of *Cryptosporidium* in the Bull Run Watershed, the Oregon Health Authority (OHA) issued the Portland Water Bureau a variance from the requirements to treat for *Cryptosporidium*. In May 2017, the Portland Water Bureau was informed by OHA that the variance was being revoked as a result of a series of low-level detections of *Cryptosporidium* in January through March of 2017. The number of *Cryptosporidium* oocysts detected showed that the Portland Water Bureau was no longer able to demonstrate an equivalent level of *Cryptosporidium* from untreated Bull Run water that would be expected with treatment.

As a result, 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 (see page 25). 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.

2018 Results of *Cryptosporidium* Monitoring at Portland’s Raw Water Intake

Total Number of Samples Tested	Number of Samples Positive for <i>Cryptosporidium</i>	Minimum Concentration Detected (oocysts/L)	Maximum Concentration Detected (oocysts/L)
271	15	Not Detected	0.09

[More information at Portland Water Bureau’s *Cryptosporidium* webpage \(portlandoregon.gov/water/crypto\)](http://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**.

Drinking Water Treatment: Making Excellent Water Better

Portland's water treatment is adapting to changes in science, technology, and water quality. The Portland Water Bureau is working on two water treatment projects designed to keep Portland's water safe for generations to come.

Reducing lead levels with improved corrosion control treatment by 2022.

In Portland, the main source of lead in water is corrosion (wearing away) of household plumbing. When buildings have lead in their plumbing, lead can dissolve into the water. Improved corrosion control treatment will increase the pH of the water and add alkalinity to make lead less likely to dissolve into water. See page 27 for more information about lead.

Keeping water safe with filtration by 2027.

By removing sediment, organic material, and microorganisms such as *Cryptosporidium*, Portland's future filtration plant will provide consistent high-quality drinking water while making the water system more reliable.

Progress being made on treatment:

Explored treatment plants around the region.

Portland Water Bureau engineering and operations staff toured several treatment plants in Oregon and Washington, including Lake Oswego's filtration plant (pictured above), to learn about best practices and different filtration processes and technologies.

City Council approves recommendations.

The Bull Run Filtration team presented filtration updates and recommendations to City Council. In December, City Council authorized key elements of the filtration plant including the capacity, the location, and type of filtration.

Listened to our customers about what is important to them.

Portland Water Bureau reached out to customers through online surveys, a Community Water Forum, and a series of information sessions to hear input from community members and answer questions about upcoming work.

Planning for which treatment option is best for Portland's water.

Portland Water Bureau project staff brought together water quality experts to discuss a range of treatment options. Water Bureau water quality engineers also began testing to evaluate which treatment processes work best for our water.

[More information at Portland Water Bureau's Bull Run Treatment Projects webpage \(portlandoregon.gov/water/BullRunTreatment\)](http://portlandoregon.gov/water/BullRunTreatment)

Reducing Exposure to Lead

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. While lead is rarely found in Portland's source waters and there are no known lead service lines in the water system, lead can be found in some homes. 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. 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.

If present, lead at elevated levels can cause serious health problems, especially for pregnant people and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

When your water has been sitting for several hours, such as overnight or after returning from 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 the [LeadLine webpage \(leadline.org\)](https://www.leadline.org)—or the **Safe Drinking Water Hotline—800-426-4791** or [EPA’s lead webpage \(epa.gov/safewater/lead\)](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 is a comprehensive approach to reduce exposure to lead. Through this program the Portland Water Bureau provides:

- **Corrosion Control Treatment** Reduces corrosion of lead in plumbing by adding sodium hydroxide, which increases the pH of the water. This pH adjustment has reduced lead in tap water by up to 70 percent. To further reduce lead levels, Portland has begun the process of improving corrosion control treatment. These improvements will be in place no later than 2022. See page 25 for more information.
- **Lead in Water Testing** Provides free lead in water testing to everyone, but targets testing the water in households most at-risk from lead in water. These are homes built between 1970 and 1985.

- **Education, Outreach and Testing** Funds agencies and organizations that provide education, outreach, and testing on all sources of lead.
- **Home Lead Hazard Reduction** Supports the Portland Housing Bureau's Lead Hazard Control Program to provide grants to minimize lead paint hazards in homes.

Water Testing at High-Risk Residential Water Taps

Twice each year, the Portland Water Bureau tests for lead and copper in water collected from a group of over 100 homes that have lead solder and where levels are the highest. 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.

Definitions of Acronyms used in following lead and copper testing results data table:

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

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

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.

ppm: Parts Per Million. One part per million 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.

ppb: Parts Per Billion. One part per billion corresponds to one penny in \$10,000,000 or approximately one minute in 2,000 years.

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

Regulated Contaminant	Fall 2018 90th Percentile Results	Homes Exceeding Action Level	EPA Standard: Action Level	EPA Standard: MCLG	Sources of Contaminant
Lead (ppb)	11.9	6 out of 121 (4.96%)	15	0	Corrosion of household and commercial building plumbing systems
Copper (ppm)	0.216	0 out of 121 (0%)	1.3	1.3	

Home Plumbing Can Add Lead to Your Drinking Water

Lead Free:

- **Water Main:** Portland Water Bureau never used lead pipes in the water mains.
- **Lead Pigtails:** Used prior to WWII. All known pigtails removed by 1998.
- **Service Lines:** Portland Water Bureau never used lead pipes for the service line.
- **Water Meter:** Portland Water Bureau has used lead-free meters since 1986. As a result, over 90% 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.

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 the water has not been used for several hours, run the tap for 30 seconds to 2 minutes or until it becomes colder before drinking or cooking. This flushes water which may contain lead from the pipes.
- **Use cold, fresh water for cooking 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 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.
- **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 whether it reduces lead —not all filters do. To protect water quality, maintain and replace a filter device in accordance with the manufacturer’s instructions. [For information on performance standards for water filters: nsf.org](#) or 800-NSF-8010.
- **Regularly clean your faucet aerator.** Particles containing lead from solder or household plumbing can become trapped in your faucet aerator. Regular cleaning or replacement every few months will remove these particles and reduce your exposure to lead.

- **Consider buying low-lead fixtures.** As of 2014, all pipes, fittings and fixtures are required to contain less than 0.25% lead. When buying new fixtures, you should seek out those with the lowest lead content.

Questions? We're Here to Help

You have a range of options for contacting the Portland Water Bureau on topics from programs and projects to issues with your account and information about public meetings.

Central Information Line

For general information about projects, programs, and public meetings, call 503-823-7404. Available 8 a.m. to 5 p.m., Monday through Friday.

[You can also learn more on our website: portlandoregon.gov/water.](http://portlandoregon.gov/water)

Customer Service and Financial Assistance

[For questions or information about your account or to apply for financial assistance, email PWBCustomerService@portlandoregon.gov](mailto:PWBCustomerService@portlandoregon.gov) or call 503-823-7770. Available 8 a.m. to 5 p.m., Monday through Friday.

Water Quality Line

[For questions regarding water quality or water pressure email WBWaterLine@portlandoregon.gov](mailto:WBWaterLine@portlandoregon.gov) or call 503-823-7525. Available 8:30 a.m. to 4:30 p.m., Monday through Friday.



Emergency Line

For water system emergencies, call 503-823-4874. Available 24 hours, 7 days a week.

[Facebook: facebook.com/portlandwaterbureau](https://www.facebook.com/portlandwaterbureau)

Twitter: @portlandwater

Additional Drinking Water Information:

Oregon Health Authority – Drinking Water Services: 971-673-0405

[Oregon Health Authority's Drinking Water webpage:](https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/)

public.health.oregon.gov/HealthyEnvironments/DrinkingWater/

Portland Water Bureau's Water System ID: 4100657

[Commissioner Amanda Fritz's Office: Amanda@portlandoregon.gov](mailto:Amanda@portlandoregon.gov)

Contact Yesenia Carrillo: 503-823-3008

Regional Water Providers Consortium. The Portland Water Bureau is a member. Find out more at the [Regional Water Providers Consortium webpage \(regionalh2o.org\)](http://regionalh2o.org).

Contact Information:

Portland Water Bureau

1120 SW 5th Avenue/Room 600

Portland, Oregon 97204

[Portland Water Bureau's website: portlandoregon.gov/water](http://portlandoregon.gov/water)

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：

[Portland Water Bureau's Drinking Water Report webpage:](#)

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

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

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[Portland Water Bureau accommodations webpage:](#)

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

[Copies of this report and past reports are available at](#)

portlandoregon.gov/water/wqreport.