



Portland
Water
District

Annual WATER QUALITY REPORT

**Your tap water once again met or exceeded
all quality standards in 2017**

This report provides information about where your drinking water comes from, how it's treated, and the results from water quality testing in 2017. For more information, please read this report and visit us online at www.pwd.org.

A Clear Mission

The Portland Water District's mission is to protect public health, safety, and the environment by providing our customers first-class water, wastewater, and related services.



THE WATER SOURCE

IN THIS REPORT

The Water Source:

How is quality protected?

PAGE 1

Ensuring Water Quality:

Water Purification and Disinfection

PAGE 3

Water Quality Analysis

PAGE 5

More Information

PAGE 8

Steep Falls Supplemental Information

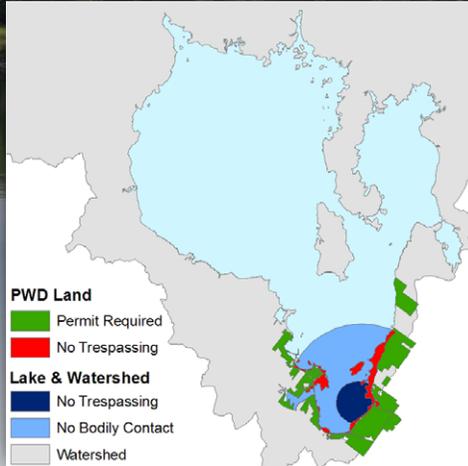
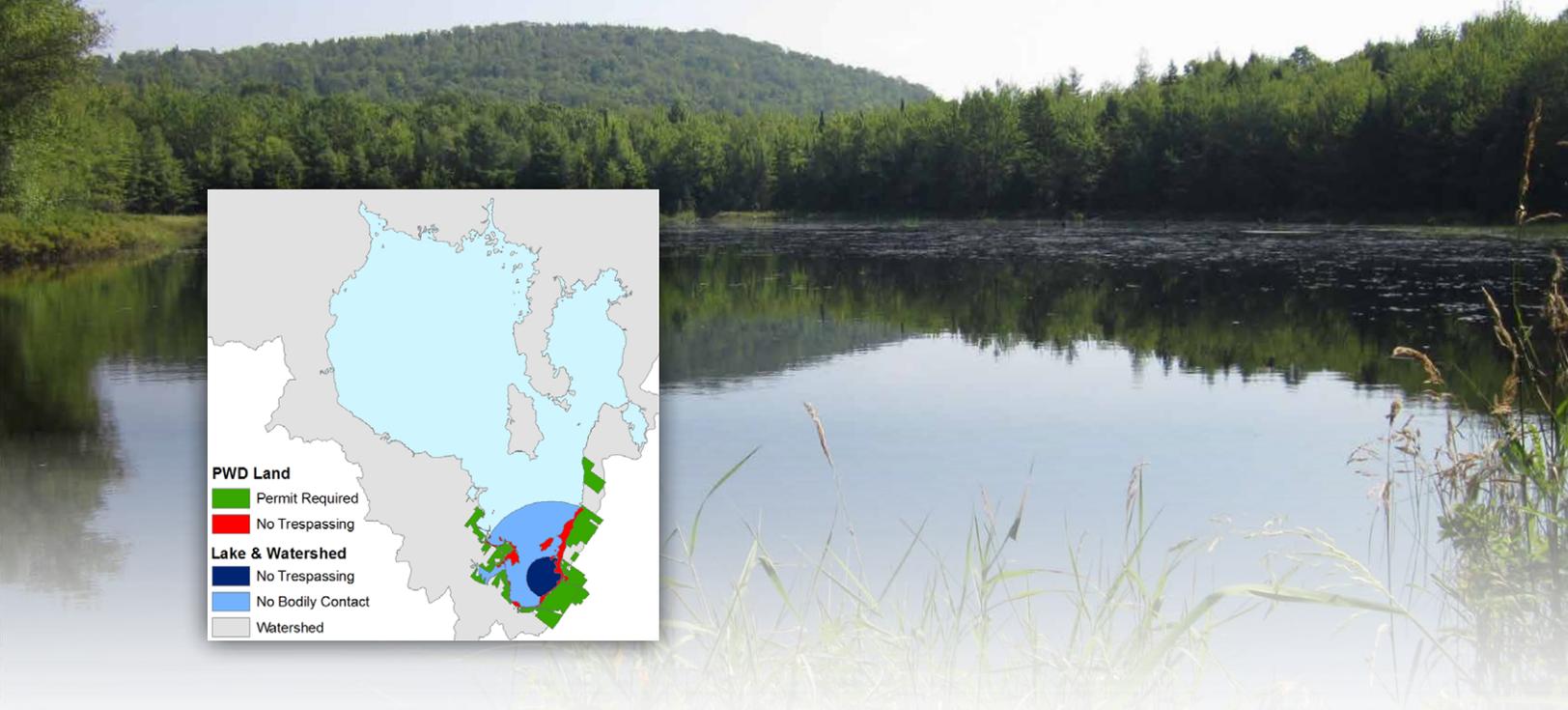
PAGE 9

Your source of drinking water is Sebago Lake, Maine's deepest and second largest lake. By almost any measure, the quality of water in Sebago Lake is among the highest of any lake in Maine. It is so clean, in fact, that it doesn't need to be filtered before it is disinfected. This is a designation that only about 50 surface water suppliers in the whole country can claim.

- This means your water is **cleaner than most**, and it also tastes better since filtration typically involves chemical addition which can impart a taste.
- Also, it is **less expensive** since a filtration plant could cost upwards of \$100 million.
- And, **it's safer** since keeping contaminants out of the water is more effective than trying to remove them from a polluted lake.

A Shared Responsibility

Sebago Lake is not just a drinking water supply. It is used by so many for so much. Portland Water District works with many committed partners to keep it clean. ***In 2017 alone, the District worked cooperatively with more than 100 organizations to protect the lake including state and federal agencies, colleges and universities, lake associations and land trusts.*** Collaboration amplifies the work of both the District and the partner organization and is a clear benefit to our customers.



Moderate Risk of Contamination

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material and can pick up substances resulting from human or animal activity. Although Sebago Lake is very clean today, human activities on and around the lake can pose a risk to water quality. The Maine Drinking Water Program (DWP) has evaluated all public water supplies as part of their Source Water Assessment Program (SWAP). The assessments included geology, hydrology, land uses, water testing information, and the extent of land ownership or protection by local ordinance to see how likely each drinking water source is to being contaminated by human activities. Their report on Sebago Lake concludes that the lake is at **moderate risk** of contamination.

The most significant risks to the long-term protection of Sebago Lake, according to state officials, are boating and ice fishing in Lower Bay and shoreland development. Assessment results are available at town offices, public water suppliers, and the DWP. For more information about the SWAP, please contact the DWP at (207) 287-2070.

Lowering the Risk of Contamination

Because the lake is used by so many for different purposes, our efforts to decrease the risk of contamination involve multiple approaches. Our protection program involves:

- water quality monitoring
- lake security
- property inspections and pollution prevention actions
- environmental education and outreach
- land acquisition, land conservation, and land management

The Forest is the Filter

Keeping the land surrounding the lake forested is key to protecting the water quality of the lake since forests naturally clean water. The forests around Sebago Lake act as a natural water filtration system. To help conserve them, PWD works with local land trusts and others to help willing landowners conserve forested land. The District contributes up to 25% of the cost of these transactions. Since 2013, this program has helped protect more than *2,500 acres of watershed forest*. These forests will be naturally treating your water forever.





Water Purification and Disinfection

ENSURING WATER QUALITY

Delivering high quality water to our customers is our first priority. We know your water is safe because we regularly monitor and test it. Our water quality experts performed over 15,000 analyses last year. Many inorganic, synthetic organic and volatile organic chemicals, and disinfection by-products are routinely monitored for and not detected.

Primary disinfection: ozone and ultraviolet light

Secondary disinfection: chloramine

Filtration: None, PWD holds a waiver from filtration due to the purity of Sebago Lake

pH adjustment: sodium hydroxide

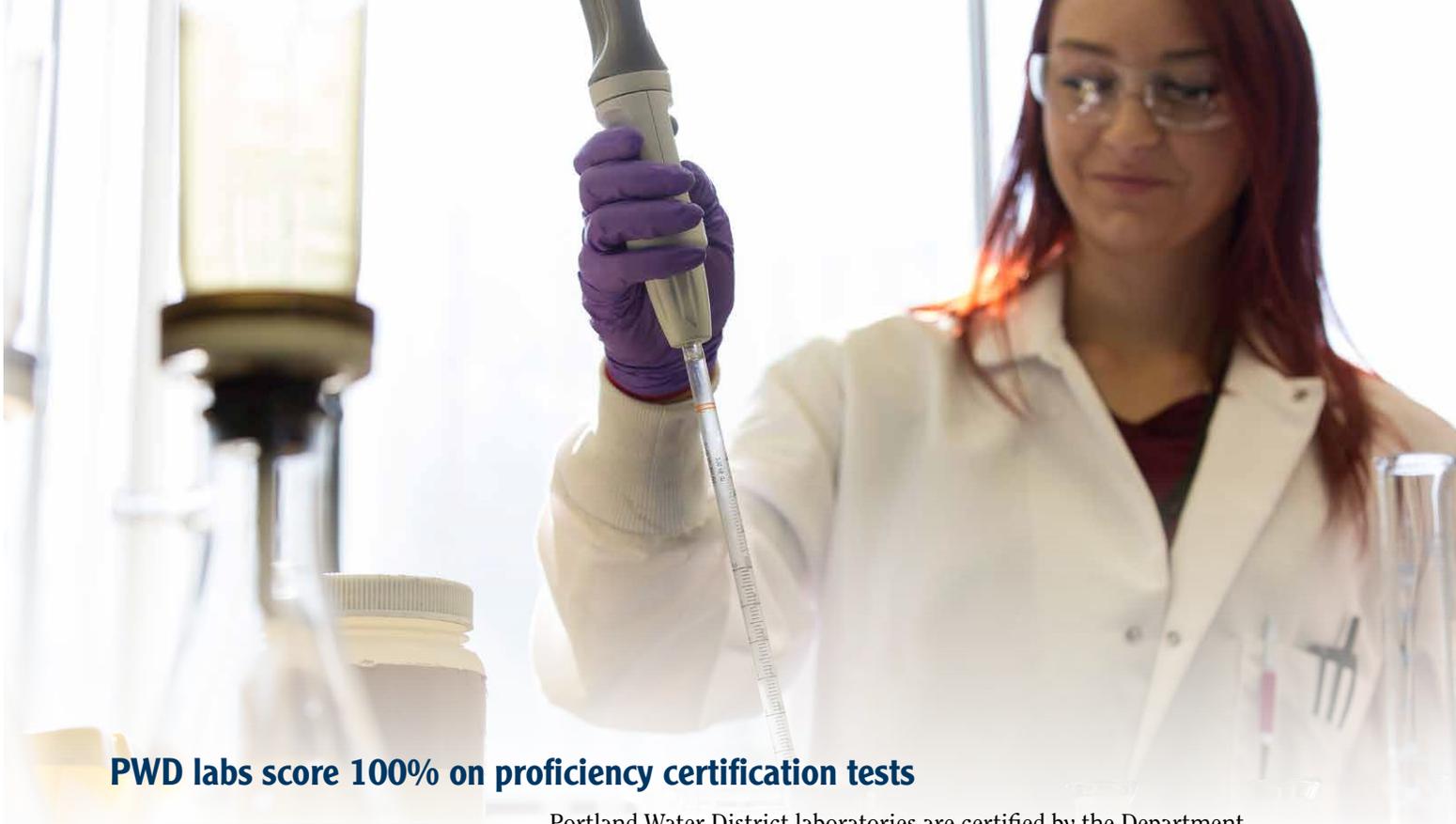
Corrosion control: zinc orthophosphate

Dental health additive: fluoride (hydrofluorosilicic acid)

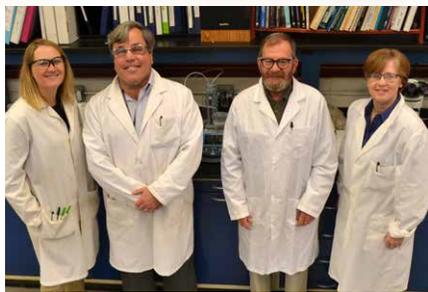
In 2017, your water met or surpassed every state and federal requirement. Water samples are tested by state-certified testing laboratories including two Portland Water District laboratories which are certified by the Maine Department of Health and Human Services.

Lead and copper monitoring continue to show effective corrosion control treatment

The Greater Portland drinking water system was tested for lead and copper in 2017 in accordance with its “every 3-year” monitoring schedule, and once again lead concentrations fell well below the level established by the USEPA. Samples were collected from households throughout the water service area that are considered most likely to record the highest levels and not one sample exceeded the action level. This is very good news that demonstrates that the corrosion control treatment used at the Sebago Lake Water Treatment Facility continues its effectiveness at reducing customers’ exposure to lead through drinking water.



PWD labs score 100% on proficiency certification tests



Portland Water District laboratories are certified by the Department of Health and Human Services. Demonstrating certification is a requirement that allows our two laboratories to analyze samples to report to the state and federal agencies and for compliance purposes. To maintain certification, laboratories must participate in proficiency testing every year. Each proficiency testing study consists of samples of unknown concentration submitted to our laboratories to analyze. PWD scientists conducted one hundred analyses for seventy-two compounds. For the second year in a row, PWD achieved a perfect score, identifying 100% of the compounds analyzed.

Three lines of defense, added benefits from newest treatment technique

In 2014 the Portland Water District added a third level of treatment protection – ultraviolet light (UV) – to fulfill federal regulations and to make the water even safer. UV disinfection is effective and also involves no chemicals. At the same time we replaced aging ozone disinfection equipment with a new energy efficient ozone system. Along with disinfection using chloramines, your water is now treated three times before it reaches your tap.

Since these upgrades, we have closely monitored the treatment process and water distribution systems (the underground pipe network that brings the water to your tap) to document the effects of the changes. We are happy to report we have seen additional positive effects on tap water quality including improved disinfection (chloramine levels), especially at the ends of the distribution system. A small amount of chloramine at the far ends of the system is an important public health protection measure.

By utilizing a combination of disinfection strategies (ozone, UV and chloramines) our water is able to carry optimal chloramine levels throughout the 1000-mile pipe system.





WATER QUALITY ANALYSIS

Detected Regulated Substances

Compound	Violation	Ideal Goal MCLG	Highest Level Allowed MCL	Amount Detected in 2017 (unless otherwise noted)	Source
Microbiological					
Total coliform bacteria ¹	No	0% of monthly samples	No more than 5% of monthly samples	Highest % detected: 0.67% in October Monthly Range: 0.0%-0.67%	Naturally present in environment
Radionuclides					
Alpha emitters (pCi/L) ⁵ (2015)	No	0	15	2.5	Erosion of natural deposits
Uranium (µg/L)	No	0	30	0.2	Erosion of natural deposits
Inorganic Chemicals					
Barium (mg/L)	No	2	2	0.004	Erosion of natural deposits
Copper (mg/L) ²	No	1.3	AL = 1.3	0.38	Corrosion of household plumbing systems; erosion of natural deposits
Lead (µg/L) ²	No	0	AL = 15	4	Corrosion of household plumbing systems
Fluoride (mg/L) ³	No	4	4	Average: 0.68 Range: 0.63 - 0.72	Water additive which promotes strong teeth; erosion of natural deposits
Chloramine (mg/L)	No	MRDLG=4	MRDL=4	Average: 2.33 Range: 1.33 - 2.50	A water additive used to control microbes
Turbidity (NTU)	No	None	5	Average: 0.22 Range: 0.15 - 0.48	Soil runoff
Nitrate Nitrogen (mg/L) ⁴	No	10	10	0.09	Runoff from fertilizer use, leeching from septic tanks, or erosion of natural deposits
Organic Compounds					
Total Trihalomethanes, TTHM (µg/L) ⁶	No	0	80	Average: 1.0 Range: 0.5 - 1.8	By-product of drinking water chlorination
Total Haloacetic Acids, THAA (µg/L) ⁶	No	0	60	Average: 9.8 Range: 7.0 - 12.7	By-product of drinking water chlorination

Undetected Chemical Contaminant List

The following is a list of chemical contaminants, regulated and non-regulated, that were tested for in 2017 and were not detected in the drinking water produced by Sebago Lake Water Treatment Facility. **INORGANIC CHEMICALS:** Antimony, Arsenic, Asbestos, Beryllium, Bromate, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Cyanide, Nickel, Selenium, Silver, Thallium. **MICROBIOLOGICAL:** *E. coli* bacteria **SYNTHETIC ORGANIC CHEMICALS:** Alachlor; Aldicarb; Aldicarb sulfone; Aldicarb sulfoxide; Atrazine; Benzo(a)pyrene; Carbaryl; Carbofuran; Chlordane, 2,4-D; bis (2-ethylhexyl)adipate; bis(2-ethylhexyl)phthalate; Dinoseb; Endrin; Heptachlor; Heptachlor epoxide; Hexachlorobenzene; Hexachlorocyclopentadiene; 3-Hydroxycarbofuran; Lindane; Methoxychlor; Methomyl; Oxamyl (Vydate); Pentachlorophenol; Picloram; Propoxur; 2,4,5-TP(Silvex); Simazine; Toxaphene **VOLATILE ORGANIC CHEMICALS:** Benzene; Carbon tetrachloride; Chlorobenzene; 1,2 Dichloropropane; 1,2-Dichlorobenzene; 1,4-Dichlorobenzene; 1,1-Dichloroethene; 1,2-Dichloroethane; Dinoseb; Ethylbenzene; Methyl-t-butyl ether (MBTE); Methylene chloride; Pentachlorophenol; Styrene; Tetrachloroethene; Toluene; Toxaphene; Trichloroethene; 1,2,4-Trichlorobenzene; 1,1,1-Trichloroethane; 1,1,2-Trichloroethane; Vinyl chloride; Xylene.

Mineral Content and Secondary Standard, 6/28/17

Compound	Maine Recommended Limit	Result	Likely Source
Chloride(mg/L)	250	10	Natural mineral, road salt
Color(PCU)	15	<5	Natural characteristic
Hardness (mg/L as CaCO ₃)	150	10	Natural mineral
Iron(mg/L)	0.3	<0.05	Natural mineral
Manganese(mg/L)	0.05	<0.005	Natural mineral
Sodium(mg/L)	100	10	Natural mineral, road salt
Sulfate(mg/L)	250	3	Naturally occurring
Magnesium(mg/L)	50	0.61	Natural mineral
Calcium(mg/L)	500	2.9	Natural mineral
Zinc(mg/L)	5	0.11	Natural mineral, corrosion control additive

Detected Unregulated Substances (Supporting Ongoing Research For New Regulations)

Compound	Violation	Health Advisory, µg/L	Range of Results (Detected in year noted)	Source
Chlorate, µg/L (2013)	No	No EPA health data	Average: 90 Range: 64 - 140	Agricultural defoliant or desiccant; used in the production of chlorine dioxide
Chromium, Total, µg/L (2013)	No	No EPA health data	Average: 0.29 Range: 0.27 - 0.31	Erosion of natural deposits
Hexavalent Chromium, Dissolved, µg/L (2013)	No	No EPA health data	Average: 0.057 Range: 0.037 - 0.110	Naturally occurring element; used in making steel and other alloys
Strontium, µg/L (2013)	No	No EPA health data	Average: 21 Range: 20 - 23	Erosion of natural deposits

Unregulated Substances are those that do not yet have a drinking water standard set by the USEPA. The purpose of monitoring for these contaminants is to help EPA decide whether or not they should have a standard. As part of this 2013 monitoring, the Portland Water District tested for several additional unregulated contaminants; all without detection. This included hormones such as testosterone and estradiol that are produced in the human body and used in pharmaceuticals.



Definitions

MCL: Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water.

MCLG: Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health.

MRDL: Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water.

MRDLG: Maximum Residual Disinfection 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.

LRAA: Locational Running Annual Average. A 12 month rolling average of all monthly or quarterly samples at specific sampling locations. Calculation of the LRAA may contain data from the previous year.

Variations and Exemptions: State permission not to meet MCL or a treatment technique under certain conditions.

AL = Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow. Action Levels for Lead and Copper are measured at the tap of “high risk” homes. Ninety percent of tests must be equal to or below the Action Level.

Turbidity: The measurement of cloudiness or suspended colloidal matter (silt). As you can see from the table, all of the samples taken of our water system were well below 5 NTUs.

Units

ppm = parts per million or milligrams per liter (mg/L). **pCi/L** = picocuries per liter (a measure of radioactivity).

ppb = parts per billion or micrograms per liter (µg/L). **NTU**=Nephelometric Turbidity Units.

Notes

- 1) Total Coliform Bacteria: Greater Portland: Annual detection - 1 in 1774 samples; monthly detection - October 1 in 149 samples or 0.67%.
- 2) Lead/Copper: Action levels (AL) are measured at consumer’s tap. 90% of the tests must be equal to or below the action level. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Greater Portland: None of the 50 homes tested in 2017 exceeded the action level for copper. None of the 50 homes tested in 2017 exceeded the action level for lead. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Portland Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. 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: <http://www.epa.gov/safewater/lead>
- 3) Fluoride: Fluoride levels must be maintained between 0.5 to 1.2 ppm. The optimum level is 0.7 ppm.
- 4) Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health provider.
- 5) Gross Alpha: Action level over 5 pCi/L requires testing for Radium 226 and 228. Action level over 15 pCi/L requires testing for Uranium. Compliance is based on Gross Alpha results minus Uranium results = Net Gross Alpha.
- 6) TTHM/HAA5: Total Trihalomethanes and Haloacetic Acids (TTHM and HAA5) are formed as a by-product of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water. Compliance is based on running annual average.

About the Regulations

The federal Safe Drinking Water Act directs the state, along with the EPA, to establish and enforce drinking water standards. The standards set limits on certain biological, radioactive, organic and inorganic substances sometimes found in drinking water. Two types of standards have been established. Primary drinking water standards set achievable levels of drinking water quality to protect your health. Secondary drinking water standards provide guidelines regarding the taste, odor, color, and other aesthetic aspects of your drinking water, which do not present a health risk.

Health Notice

Drinking water, including bottled water, may reasonably be expected to contain impurities or contaminants. However, these contaminants do not necessarily indicate that water poses a health risk and may include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban runoff, and septic systems.

Radioactive Contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people such as individuals with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Guidelines, jointly developed by the EPA and the CDC, on the appropriate means to lessen the risk of infection by *Cryptosporidium*, are available from the Safe Drinking Water Hotline or web site.

More Information

The Portland Water District Board of Trustees generally meet every second and fourth Monday of the month. The public is welcome to attend meetings. Meetings are held at the Jeff P. Nixon Development Center at 225 Douglass Street in Portland.

207.761.8310

(Monday through Friday between 8:00 a.m. and 4:30 p.m.)

225 Douglass Street | PO Box 3553 | Portland, Maine 04102

www.pwd.org | Customerservice@pwd.org | [MyPortlandWater](https://www.facebook.com/MyPortlandWater)  

Environmental Protection Agency
800.426.4791 | www.epa.gov/safewater/

American Water Works Association
303.794.7711 | www.awwa.org

National Centers for Disease Control
404.639.3311 | www.cdc.gov

Maine Drinking Water Program
207.287.2070 | www.maine.gov



Portland Water
District

Steep Falls, Standish

SUPPLEMENTAL INFORMATION

Steep Falls water system is separate from the Greater Portland water system.

See below for components of the Water Quality Report that apply to the Steep Falls system only.

Your Source of Water and Ensuring Water Quality

The Steep Falls well system (Standish) supplies approximately 300 people. Treatment includes liquid sodium hypochlorite addition for disinfection, sodium hydroxide addition for pH adjustment and corrosion control, aeration for radon removal, and fluoridation (sodium fluoride).

The state Drinking Water Program waived the requirement to sample for pesticide, herbicide, carbamate and PCB in the Steep Falls water system through 2019. The waiver was granted based on past water test results and the land uses in the proximity of the wells. Other testing for inorganic and volatile organic compounds continues at the typical frequency.

Compound	MCLG Ideal Goal	MCL Highest Level Allowed	Amount Detected in 2017 (unless otherwise noted)	Violation	Source
Radionuclides					
Alpha emitters (pCi/L) 2015 ⁵	0	15	5.0	No	Erosion of natural deposits
Radium, Combined (pCi/L) 2015	0	5	0.7	No	Erosion of natural deposits
Radium-226 (pCi/L) 2015	0	5	0.7	No	Erosion of natural deposits
Radium-228 (pCi/L) 2015	0	5	0.6	No	Erosion of natural deposits
Radon (pCi/L) ⁷	4000	4000	3484	No	Erosion of natural deposits
Uranium (µg/L) 2014	0	30	3.5	No	Erosion of natural deposits
Organic Compounds					
Total Trihalomethanes (µg/L) ⁶ 2016	0	80	5.7	No	By-product of chlorination
Inorganic Compounds					
Barium (mg/L)	2	2	0.007	No	Erosion of natural deposits; discharge of drilling waste and metal refineries
Copper (mg/L) ²	AL=1.3	AL=1.3	0.001	No	Corrosion of household plumbing systems
Lead (µg/L) ²	0	AL=15	3	No	Corrosion of household plumbing systems
Chlorine (mg/L)	MRDL=4	MRDL=4	Average: 1.20 Range: 0.80 - 1.62	No	A water additive used to control microbes
Fluoride (mg/L) ³	4	4	Average: 0.70 Range: 0.65 - 0.81	No	Water additive which promotes strong teeth. Erosion of natural deposits
Nitrate - Nitrogen (mg/L) ⁴	10	10	1.2	No	Fertilizer runoff; leaching septic tanks; erosion of natural deposits

Please refer to page 7 of the booklet for definitions

Notes: 7) Radon: The State of Maine adopted a Maximum Exposure Guideline (MEG) for Radon in drinking water at 4000 pCi/L, effective 1/1/07. If Radon exceeds the MEG in water, treatment is recommended. It is also advisable to test indoor air for Radon. Radon at a level of 3484 pCi/L was detected in Steep Falls' well water after aeration treatment. Radon is found in the soil and bedrock formations and is a water soluble, gaseous by-product of uranium. Most radon is released to the air moments after turning on the tap. Only about 1-2 percent of radon in the air comes from drinking water. Inhalation of radon increases the risk of lung cancer over the course of your lifetime. If you'd like more information about radon, please contact us or the State Drinking Water Program and request a radon fact sheet.

Undetected Contaminant List: The following is a list of chemical contaminants, regulated and non-regulated, that were tested for in 2017 and were not detected in the drinking water produced by Steep Falls Treatment Facility.

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