

Portland Water District

Annual Water Quality Report



Portland Water District
FROM SEBAGO LAKE TO CASCO BAY

225 Douglass Street, PO Box 3553
Portland, Maine 04104 | 207.761.8310 | www.pwd.org

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The Annual Water Quality Report provides consumers with information about their drinking water. The report includes water quality information required by the U.S. Environmental Protection Agency (EPA) and the Maine Drinking Water Program, as well as information that Portland Water District believes is important for consumers to know about their drinking water. Portland Water District's dedicated team is proud of the great tasting, safe drinking water delivered to homes and businesses in the Greater Portland area.

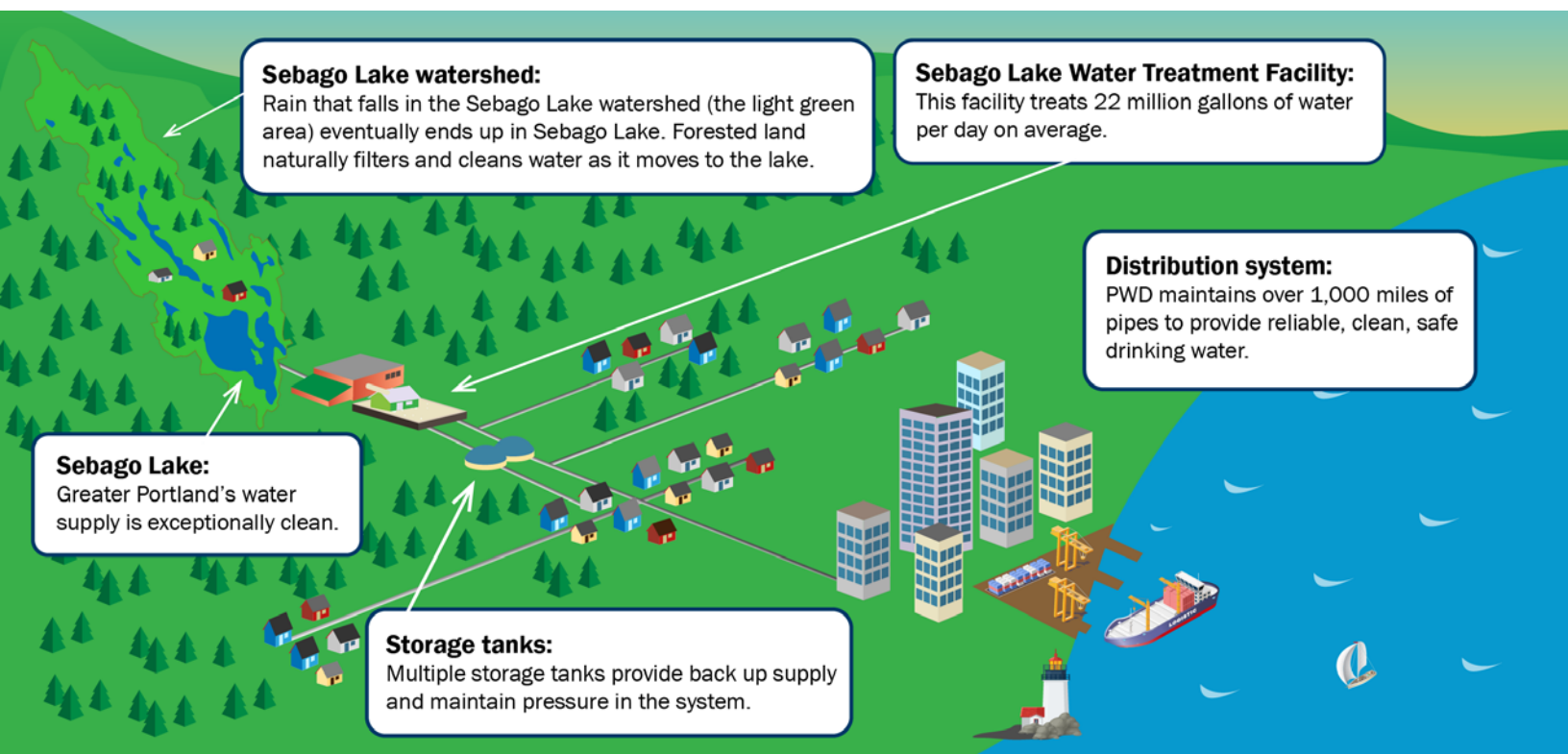




The Water Source

Your source of drinking water is **Sebago Lake**, Maine's deepest and second largest lake. The quality of water in Sebago Lake is exceptional. It is so good, in fact, that it is exempt from filtration by the EPA. Only about 50 of the 13,000 water supplies in the U.S. that use surface water are good enough to receive this filtration exemption. Having a clean, unfiltered source means that your water:

- Tastes better than most other water systems because filtration involves using additional chemicals and alters the natural mineral composition.
- Treatment is less expensive; filtration could cost upwards of \$200 million to install and several million more to operate per year.
- Stays safer since keeping contaminants out of the water source is more effective than trying to remove them.



A Shared Responsibility

Sebago Lake is not just a drinking water supply. It is a treasured public resource that is used by many people in many different ways. Portland Water District works with a variety of partners to keep the water quality in Sebago Lake exceptional. In 2022 alone, Portland Water District worked collaboratively with more than 100 organizations including municipalities, non-profits, state and federal agencies, colleges and universities, lake associations, and land trusts to preserve water quality.

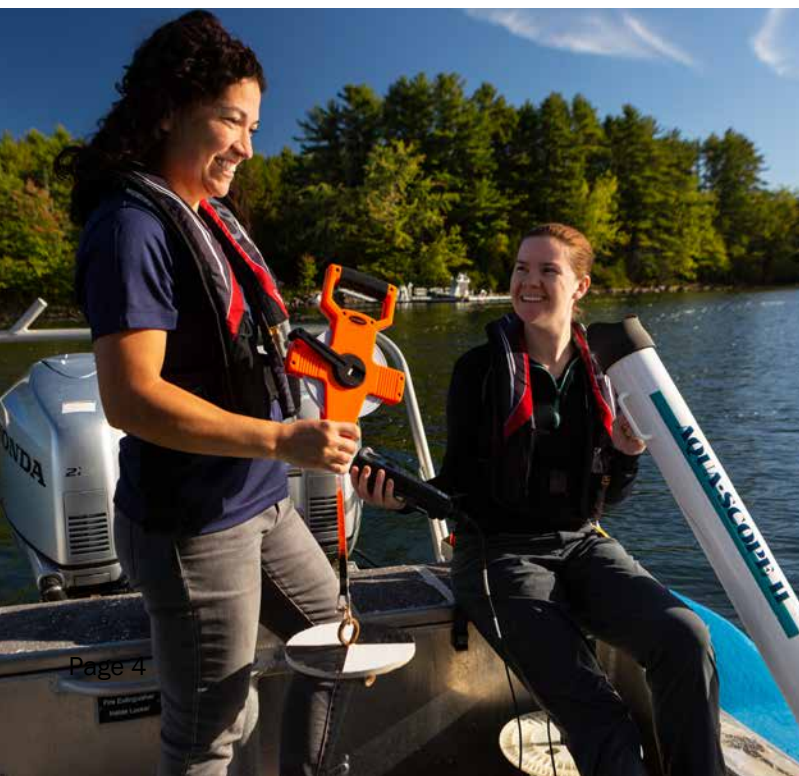


Environmental Services and Laboratory Team

A Moderate Risk of Contamination

As water travels over 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 exceptionally clean, human activities on and around the lake can pose a risk to water quality. In 2003, the Maine Drinking Water Program evaluated all public water supplies as part of a state-wide evaluation known as the Source Water Assessment Program (SWAP). The assessment considered things like geology, hydrology, land uses, water testing information, and the extent of land ownership or protections through local ordinance to see how likely each Maine drinking water source is to being contaminated by human activities. Their report on Sebago Lake concluded that the lake is at Moderate Risk of contamination.

The most significant risks to the long-term quality of Sebago Lake, according to state officials, are boating and ice fishing in Lower Bay, and development around the shore. Portland Water District has programs that are designed to minimize the risks of these activities. A copy of the SWAP assessment for Sebago Lake is available by calling (207) 761-8310 or by calling the Drinking Water Program at (207) 287-2070.



Lowering the Risk of Contamination

Because Sebago Lake is used for different purposes, Portland Water District's efforts to decrease the risk of contamination involve multiple approaches, including:

- Extensive water quality monitoring
- Land and water use protection measures
- Shoreland zone inspections and pollution prevention
- Environmental education and outreach
- Land acquisition, conservation measures and easements, and forestry management

Learn more about Sebago Lake programs at www.pwd.org/sebago-lake-protection.

Forests Provide the Best Filtration

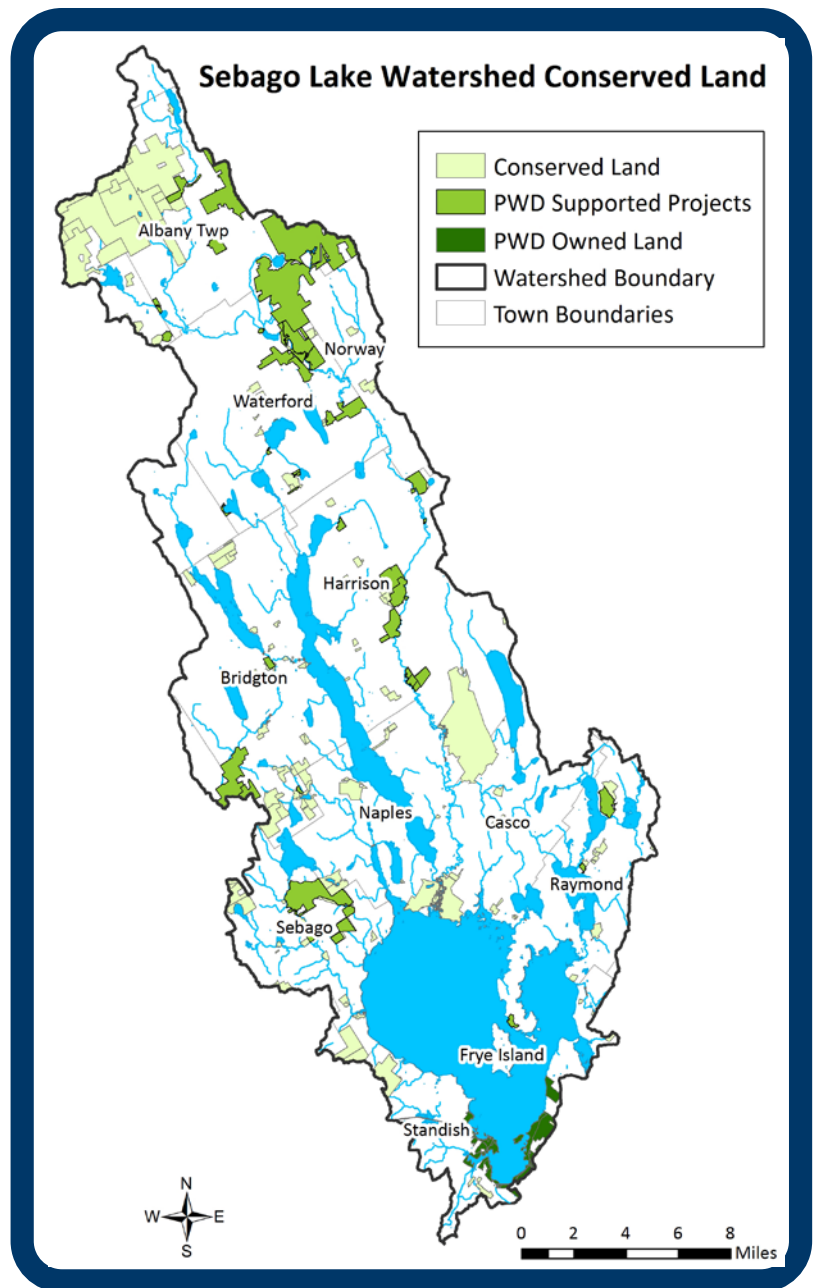
Keeping the land surrounding Sebago Lake forested is one key to protecting water quality since forests naturally clean water.

Forests act as a natural water filter. This results in higher quality water which is easier and less expensive to treat.

Portland Water District works with local land trusts and others – a partnership known as Sebago Clean Waters (www.sebagocleanwaters.org) - to help landowners conserve forested land and protect water quality.

Portland Water District contributes up to 25% toward conserving forests and other partners raise the remainder of the money.

These efforts have helped protect more than 13,000 acres of Sebago Lake watershed forest over the last 20 years. This map shows all the conserved land in the Sebago Lake watershed.





Ensuring Water Quality

Water Purification and Disinfection

Delivering high quality water to customers is Portland Water District's first priority. Water quality professionals from Portland Water District and independent accredited laboratories performed over 15,000 analyses per year to ensure safety. A range of microbial, inorganic, and organic chemicals are routinely monitored and tested for. All contaminant levels meet or exceed regulations, ensuring that the water is safe.

Primary disinfection: ozone and ultraviolet light (UV)

Secondary disinfection: chloramine (a combination of Chlorine and Ammonia)

Filtration: None, PWD holds a waiver from filtration issued by the U.S. EPA and the Maine Drinking Water Program due to the quality of Sebago Lake water

pH adjustment: sodium hydroxide

Corrosion control: zinc orthophosphate

Dental health additive: fluoride (hydrofluorosilicic acid)



In 2022, your water met or surpassed every state and federal requirement for water quality. Water samples are tested by state-accredited laboratories including two Portland Water District laboratories which are accredited by the Maine Department of Health and Human Services.

Lead Awareness

Inside many older buildings are a variety of plumbing materials, some of which may contain lead. Lead was used in household plumbing into the 1980s. In addition to lead in plumbing, lead was sometimes used for service pipelines in Greater Portland until about 1930. Fortunately, Portland Water District records indicate that there are no longer any lead pipes or service lines on the public portion of the water system. Some private lead service lines may still exist. Lead poses a serious health risk, particularly to developing fetuses, infants, and children. It is estimated that up to 10% of a person's lead exposure could come from water. Portland Water District minimizes the public's lead exposure through effective water treatment.



Balanced Water Chemistry provides a protective layer to prevent pipe corrosion.

Portland Water District is in full compliance with the Lead and Copper Rule, which requires treatment and monitoring for lead in drinking water. Revisions to the Lead and Copper Rule will soon require Portland Water District to do the following:

- Determine if private service lines contain lead
- Expand public education
- Update sampling plans
- Expand lead sampling plans for schools and childcare facilities

If you are concerned about lead in your drinking water, you can have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at the following places:

- www.pwd.org
- Safe Drinking Water Hotline (800) 426-4791
- www.epa.gov/safewater/lead

What you can do to keep your tap water fresh and healthy

Regardless of where you live or when your home was built, there are steps you can take right away to further limit possible exposure to lead and also ensure the water coming from your tap is fresh and free from particles.



RUN TAP WATER

for several minutes before use to flush out any particles or other metals that may dissolve into the water while standing for long periods of time.



ONLY USE COLD WATER

for cooking or drinking. Hot water can more easily dissolve lead and other metals into the water.



CLEAN FAUCET AERATORS

regularly. Remove the screen and aerator from faucets, rinse out any particles, and reattach.



HIRE a plumber to inspect fixtures and plumbing and update if necessary.

Water Quality Analysis

Detected Regulated Substances

Regulated Contaminant		Detected in Portland's Drinking Water		EPA Standard		Sources of contaminants
		Violation	Amount Detected in 2022 (unless otherwise noted)	Ideal Goal MCLG	Highest Level Allowed MCL	
Regulated at the treatment facility						
Turbidity (NTU)		No	Average: 0.23 Range: 0.16 - 0.48	None	5	Soil runoff
Barium (mg/L)		No	0.0037	2	2	Erosion of natural deposits
Chloramine (mg/L)		No	Average: 2.29 Range: 1.09 - 2.52	MRDLG=4	MRDL=4	A water additive used to control microbes
Regulated in the distribution system						
Fluoride (mg/L)		No	Average: 0.67 Range: 0.59 - 0.82	4	4	Water additive which promotes strong teeth; erosion of natural deposits
Total coliform bacteria*		No	Highest % detected: 2.31% in the month of September Monthly Range: 0.0% - 2.31%	0% of monthly samples	No more than 5% of monthly samples	Naturally present in environment
Total Trihalomethanes TTHM (µg/L)	Duck Pond Variety	No	Average 0.48	0	80	By-product of drinking water chlorination
	South Windham Post		<0.5 - 0.7			
	Cumberland Town Hall		0.9			
	Mackworth Booster Station		0.8 - 1.0			
Total Haloacetic Acids THAA (µg/L)	Duck Pond Variety	No	1.1	0	60	By-product of drinking water chlorination
	South Windham Post		0.7 - 1.4			
	Cumberland Town Hall		0.73			
	Mackworth Booster Station		0.6 - 0.9			
	Duck Pond Variety	No	5.4	0	60	By-product of drinking water chlorination
	South Windham Post		<1.0 - 8.9			
	Cumberland Town Hall		8.1			
	Mackworth Booster Station		6.3 - 12			
Regulated at the customer's tap						
Copper (mg/L)**	90th Percentile****	No	0.415	1.3	AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (µg/L)***	90th Percentile****	No	3.32	0	AL = 15	Corrosion of household plumbing systems

Footnotes:

*Annual detection - 3 in 1774 samples; monthly detection - July 2 in 158 samples or 1.27%, August 1 in 154 or 0.65% & September 1 in 156 or 0.64% **In 2020 the maximum value for copper was 0.62 mg/L. ***In 2020 the maximum value for lead was 13.8 µg/L. ****90th Percentile: i.e., 90 percent of the samples were less than the values shown

Failure to report violation

Portland Water District is required to test each quarter for disinfection byproduct levels (DBP). As required, in 2022 Portland Water District conducted four rounds of DBP testing and **all of our test results were far below the health-based drinking water limits**. All of our test results have been below these limits since Portland Water District began testing for these compounds many years ago. In 2022, the second quarter samples were collected on May 24, one week early, which requires customers to be notified of this deviation from the sampling plan. Your drinking water continues to have DBP levels far below the health-based standards established by EPA. At no time was the water quality compromised.

Detected Unregulated Substances, Ongoing research for new regulations

Unregulated contaminant		Violation	Health Advisory, µg/L	Range of Results		Source
				Average	Range	
Treated drinking water						
Manganese, ug/l		No	No EPA health data	1.68	1.59 - 1.86	Naturally occurring element in water sources and soils
Total Organic Carbon, ug/l		No	No EPA health data	3310	2440 - 4180	Decay of natural organic materials and synthetic sources
Dichloroacetic Acid (ug/l)	Duck Pond Variety	No	No EPA health data	5.36	4.47 - 6.26	By-product of drinking water chlorination
	South Windham Post			7.36	6.66 - 8.05	
	Cumberland Town Hall¹			7.6	7.34 - 7.87	
	Mackworth Booster Station			5.71	5.35 - 6.07	
Monochloroacetic Acid (ug/l)	Duck Pond Variety	No	No EPA health data	2.54	NA	By-product of drinking water chlorination
	South Windham Post			2.90	2.75 - 3.06	
	Cumberland Town Hall			2.79	NA	
	Mackworth Booster Station			2.64	NA	

¹Sample collected during March was taken at Tuttle Road Pump due to Covid concerns

Unregulated Substances are those that don't 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 be regulated.

Undetected Contaminant List

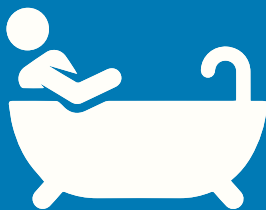
The following is a list of contaminants, regulated and non-regulated, that were tested for in 2022 and were not detected in the drinking water produced by Sebago Lake Water Treatment Facility.

INORGANIC CONTAMINANTS: Antimony, arsenic, beryllium, bromate, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, uranium, nitrate, and nitrite. MICROBIOLOGICAL: *E. coli* bacteria, ORGANIC COMPOUNDS: 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene, 1,2,3-Trichloropropane, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,4-Dichlorobenzene, Benzene, Bromodichloromethane, Bromoform, Carbon tetrachloride, Chlorobenzene, Chloroform, cis-1,2-Dichloroethylene, Dibromochloromethane, Ethylbenzene, Methyl t-butyl ether (MTBE), Methylene chloride, Styrene, Tetrachloroethylene, Toluene, Total THMs, Total xylenes, trans-1,2-Dichloroethylene, Trichloroethylene, Vinyl chloride, Perfluorinated and Polyfluorinated Alkyl Substances (PFAS)

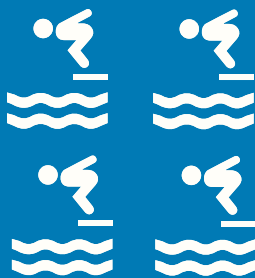
Mineral Content and Secondary Standards

Substance	Maine Recommended Limit	Result	Likely Source
Chloride (mg/L)	250	11	Natural mineral, road salt
Color (CPU)	15	5	Natural characteristic
Hardness (mg/L as CaCO ₃)	150	8.0	Natural mineral
Iron (mg/L)	0.3	0.094	Natural mineral
Manganese (mg/L)	0.05	0.0093	Natural mineral
Sodium (mg/L)	100	9.9	Natural mineral, road salt
Sulfate (mg/L)	250	3	Naturally occurring
Magnesium (mg/L)	-	<1	Natural mineral
Calcium (mg/L)	500	3.2	Natural mineral
Zinc (mg/L)	5	0.129	Natural mineral , corrosion control additive

Units



**ppm = parts per million
or milligrams per liter (mg/L)**
one drop in a large tub



**ppb = parts per billion or
micrograms per liter (µg/L)**
one drop in four swimming pools



**ppt = parts per trillion or
nanograms per liter (ng/L) –**
one drop in a small lake

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. An annual average calculated at each monitoring site.

Variances 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.

Notes

Total Coliform Bacteria: Reported as the highest monthly percentage of positive samples, for water systems that take more than 40 samples per month.

E. coli: *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.

Lead/Copper: Action levels (AL) are measured at consumer’s tap. 90% of the tests must be equal to or below the action level.

Fluoride: For those systems that fluoridate, fluoride levels must be maintained between 0.5 to 1.2 ppm. The optimum level is 0.7 ppm.

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 of Maine, along with the EPA, to establish and enforce drinking water standards. The standards set limits on certain 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 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, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/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 (1-800-426-4791) or at the following link: www.epa.gov/ccr/forms/contact-us-about-consumer-confidence-reports

Steep Falls Water System

The Steep Falls water system is separate from the Greater Portland water system and serves a small number of Portland Water District customers. Some components of the Water Quality Report do not apply to the Steep Falls system. Sections of the Annual Water Quality Report applicable to Steep Falls are provided below.

Your Source of Water and Ensuring Water Quality

The Steep Falls well system in Standish supplies approximately 300 people with drinking water. Treatment includes sodium hypochlorite (chlorine) for disinfection, sodium hydroxide for pH adjustment and corrosion control, aeration for radon removal, and sodium fluoride for dental health.

The Maine Drinking Water Program is transitioning Portland Water District to a new waiver process for synthetic organic compounds (pesticide, herbicide, carbamate and PCB). Portland Water District will test for these contaminants in 2023 then re-apply for a waiver. Prior waivers were granted based on past water quality test results and the absence of certain land use around the wells.

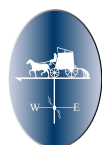
Regulated Contaminant	Detected in Steep Fall's Drinking Water		EPA Standard		Sources of contaminants	
	Violation	Amount Detected in 2022 (unless otherwise noted)	Ideal Goal MCLG	Highest Level Allowed MCL		
Regulated at the treatment facility						
Barium (mg/L) 2020	No	0.0046	2	2	Erosion of natural deposits	
Radon (pCi/L)	No	2338	4000	4000	Erosion of natural deposits	
Uranium (mg/L) 2021	No	3.2	0	30	Erosion of natural deposits	
Nitrate - nitrogen (mg/L)	No	1.07	10	10	Erosion of natural deposits, fertilizer runoff, leaching septic tanks	
Chlorine (mg/L)	No	Average	Range	MRDL=4	MRDL=4	A water additive used to control microbes
		1.29	0.96-1.56			
Regulated in the distribution system						
Fluoride (mg/L)	No	Average	Range	4	4	Water additive which promotes strong teeth; erosion of natural deposits
		0.66	0.57-0.86			
Total Trihalomethanes TTHM (µg/L)*	No	3.1	0	80	By-product of drinking water chlorination	
Regulated at the customer's tap						
Copper (mg/L)** 90th Percentile****	No	0.114	AL= 1.3	AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits	

*Trihalomethane collected from Steep Falls Post Office** The maximum value for copper was 0.140 mg/L**** 90th Percentile: i.e., 90 percent of the samples were less than the values shown Please refer to page #9 of the booklet for definitions

Notes: Radon: 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 2338 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. 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. If you'd like more information about radon, please contact us or the State Drinking Water Program

More Information

The Portland Water District Board of Trustees generally meet the second and fourth Monday of every month. Meetings are live-streamed and available On Demand: www.pwd.org/trustee-meetings. The public is welcome to attend meetings.



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www.pwd.org • 207.761.8310
(Monday through Friday between
8:00 a.m. and 4:30 p.m.)
Customerservice@pwd.org



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

**National Centers for
Disease Control**
404.639.3311 • www.cdc.gov

American Water Works Association
303.794.7711 • www.awwa.org

Maine Drinking Water Program
207.287.2070 • www.maine.gov