



Portland Water District

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Annual Water Quality Report

Portland, South Portland, Westbrook, Cape Elizabeth,
Cumberland, Falmouth, Gorham, Raymond, Scarborough, Standish, Windham



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Rain Barrel Give Away

You will find a hidden faucet within this annual water quality report, like this one. 

For a chance to win the rain barrel, find the hidden faucet and tell us where it is. Enter online by June 10 at www.pwd.org. The winner will be announced on our Facebook page the following week. Good luck.

You must live in the Portland Water District's service area to win. PWD employees are not eligible to participate in the drawing. Only one entry per person. Prizes must be picked up at the District's corporate office in Portland, Maine.



Annual Water Quality Report



The Portland Water District's top priority is to provide fresh, clean, safe water to its customers. To deliver on that purpose, we take our responsibilities of source protection, water treatment and monitoring, and maintenance of the delivery system very serious. It's our high level of expectations that ensure water flowing from your tap exceeds all standards for excellence. As a customer, you have the right to be informed about your water and water supplier. We are pleased to present this water quality report to our customers so you too can be as confident about your water quality as we are.

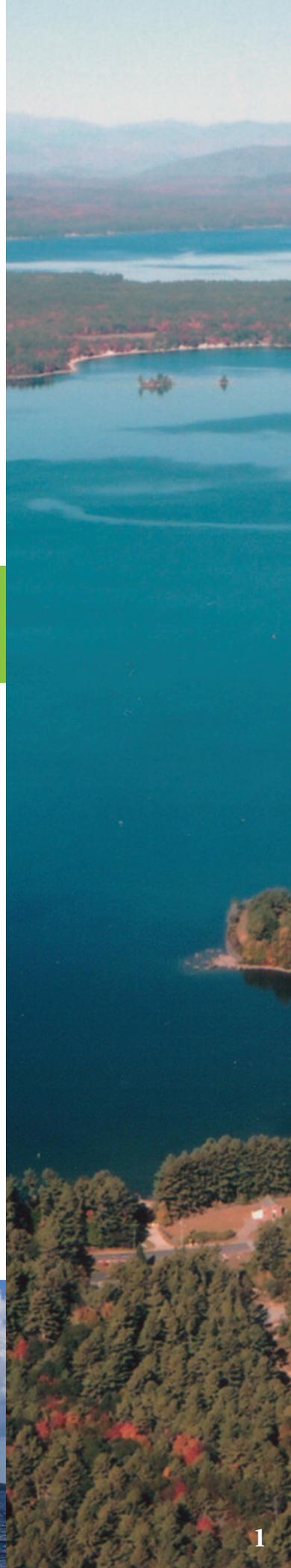
The Source: Where does your water come from?

Your drinking water comes from 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, it is exempt from filtration requirements.

THE LAKE IS SO CLEAN FOR THREE MAIN REASONS:

1. It is naturally deep and cold and the soil around the lake doesn't easily erode;
2. People have cared for it so well for more than a century and continue to do so; and
3. The land around the lake – known as the watershed – is mostly covered with forest. Forested land naturally cleans the water as it makes its way to the lake.

Keeping the lake clean into the future is the least expensive way to ensure you have clean, safe drinking water for decades to come.





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. 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 our drinking water source is to being contaminated by human activities in the future. 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 telephone 287-2070.

Lowering 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, security, inspections, direct actions, education, land acquisition and preservation.

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Keeping the land surrounding the lake forested is key to protecting the water quality of the lake since forests naturally clean water. To help make this happen the Board of Trustees approved an initiative in 2013 to help local land trusts and willing landowners conserve forested land. The District will contribute up to 25% of the cost of these transactions since our customers directly benefit with cleaner water. In 2013 alone this program helped protect 1,660 acres of forest.



Ensuring Water Quality: Water Purification and Disinfection

Meeting your expectations for high quality water 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: ozonation (and ultraviolet light- new in 2014)

Secondary disinfection: chloramines

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 2013, your water met or surpassed every state and federal requirement. Water samples are tested by state-certified testing laboratories and the Portland Water District laboratory which is licensed by the Maine Department of Health and Human Services.

DISINFECTION IMPROVEMENTS UV WATER TREATMENT INSTALLATION AND OZONE UPGRADE



Built in 1994, the Sebago Lake Water Treatment Facility treats on average 21.5 million gallons of water a day. The recently completed \$12 million disinfection improvements project installed a UV water treatment system to meet new regulations and upgraded the 20-year old ozone disinfection

process with more efficient technology and equipment. This sustainable, forward thinking process design incorporated a new UV system into the existing plant, allowing the District to receive a \$300,000 competitive grant from the Efficiency Maine Trust Competitive Program. As a result of these energy efficient upgrades, an annual electricity cost savings of \$150,000 is expected.





PROJECT HIGHLIGHTS:

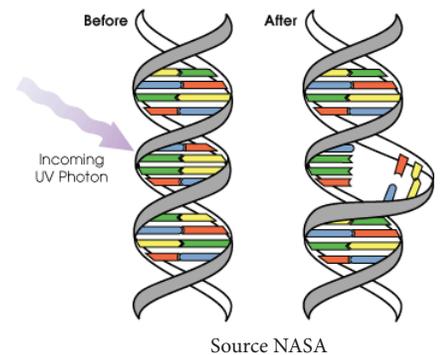
- Plant is the second largest UV water treatment facility in New England
- State-of-the-art technology meets EPA's Safe Drinking Water Act LT2 Enhanced Surface Water Treatment Rule
- High efficiency ozone treatment system provides long term energy savings

WHY WAS UV TREATMENT INSTALLED?

As a result of new federal regulations, additional treatment is required for purification. Federal regulations focus on the pathogen *Cryptosporidium*. During a two year monitoring program, PWD never detected *Cryptosporidium* in the water; however, the new treatment provides additional levels of protection from potential contamination in the future. UV treatment has been used for drinking water disinfection in the U.S. since 1916 and is proven to be effective at inactivating *Cryptosporidium*.

HOW DOES UV TREATMENT WORK?

During the UV water purification process, water is sent through units equipped with UV lamps. As the water is exposed to the UV light, molecular bonds in the DNA of viruses and bacteria are broken down, rendering them harmless and unable to reproduce.

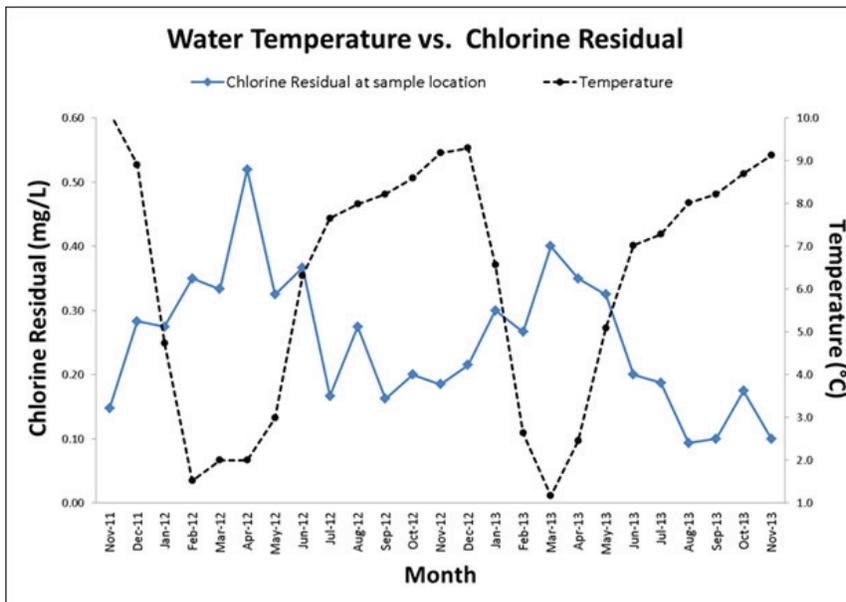


Water Safety and Advice

Ask the Water Guru

Q: This winter I have noticed a stronger chlorine taste to my water, is the Portland Water District adding more chlorine?

A: During the winter months we actually add less chloramine (chlorine compound) to the water, but because of the colder water temperature chloramine lasts longer (doesn't dissipate as quickly) as the water travels to the outer portions of the water distribution system. Therefore, depending where you live, you may experience slightly more chlorine taste in the winter than in the summer.



Q: Is there anything I can do to reduce the chlorine taste in my water?

A: Some find a chlorine taste undesirable, while others don't mind at all. If you're in the first group, there are a number of ways to reduce the chlorine taste in your water. One option is to fill a glass pitcher with water and leave it in the refrigerator; the chlorine taste will decrease over time. Another option would be to use one of the commercially available charcoal filters.

Water Quality Analysis

DETECTED REGULATED SUBSTANCES PWSID: ME0091300

Substance	Violation	Ideal Goal MCLG	Highest Level Allowed MCL	Amount Detected in 2013 (unless otherwise noted)	Source
Microbiological					
Total coliform bacteria ¹	No	0% of monthly samples	No more than 5% of monthly samples	Highest % detected: 0.68% in August. Monthly Range: 0.0% - 0.68%	Naturally present in environment
Inorganic Chemicals					
Barium (mg/L)	No	2	2	0.004	Erosion of natural deposits
Copper (mg/L) ² (2011)	No	1.3	AL = 1.3	0.48	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ug/L) ³ (2011)	No	0	AL = 15	4	Corrosion of household plumbing systems
Fluoride (mg/L)	No	4	4	Average: 0.70 Range: 0.65 - 0.76	Water additive which promotes strong teeth; erosion of natural deposits
Chloramine (mg/L)	No	MRDLG=4	MRDL=4	Average: 2.27 Range: 0.62 - 2.40	A water additive used to control microbes
Turbidity (NTU)	No	None	5	Average: 0.23 Range: 0.14 - 1.14	Soil runoff
Organic Compounds					
Total Haloacetic Acids (ug/L)	No	0	60	LRAA: 2.2 Range: 0.0 - 8.7	By-product of drinking water chlorination

Footnotes:

1. Annual Range: 1 positive test out of 1,826 samples. August was the only month of detection at 0.68% all other months detected 0.0%.
2. None of the 50 homes tested in 2011 exceeded the action level for copper.
3. 1 of the 50 homes tested in 2011 exceeded the action level for lead.

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.

MINERAL CONTENT AND SECONDARY STANDARD

Substance	Maine Recommended Limit	 Result	Likely Source
Chloride(mg/L)	250	9	Natural mineral, road salt
Color(PCU)	15	< 5	Natural characteristic
Hardness (mg/L as CaCO3)	150	7.2	Natural mineral
Iron(mg/L)	0.3	0.032	Natural mineral
Manganese(mg/L)	0.05	<0.01	Natural mineral
Sodium(mg/L)	100	8.3	Natural mineral, road salt
Sulfate(mg/L)	250	5.4	Naturally occurring
Magnesium(mg/L)	50	0.52	Natural mineral
Calcium(mg/L)	500	2.6	Natural mineral
Zinc(mg/L)	5	0.10	Natural mineral, corrosion control additive

2012/2013 data

DETECTED UNREGULATED SUBSTANCES

ONGOING RESEARCH FOR NEW REGULATIONS

Substance	Violation	Health Advisory, ug/l	Range of Results, µg/L Detected in 2013 (unless otherwise noted)	Source
Nitrosamine NDEA N-nitrosodiethylamine (Detected in 2010)	No	No EPA health data	Average: 0.0533 Range: 0.0066 - 0.1	By-product of drinking water chloramination
Chlorate	No	No EPA health data	Average: 90 Range: 64 - 140	Agricultural defoliant or desiccant; used in the production of chlorine dioxide
Chromium, Total	No	No EPA health data	Average: 0.29 Range: 0.27 - 0.31	Erosion of natural deposits
Hexavalent Chromium, Dissolved	No	No EPA health data	Average: 0.0565 Range: 0.037 - 0.110	Naturally occurring element; used in making steel and other alloys
Strontium	No	No EPA health data	Average: 21.5 Range: 20 - 23	Erosion of natural deposits

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 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. An annual average calculated at each monitoring site.

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.

ppb: one part per billion.

ppm: one part per million.

mg/l: milligrams per liter, or parts per million.

µg/l: micrograms per liter, or parts per billion

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 ntu.

NTU=Nephelometric Turbidity Units

Notes:

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.





Health Advisories

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.

Contaminants that may be present in source water 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.

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. 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>.

Steep Falls, Standish Supplemental Information

Because the Steep Falls water system is separate from the Greater Portland water system, some sections of the Water Quality Report do not apply. Those sections have been modified and provided below.

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).

In 2011, our system was granted a Synthetic Organics Waiver. This is a three year exemption from the monitoring/reporting requirements for the following industrial chemical(s): Toxaphene/Chlordane/PCB, herbicides, carbamate pesticides, semivolatile organics. 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 required frequency.

Water Quality Analysis

DETECTED REGULATED SUBSTANCES PWSID: ME0091302

Substance	MCLG Ideal Goal	MCL Highest Level Allowed	Amount Detected in 2013 (unless otherwise noted)	Violation	Source
Radionuclides					
Alpha emitters (pCi/L) (2012)	0	15	7.6 ± 4.6	No	Erosion of natural deposits
Radium-226 (pCi/L) (2012)	0	5	0.4 ± 0.17	No	Erosion of natural deposits
Radon screen (pCi/L)	4000	4000	710	No	Erosion of natural deposits
Organic Compounds					
Total Trihalomethanes(µg/L)	0	80	6.30	No	By-product of chlorination
Inorganic Chemical					
Barium (mg/L) (2011)	2	2	0.0048	No	Erosion of natural deposits; discharge of drilling waste and metal refineries
Chromium (µg/L) (2011)	100	100	0.89	No	Erosion of natural deposits; discharge from steel and pulp mills
Uranium (µg/L) (2011)	0	30	3.5	No	Erosion of natural deposits
Chlorine (mg/L)	MRDL=4	MRDL=4	1.06 0.79 - 1.54	No	A water additive used to control microbes
Fluoride (mg/L)	4	4	0.76 0.68 - 0.84	No	Water additive which promotes strong teeth Erosion of natural deposits
Copper (mg/L) ¹ (2012)	AL=1.3	AL=1.3	0.064	No	Corrosion of household plumbing systems

¹None of the 5 homes tested in 2012 exceeded the action limit for copper.

Definitions

pCi/L: picocuries per liter (a measure of radioactivity)
See page 7.

Notes

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.

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 levels, after aeration, for Steep Falls' well water were found to be 710 pCi/L. 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.

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.



 *kerry freeman*



Portland Water District

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The Portland Water District Board of Trustees generally meet every second and fourth Monday of the month.
The public is welcome to attend meetings.

More Information

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