



Portsmouth Water Division 1999 WATER QUALITY REPORT

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Mark of Excellence

The City of Portsmouth's goal is to produce the highest quality drinking water for all its customers. We are proud of our history of quality service. To maintain our commitment to you, our analysts routinely collect and test water samples every step of the way - from our water sources to your home - checking purity and identifying potential problems. Our treatment plants are constantly maintained, evaluated and upgraded to stay abreast of advancements in technology, health science and government regulations. Our water quality lab is the heart of our quality assurance program. Staffed by highly trained scientists and technicians, the state-certified lab has the latest, most sophisticated instruments, and can measure substances down to one part in a billion! Through foresight and planning, efficiency in operations, and focus on excellence in customer service, we will provide you high quality drinking water at an economical price well into the 21st century.

Preserving the health and well being of all our customers is an enormous task that we assume with dedication and determination. If you have any health concerns relating to the information in this report, we encourage you to contact your health care provider. For more information about this report, or for any questions relating to your drinking water, please call Dave Allen, City Engineer, at (603) 427-1530, Peter Armstrong, Chemist at (603) 740-1431 or Thomas Cravens, Engineering Technician at (603) 427-1530.

This report outlines the processes involved in delivering to you the highest quality drinking water available. In it, we will answer three important questions:

- Where does my water come from?
- How is my water treated and purified?
- What's in my drinking water?

Also, we will provide you with information about available resources that will answer other questions on water quality and health effects

Where Does My Water Come From?



The main source of Portsmouth's water is the Bellamy Reservoir in Madbury and Dover, NH. The water is piped over four miles to the Water Treatment Plant in Madbury where it is treated with chemicals and filtered to remove contaminants and then disinfected for storage, delivery and consumption. There are three wells at the Madbury Water Treatment Plant site, which are used to blend additional water for chemical stability and capacity assurance. From there, the water is pumped under pressure to consumers in Madbury, Dover and Durham and then to the Booster Station in Newington where the pressure is boosted up to city pressure. It is then pumped to consumers in Portsmouth, Newington, New Castle, Greenland and Rye.



Many consumers are also served by additional groundwater sources: Collins Well, and the Portsmouth Well, which are in Portsmouth and the Greenland Well which is located in Greenland. Pease International Tradeport property is served from the Haven and Smith Well exclusively. At the present time these sources are not blended with Portsmouth's water sources.

How Is My Water Treated And Purified?

The treatment process consists of a series of steps. First, raw water is drawn from the Bellamy Reservoir. The water then goes to a mixing tank where alum and sodium hydroxide are added. The addition of these chemicals cause small particles (called 'floc') to form and adhere to one another making them heavy enough to settle out of the water. Powdered activated carbon is also added to control taste and odors then the water is filtered through layers of fine sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges. Sodium hypochlorite (bleach) is added at this point for disinfection. (We carefully monitor the amount of sodium hypochlorite, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, sodium hydroxide (used to adjust the final pH and alkalinity) and fluoride (used to prevent tooth decay) are added before the water is pumped to sanitized, under-ground reservoir, water towers and in to your home or business.

What's In My Water?

We are pleased to report that during the past year, the water delivered to your home or business complied with, or did better than, all state and federal drinking water requirements. For your information, we have compiled a list in the table below showing what substances were detected in our drinking water during 1999. Although all of the substances listed below are under the Maximum Contaminant Level (MCL) set by U.S. EPA, we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

Table Definitions

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

Maximum Contaminant Level (MCL): 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.

Maximum Contaminant Level Goal (MCLG): 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.

Nephelometric Turbidity Units (NTU): Measurement of the clarity, or turbidity, of water.

Parts per billion (ppb): One part per billion (or micrograms per liter) is equivalent to one penny in \$10,000,000.

Parts per million (ppm): One part per million (or milligrams per liter) is equivalent to one penny in \$10,000.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Regulated Substance	Year Sampled	MCL	MCLG	Amount Detected	Range Low-High	Violation	Typical Source
Nitrate (ppm)	1999	10	10	3.29	.08-3.29	No	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
THMs [Total trihalomethanes] (ppb)	1999	100	n/a ¹	76	47-99	No	By-product of drinking water chlorination
Turbidity (NTU) ²	1999	TT	n/a	2.94	0.16-2.94	No	Soil runoff.

Unregulated Substances ³	Year Sampled	Amount Detected	Range Low-High	Typical Source
Chloroform (ppb)	1999	66.5	43-90	By-product of drinking water chlorination.
Dibromochloromethane (ppb)	1999	0.48	0-1.5	By-product of drinking water chlorination.
Dichlorobromomethane (ppb)	1999	7.5	3.9-9.6	By-product of drinking water chlorination.

¹ Not applicable.

² Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. During the reporting year, a minimum of 97% of all samples taken to measure turbidity met water quality standards.

³ There are no established MCLs or MCLGs for unregulated substances. Monitoring of these substances helps EPA to determine where certain contaminants occur and whether or not it needs to regulate them.

Substances Expected to be in Drinking Water

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. 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 U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

Substances 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 storm-water 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 storm-water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm-water 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 (800-426-4791).

Drinking Water Improvement Projects

Water Conservation Program

The Water Division has started a Water Conservation Program to help reduce the demand on our water sources - wells and reservoir. An effective water conservation program has delayed the need for the installation of additional sources of drinking water in other communities. We think it can help us as well. Customers can start by doing the following:

- Repairing all faucet leaks at their homes and businesses
- Run your dishwasher only when full
- Plan and design your garden for efficient watering
- Place mulch around trees, plants and shrubs to retain moisture
- Don't leave the water running when you brush your teeth

There are many more ideas for saving water that will be shared with the customers in the future.

Well Cleaning Project

In the winter of 1998-1999 the city cleaned and repaired Madbury Well #4, which had been out of service for several years. Upon completion of this cleaning, an additional 400 gallons per minute (350,000 gallons per day) of safe drinking water was made available before the drought of 1999. Without this well in service, the impact of last summer's drought would have been much worse. In 2000, the city is in the process of cleaning and upgrading five other wells.

Water System Master Plan

The Water Division has recently hired the services of an engineering firm to develop a new Master Plan. This plan will serve as a tool to guide future improvements and growth in the Portsmouth Water System. It will allow the city to program capital improvements over the next twenty years. One of the many benefits of this Master Plan is a mathematical computer model of the water system. This model will be used to assess the effects of new industrial, residential and commercial projects on the water system.

Lead & Copper Corrosion Control

Lead and copper were not detected in the drinking water sources, (wells, and treatment plant). In 1992, the EPA instituted a law, which required comprehensive testing for lead and copper at the home faucet. In 1992, the Water Division conducted a sampling program, which indicated a potential for corrosion of home plumbing fixtures. Lead and copper detected is a result of sampling houses with sweat copper fittings that use tin/lead solder in the joints. Lead based solder was outlawed in 1986. What you can do: In the morning flush the water for thirty seconds prior to use. A trial program of adding phosphate to our water in 1997 proved successful in controlling corrosion in the water at the home faucet. This will also help to reduce the occurrence of rusty water in our system. Full implementation of corrosion control is presently under way.

FYI

Since 1992, the Portsmouth Water Division has been responsible for the operations and maintenance of the Pease International Tradeport water system. We are including Pease customers in our report distribution, since in 1999 we did supply water from Portsmouth to Pease. At no time in 1999 did we supply Portsmouth customers with water from the Pease Tradeport.

Radon

Radon is a radioactive gas that occurs naturally in some groundwater. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Radon is released into homes and groundwater from soil. Inhalation of radon gas has been linked to lung cancer, however, the effects of radon ingested in drinking water are not yet clear. Water from groundwater systems can have relatively higher levels of radon than surface water sources. In 1998, we sampled our water for Radon and found an average concentration of 885 pCi/L. Concentrations of 270,000 pCi/L are known to exist in public water supplies. Currently radon is not regulated and has no MCL in drinking water; however, the U.S. EPA is reviewing health effects data and will be establishing the MCL for radon by August 2000. For additional information on how to have your home tested, contact the EPA's Radon Hotline at (800) SOS-RADON.

Methyl t-Butyl Ether (MtBE), a gasoline additive, has recently begun to appear in water sources throughout New England. In 1998, we had three wells in Portsmouth with trace detections of MtBE. Re-sampling later in the year showed no detections. While there is no state requirement yet, we have instituted quarterly sampling of all our sources to monitor this chemical. These results are added to the statewide database for addressing this problem.

Information on the Internet

The U.S. EPA Office of Water (www.epa.gov/watrhme) has a Web site that provides a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the New Hampshire Department of Environmental Services hosts a Web site (www.des.state.nh.us) that has complete and current information on water in our own state.

Working Hard For You

Under the Safe Drinking Water Act (SDWA), EPA is responsible for setting national limits for hundreds of sub-stances in drinking water and also specifies various treatments that water systems must use to remove these substances. Similarly, FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Each system continually monitors for these sub-stances and reports to the EPA if they were detected in the drinking water. EPA uses these data to ensure that consumers are receiving clean water and verify that states are enforcing the laws that regulate drinking water. This publication conforms to the new federal regulation under SDWA requiring water

utilities to provide detailed water quality information to each of their customers annually. We are committed to providing you with this information about your water supply, because customers who are well informed are our best allies in supporting improvements necessary to maintain the highest drinking water standards.

You are invited to express your opinions about your drinking water at any regularly scheduled City Council meeting, which is held on Monday evenings at 7:00 p.m. The meetings are held at City Hall, 1 Junkins Ave., Portsmouth, NH. Call (603) 431-2000 for date of next meeting.



Got Questions?

Call U.S. EPA's Safe Drinking
Water Hotline at
1-800-426-4791