

# 2001 WATER QUALITY REPORT

Portsmouth  
Water Division

PWS ID#: NH19510100

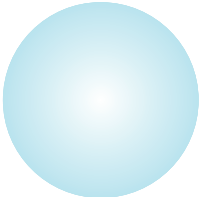
## Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water at any regularly scheduled Portsmouth City Council Meeting. Meetings are scheduled twice each month on Monday evenings at 7:00 p.m. at Portsmouth City Hall, 1 Junkins Avenue. Call (603) 431-2000 for the date of the next meeting.



## 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. Samples taken of our water source indicate a radon concentration ranging from 860 to 1,600 picocuries per liter (pCi/L). 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. If you are concerned about radon in your home, tests are available to determine the total exposure level. For additional information on how to have your home tested, contact the U.S. EPA's Radon Hotline at (800) SOS-RADON.



### Got Questions?

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

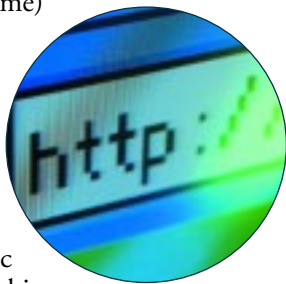
## Our Mark of Excellence

We are once again proud to present to you our annual water quality report. Over the years, we have dedicated ourselves to producing drinking water that meets or does better than all state and federal drinking water standards. To maintain our commitment to you, our analysts routinely collect and test water samples every step of the way – from the water sources right to your home – checking purity and identifying potential problems. Our treatment plant and wells are constantly maintained, evaluated and upgraded to stay current with advancements in technology, health, science, and government regulations. Our water quality lab is the heart of our water quality assurance program. Our staff is highly trained and the lab has some of the latest instruments that can measure some substances down to one part in a billion. With foresight in planning, efficiency in operations, and focus on excellence in customer service, we intend to provide you with the best quality drinking water at an economical price well into the future.

For more information about this report, or for any questions relating to your drinking water, please call David Allen, Deputy Director Public Works Dept., Thomas Cravens or Peter Rice, Water Engineer, at (603) 427-1530.

## Information on the Internet

The U.S. EPA Office of Water ([www.epa.gov/watrhme](http://www.epa.gov/watrhme)) and the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) Web sites provide 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 Web site (<http://www.des.state.nh.us/waterdiv.htm>) provides complete and current information on water issues in our own state.



## 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 to the water treatment plant in Madbury where it is treated and filtered. This area is also the site of Madbury Wells 2, 3 and 4. From there, water is pumped under pressure to consumers in Madbury, Dover and Durham, and then to the Booster Pumping Station in Newington where the pressure is boosted up to city pressure. It is then pumped to consumers in Newington, Portsmouth, Greenland, Rye and New Castle. Many consumers are also served by additional groundwater sources: the Collins Well and Portsmouth Well in Portsmouth, and the Greenland Well in Greenland. Pease International Tradeport property is served from the Haven and Smith Wells exclusively.



## Drinking Water Improvement Projects

### Water Conservation Program

As of the writing of this report we are in a drought. We have had only about 50% of the normal annual rainfall in the last year. Some private wells are drying up. Our own wells have been given a rest and we are relying primarily on the Bellamy Reservoir to meet our needs. We ask everyone to take steps to cut back on their water use. 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.

For additional ways you can save water and money on your water bill, please call Thomas Cravens at (603) 427-1530.

### Constitution Avenue to Congress Street Water Main Project—Update

Our Master Plan has determined that a new 20-inch water main from the water tank on Constitution Avenue to Congress Street would help improve fire protection and water quality in the downtown area, as well the south end of Portsmouth. This new water main is being constructed in two phases. Phase I (Constitution Avenue to Greenleaf and Lafayette Road) has been completed. Phase II, from Greenleaf Avenue and Lafayette Road to Congress Street, is scheduled to be constructed this year.

Visit the City of Portsmouth's Web site at [www.cityofportsmouth.com](http://www.cityofportsmouth.com) for updates on all of these projects.

### Lead & Copper Corrosion Control—Update

Lead and copper were not detected in the drinking water sources (wells and treatment plant). In 1992, the U.S. EPA instituted a law which required comprehensive testing for lead and copper at the home faucet. In 1992, the Portsmouth 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 water at the home faucet. As a result, the city is preparing to implement a corrosion control program. This will also help to reduce the occurrence of rusty water in our system. Installation and construction of the corrosion control equipment is complete and should start feeding corrosion control chemicals this summer.



## What's In My Water?

For your information, we have compiled a list in the table below showing what substances were detected in our drinking water during 2001. Although most of the substances listed below are under the Maximum Contaminant Level (MCL) set by the 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.



### REGULATED SUBSTANCES

SUBSTANCE (UNITS)	YEAR SAMPLED	MCL	MCLG	AMOUNT DETECTED	RANGE (LOW-HIGH)	VIOLATION	TYPICAL SOURCE
<b>Alpha emitters</b> (pCi/L)	2001	15	0	1.5	1-2	No	Erosion of natural deposits
<b>Arsenic</b> (ppb)	2001	10 <sup>1</sup>	0 <sup>1</sup>	3.3	<1-4.6	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
<b>Barium</b> (ppm)	2001	2	2	0.00965	0.0063-0.0143	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
<b>Fluoride</b> (ppm)	2001	4	4	0.97	0.9-1.11	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
<b>Methyl-t-Butyl Ether</b> (ppb)	2001	13	NA	14	0.54-14	Yes	Re-formulated gasoline
<b>Nitrate</b> (ppm)	2001	10	10	1.63	0.11-4.29	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
<b>TTHMS [Total Trihalomethanes]</b> (ppb) <sup>2</sup>	2001	100	0	85	47-130	No	By-product of drinking water chlorination
<b>Total Coliforms</b> (% positive samples)	2001	5% positive samples	0	5	NA	Yes	Naturally present in the environment
<b>Turbidity</b> (NTU) <sup>3</sup>	2001	TT	NA	3.0	NA	Yes	Soil runoff

### Table Definitions

**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.

**NA:** Not applicable

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

**pCi/L (picocuries per liter):** Measurement of the natural rate of disintegration.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

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

### UNREGULATED SUBSTANCES

SUBSTANCE (UNITS)	YEAR SAMPLED	AMOUNT DETECTED	RANGE (LOW-HIGH)	TYPICAL SOURCE
<b>Bromodichloromethane</b> (ppb)	2001	3.25	2.4-2.4	By-product of drinking water chlorination
<b>Bromoform</b> (ppb)	2001	0.5	0.5-0.5	By-product of drinking water chlorination
<b>Chlorodibromomethane</b> (ppb)	2001	0.51	0.51-0.51	By-product of drinking water chlorination
<b>Chloroform</b> (ppb)	2001	55.6	0.75-120	By-product of drinking water chlorination
<b> Dibromomethane</b> (ppb)	2001	35	0.7-69	By-product of drinking water chlorination
<b>o-Chlorotoluene</b> (ppb)	2001	0.83	0.83-0.83	By-product of drinking water chlorination

<sup>1</sup>These arsenic values are effective January 23, 2006. Until then, the MCL is 50 ppb and there is no MCLG.

<sup>2</sup>Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

<sup>3</sup>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 91% of all samples taken to measure turbidity met water quality standards.

## Some Potential Contaminants That Could Be Found in Drinking Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of contaminants in drinking water from public water systems, agricultural livestock operations, or wildlife;

## MCL Violation for Turbidity

Water quality conditions at the reservoir intake during the month of July resulted

of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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 can acquire naturally occurring minerals, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

#### **Substances that may be present in source water include:**

**Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic

### **MCL Violation for Methyl-t-Butyl Ether**

The Department of Environmental Services (DES) sets drinking water standards and has determined, on advice from the NH Dept. of Health and Human Services, that MTBE is a health concern at certain levels of exposure and has set the Maximum Contaminant Level (MCL) to 13 ppb. The organic chemical is used as an additive in the manufacturing of reformulated gasoline as an oxygenate to help improve combustion efficiency and reduce toxicity of air emissions. It generally gets into water by improper handling or disposal of gasoline or leaking gasoline storage tanks. On December 12, 2001, at the time of the MTBE detection, Madbury Well #2 was not in use. It has remained offline since the discovery of the MTBE. At no time did the concentration going into the system exceed 13 ppb. The City of Portsmouth and their engineering consultant are working with the NH DES to investigate both the source of the MTBE and the remediation alternatives. We are continuing to monitor MTBE levels at all our sources on a quarterly basis.

This chemical has been shown to damage the kidneys and livers of laboratory animals, such as rats and mice exposed to high levels during their lifetimes, and is classified on the continuum between a possible and a probable human carcinogen.



### **Special Health Information**

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 may 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.

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may 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 may also come from gas stations, urban stormwater runoff, and septic systems;

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

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

in high turbidity levels in the raw water. This impacted the performance of the treatment process at the water treatment plant. The intake to the water supply at the reservoir was modified by the City of Portsmouth, which resulted in improved raw water quality and lower turbidity levels. The reservoir intake improvements were performed on July 23, and the water treatment process returned back to normal and into compliance with water treatment standards on July 24, 2001. July was the only month that did not meet the turbidity standard.

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

### **MCL Violation for Total Coliforms**

The apparent cause of the coliform bacteria problem is attributed to the construction activities in the general area of the two positive coliform bacteria samples. It is believed that the roadway construction activities resulting in the vibration of the roadway and ground, water main construction including the installation of new fire hydrants and building services, and also the opening and closing of water valves and flushing of mains and hydrants are all causes for the disturbance of sediment that had coated the interior walls of the water pipe. It is believed that the sediment in the water samples resulted in the positive test results for the coliform bacteria. It is also possible that the positive coliform test results could be the result of laboratory error. The Water Division had repeat samples taken, in the case of the two instances cited above, and water samples upstream and downstream of the sites were performed and analyzed by the state lab. All tests were negative for total coliform bacteria, therefore assuring that the water quality meets all state and federal requirements. The incidents occurred on October 3, 2001.

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.