Presented By
Portsmouth Water Division
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Annual WATER QUALITY REPORT

Reporting Year 2012

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There When You Need Us

This water quality report presents our annual water quality report covering all testing performed between January 1 and December 31, 2012. The City is committed to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Source Water Assessment

The New Hampshire Department of Environmental Services (NH DES) has conducted a source water assessment of our water system. A copy is available for viewing at the Portsmouth Water Division's office at 680 Peverly Hill Road. Please call (603) 610-7497 for an appointment to view the report. You may also visit the Drinking Water Source Assessment Reports website at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/reports/part1.htm and click on Portsmouth.

Community Participation

Please share with us your thoughts about the information in this report. You are invited to voice your concerns at any regularly scheduled City Council meeting. Meetings are usually scheduled twice each month, on Monday evenings starting at 7:00 p.m., at Portsmouth City Hall, 1 Junkins Avenue, Portsmouth, NH. Meeting dates can be found on our website at www.cityofportsmouth.com or by calling (603) 431-2000 for the date of the next meeting. New Castle Water Works customers should call (603) 431-6710 for meeting dates and times.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount 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 dissolves naturally occurring minerals, in some cases, radioactive material, and 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 systems, agricultural livestock operations, or wildlife;

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.

Where Does My Water Come From?

The main source of Portsmouth water is the Bellamy Reservoir, located in Madbury and Dover. The water is piped to a water treatment plant in Madbury, where it is treated, filtered, and disinfected. This location is also the site of the City's Madbury Wells 2, 3, and 4. From this site, water is pumped under pressure to consumers in Madbury, Dover, and Durham and then to a booster pumping station in Newington. It is then pumped to consumers in Newington, Portsmouth, Greenland, Rye, and the New Castle Water Works. Many consumers are also served by the City's groundwater well sources. These wells include the Collins and Portsmouth wells in Portsmouth and the Greenland Well in Greenland. The Pease International Tradeport is served by the Haven, Smith, and Harrison wells. The Portsmouth and Pease water systems are interconnected, which allows water to be transferred from one system to the other as needed.

Important Health Information

The following standard language is required by the U.S. Environmental Protection Agency (EPA) and NH DES. 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. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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 or http://water.epa.gov/drink/hotline.

Lead in Home Plumbing

The following standard language is required by the U.S. EPA and NH DES. 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. We are 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 www.epa.gov/safewater/lead.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Terry L. Desmarais, Jr., P.E., City Engineer for the Water and Sewer Divisions, at (603) 427-1530. New Castle customers should call Steve Tabbutt at (603) 431-6710.

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. At the water plant coagulation chemicals are added and the water is gently mixed. The addition of these substances cause small particles to adhere to one another (called floc), making them easier to float to the surface in the Dissolved Air Floatation (DAF) system where they are skimmed off and sent to a drying bed. The water is then filtered through layers of anthracite to remove smaller suspended particles and turbidity (which is a measure of the cloudiness of the water) 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), fluoride[1] (used to prevent tooth decay) and a corrosion inhibitor (used to protect distribution system pipes) are added before the water is pumped to water storage tanks and into your home or business.

[1]The following statement, which is required under New Hampshire RSA 485:14-b is no longer valid although it is required by law to be posted in this consumer confidence report. The law requiring this statement went into effect when higher levels of fluoride were being added to public water systems. The new, lower level of fluoride being added is safe for infants and all other ages. The required fluoride statement is as follows: "Your public water supply is fluoridated. According to the Centers for Disease Control and Prevention, if your child under the age of 6 months is exclusively consuming infant formula reconstituted with fluoridated water, there may be an increased chance of dental fluorosis. Consult your child's health care provider for more information." If you have any questions regarding this statement, please contact the NH Division of Public Health Services at 603-271-4535.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-connection Control Manual from the U.S. EPA's website at http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

				Portsmouth Water Division		New Castle		Pease Tradeport			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2006	15	0	2.78	ND–2.78	NA	NA	NA	NA	No	Erosion of natural deposits
Barium (ppm)	2012	2	2	0.0114	0.0069–0.0144	NA	NA	0.0160	0.0066–0.0160	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Haloacetic Acids [HAA][1] (ppb)	2012	60	NA	25.9	9.8–66	34	15–56	NA	NA	No	By-product of drinking water disinfection
Nitrate (ppm)	2012	10	10	7.5	0.66–7.5	NA	NA	1.6	ND–1.6	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes][1] (ppb)	2012	80	NA	49.6	7.1–112.1	61	22.5–103.2	NA	NA	No	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2012	TT	NA	3.1	1.8–3.1	NA	NA	NA	NA	No	Naturally present in the environment
Turbidity[2] (NTU)	2012	TT	NA	0.43	0.04–0.43	NA	NA	NA	NA	No	Soil runoff
Turbidity (Lowest monthly percent (%) of samples meeting limit)	2012	TT	NA	99.57	NA	NA	NA	NA	NA	No	Soil runoff
Uranium (ppb)	2006	30	0	2.47	ND–2.47	NA	NA	NA	NA	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

				Portsmouth Water Division		Pease Tradeport			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2010	1.3	1.3	0.13	0/30	0.19	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2010	15	0	1	0/30	0	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

				Portsmouth Water Division		Pease Tradeport			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2012	1.0	NA	0.2438	0.0052–0.2438	0.0253	ND–0.0253	No	Corrosion of household plumbing systems; Erosion of natural deposits
Manganese (ppb)	2012	50	NA	0.1286	0.0072–0.1286	0.1593	0.1593–0.1593	No	Leaching from natural deposits

[1] Amount detected identified as the highest running annual average. We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

[2] Turbidity is a measure of the cloudiness of the water. It is monitored by surface water systems because it is a good indicator of water quality and thus helps measure the effectiveness of the treatment process. High turbidity can hinder the effectiveness of disinfectants.

Definitions

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

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. Secondary MCLs (SMCLs) are set to protect the odor, taste, and appearance of 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. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant 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.

NA: Not applicable.

ND (Not Detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

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.