# New Castle Water System

**PWSID 1661010**

**Water Testing Performed in 2017**


# ANNUAL WATER QUALITY REPORT

Bellamy Reservoir

# INTRODUCTION

**Owner/Operator:**

**Town of New Castle**

**49 Main Street**

**PO Box 367**

**New Castle, NH 03854**

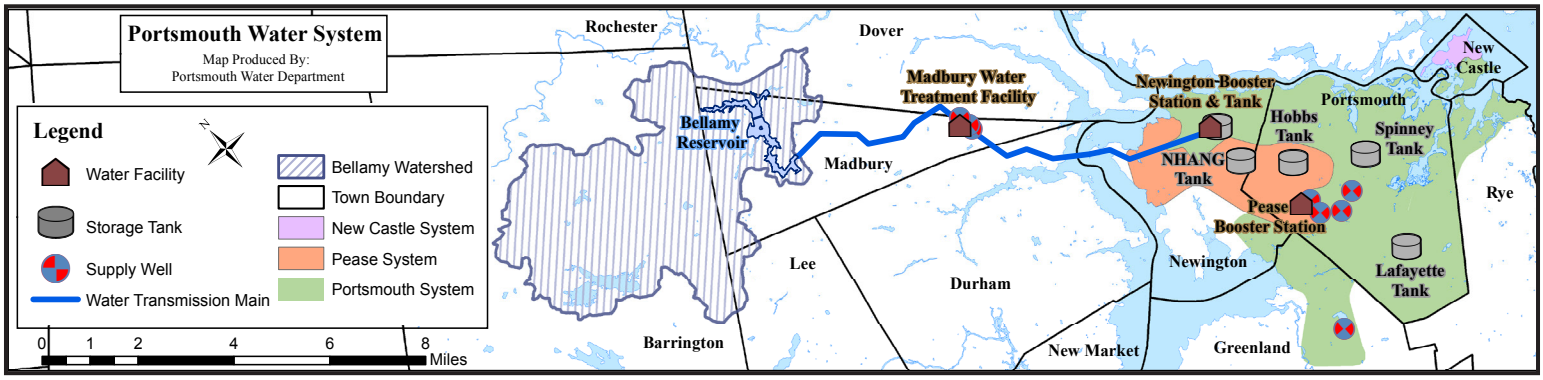
On behalf of the Town of New Castle, the City of Portsmouth, Department of Public Works, Water Division, is pleased to present this Annual Water Quality Report. This report summarizes the results of drinking water testing performed from 01/01/2017 to 12/31/2017, and is provided to keep you informed about the quality of the water you rely on every day. This report pertains to customers that receive water from the New Castle Water System (USEPA PWSID# 1661010). This system receives water from the Portsmouth Water System (USEPA PWSID# 1951010), not from the Pease system that serves the Pease Tradeport and a portion of Newington.

Our mission is to provide the community with dependable and safe drinking water that meets all current drinking water standards. The Portsmouth Water Division is constantly monitoring and routinely testing the drinking water according to federal and state requirements, to ensure the quality of water delivered to our customers consistently meets these water quality standards. Potential contaminants and impacts from changing weather cause new challenges. We remain vigilant in meeting the goals of water treatment, source water protection, water efficiency, system improvements, fire service capability and community education, while continuing to serve the needs of all our water users.

## Where your water comes from

Water is supplied to the New Castle water system from the Portsmouth water system. It comes from a combination of surface water and groundwater sources. The surface water supply is the Bellamy Reservoir, which is located in Madbury and Dover. Water flows from the reservoir to the Water Treatment Facility (WTF) in Madbury, where it is treated using a coagulation, dissolved air floatation and dual media filtration process. The treated water is chlorinated with sodium hypochlorite prior to distribution into the system. Sodium hydroxide (used to adjust the final pH and alkalinity), fluoride as hydrofluorosilicic acid (used to prevent tooth decay) and poly/ortho-phosphate (sequestering chemical to reduce precipitation of iron and manganese and corrosion inhibitor used to protect distribution system pipes) are also added before distribution to our regionally served water customers.

There are currently three groundwater wells in Madbury (Madbury Wells #2, #3 and #4) that are pumped with the treated surface water through a transmission main to the Booster Pumping Station in Newington. Water is pumped from the Newington Booster Pumping Station to customers through the Portsmouth distribution system into New Castle. On occasion, New Castle may also receive water from three groundwater wells, two of which, Portsmouth #1 Well and Collins Well, are located off Route 33 (Greenland Road). The third well, the Greenland Well, is located off Post Road in Greenland.



# SOURCE WATER

## Source Protection

The Portsmouth Water Division routinely updates inventories of potential contaminant threats and is actively pursuing opportunities to increase the protection of our groundwater supplies and the Bellamy Reservoir through property and easement acquisitions.

New Hampshire Department of Environmental Services prepared drinking water source assessment reports for all public water systems between 2000 and 2003 in an effort to assess the vulnerability of each of the State's public water supply sources. Included in the report is a map of each source water protection area, a list of potential and known contamination sources, and a summary of available protection options. The results of the assessment, prepared in 2002 are noted in the adjacent table. Risk factors, such as proximity of highways and proximity of known contamination, are ranked and summarized in the table of Susceptibility Ratings in terms of the number of factors per risk category.

The complete Assessment Report is available for review at the DPW office. Please call for an appointment to view the report. It is also available online: https://www.des.nh.gov/organization/divisions/water/dwgb/dwspp/dwsap.htm

## Substances that could be in water

In order to ensure that tap water is safe to drink, the EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may contain small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects are available by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over land or through the ground, it dissolves naturally occurring minerals, and in some cases, radioactive material. It can pick up substances resulting from the presence of animals or human activity.

**SOURCE WATER ASSESSMENT RESULTS**

| System | Source Information | Summary of Susceptibility Ratings | | |
|---|---|---|---|---|
| | | High | Medium | Low |
| Portsmouth | Greenland Well - GPW 003 | 4 | 3 | 5 |
| | Portsmouth Well - GPW 004 | 5 | 4 | 3 |
| | Madbury Well 2 - GPW 006 | 2 | 4 | 6 |
| | Madbury Well 3 - GPW 007 | 0 | 5 | 7 |
| | Madbury Well 4 - GPW 008 | 2 | 4 | 6 |
| | Bellamy Reservoir - 009 | 1 | 6 | 5 |
| | Collins Well - GPW 010 | 4 | 1 | 7 |

## Contaminants that may be present in source water

- Microbial Contaminants, such as viruses and bacteria, which may come from wastewater 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.

# WATER QUALITY MONITORING

## Sustainability through the Capital Improvement Plan (CIP)

Many capital improvements projects that will increase the resiliency and quality of the Portsmouth water system are currently underway. These include the following: upgrades to the Booster Pumping Station in Newington that we rely on to transfer water from the Water Treatment Facility (WTF) in Madbury into the City; a new groundwater well and well improvements in Madbury to allow for better aquifer management; a backwash tank at the WTF for operational improvements; and replacement of aging water mains at various locations throughout the City.

Water supply projects that have been completed in recent years to improve the water delivered to the New Castle water system include new water lines on Little Harbor Road in Portsmouth and under the bay to Campbell's Island in New Castle, the upgrade of a portion of the Peirce Island water main that serves the northern portion of New Castle and the lining of a water line near Wild Rose Lane. Additionally, water system staff periodically perform leak detection in New Castle to identify and fix hard to locate leaks.

## Important health information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons (e.g., 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 especially at risk from infections. These people should seek advice about drinking water from their health care providers. The 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 www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline

## Fluoridation

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. Dental fluorosis, in moderate or severe forms, may result in brown staining and/or pitting of the permanent teeth before they erupt from the gums. Concerns for dental fluorosis arise when fluoride levels are greater than 2 mg/L.

## Water Quality Parameters

The following water quality parameters are routinely monitored to assess the general characteristics of the water supply. Note that the range of some of these parameters illustrates the differences between the characteristics of the surface water supply and the groundwater sources.

**WATER QUALITY PARAMETERS**

| Parameters (Units) | Your Water Results | | Secondary Drinking Water Standard SMCL |
|---|---|---|---|
| | Average Level | Results Range | |
| Chloride (ppm) | 74 | 44 to 330 | 250 |
| Copper (ppb) | 11.3 | <5 to 28 | 1000 |
| Iron (ppb) | 60 | <50 to 390 | 300 |
| Manganese (ppb) | 20 | <5 to 142 | 50 |
| pH | NA | 6.98 - 8.58 | 6.5 - 8.5 |
| Sulfate (ppm) | 15 | 4 to 29 | 250 |
| Conductivity (umos/com) | 389 | 121 to 1371 | NA |
| Alkalinity (ppm) | 51 | 15 to 165 | NA |
| Hardness (ppm as CaCO3) | 56 | 13 to 252 | NA |
| Ortho-Phosphate (ppm) | 1.0 | 0.2 to 1.7 | NA |
| Sodium (ppm) | 44 | 19 to 150 | NA |

## Community Education

Jesse Pearce, City's Water Quality & Resource Protection Specialist, speaking to students about where their water comes from and water quality.

# WATER QUALITY MONITORING

## Lead and Copper Results

The Water Division takes the responsibility of protecting your health very seriously. We want you to make informed decisions about your drinking water. Lead is not present in the water when it leaves our treatment and well facilities, or in the water mains that run below the streets. However, lead can be present in old service line connections that tie homes to the water system or plumbing inside homes and businesses. Due to the age of many homes in Portsmouth and surrounding towns, and the associated potential for leaded plumbing components, we encourage customers to have their water tested by a certified laboratory, especially if there are children under 6 or pregnant women in the household. We actively adjust the water chemistry at the treatment facility and well facilities according to our Corrosion Control Program, to reduce the potential for lead in households to dissolve into the water and end up at the tap. But if lead is present in your plumbing system, and is in contact with water, some risk remains. Information about our Corrosion Control Program can be found online at www.cityofportsmouth.com/publicworks/water

Lead was a common material used in plumbing until the 1980s. It is a powerful toxin that is harmful to human health. Pregnant women, infants and young children are especially vulnerable because even low levels of lead in the blood of children can result in behavior and learning problems, lower IQ and hyperactivity, slowed growth, hearing problems and anemia. Adults who drink water with lead concentrations over 15 parts per billion (ppb) over many years could develop kidney problems or high blood pressure.

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 at 800-426-4791. Additional information is available from NHDES at 603-271-2516 or www.des.nh.gov/organization/divisions/water/dwgb/lead-copper

The Town of New Castle samples for lead and copper from 10 homes every three years. The most recent sampling event, which occurred in 2015, resulted in all of the samples having less than the EPA Action Level (AL) of 15 ppb for lead and 1.3 ppm for copper. The next sample event is scheduled for the spring of 2018.

**LEAD AND COPPER RESULTS**

| Contaminant | Your Water Results | | Regulatory Requirements | | Month & Year of Testing | # of Sites Exceeding Action Level / Total # of Sites | Violation | Common Source of Contaminant |
|---|---|---|---|---|---|---|---|---|
| (Units) | 90th Percentile Sample Value | Range of Detected Values | Action Level | MCLG | | | (Yes/No) | |
| **Lead** (ppb) | <1 | <1 to 1.1 | 15 | 0 | August 2015 | 0/10 | NO | Corrosion of household plumbing systems, erosion of natural deposits |
| **Copper** (ppb) | 0.054 | 0.0113 to 0.0546 | 1.3 | 1.3 | | 0/10 | NO | Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives |

## Regulated Contaminants Detected

During the past year, the Portsmouth Water Division has taken hundreds of water samples in order to monitor and test for the presence of radioactive, biological, inorganic, volatile organic and synthetic organic contaminants. The tables show **only** those contaminants that were detected in the water. Many more parameters were tested for, but not detected. They are not included in this report. 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 when the sample was taken. Data table on regulated contaminants detected shown on page 6.

# WATER QUALITY MONITORING RESULTS

## Regulated Contaminants Detected

**MICROBIOLOGICAL CONTAMINANTS**

| Contaminant (Units) | Your Water Results: Level Measured | Your Water Results: Results Range | Regulatory Requirements: MCL | Regulatory Requirements: MCLG | Violation (Yes/No) | Likely Source of Contamination |
|---|---|---|---|---|---|---|
| Total Organic Carbon (% removal) | Average % Removal: 70.8 | 61.9 to 76.8 | TT: minimum removal 45% - 50% | NA | NO | Naturally present in the environment |
| Turbidity (NTU) | Highest Measurement: 0.09 | 0.02 to 0.09 | 1 | NA | NO | Soil runoff |
| Turbidity (Lowest monthly percent of samples meeting limit) | 100% | NA | TT=95% of samples < or = 0.3 NTU | NA | NO | Soil runoff |

**INORGANIC CONTAMINANTS**

| Contaminant (Units) | Your Water Results: Level Measured | Your Water Results: Results Range | Regulatory Requirements: MCL | Regulatory Requirements: MCLG | Violation (Yes/No) | Likely Source of Contamination |
|---|---|---|---|---|---|---|
| Arsenic (ppb) 2016 data | Highest Level Measured: 1.4 Average Source Level: <1 | <1 to 1.4 | 10 | 0 | NO | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes. |
| Barium (ppb) 2016 data | Highest Level Measured: 19.9 Average Source Level: 13.1 | 5.7 to 19.9 | 2000 | 2000 | NO | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits. |
| Chlorine (ppm) | Highest Level Measured: 1.99 Average System Level: 0.82 | 0.02 to 1.99 | MRDL = 4 | MRDLG=4 | NO | Water additive used to control microbes. |
| Chromium (total) (ppb) 2016 & 2017 data | Highest Level Measured: <5 Average Source Level: <5 | <5 | 100 | 100 | NO | Discharge from steel and pulp mills; erosion of natural deposits. |
| Fluoride (ppm) | Highest Level Measured: 1.47 Average Level: 0.54 | 0.29 to 1.47 | 4 | 4 | NO | Erosion of natural deposits; water additive, which promotes strong teeth; discharge from fertilizer and aluminum factories. |
| Nitrate (as Nitrogen)(ppm) | Highest Level Measured: 7.2 Average Source Level: 1.9 | <0.1 to 7.2 | 10 | 10 | NO | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits. |

**RADIOACTIVE CONTAMINANTS**

| Contaminant (Units) (Year Sampled) | Your Water Results: Level Measured | Your Water Results: Results Range | Regulatory Requirements: MCL | Regulatory Requirements: MCLG | Violation (Yes/No) | Likely Source of Contamination |
|---|---|---|---|---|---|---|
| Compliance Gross Alpha (pCi/L) (2013 & 2016) | Highest Level Measured: 1 | <1 to 1 | 15 | 0 | NO | Erosion of natural deposits |
| Uranium (ug/L) (2013 & 2016) | Highest Level Measured: 1 | <1 to 1 | 30 | 0 | NO | Erosion of natural deposits |
| Combined Radium 226 + 228(pCi/L) (2016) | Highest Level Measured: 1.96 | <1 to 1.96 | 5 | 0 | NO | Erosion of natural deposits |

**DISINFECTION BYPRODUCTS**

| Contaminant (Units) | Your Water Results: Level Measured | Your Water Results: Results Range | Regulatory Requirements: MCL | Regulatory Requirements: MCLG | Violation (Yes/No) | Likely Source of Contamination | Health Effects of Contaminant |
|---|---|---|---|---|---|---|---|
| Haloacetic Acids (HAA) (ppb) | Highest LLRA: 51 | 42 to 57 | 60 | NA | NO | By-product of drinking water disinfection | Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. |
| Total Trihalomethanes (TTHM) (Bromodichloro-methane, Bromoform, Dibromomethane, Chloroform) (ppb) | Highest LLRA*: 97 | 36 to 143 | 80 | NA | YES | By-product of drinking water chlorination | 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 systems, and may have an increased risk of getting cancer. |

* Highest LLRA occurred at the New Castle School during the 3rd quarter of 2017. Highest levels were measured on July 26, 2017.

## Unregulated Contaminants Detected

**UNREGULATED SUBSTANCES**

| Substance (unit of measure) | Year Collected | Average Detected | Range: Low | Range: High | Typical Source |
|---|---|---|---|---|---|
| Chlorate (ppb) | 2015 | 73 | 35 | 110 | Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide. |
| Chromium-6 (hexavalent chromium) (ppb) | 2015 | 0.25 | 0.06 | 0.46 | Naturally occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation. |
| Strontium (ppb) | 2015 | 151 | 34 | 379 | Naturally occurring element; Historically used commercially in the faceplate glass of cathode-ray tube televisions to block X-ray emissions. |
| Per- and Polyfluoroalkyl Substances (PFAS) | 2017 | See PFAS Table in this report for summary of 2017 results | | | Surfactant or emulsifier; used in fire-fighting foam, circuit board etching acids, alkaline cleaners, floor polish, and as a pesticide active ingredient for insect bait traps; U.S. manufacture of PFOS phased out in 2002; however, PFOS still generated incidentally. Perfluorinated aliphatic carboxylic acid (PFOA); used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives and photographic films. |

# WATER QUALITY MONITORING RESULTS

## Unregulated Contaminants Detected

Portsmouth participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program in 2014 and 2015. The City performed additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water. This helps the EPA determine if it needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information. In 2018, the City is scheduled to participate in the 4th UCMR monitoring event. Data table on unregulated substances shown on page 6.

## About Our Violations

**Exceedance of the Maximum Contaminant Level (MCL) for Disinfection Byproducts (DBP)**

The New Castle water system violated the drinking water quality standard for Total Trihalomethanes (TTHMs) during each quarterly compliance period in 2017 at one of the two monitoring sites in the New Castle system. Trihalomethanes are byproducts of the water disinfection process, which are formed as a result of chlorine reactions with organics in the water. The drinking water standard for TTHMs is 0.080 mg/L. This standard is based on a rolling annual (four quarter) average at each monitoring site. The TTHM average annual rolling average concentration at the New Castle School site varied between 0.083 mg/L and 0.097 mg/L, thus exceeding the drinking water standard during each quarter of 2017.

Notices of violation were issued on: 03/08/17, 06/06/17, 09/13/17, 12/11/17. These violations did not pose an immediate health risk; however, 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. In response to the DBP violations, New Castle hired a consulting firm in 2016 to develop interim strategies to mitigate the elevated TTHM levels. New Castle is working with the City of Portsmouth to address this issue. As a long-term solution, the City of Portsmouth is preparing to upgrade the Newington Booster Pumping Station to a system designed to reduce the TTHM levels in the water. This project is underway and is scheduled to be complete by the summer of 2019. Visit www.newcastlenh.org for more information about the New Castle water system DBP study.

## Per- and Polyfluoroalkyl Substances (PFAS)

Per- and polyfluoroalkyl substances (PFAS) are currently unregulated by the Safe Drinking Water Act. However, the EPA Health Advisory concentration and the NH Ambient Groundwater Quality Standard is 70 parts per trillion (ppt) for perfluorooctane-sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). In response to the discovery of PFOS in the Haven Well in May 2014 at levels that exceeded the EPA Provisional Health Advisory (200 ppt at that time), the Haven Well was removed from service. This well has remained disconnected from the Pease Tradeport water system since this finding. The source of the PFAS at the Tradeport was aqueous film-forming foam that had been used to extinguish fires and in training exercises at the former Air Force Base.

Over the past four years, the Portsmouth #1 Well and Collins Well in the Portsmouth water system have been routinely monitored for per- and polyfluoroalkyl substances (PFAS) by the Air Force. The City of Portsmouth samples all of the other Portsmouth water supply sources twice per year. Sample results from 2017 are summarized in the PFAS table in this report. All monitoring data is available online: www.cityofportsmouth.com/publicworks/water

**PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)**

| **PER- AND POLYFLUOROALKYL SUBSTANCE** (concentrations* reported in **ng/L** or **ppt**) | | **PORTSMOUTH #1 WELL** | **COLLINS WELL** | **GREENLAND WELL** | **MADBURY WELL 2** | **MADBURY WELL 3** | **MADBURY WELL 4** | **BELLAMY RESERVOIR** | **WATER TREATMENT PLANT** |
|---|---|---|---|---|---|---|---|---|---|
| # of samples in 2017: | | 11 | 11 | 2 | 1 | 2 | 2 | 2 | 2 |
| % of water supplied in 2017: | | 6.9% | 5.2% | 11.5% | 1.8% | 3.7% | 4.4% | 66.5% | |
| Perfluorobutane-sulfonic acid (PFBS) | Average | BD | **13** | BD | ND | ND | ND | ND | ND |
| | Range | ND to 6 | 8 to 20 | ND to 6 | ND | ND | ND | ND | ND |
| Perfluorobutanoic acid (PFBA) | Average | ND | ND | ND | ND | ND | ND | ND | **10** |
| | Range | ND | ND | ND | ND | ND | ND | ND | ND to 18 |
| Perfluorohexane-sulfonic acid (PFHxS) | Average | **7** | BD | **4** | ND | ND | ND | ND | ND |
| | Range | ND to 11 | ND to 8 | ND to 6 | ND | ND | ND | ND | ND |
| Perfluorohexanoic acid (PFHxA) | Average | BD | BD | BD | ND | ND | ND | ND | ND |
| | Range | ND to 12 | ND to 9 | ND to 3 | ND | ND | ND | ND | ND |
| **Perfluorooctane-sulfonic acid (PFOS) | Average | **3** | **3** | **4** | ND | ND | ND | ND | ND |
| | Range | ND to 8 | ND to 7 | 4 TO 5 | ND | ND | ND | ND | ND |
| **Perfluorooctanoic acid (PFOA) | Average | **6** | ND | ND | ND | ND | ND | ND | ND |
| | Range | ND to 10 | ND | ND | ND | ND | ND | ND | ND |
| Perfluoropentanoic acid (PFPeA) | Average | **4** | BD | ND | ND | ND | ND | ND | ND |
| | Range | ND to 8 | ND to 7 | ND | ND | ND | ND | ND | ND |
| ** PFOS + PFOA | Average | **9** | **3** | **4** | ND | ND | ND | ND | ND |
| | Range | ND to 14 | ND to 7 | 4 TO 5 | ND | ND | ND | ND | ND |

City of Portsmouth
Department of Public Works
Water Division
680 Peverly Hill Rd
Portsmouth, NH 03801


## Community Participation

Please share your thoughts with us about the information in this report. We welcome your input and the opportunity to answer any questions you may have about the water supply. Questions should be addressed to:

**Steve Tabbutt**
**New Castle Public Works**
**Superintendent**
**603-431-6710 (ext. 13)**

You are invited to address the Town of New Castle Select Board and the Portsmouth City Council. The Select Board meets twice a month on the first and third Mondays. Please call 603-431-6710 (ext. 10) to confirm meeting dates and times. The Portsmouth City Council meets twice a month on Monday evenings. Information can be found online at: www.cityofportsmouth.com

## Report Abbreviations

- **AGQS** (Ambient Groundwater Quality Standard): Groundwater quality standard established by the State of New Hampshire per Env-Or 600.
- **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.
- **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.
- **ppm** (parts per million): One part substance per million parts water (or milligrams per liter).
- **ppb** (parts per billion): One part substance per billion parts water (or micrograms per liter).
- **ppt** (parts per trillion): One part substance per trillion parts water (or nanograms per liter).
- **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.
- **TT** (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.
- **LRAA** (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

## PFAS Notes & Definitions

- ***Due to laboratory analytical method limitations, low concentrations reported for these chemicals are considered estimates unless the amount measured is above 20 ng/L (ppt).
- ****EPA Health Advisory Level and NHDES AGQS for PFOS and PFOA concentration separately or combined is **70 ng/L** (ppt).
- **Averages** are calculated using half of the method detection limit for samples that were less than detection, per EPA risk assessment protocols.
- **ND** = Not Detected above laboratory method detection limit.
- **BD** = Average calculated using half of detection limits for non-detect values resulted in average below the detection limit.
- **PFAS analyzed but not detected in the samples:** 6:2 Fluorotelomer sulfonate (6:2 FTS), 8:2 Fluorotelomer sulfonate (8:2 FTS), N-Ethyl perfluorooctane sulfonamide (EtFOSA), N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE), N-Methyl Perfluorooctane Sulfonamide (MEFOSA), N-Methyl Perfluorooctane Sulfonamidoethanol (MEFOSE), Perfluorodecane sulfonate (PFDS), Perfluorodecanoic acid (PFDA), Perfluorododecanoic acid (PFDoA),Perfluoroheptane sulfonate (PFHpS), Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA), Perfluorooctane sulfonamide (PFOSA), Perfluorotetradecanoic acid (PFTeDA), Perfluorotridecanoic acid (PFTrDA), and Perfluoroundecanoic acid (PFUnA).