# 2020 Water Quality Report

Cohasset Water Department, 339 King Street, Cohasset, MA 02025 (781) 383-0057 http:/www.cohassetma.org

## WATER QUALITY REPORT

The Cohasset Water Department (DEP ID# 4065000), under the direction of the elected Board of Water Commissioners, provides public drinking water to about 2,600 connections for about 7,500 Cohasset residents and provides and maintains a water system for firefighting. We provide drinking water for almost 90% of the population of Cohasset.

This Water Quality Report describes the sources of your drinking water and the quality of that water for the period from January 1 - Dec. 31, 2020. We are pleased to report that during the past year, the water quality delivered to your home or business complied with all state and federal drinking water requirements.

## WHERE THE WATER COMES FROM

The Cohasset Water Department drinking water comes from two surface water supplies, Lily Pond (DEP ID# 4065000-02S), and the Aaron River Reservoir (DEP ID# 4065000-01S). Lily Pond has a maximum capacity of about 100 million gallons of water and is 52 acres in size. The 136 acre Aaron River Reservoir, which can hold a maximum of 550 million gallons of water, is used to supplement Lily Pond in times of high water demand.

The watershed for Lily Pond and the Reservoir covers an area of 5,892 acres, 9.21 square miles. Only 2,339 acres (or 40%) is in Cohasset. The safe yield of our surface water supplies is 5.2 million gallons per day (gpd). Our average daily demand in 2019 was about 786,000 gallons per day, and the maximum daily demand was about 1.5 million gallons.

The Water Department has one ground water source, the Ellms Meadow Well-field (ID# 4065000-02G), which is located at 24 James Ln. and has been approved for up to 141,000 gallons per day.

The distribution system of Cohasset is connected to both the Hingham water system and the Scituate water system. In the event of a water emergency, these interconnections could be opened to transfer water from one system to another.

### Community Involvement

- We encourage public interest and participation in Cohasset's decisions affecting drinking water.
- The Water Commission meets regularly at the Lily Pond Water Treatment Plant, 339 King Street. Please attend and participate in our meetings.
- Meeting notices are posted at Town Hall and on our website.
- Please call/email Brenda Douglas at the Water Department (781) 383-0057/bdouglas@woodardcurran.com with any questions or concerns.
- The Water Department generates an annual Water Quality Report. This report is available at the Water Department, Town Hall, the Paul Pratt Memorial Library, and on our website, www.cohassetma.org.

## Great News!! Lead Residuals Below Action Levels Again

The Cohasset Water Department performed its required sampling for Lead and Copper between August and September 2019. The process consisted of taking samples from 24 different residential homes, all public schools, and all licensed day care facilities with an enrollment of 25 or more.

The sampling plan was approved by the DEP based on when the homes were constructed and the type of material used for the water service line to the home. The sampling plan is intended to capture locations with the highest potential for lead exposure in drinking water.

The results of these tests show that **92%** of the samples collected were below the Action Level for Lead. This is great news and reinforces our ongoing commitment to providing high quality water.

We are proud of our success, but encourage all customers to continue using measures to reduce the potential for lead exposure:

Always flush the cold water line for 20-30 seconds before drawing water for drinking and cooking purposes. CONSERVATION NOTE: Use this flushed water to water your plants or for cleaning!

**For more information, consult our Lead Education Brochures which is available at the Water Department offices.**

### Vulnerable Populations Warning

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 (1-800-426-4791)

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***Cohasset Board of Water Commissioners***

Leonora C. Jenkins - Chair
Stephen M. Girardi - Vice Chair
John W. Steinmetz - Clerk

## Educational Statement Concerning 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. Cohasset Water is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. You can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and 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***

## SOURCE WATER ASSESSMENT PROGRAM (SWAP)

The Massachusetts Department of Environmental Protection (MassDEP) prepared source water assessments in 2004 for all public water systems as required by the Safe Drinking Water Act amendments. A susceptibility ranking of high was assigned to this system using information collected by the DEP.

The Cohasset Water Department, SWAP can be found online at http://www.mass.gov/dep/water/drinking/3065000.pdf We encourage our customers to become familiar with this report. The report identifies steps you can take to help protect our sources of drinking water here in Cohasset. Note: As a result of potential vehicle accidents or chemical spills the Route 3A transportation corridor presents a moderate hazard to our drinking water supply. To alleviate this hazard, an oil/water separator has been installed in the Pond St area and rain gardens have been installed throughout much of the watershed.

## HOW YOUR WATER IS TREATED

The treatment process consists of a series of steps. Raw water is drawn from Lily Pond and passed through course and fine screens at our intake building. The water continues to a mixing tank at the treatment facility where ferric chloride, sodium hydroxide, sodium permanganate, and polyaluminum chloride are added. The addition of these chemicals converts the dissolved organic matter naturally occurring in Lily Pond to small solid particles. Gentle mixing, along with the addition of a slight dosage of polymer helps these particles adhere to one another, making them heavy enough to settle from the treatment process. After settling the water is filtered through layers of fine coal and silicate sand to reduce turbidity (turbidity is a common measure of the clarity of water). Following filtration, sodium hydroxide and phosphates are added for corrosion control, chlorine for disinfection, and fluoride to promote strong teeth. We carefully monitor the amount of chlorine, adding the lowest amount necessary to protect the safety of your water without compromising taste. The water is then pumped to water towers and into your home or business.

## FLUORIDATION

Fluoride is added to your drinking water to prevent tooth decay and cavities. Fluoride has been added since 1952. Fluoride is a naturally occurring element in many water supplies in trace amounts. As of May 1, 2015 the fluoride level in our system was adjusted downward from 1.0 parts per million to an optimal level of 0.7 parts per million as prescribed by the Massachusetts Department of Public Health to improve oral health in children. At this level it is safe, odorless, colorless, and tasteless. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the United States who receive the health and economic benefits of fluoridation.

## CROSS CONNECTIONS

The Cohasset Water Department has developed a State-Mandated Cross Connection Control Program to control potentially unhealthy connections to our water system. State regulations currently control all non-residential facilities. The following information is a brief overview of what a cross connection is and how to prevent the unhealthy effects of them.

**What is a cross-connection?**

A cross-connection is any actual or potential physical connection or arrangement between a pipe conveying potable water from a public water system and any non-potable water supply, piping arrangement or equipment including, but not limited to, waste pipe, soil pipe, sewer, drain, other unapproved sources. An example is the piping between a public water system or consumer's potable water system and an auxiliary water system (including wells), cooling system, or irrigation system.

**What is backflow?**

Backflow is the flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable water supply from any source other than the intended source or sources other than its intended source.

**What is backpressure?**
Backpressure is backflow that occurs when the pressure in an unprotected downstream piping system exceeds the pressure in the supply piping.

**What is back siphonage?**
Back siphonage is backflow resulting from negative pressures in the distributing pipes of a potable water supply.

**What is a backflow preventer?**
A backflow preventer is a method or mechanism to prevent backflow. The basic method of preventing backflow is an air gap, which is a physical separation of the public water mains and the customers plumbing equal to two diameters of the two pipes (this gap must be at least 1 inch) and eliminates a cross-connection by provides a physical barrier to backflow. The basic mechanism for preventing backflow is a mechanical backflow preventer, which provides a physical barrier to backflow.

**What types of backflow assemblies, devices and methods are permitted?**
The following are types of permitted assemblies, devices and methods: Air Gap, Atmospheric Vacuum Breaker, Double Check Valve Assembly, Pressure Vacuum Breaker Assembly, and Reduced Pressure Principle Backflow Prevention Assembly. The choice of device or method depends on the type of cross connection hazard that is present.

**Why do backflow preventers have to be tested periodically?**
Mechanical backflow preventers have internal seals, springs, and moving parts that are subject to fouling, wear, or fatigue. Also, mechanical backflow preventers and air gaps can be bypassed. Therefore, all backflow preventers have to be tested annually to ensure that they are functioning properly.

**Specific Information about a Hose Bib Atmospheric Vacuum Breaker.**
A hose bib vacuum breaker should be attached to all threaded hose bibs to which a hose can be connected (unless it has a built-in vacuum breaker). Cross-connections with hoses are probably the most prevalent cause of backflow and the contamination of the water system. These devices do not protect against back pressure, only back siphonage. They should be installed above the level of the hose being used and not put under continuous pressure for more than 12 hours at a time.

For more information contact the Cohasset Water Department at (781) 383-0057.

## Cohasset Water Department RGPCD Plan

All Public Water Supplies in Massachusetts that are issued a Water Management Act Permit by the Massachusetts DEP are required to meet a performance standard of 65 gallons or less for residential gallons per capita day (RGPCD) or have an on-going plan in place that insures "best practices" for controlling residential water use. Cohasset's RGPCD for 2018 was 66 gallons and a program to control residential water use was instituted. Cohasset's RGPCD for 2019 was 64 and required no expansion of the plan, however the RPGD for 2020 was 78 requiring additional actions. Some of the actions taken to reduce per capita usage include, quarterly billing, an increased block rate, conversion to radio read meters, and a regulation that requires moisture sensors on automatic irrigation systems.

## WATER CONSERVATION TIPS

Install water-saving devices: You can save water by installing low-flow showerheads, high-efficiency toilets, and kitchen/bathroom faucet aerators.

Take shorter showers: Reduce your shower by 1 – 2 minutes and save 5 gallons!

Turn water off while brushing your teeth: Save 3 gallons!

Fix leaky faucets: Save up to 20 gallons a day!

Wash a full load of laundry: Save 15 – 50 gallons per load!

Broom instead of Hose: You can save as much as 100 gallons of water by cleaning your driveway by sweeping instead of using the hose.

Water before 8 a.m.: You can save about 25 gallons each time you water, by watering before 8 a.m. Watering early reduces evaporation and puts that water to work helping your plants grow.

From Lawn to Xeriscape (low water use landscaping): Switch your garden from turf to drought tolerant plants, and reduce your household water use by more than 30% (http://www.allianceforwaterefficiency.org/Xeriscape_Water_Savings.aspx ).

# 2020 Cohasset Water Quality Results

The water quality information presented in the tables below is from the most recent round of testing done in accordance with the regulations. All results shown were from samples collected during the calendar year unless otherwise noted in the tables. Only the detected contaminants are shown.

| REGULATED CONTAMINANTS | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Microbial Contaminants** | **Date(s) Sampled** | **MCL** | **MCLG** | **Highest Level Detected** | **Range of Detection** | **Violation ? (Y/N)** | **Possible Source(s) of Contamination** |
| Coliform Bacteria | Monthly 2020 | One positive monthly sample for systems that collect less than 40 samples | 0 | 0 | 0 | N | Naturally present in the environment |

**Health Effects: Total coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present.**

| Inorganic Contaminants | Date(s) Sampled | MCL | MCLG | Highest Level Detected | Range of Detection | Violation (Y/N) | Possible Source(s) of Contamination |
|---|---|---|---|---|---|---|---|
| Fluoride (ppm) | Monthly 2020 | 4 **(1)** | 4 | 0.7 | 0.5 - 0.7 | N | Water additive which promotes strong teeth. |
| Nitrate (ppm) | 2020 | 10 . | 0 | 2.42 | ND – 2.42 | N | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits. |
| Barium (ppm) | 2019, 2020 | 2 | 2 | 0.018 | 0.01 - 0.018 | N | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits. |
| Chromium (ppb) | 2019, 2020 | 100 | | 6 | ND – 6 | N | Discharge from steel and pulp mills; Erosion of natural deposits. |
| Perchlorate (ppb) | 2020 | 2 | N/A | 0.30 | ND - 0.30 | N | Rocket propellants, fireworks, munitions, flares, blasting agents. |

**(1) Fluoride also has an optimal level of 0.7ppm and a secondary maximum contaminant level (SMCL) of 2ppm.**

| Disinfectant and Disinfection By-Products | Date(s) Collected | Highest Running Average | Range Detected | MCL or MRDL | MCLG or MRDLG | Violation ? (Y/N) | Possible Source(s) of Contamination |
|---|---|---|---|---|---|---|---|
| Total Trihalomethanes (TTHMs) (ppb) | Quarterly, 2020 | 75 | 46-83 | 80 | | No | Byproduct of drinking water chlorination |
| Haloacetic Acids (HAA5's) (ppb) | Quarterly, 2020 | 36 | 0.6-36 | 60 | | No | Byproduct of drinking water chlorination |
| Chlorine (ppm) (free) | 8 times per Month 2020 | 0.42 **(2)** | 0.01 – 1.68 | 4 | 4 | No | Water additive used to control microbes |

**2. Highest Monthly average**

**Health effects: 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.**

| Radioactive Contaminants | Date(s) Collected | Highest Level Detected | Range Detected | MCL or MRDL | MCLG or MRDLG | Violation ? (Y/N) | Possible Source(s) of Contamination |
|---|---|---|---|---|---|---|---|
| Gross Alpha (pCi/l) | 9/12/16 | ND | | 15 | 0 | N | Erosion of natural deposits |
| Radium 226 & 228 (pCi/l) | 9/12/16 | 0.76 | ND – 0.76 | 5 | 0 | N | Decay of natural and manmade deposits |

| PFAS Contaminants | Date(s) Collected | Highest Level Detected | Range Detected | Quarterly Average | MCLG | Violation ? (Y/N) | Possible Source(s) of Contamination |
|---|---|---|---|---|---|---|---|
| PFAS6 (ppt) | 2020 | 18.94 | 7.44 | | 20 | N | Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams. |

**Health Effects: Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could Include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.**

| Lead & Copper (3) | Date(s) Collected | 90th Percentile | Action Level | MCLG | # sites above AL | # sites sampled | Possible Sources of Contamination |
|---|---|---|---|---|---|---|---|
| Lead (ppb) | Jul – Sep 2019 | 11 | 15 | 0 | 0 | 24 | Corrosion of household plumbing systems. Erosion of natural deposits. |
| Copper (ppm) | Jul – Sep 2019 | 0.216 | 1.3 | 1.3 | 0 | 24 | Corrosion of household plumbing systems; leaching from wood preservatives. |

**(3) Reduction in frequency for Lead & Copper sampling to every 3 years.**

| Turbidity | TT | Lowest Monthly % of Samples | Highest Monthly Value | Violation? | Possible Sources of Contamination |
|---|---|---|---|---|---|
| Monthly 2020 Maximum (NTU) | 1.0 NTU **(1)** | ---- | 0.50 | No | Soil Runoff |
| Monthly 2020 Compliance (NTU) | 0.3 NTU **(2)** | 97% | ---- | No | |
| Turbidity is a measure of the cloudiness of the water. We monitor it continuously because it is a good indicator of the effectiveness of our filtration system. | | | | | |

**(1) Maximum turbidity limit that the system may not exceed at any time during the month.**

**(2) Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so that at least 95% of our samples each month must be less than or equal to 0.3 NTU**

## UNREGULATED CONTAMINANTS

**Unregulated Contaminants are those for which EPA has not established drinking water standard. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.**

| Contaminants (units) | Date(s) Collected | Highest level Detected | Range of Detection | Average Detected | SMCL | Health Advisory | ORSG | Possible Source(s) of Contamination |
|---|---|---|---|---|---|---|---|---|
| Sodium (ppm) | 2019, 2020 | 61 | 41 - 61 | 51 | | | 20 | Natural sources; runoff from use of salt on roadways; by-product of treatment process. |
| Nickel (ppb) | 2019 | 54 | ND – 54 | 27 | | | 100 | Discharge from domestic wastewater, landfills, and mining and smelting operations |
| Manganese (ppb) | 2020 | 168 | 13 - 168 | 91 | 50 | 300 | | Erosion of natural deposits. |
| Perfluorobutane sulfonic acid (ppt) CASRN 375-73-5 | 2020 | 2.82 | ND – 2.82 | 1.51 | | | | |
| Perefluorohexonic acid (ppt) CASRN 307-24-4 | 2020 | 2.89 | ND – 2.89 | 1.46 | | | | |

**Health Effects Statements**

**Sodium:** Sodium sensitive individuals, such as those experiencing hypertension kidney failure, or congestive heart failure who drink water containing sodium should be aware of the sodium levels where exposures are being carefully controlled.

**Manganese:** "Manganese is a naturally occurring mineral found in rocks, soil, ground, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet but can have undesirable effects on certain sensitive populations at elevated concentrations. The United States Environmental Protection Agency (EPA) and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ug/L (micrograms per liter), or 50 parts per billion. In addition, EPA and MassDEP have also established public health advisory levels. ***Drinking water may naturally have manganese and, when concentrations are greater that 50ug/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels less than 300ug/L and over the short term, EPA recommends that people limit their consumption of water with levels over 1000ug/L, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300ug/L, nor should formula for infants be made with that water for longer than 10 days.***

***See:*** http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_magnese_dwreport.pdf

**Water Quality Definitions**

- **90th Percentile.** Out of every 10 homes, 9 were at or below this level. This number is compared to the action level to determine lead and copper compliance.
- **pCi/L**. Picocuries per liter (radioactivity).
- ***ppb*** **-** parts per billion, micrograms per liter (ug/I)
- ***ppm*** **-** parts per million, milligrams per liter (mg/l)
- **AL** *(Action Level).* The concentration of a contaminant that, if exceeded, triggers treatment or other requirements which must be followed.
- **MCL** *(Maximum Contaminant Level):* Highest level of contaminant 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 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 the control of microbiological contamination.
- **MRDLG** (Maximum Residual Disinfectant Level Goal). 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.
- **NTU** (Nephelometric Turbidity Units) Measure of how clear the water is.

- **ND** Not detected. Refers to the detection limit of the chemical analysis instrument or procedure.
- **ORSG**. **Mass Office of Research and Standards Guideline**
  Concentration of a chemical in drinking water, at or below which adverse health are unlikely to occur after chronic lifetime) exposure.
- **SMCL.** Secondary Maximum Contaminant Level These standards protect the aesthetic qualities of drinking water and are not health based.
- **TT (Treatment Technique) —** A required process intended to reduce the level of a contaminant in drinking water.
- **Unregulated Contaminants.** Unregulated Contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.
- **Variances & Exemptions —** State or EPA permission not to meet an MCL or a treatment technique under certain conditions

*"Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. 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 EPA's Safe Drinking Water Hotline (1-800-426-4791.)"*

**Sources of Drinking Water and Drinking Water Contaminants**

*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.*

*Contaminants that may be present in source water include:*

***Microbial contaminants**, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.*
***Inorganic contaminants,** such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.*
***Pesticides and herbicides** may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.*
***Organic chemical contaminants** include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.*
***Radioactive contaminants** can be naturally occurring or be the result of oil and gas production, and mining activities.*

*In order to ensure that tap water is safe to drink, the Department and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. FDA and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health*

## NOTICE

If you would like to have a hard copy of this report, please contact the Cohasset Water Department at the telephone number in the report title and one will be sent to you.