

**2020 Consumer Confidence Report**  
For  
**North Carver Water District (NCWD)**  
**Carver, Massachusetts**  
**PWS # 4052072**  
**Based on Water Quality Analysis Done In 2019**

This report is a snapshot of the drinking water quality provided last year and is required of all water systems. It is updated & distributed annually and summarizes all the water quality testing done on your water supply in 2019, as well as the details about your water sources and distribution water system. Please take time to review this report and save it as a reference.

**PUBLIC WATER SYSTEM INFORMATION**

**Water System Improvements**

Your water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP), who inspects this system for its technical, financial, and managerial capacity to provide safe drinking water. Your water system is operated by *Small Water Systems Services, LLC (SWSS)* a MA certified, contract operations firm.

**Opportunities for Public Participation**

If you would like to participate in discussions regarding your water quality, you may attend meetings or educational events as held by the NCWD Board of Commissioners, who meet once a month. Notices of these meetings are posted in accordance with Massachusetts open meeting laws.

**YOUR DRINKING WATER SOURCE**

**Where Does My Drinking Water Come From?**

There are 2 wells (01G and 02G) that supply water to the North Carver Water District, which is comprised of commercial and residential properties, with approximately 55 service connections. In 2015, four 10,000-gallon storage tanks were installed to meet peak flow demands. The water passes through a treatment plant and discharges to a 12-inch pipe that extends west from the treatment plant to route 58. The main continues north on 58 and ends at the Carver/Plympton town line. It also follows 58 south to the intersection of 58 and Plymouth St, where it follows Plymouth St east to Green St, and then ends at the end of Lakeham Dr. The main also continues west up Plymouth St and ends at the Carver/Middleborough town line with an interconnection for emergencies.

**Is My Water Treated?**

Yes, raw water is first treated with a Sodium Hydroxide (NaOH) solution to adjust the pH of the water to a set point of 7.8 +/- 0.2 to facilitate iron oxidation in the aeration tank. As flow exits the aeration tank, a Potassium Permanganate (KMNO<sub>4</sub>) solution is injected at a point upstream of a 6-inch in-line static mixer for the oxidation of manganese compounds in the oxidation tank. The chemically treated, aerated water is directed to a submerged ZeeWeed ultra filtration membrane system. Finally, the water flows through a UV unit for disinfection.

**Corrosion Control through pH Adjustment**

Many drinking water sources in New England are naturally corrosive (i.e., they have a pH of less than 7.0). So, the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason, it is beneficial to add chemicals that make the water neutral or slightly alkaline.

This is done by adding any one, or a combination of several, approved chemicals. The NCWD adds Sodium Hydroxide (NaOH) to its water. This adjusts the water to a non-corrosive pH. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

All chemicals used for coagulation are approved for water treatment by one or of the following organizations: National Sanitation Foundation (Now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association (AWWA).

**Iron & Manganese Removal (oxidation and filtration)**

Iron and manganese are often present in groundwater at levels that can discolor the water or cause it to take on unpleasant odors or tastes. Even though the water may still be safe to drink, it is preferable that the iron and manganese be removed.

Removal generally requires a two-step process of oxidation and filtration. Oxidation is accomplished by adding potassium permanganate to the water. This causes the iron and manganese to form tiny particles. Once this happens, the water passes

through special filters consisting of material that is specifically designed to capture iron and manganese particles. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

### **How Are These Sources Protected?**

In 2001, MassDEP prepared Source Water Assessment Program (SWAP) Reports for water supply sources serving consumers at that time. The SWAP Report assesses the environmental susceptibility of public drinking water sources. Since NCWD has come into existence after that date, no SWAP report is yet available. We do not know at this time if SWAP reports will be updated or completed for new systems by MassDEP.

NCWD maintains high standards for source protection such as attempting to keep all non-water related activities out of the Zone I area; informing its residents of the proper use of a septic system; maintaining Drinking Water Protection Area signs on site and consistently surveying the source. Management is always open to additional measures of protection and conservation for your drinking water source.

### **What Can Be Done to Improve Protection?**

Residents can help protect sources by:

- Practicing good septic system maintenance
- Supporting water supply protection initiatives at the next town meeting
- Taking hazardous household chemicals to hazardous materials collection days
- Contacting the water department or Board of Health to volunteer for monitoring or education outreach to schools
- Limiting pesticide and fertilizer use, etc.

## **SUBSTANCES FOUND IN TAP WATER**

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, 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 stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and 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 can also come from gas stations, urban stormwater runoff, and septic systems.

**Radioactive contaminants** - which 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 of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

All 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 EPA's Safe Drinking Water Hotline (800-426-4791).

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 some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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. North Carver Water District is 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 <http://www.epa.gov/safewater/lead>.

**IMPORTANT DEFINITIONS**

**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.

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

**90<sup>th</sup> Percentile** – Out of every 10 homes sampled, 9 were at or below this level.

**Secondary Maximum Contaminant Level (SMCL)** – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

**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.

**Massachusetts Office of Research and Standards Guideline (ORSG)** – This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

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

**Running Annual Average (RAA)** – The average of four consecutive quarter of data.

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

**Maximum Residual Disinfectant Level Goal (MRDLG)** -- The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

- ppm = parts per million, or milligrams per liter (mg/l)
- ppb = parts per billion, or micrograms per liter (ug/l)
- ppt = parts per trillion, or nanograms per liter
- pCi/l = picocuries per liter (a measure of radioactivity)
- NTU = Nephelometric Turbidity Units
- ND = Not Detected
- N/A = Not Applicable
- mrem/year = milliremms per year (a measure of radiation absorbed by the body)

**WATER QUALITY TESTING RESULTS**

**What Does This Data Represent?**

The water quality information presented in the table is from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the table.

MassDEP has reduced the monitoring requirements for volatile & synthetic organic contaminants and perchlorate because the source is not at risk of contamination. The last sample collected for these contaminants was found to meet all applicable US EPA and MassDEP standards.

	Date(s) Collected	90 <sup>TH</sup> percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Violation (Y/N)	Possible Source of Contamination
Lead (ppb)	Sept 2015	7	15	0	5	0	N	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	Sept 2015	0.027	1.3	1.3	5	0	N	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Bacteria	MCL / TT	MCLG	Value	Date	Violation (Y/N)	Possible Sources
Total Coliform Bacteria	0	0	Positive	7/22/19	Y	Human and animal fecal waste
E. Coli	0	0	Negative	7/22/19	N	Human and animal fecal waste

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify any problems that were found during these assessments.

**A Level 1 Assessment** is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

**A Level 2 Assessment** is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

During the past year, a Level 1 Assessment was required to be completed for our water system. The assessment was triggered on 7/22/19 due to four routine bacteria samples that were tested for Total Coliform (TC) and E. Coli. One sample (RS001) was reported being TC+ and E. Coli- (meaning that TC was detected and E. Coli was not). A second round of samples was taken on 7/23/19 and all three samples (RS001, UR1a, DR1b) were reported positive for Total Coliform (TC+) but negative for E. Coli (E. Coli-). An operator from SWSS inspected the sampling area and did not find a source for the positive results. The system was then chlorinated 7/24/19 – 7/26/19 and all subsequent, routine monthly samples taken in August were all reported absent of total coliform bacteria and E. Coli. No further action was required after this sampling.

Unregulated Contaminants	Date(s) Collected	Result	Average Detected	SMCL	ORSG	Possible Source
Sodium (ppm)	8/21/17	40.1	--	N/A	20	Discharge from the use and improper storage of sodium-containing de-icing compounds or in water-softening agents

Unregulated contaminants are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

Secondary Contaminants	Date(s) Collected	Result	Average Detected	SMCL	ORSG	Possible Source
Chloride (ppm)	5/14/19	27.6	--	250	250	Runoff and leaching from natural deposits; seawater influence
Iron (ppb)	5/14/19	140	--	300	N/A	Naturally occurring, corrosion of cast iron pipes
Manganese (ppm)	5/14/19	ND	--	50	300	Erosion of natural deposits
Sulfate (ppm)	5/14/19	10.1	--	250	N/A	Runoff and leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	5/14/19	130	--	500	N/A	Erosion of natural deposits.

## COMPLIANCE WITH DRINKING WATER REGULATIONS

### Does My Drinking Water Meet Current Health Standards?

In the 2019 calendar year, your drinking water system detected total coliform in July, as described in the preceding paragraphs. Please note that although coliform bacteria were detected, these are “indicator” pathogens only, they are not harmful. There was no E.coli detected in any samples and your drinking water continues to be safe to drink, according to all applicable health standards regulated by the MassDEP and US EPA.

## EDUCATIONAL INFORMATON

### Do I Need to Be Concerned about Certain Contaminants Detected in My Water?

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

## Cross-Connection Control and Backflow Prevention

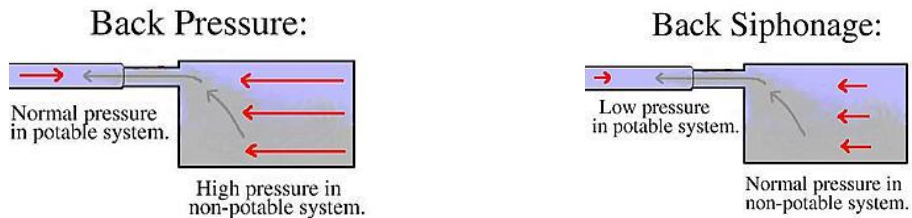
The North Carver Water District makes every effort to ensure that the water delivered to your home and business is clean, safe and free of contamination. Our staff works very hard to protect the quality of the water delivered to our customers from the time the water is extracted via deep wells from underground aquifers, throughout the entire treatment and distribution system. But what happens when the water reaches your home or business? Is there still a need to protect the water quality from contamination caused by a cross-connection? If so, how?

### What is a cross-connection?

A cross-connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross-connections exist in piping arrangements or equipment that allows the drinking water to come in contact with non-potable liquids, solids, or gases (hazardous to humans) in event of a backflow.

### What is a backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by equipment or a system such as a boiler or air-conditioning is higher than the water pressure inside the water distribution line (back pressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (back siphonage). Backflow is a problem that many water consumers are unaware of, a problem that each and every water customer has a responsibility to help prevent.



### What can I do to help prevent a cross-connection?

Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you as a drinking water user can take to prevent such hazards, they are:

- NEVER submerge a hose in soapy water buckets, pet watering containers, pool, tubs, sinks, drains, or chemicals.
- NEVER attached a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bibb vacuum breaker in any threaded water fixture. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home-improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with backflow preventers.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.

If you are the owner or manager of a property that is being used as a commercial, industrial, or institutional facility you must have your property's plumbing system surveyed for cross-connection by your water purveyor. If your property has NOT been surveyed for cross-connection, contact your water department to schedule a cross-connection survey.

## ADDITIONAL INFORMATION

*Small Water Systems Services, LLC (SWSS)* is contracted on an annual basis to provide licensed water operator coverage for the water system serving North Carver Water District. It is our responsibility to maintain the system's compliance with all drinking water operation requirements. We monitor your drinking water, routinely evaluating the water quality entering your distribution system and inspecting the systems regularly. For more information, call at *SWSS* at 978-486-1008.