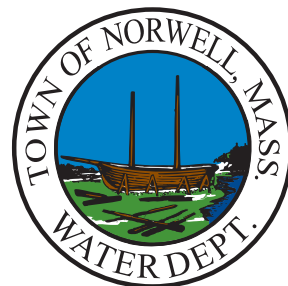




Norwell Water



2019

Drinking Water Quality Report

Consumer Confidence Report

Public Water Supply ID #4219000

Public Water System Information

The Norwell Water Department is pleased to present our 2019 Drinking Water Quality Report. As required by the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP), this annual report will detail where your water comes from, what it contains, and the risks our water testing and treatment techniques are designed to prevent. The Norwell Water Department is committed to providing you with the cleanest, safest, and most reliable water supply possible.

In 2019 we conducted more than 500 tests for over 150 drinking water contaminants. Eight regulated contaminants were detected in your drinking water in 2019, or during the most recent sampling period in the past five years. However, the levels of these regulated contaminants were well below EPA established maximum contaminant levels (MCL) or action levels (A.L.) and are listed in the Water Quality Testing Table of this report.

Call us for more information about your water system. **John McInnis** is the **Water Superintendent** and he can be reached at 781-659-8076. Feel free to attend any of our regularly scheduled meetings. **The Board of Water Commissioners, Fred St. Ours, Steve Ivas, Peter Dillon**, and the Superintendent meet on the first and third Thursday of each month at 4:30 pm in the Town Hall, Water Department Office, 345 Main Street.

Is my water treated?

The Norwell Water Department makes every effort to provide you with clean, safe drinking water. To improve the quality of the water we deliver to you, the following treatment practices are used:

Your Drinking Water Sources

Source Name	DEP Source ID Number	Source Type	Source Location
Well 1	4219001	Groundwater	South Street
Well 2	4219002	Groundwater	Grove Street
Well 3	4219003	Groundwater	Grove Street
Well 4 (replacement)	4219013	Groundwater	Washington Street
Well 5	4219005	Groundwater	Grove Street
Well 6 (replacement)	4219012	Groundwater	South Street
Well 7	4219008	Groundwater	Washington Street
Well 8	4219009	Groundwater	Washington Street
Well 9	42190010	Groundwater	Bowker Street
Well 10	42190011	Groundwater	Grove Street

- **The South Street Well Field** consists of Wells 1 and 6. This water is filtered at the South Street Treatment Plant to remove elevated levels of iron, manganese, and organic color. If not removed these constituents would stain laundry and plumbing fixtures, cause discoloration of the water, and possibly cause the water to take on unpleasant tastes and odors. Further treatment conducted at South Street includes the addition of chlorine as a disinfectant against microbial contaminants and the addition of potassium hydroxide for pH adjustment. The groundwater in Norwell is naturally corrosive; untreated water tends to corrode and dissolve metal piping. This not only damages the internal plumbing of your home but can also add harmful metals such as lead and copper to your water. By adding potassium hydroxide, we can raise the treated water pH to a non-corrosive level.
- **The Grove Street Well Field** consists of Wells 2, 3, 5, and 10. Treatment at Grove Street consists of pH adjustment with potassium hydroxide and disinfection with sodium hypochlorite.
- **The Washington Street Well Field** consists of Wells 4, 7, and 8. Treatment at Washington Street consists of pH adjustment with potassium hydroxide and disinfection with sodium hypochlorite.
- **The Bowker Street Well 9** is used infrequently due to its limited production capacity and elevated levels of iron. Treatment at Well 9 consists of pH adjustment with potassium hydroxide and disinfection with sodium hypochlorite.

The water quality of our system is constantly monitored by the Water Department and MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

Water System Improvements/Information

The Department undertook the rehabilitation of our three water storage tanks in 2019. The three tanks were taken offline sequentially during the summer and fall months. Each tank was sand blasted to remove any rust or corrosion of the painted surfaces, primed, and then all tanks received a new paint coating system inside and out. Additional structural work was also performed at each tank. Much of the structural work involved safety issues such as ladder guards, confined space improvements making the tank vaults more safely accessible for staff and new venting systems with screens to properly vent the tanks and prevent insect or animal access to the tanks. This rehabilitation work will provide many years of additional serviceability and safety of access for each tank before the tanks need similar work in the future.

Our water system is routinely inspected by MassDEP, who inspects our system for its technical, financial, and managerial capacity to provide you with clean, safe drinking water. To ensure that the Norwell Water Department provides you with the highest quality water possible, your water system is operated by Massachusetts certified and licensed operators who oversee the routine operation of our treatment and distribution systems.



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Water Quality Testing Results

The following table lists all the drinking water contaminants detected during calendar year 2019 or during the most recent sampling period within the past five years. The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. In addition to the normal water quality testing required by MassDEP the Norwell Water Department was required to conduct additional sampling in 2019 as part of the EPA's Unregulated Contaminant Monitoring Rule 4 (UCMR 4). UCMR 4 benefits public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards to improve drinking water quality. Definitions of the terms and abbreviations used in the table below can be found in the Important Definitions section of this report.

Regulated Contaminants

Contaminant (Units)	Year Sampled	MCL	MCLG	Highest Detected Level	Range (Low – High)	Typical Source
Nitrelgueroate (ppm)	2019	10	10	4.24	0.5 – 4.24	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits
Total Coliform	2019	More than one positive per month	0	1	ND – 1	Naturally present in the environment
Perchlorate (ppb)	2019	2.0	N/A	0.36	0.16 – 0.36	Rocket propellants, fireworks, munitions, flares, blasting agents

Disinfectants and Disinfectant By-Products

Contaminant (Units)	Year Sampled	MRDL	MRDLG	Highest Detected Level	Range (Low – High)	Typical Source
Total Trihalomethanes (ppb) ¹	2017	80	N/A	28.0 (Highest Quarterly Average)	1.3 – 42.0	By-product of drinking water chlorination
Haloacetic Acids (ppb) ¹	2017	60	N/A	26.0 (Highest Annual Quarterly Average)	7.1 – 38.0	By-product of drinking water chlorination
Free Chlorine (ppm) ¹	2017	4.0	4.0	0.26 (Highest Annual Quarterly Average)	0.03 – 0.71	By-product of drinking water chlorination

Regulated at the Customer's Tap

Contaminant (Units)	Year Sampled	Action Level	MCLG	90th Percentile Level	Homes Above Action Level	Typical Source
Lead (ppb) ²	2017	15	0	5	1	Corrosion of household plumbing systems
Copper (ppm) ²	2017	1.30	1.30	0.95	1	Corrosion of household plumbing systems

Unregulated Contaminants

Contaminant	Year Sampled	ORSG	Average Detected Level	Range (Low – High)	Typical Source
Sodium (ppm) ³	2019	20	50.7	18.7 – 92.4	Naturally present in the environment, roadway salt runoff
Bromodichloromethane (ppb) ³	2019	—	14.0	0.08 – 27.2	By-product of drinking water chlorination
Bromoform (ppb) ³	2019	—	0.60	ND – 0.60	By-product of drinking water chlorination
Chlorodibromomethane (ppb) ³	2019	—	9.70	0.70 – 9.70	By-product of drinking water chlorination
Chloroform (ppb) ³	2019	70	34.2	2.10 – 34.2	By-product of drinking water chlorination

Secondary Contaminants

Secondary Contaminant	Year Sampled	SMCL	Average Detected Level	Range (Low – High)	Typical Source
Manganese (ppb)	2019	50	20.0	ND – 54.0	Erosion of natural deposits

Notes:

1. Disinfectant and disinfectant byproduct compliance is based on a quarterly annual average of all samples collected. The maximum quarterly average detected is reported as well as the range of all samples collected during the year.
2. Tap water samples for lead and copper analysis were collected from 46 residences throughout the distribution system in August of 2017. Compliance is based on the 90th percentile sample results for lead and copper being equal to or less than their respective Action Level (A.L.).
3. Unregulated Contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted. UCMR 4 contaminants are listed separately.

Unregulated Contaminant Monitoring Rule 4

Contaminant	Year Sampled	Highest Detected Level	Range (Low – High)
Bromide (ppb) ³	2019	297.0	ND – 0.40
HAA5 (ppb) ³	2019	28.02	ND – 28.02
HAA6Br (ppb) ³	2019	19.77	ND – 19.77
HAA9 (ppb) ³	2019	34.924	ND – 34.924
Total Organic Carbon (ppb) ³	2019	7,190	ND – 7,190

What Is a Cross Connection and What Can I Do About It?

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 unforeseen occurrences (water main breaks, heavy water demand), causing contaminants to be siphoned from the equipment and into the drinking water line (back siphonage). Backflow prevention devices are installed and periodically tested where cross connections exist to protect the public water supply.

Outside water spigots 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. The Water Department recommends the installation of backflow prevention devices such as low-cost hose bib vacuum breakers for all inside and outside hose connections. These can be readily purchased at a hardware or plumbing supply store.

For additional information on cross-connections and the status of Norwell's cross-connection control program, please contact Scott O'Keefe at 781-659-4371. You can also call the Safe Drinking Water Hotline at 800-426-4791

Sources Water Assessment and Protection (SWAP)

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires the Norwell Water Department to inventory land use within the recharge areas of all public water supply sources, assess the susceptibility of drinking water sources to contamination from this land use, and publicize the results to provide support for improved protection. The recharge areas for Norwell's wells consist primarily of forest and residential land use with small areas of commercial and light industrial land use. In addition, Norwell's wells are located in aquifers with high vulnerability to contamination due to the absence of hydro-geologic barriers that can prevent contaminant migration. As a result, Norwell's groundwater sources are considered highly susceptible (except for Well #9, which is considered moderately susceptible) to contami-

nation from a variety of sources such as petroleum products, industrial solvents, fertilizers, and microbial contaminants. Susceptibility is a measure of a water supply's **potential** to become contaminated due to land use and activities within its recharge area and does not imply poor water quality.

The complete SWAP report is available at the Water Department Office and the Board of Health, both located on the lower level of the Town Hall. For more information, call Water Superintendent John McInnis at 781-659-8076. In addition, the SWAP report is available on the MassDEP website at <http://mass.gov/eea/docs/dep/water/drinking/swap/sero/4219000.pdf>.

In the SWAP report the MassDEP commended the Water Department for its work to date on promoting source protection. The Water Department will continue to protect your water sources by:

- Regularly inspecting land under the care and control of the Water Department.
- Acquiring additional lands for wellhead protection whenever possible.
- Working with other Town boards to review and provide recommendations on proposed development within water supply protection areas.

Residents and businesses can do their part in protecting Norwell's groundwater sources by:

- Practicing good septic system maintenance.
- Supporting water supply protection initiatives at the next Town Meeting.
- Taking hazardous chemicals to hazardous materials collection centers.
- Disposing of waste oil and hazardous materials properly; never in storm drains, septic systems, or on the ground.
- Applying pesticides and fertilizers minimally and properly.

Substances Found in Tap Water

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 the 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).

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

Important Definitions

- **Action Level (AL):** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
- **Massachusetts DEP Office of Research and Standards Guidelines (ORSG):** This is the concentration of a chemical in drinking water, with a margin of safety, 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 or regulation.
- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. The MCL is set as close to the MCLG (see below) 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.
- **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant (e.g., chlorine, chloramines, chlorine dioxide) is necessary for control of microbial contaminants.
- **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known expected risk to health. An MRDLG does not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **NA:** Not applicable.
- **ND:** None detected.
- **90th Percentile:** Out of every 10 homes sampled, 9 are at or below this level.
- **ppb:** Parts per billion, or micrograms per liter ($\mu\text{g/L}$)
- **ppm:** Parts per million, or milligrams per liter (mg/L)
- **Secondary Maximum Contaminant Level (SMCL):** Non-enforceable federal limits set for contaminants included in the Secondary Drinking Water Standards. The purpose of these limits is to assist public water systems in managing their drinking water for aesthetic considerations.

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 from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are also 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 arises primarily from materials and components associated with service lines and household plumbing. The Norwell Water Department 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 (800-426-4791) or at <http://www.epa.gov/safewater/lead>.

Sources of drinking water and drinking water contaminants

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 sources of water

- **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 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 storm water 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 storm water runoff, and septic systems.
- **Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Water Conservation Tips

Water conservation begins with you. Here are suggestions that will help preserve your water supply and at the same time save you money on your water bill:

Indoor

- Run your washing machine and dishwasher only when they are full.
- Keep showers under five minutes.
- Fix leaking faucets, pipes, toilets, etc.
- Turn off the water while you shave and brush your teeth.
- Replace old dishwashers and clothes washers with energy efficient machines that use less water and electricity.

Outdoor

- Check your sprinkler system frequently and adjust sprinklers so only your lawn is watered and not the house, sidewalk, or street.
- Minimize evaporation by watering during the early morning hours, when temperatures are cooler and winds are lighter.
- Install a rain shut-off device on your automatic sprinklers to eliminate unnecessary watering.
- Plant during the spring or fall when watering requirements are lower.
- Use a layer of organic mulch around plants to reduce evaporation.
- Use a broom instead of a hose to clean your driveway or sidewalk.
- Adjust your lawn mower to a higher setting. Longer grass shades root systems and holds soil moisture better than a closely clipped lawn.

The Norwell Water Department is a participating member of the North and South River Watershed Association's "Greenscapes" program. Water conservation and landscaping advice can be found at their web site www.greenscapes.org.

The Internet has numerous other web sites offering water conservation tips. The EPA provides one such site that can be found at https://www3.epa.gov/region1/eco/drinkwater/water_conservation_residents.html.

Norwell Water Customer



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