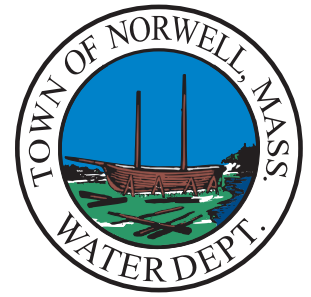




Norwell Water



2010

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 2010 *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 2010 we conducted more than 1,000 tests for over 100 drinking water contaminants. Four regulated contaminants were detected in your drinking water in 2010 and three others during previous sampling periods. However, the level of these regulated contaminants was well below EPA established maximum contaminant levels (MCLs) and are listed in the Water Quality Testing table of this report.

Call us for more information about your water system. **Mr. John McInnis** is the **Water Superintendent** and he can be reached at 781-659-8076 or feel free to attend any of our regularly scheduled meetings. The Board of Water Commissioners and Superintendent meet on the first and third Thursday of each month at 4:30 pm at the Town Hall, Water Department Office.

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:

- **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; therefore, untreated water has a tendency 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 are able to 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.
- **Well 9** is a low-yield source located off of Bowker Street. It is used infrequently due to its limited production capacity and elevated levels of iron. When used, water from this well is disinfected with sodium hypochlorite prior to entering the distribution system.

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 uses within the recharge areas of all public water supply sources; assess the susceptibility of drinking water sources to contamination from these land uses; 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 uses. 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 (with the exception of Well #9, which is considered moderately susceptible) to contamination 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 uses 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 Mr. John McInnis at 781-659-8076. In addition, the SWAP report is available on the DEP website at <http://www.mass.gov/dep/water/drinking/seroreps.htm>.

In the SWAP report, the MassDEP commended the Department for its work to date on promoting source protection. The 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 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:

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	4219004	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

Water Quality Testing Results

The following table lists all the drinking water contaminants detected during calendar year 2010 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 is not expected to vary significantly from year to year. The presence of these contaminants in the water does not necessarily indicate the water poses a health risk. Definitions of the terms and abbreviations used in the table are given below.

Regulated contaminants

Contaminant (Units)	MCL	MCLG	Highest Level Detected	Range (Low – High)	Typical Source
Nitrate (ppm)	10	10	2.08	0.45 – 2.08	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits
Perchlorate (ppb) ¹	2.0	NA	0.21	0.05 – 0.21	Rocket propellants, fireworks, munitions, flares, and blasting agents
Disinfectants and Disinfectant By-Products					
Total Trihalomethanes (ppb) ²	80	NA	50.4 (Quarterly Average)	1.0 – 64.4	By-product of drinking water chlorination
Haloacetic Acids (ppb) ²	60	NA	20.2 (Quarterly Average)	ND – 27.8	By-product of drinking water chlorination
Contaminant (Units)	MRDL	MRDLG	Highest Level Detected	Range (Low – High)	Typical Source
Free Chlorine (ppm) ²	4.0	4.0	0.21 (Quarterly Average)	0.01 – 0.49	By-product of drinking water chlorination
Regulated at the Customer's Tap					
Contaminant (Units)	Action Level	MCLG	90th Percentile Level	Homes Above Action Level	Typical Source
Lead (ppb) ³	15	0	8	1	Corrosion of household plumbing systems
Copper (ppm) ³	1.3	1.3	0.68	0	Corrosion of household plumbing systems

Unregulated contaminants

Contaminant (Units)	ORSG or SMCL	Average Detected	Range (Low – High)	Typical Source
Sodium (ppm) ⁴	20 (ORSG)	62.7	31.5 – 87.4	Naturally present in the environment, roadway salt runoff
Manganese (ppb) ^{4,5}	50 (SMCL)	64.3	15.0 – 134.0	Erosion of natural deposits.

Notes:

1. Samples for perchlorate analysis were collected August 18, 2008. A new sampling round is scheduled for August of 2011.
2. Disinfectant and Disinfectant By-Product compliance is based upon a quarterly running average of all samples collected. The maximum quarterly average detected is reported in addition to the range of all samples collected during the year.
3. Tap water samples for lead and copper analysis were collected from 30 residences throughout the distribution system in August of 2008. Compliance is based on the 90th percentile sample results for lead and copper being equal to or less than their respective Action Level (AL). A new sampling round is scheduled for August of 2011.
4. 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.
5. The EPA has established a lifetime Health Advisory (HA) of 300 ppb for Manganese to protect against concerns of potential neurological effects, and a one-day and ten-day HA of 1,000 ppb for acute exposure.

- 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.

The Water Department recommends the installation of backflow prevention devices, such as a low cost hose bib vacuum breaker, for all inside and outside hose connections. You can purchase these at a hardware or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in the Town. For additional information on cross connections and on the status of Norwell's cross connection program, please contact Mr. Scott O'Keefe at 781-659-4371.

What Is a Cross Connection and What Can It Do about It?

A cross connection is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For instance, you might spray fertilizer on your lawn by connecting your water hose to a sprayer that contains the fertilizer. If the water pressure were to drop significantly while the hose is connected to the fertilizer, the fertilizer could be siphoned back into the drinking water pipes in your home, through the hose. Using an attachment on your hose called a backflow-prevention device can prevent this from occurring.

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 estab-

lish limits for contaminants in bottled water that must provide the same protection for public health.

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 (1-800-426-4791).

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 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 (1-800-426-4791) 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.

In order to ensure that your tap water is safe to drink, the EPA and MassDEP 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.

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 5 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

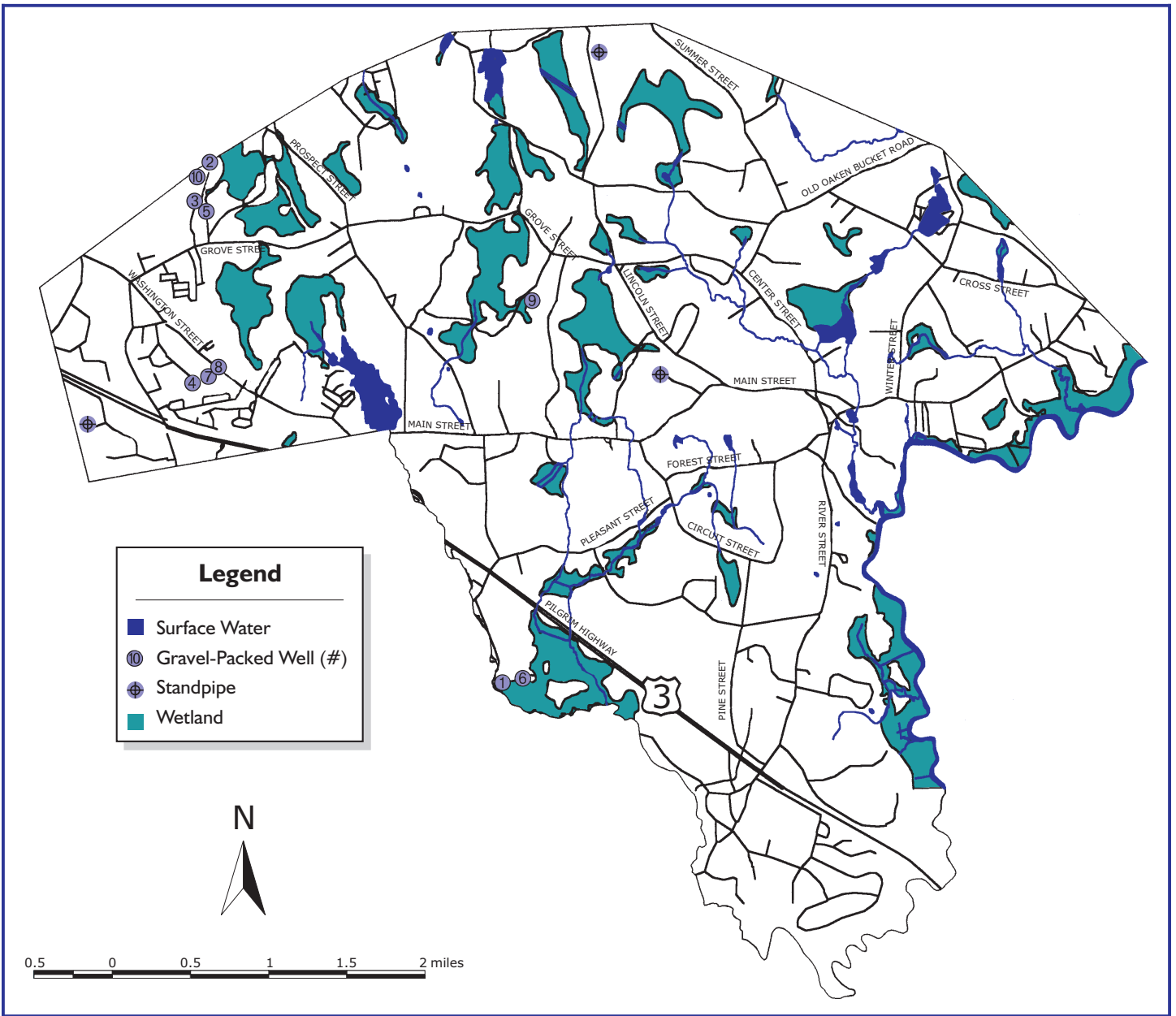
- Check your sprinkler system frequently and adjust sprinklers so only your lawn is watered and not the house, sidewalk, or street.
- Minimize evaporation by watering during the early morning hours, when temperatures are cooler and winds are lighter.
- Install a rain shut-off device on your automatic 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 <http://www.greenscapes.org>.

The Internet has numerous other web sites offering water conservation tips. The California Urban Water Conservation Council and the EPA provide one such site that can be found at <http://www.h2ouse.org>.

Important Definitions

- **Maximum Contaminant Level or MCL:** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs (see below) as feasible using the best available treatment technology.
- **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.
- **Maximum Contaminant Level Goal or 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 (such as chlorine, chloramines, or 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 or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Action Level (AL):** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.
- **90th Percentile:** Out of every 10 homes sampled, 9 are at or below this level.
- **NA:** Not applicable.
- **Parts per million (ppm):** Parts per million, or milligrams per liter (mg/L)
- **Parts per billion (ppb):** Parts per billion, or micrograms per liter (µg/L)
- **pCi/L:** Picocuries per liter (a measure of radioactivity)
- **Secondary Maximum Contaminant Level (SMCL):** These standards are developed to protect the aesthetic qualities of drinking water and are not health based.
- **Massachusetts DEP Office of Research and Standards Guidelines (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, with a margin of safety. If exceeded, it serves as an indicator of the potential need for further action or regulation.



Norwell Water Customer

Drinking Water Information



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