

**ANNUAL
NEWMARKET
WATER QUALITY
REPORT
2017**



**Department of Environmental Services
Water Division
186 Main Street
Newmarket, NH 03857
PWS ID# 1731010**

Definitions:

MCLG: Maximum Contaminant Level Goal, or 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.

MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. They are set as close to the MCLGs as feasible using the best available treatment technology.

AL: Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

TT: Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.

MRDLG: Maximum residual disinfectant level goal or the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

MRDL: Maximum Residual Disinfectant Level or the highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

SDWR: Secondary Drinking Water Regulations. Non-enforceable Federal guidelines regarding cosmetic effects

Taste Threshold: Concentration at which the majority of consumers do not notice an adverse taste.

Abbreviations:

ppm: parts per million

MFL: million fibers per liter

pCi/L: pico curies per liter

ppb: parts per billion

N/A: Not Applicable

ppt: parts per trillion

ND: not detectable at testing limits

ppq: parts per quadrillion

NTU: Nephelometric Turbidity Unit

Radon is a radioactive gas that you can't see, taste, or smell, and is found all over the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the homes through tap water will, in most cases, be a small source of radon in indoor air. Radon is a known carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in the home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air or higher. There are simple ways to fix a radon problem that aren't costly. For additional information, call your State Radon Program or call the **EPA's Radon Hotline (1-800-SOS-RADON)**

Detected Water Quality Results

Microbiological Contaminants

Contaminant (Units)	Level Detected*	MCL	MCLG	Violation YES/NO	Likely Source of Contamination	Health Effects of Contaminant
Microbiological Contaminants						
<i>E. coli</i> Bacteria	0	0	0	NO	Human and animal fecal waste	<i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.
Total Organic Carbon (ppm)	Range ND-1.18	TT	N/A	NO	Naturally present in the environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
Chlorine mg/L	Avg .20	=4	=4	NO	Added to water to control microbes	Eye/nose irritation; stomach discomfort

Radioactive Contaminants						
Contaminant (Units)	Level Detected*	MCL	MCLG	Violation YES/NO	Likely Source of Contamination	Health Effects of Contaminant
Compliance Gross Alpha (pCi/L)	ND	15	0	NO	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (ug/L)	ND	30	0	NO	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
Radium 226 + Radium 228 (pCi/L)	.3 - .7 Range .4 - .8 Range	5	0	NO	Radium is always being made by the radioactive decay of uranium and thorium. Since radium is present at very low levels in rocks and soil	Exposure to higher levels of radium over a long period can lead to death and other severe health problems. High levels of radium can cause cancer (especially bone cancer), anemia, a problem with the blood; fractured teeth and cavities, and growths in the eyes called cataracts.

Inorganic Contaminants						
Nitrate (as Nitrogen) (ppm)	Range 1.1– 3.3	10	10	NO	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	(5 ppm through 10ppm) Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider. (Above 10 ppm) Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Barium (ppm)	0.0155	2	2	NO	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

Volatile Organic Contaminants						
Haloacetic Acids (HAA) (ppb)	Range 1.2-1.7	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 Dibromo-methane Chloroform) (ppb)	Range 8.7-19 ND Range 7.1-17 Range 1.3-1.7 ND	100/80	N/A	NO	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.

Contaminant (Units)	Level Detected*	MCL	MCLG	Violation YES/NO	Likely Source of Contamination	Health Effects of Contaminant
Arsenic (ppb)	5	10	0	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes	(5 ppb through 10 ppb) While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. (above 10 ppm) Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Contaminant (Units)	Action Level	90 th percentile sample value *	Date	# of sites above AL	Violation Yes/No	Likely Source of Contamination	Health Effects of Contaminant
Copper (ppm)	1.3	0.03	7/18/17 11/16/17	0	NO	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Lead (ppb)	15	0	7/18/17 11/16/17	1	NO	Corrosion of household plumbing systems, erosion of natural deposits	(15 ppb in more than 5%) Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791). (above 15 ppb) Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Additional Tests & Secondary MCLs (SMCL)	Results	Date	Treatment technique (if any)	AL (Action Level), SMCL or AGQS (Ambient groundwater quality standard)	Specific contaminant criteria and reason for monitoring
Manganese (mg/L)	0.03	6-17			<i>We are required to regularly sample for Manganese</i>
Sodium (mg/L)	92	6-17		100-250	We are required to regularly sample for sodium

VIOLATIONS

VIOLATION	Date of violation	Explain violation	Length of violation	Action taken to resolve	Health Effects (Env-Dw 804-810)
Public notice	NA		NA		N/A
Monitoring and Reporting (M/R)	1/26 2017	Late Submittal of DBP s Report	NA	No Action Needed	N/A
MCL	NA		NA		<i>Insert health effects language for contaminant from Env-Dw 804-810</i>

Macintosh Well

The Town of Newmarket introduced the Macintosh Well to the distribution system in October of 2016. The Macintosh Well is a bedrock production well, with a production rate of 432,000 gallons per day, or 300 gallons per minute over a 24-hour period. The well is located approximately 1.5 miles southwest of Newmarket's center off of Ashswamp Rd. The purpose of the well is to: 1) provide additional water supply capacity to meet average and maximum day demand; 2) provide source diversity and redundancy for the system; and 3) accommodate potential increases in water demand based on historic water use trends and projected future growth in areas served by the system. The water from the Macintosh Well is pumped to the blending facility where it is blended with the existing distribution water from the Bennett and Sewell wells to meet safe drinking water standards.

Macintosh Blending Facility

The Blending Facility is located in the vicinity of the intersection of Hersey Lane and Durrell Drive. Its primary purpose will be the convergence and blending of water from the Macintosh Well and water drawn from Newmarket's existing distribution system. It will also serve as an introduction point for disinfection, corrosion control and the monitoring of water quality.

Polyphosphates. What you need to know

The Water Department began adding polyphosphate to the water beginning October 3, 2016. The following information is provided to you as it relates to the use of polyphosphates in drinking water.

What are phosphates?

Phosphates are water treatment chemicals used to solve specific water quality problems resulting from inorganic contaminants (iron, manganese, calcium, etc.) in ground water supplies and also to maintain water quality (inhibit corrosion, scale, biofilm, reduce lead and copper levels) in the distribution system. Orthophosphate and polyphosphate are two general types used in water treatment along with many different phosphate compounds that exist for use in the water treatment process. Ortho and polyphosphates work together, stabilizing water quality and minimizing color, scale, deposits, corrosion, and chlorine demand in drinking water systems.

What are the problems that phosphates help to solve?

Phosphates are used in municipal water systems to perform three broad functions: inhibit corrosion of water mains/plumbing (iron, steel, galvanized, asbestos/cement, lead, copper), sequester nuisance metals in the water supply (iron, manganese, calcium, magnesium). They can also improve the quality of water in the distribution system by removing scale deposits & tuberculation, discourage microbial film formation/regrowth, and stabilizing free chlorine disinfectant residuals.

Are phosphates safe and approved for water systems?

Various forms and purity grades of phosphates exist. Most dry powders and liquid concentrates are safe to handle and store, except for the standard precautions required for orthophosphate acids and zinc orthophosphate solutions. All Carus phosphate additives are either food quality grade or certified to ANSI/NSF Standard #60 Drinking Water Treatment Chemicals as approved for use in potable drinking water.

TOWN OF NEWMARKET WATER MANAGEMENT PROGRAM

<p style="text-align: center;">STAGE 1</p> <p>Voluntary Water Conservation</p> <p>The public is requested to refrain voluntarily from watering lawns and encouraged to conserve water in all practical ways.</p>	<p style="text-align: center;">STAGE 2</p> <p style="text-align: center;">Mandatory Odd/Even Outside Watering</p> <p>The public is required to restrict lawn watering to every other day based on address and calendar day.</p> <p style="text-align: center;">EXAMPLE</p> <table style="width: 100%; border: none;"> <tr> <td style="padding: 5px;">Even address</td> <td style="padding: 5px;">Even calendar day</td> </tr> <tr> <td style="padding: 5px;">Odd address</td> <td style="padding: 5px;">Odd calendar day</td> </tr> </table>	Even address	Even calendar day	Odd address	Odd calendar day	<p style="text-align: center;">STAGE 3</p> <p style="text-align: center;">Mandatory Two-Day Restrictions on Lawn Watering by Address.</p> <p>Each address is restricted to two (2) days per week between the hours of 5-8 am and 6-9 pm on the following schedule:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding: 5px;">Allowed Days</td> <td style="padding: 5px;">Street Address</td> </tr> <tr> <td style="padding: 5px;">Mon., Wed., Tues., Thurs.</td> <td style="padding: 5px;">Odd Number</td> </tr> <tr> <td style="padding: 5px;">No washing driveways, sidewalks, autos., or boats.</td> <td style="padding: 5px;">Ever Number</td> </tr> </table>	Allowed Days	Street Address	Mon., Wed., Tues., Thurs.	Odd Number	No washing driveways, sidewalks, autos., or boats.	Ever Number	<p style="text-align: center;">STAGE 4</p> <p style="text-align: center;">Mandatory Outside Water Ban.</p> <p>The public is required to restrict the following:</p> <p style="text-align: center;"><u>NO OUTSIDE WATER USE</u></p>
Even address	Even calendar day												
Odd address	Odd calendar day												
Allowed Days	Street Address												
Mon., Wed., Tues., Thurs.	Odd Number												
No washing driveways, sidewalks, autos., or boats.	Ever Number												
<p>Water Conservation Ordinance No. 2002-05 at Town Office</p>	<p style="text-align: center;">NOTICE</p> <p>Hand held hoses may be used for flower and vegetable gardens plus shrubbery without hour and day restrictions. (STAGE 2 and 3 ONLY)</p>		<p style="text-align: center;">For additional information on water saving ideas check these web sites.</p> <p style="text-align: center;"> www.awwa.org www.epa.gov www.des.state.nh.org www.waterwise.org </p>										
<p>How will you know what Stage is in affect?</p> <p>Stage in effect will be posted at locations entering town, on thee Town Hall marquee, Channel 13, the Town web site and in the local newspapers.</p>	<p style="text-align: center;">THANK YOU FOR YOUR COOPERATION</p>												
<p>Why Do We Need Stages?</p> <p>To ensure adequate pressure and fire Protection, storage tank must be 3/4 full. If this amount cannot be replenished during non-watering times, more restrictive measures will go into effect.</p>	<p style="text-align: center;">WATER SAVING TIPS</p> <ol style="list-style-type: none"> 1. Check your toilet. 2. Install water-saver shower heads or restrictors. 3. Check faucets and pipes for leaks. 4. Use your dishwasher only when full. 5. Use washing machine with full loads only. 6. Keep a bottle of drinking water in the refrigerator. 7. Water your lawn only when it needs it. 8. Water during cool parts of the day. 9. Don't wash down driveways or gutters. 10. Plant drought-resistant trees and plants. 11. Use mulch around trees and plants. 12. Cover swimming pool to reduce evaporation. 												

Are there any precautions the public should consider?

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, people 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 and appropriate means to reduce the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-462-4791).

Is my water safe?

Last year, as in years past, your tap water met all U.S. Environmental Protection Agency (EPA) and state drinking water health standards. Local water vigilantly safeguards its water supplies and once again we are proud to report that our system has not violated a maximum contaminant level or any other water quality standard.

Where does my water come from?

Newmarket has two water supplies, ground water and surface water. The ground water source consist of two sand gravel wells And one Bedrock Well. Sewell Well and Bennett Well are situated on the Newmarket Plains Aquifer And the Macintosh Well is located Off of Ash swamp Road. Macintosh Well is currently being blended with the Bennett and Sewall wells in the blending facility on Durrell DR, Newmarket's surface Water Treatment Plant is located on Packer Falls Road. The water treatment plant is currently offline for an indefinite period.

How can I get involved?

The Town of Newmarket is currently in a STAGE 2/ Mandatory Odd/Even outside watering. You can conserve water by taking shorter showers; Not leaving water running while washing dishes. Installing water saving devices (i.e. shower heads, toilets), fix leaking faucets and toilets. Your assistance in conservation of our water supply will be greatly appreciated and assure an adequate supply and preserve the quality of our water during the dry period. If you have any questions you can reach our Operators Joel Drelick or Ben Trottier at (603) 659-3093, www.facebook.com/water.sewer.department (search, Newmarket environmental services) or the towns web page.

Source Water Assessment Summary

The NH department of Environmental services has prepared a Source Water Assessment Report for the sources serving this community water system, assessing the sources' vulnerability to contamination. The results of the Assessment, prepared on Dates , are as follows:

002 Follett's Brook Raw/S 10/25/2001, received (0) high susceptibility ratings, (3) medium susceptibility ratings, and (8) low susceptibility ratings.

003 Lamprey River Raw/S 10/25/2001, received (2) high susceptibility ratings, (6) medium susceptibility ratings, and (3) low susceptibility ratings.

004 Piscassic River Raw/S 10/25/2001, received (2) high susceptibility ratings, (6) medium susceptibility ratings, and (3) low susceptibility ratings

006 Bennett Well/ G 6/9/2000, received (4) high susceptibility ratings, (3) medium susceptibility ratings, and (5) low susceptibility ratings.

007 Sewell Well/ G 2/25/2000, received (4) high susceptibility ratings, (2) medium susceptibility ratings, and (6) low susceptibility ratings.

The complete Assessment Report is available for review at the Water Treatment Plant. For more information call Sean Greig (603) 659-3093 or visit NH department of Environmental Services Drinking Water & Groundwater Bureau web site at <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/dwsap.htm>.

How can you improve the taste and odor in your water?

(1) Try flushing out your hot water tank of any sedimentation that might have built up in the bottom of your hot water tank.

(2) Fill a container of cold water and place it in your refrigerator, this should help dissipate the chlorine and odor problem.

(3) If you choose to add filters to your faucets, it is important that you change them on a regular basis.

You could grow bacteria in your filter if not changed regularly.

Why are there contaminants in my drinking 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (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 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. Microbial contaminants, such as viruses and bacteria, that 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 storm water 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 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 tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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