



2018
Annual Drinking Water Quality
Report For The
Town of Millis
MassDEP PWSID #2187000

PLEASE NOTE:
Water Quality Reports are also available at the
Department of Public Works Office
Selectmen Office
Board of Health
Public Library

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2018 Annual Drinking Water Quality Report

For

Millis Department of Public Works

Millis, Massachusetts

MASS DEP PWSID # 2187000

This report is a snapshot of drinking water quality that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies. In 2018 the Millis Water Department produced a total of 225,571,786 million gallons of water for the residents and businesses of Millis.

1. PUBLIC WATER SYSTEM INFORMATION

Address: 900 Main Street.

Contact Person: James F. McKay

Email: jmckay@millisma.gov

Telephone #: 508-376-5424

Fax # 508-376-2442

Water System Improvements

Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (Mass DEP). The Mass DEP inspects our system for its technical, financial and managerial capacity to provide safe drinking water to you. Changes implemented in 2006 to meter testing and reading to have estimated water bills investigated in the same billing quarter, were followed in 2016. The DPW also had the water system consisting of two storage tanks, six water production wells and fifty one miles of water mains tested for undetected leakage. **As a result of this work unaccounted for water was 15.9% for 2018 and the total residential use was 49 gallons per person per day. This is the eighth year that the GPPPD was below DEP standards of 65 gallons per day.**

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, you may contact the above listed contact person.

2. YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?

Your water is provided by the following sources listed below:

Source Name	DEP Source ID#	Source Type	Location of Source
Well #1	2187000-01G	Groundwater	Water St.
Well #2	2187000-02G	Groundwater	Water St.
Well #3	2187000-03G	Groundwater	Birch St.
Well #4	2187000-04G	Groundwater	Orchard St.
Well #5	2187000-05G	Groundwater	Norfolk Rd.
Well #6	2187000-06G	Groundwater	Norfolk Rd.

Is My Water Treated?

Millis DPW makes every effort to provide you with safe and reliable drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- We chemically treat the water to reduce lead and copper corrosion of household plumbing, and protect against bacteria.
- Fluoride has been added since 1987 to prevent tooth decay/cavities.
- We aerate the water at wells 1 and 2 to remove volatile organic contaminants.

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

How Are These Sources Protected?

The Massachusetts Department of Environmental Protection (Mass DEP) has prepared a Source Water Assessment Program (SWAP) Report for the water supply source(s) serving this water system. The SWAP Report assesses the susceptibility of public water supplies. A copy is available at the DPW office. The SWAP Report notes the following key issues for all source areas:

- Hazardous materials storage & use
- Residential Land Uses
- Oil/Hazardous Material Contamination Sites
- Dept. of Public Works Facility
- Landscaping & Agricultural Recommendations

The report commends our water system on initiating an Environmental Facilities Compliance Audit.

What is My System's Ranking?

A susceptibility ranking of **high** was assigned to this system using the information collected during the assessment by the DEP.

What Can Be Done To Improve Protection?

The SWAP report recommends:

- *Inspect Zone I regularly*
- *Educate the public on the proper handling, storage and disposal of hazardous materials.*

Our public water system plans to address the protection recommendations by:

- *Continuing to inspect the Zone I areas, and providing residents with Hazardous Materials disposal information. Hazardous materials may be disposed of through a joint program with the Town of Norfolk. Contact the Millis Board of Health at 508-376-7042 for details.*

Residents can help protect sources by:

- *Practicing good septic system maintenance*
- *Taking hazardous household chemicals to hazardous materials collection site, call the Millis Board Of Health 508-376-7042 for information*
- *Limiting pesticide and fertilizer use, etc.*
- *In response to the September 11th terrorist attacks, President Bush signed into law the new Bioterrorism Preparedness and Response Act of 2002. The Act required every water system to conduct a Vulnerability Assessment (VA) of their water system. The VA is a comprehensive evaluation of a water system's security. Millis Water Department conducted a VA and the report was completed by June 30, 2004 as required by law. All recommendations from the report are included in the current planned security upgrades. Millis Water Department has also prepared an Emergency Response Plan (ERP) for use during water system emergencies. This plan was completed by December 31, 2004 and updated in December 31, 2009 the plan was again reviewed in 2018 as required by law. An important element of the water system's security includes any information or observations that the public can provide. If you see something that looks suspicious, please call the Millis Police at 508-376-1212 or the Department of Public Works at 508-376-5424.*

3. 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 water include:

Microbial contaminants -such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, domestic, 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, 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 tap water is safe to drink, the Massachusetts Department of Environmental Protection (MASS DEP) 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).

4. 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.

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

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

90th Percentile – Out of all 20 homes sampled, all were below this level for lead and copper.

ppm = parts per million, or milligrams per liter (mg/l)

ppb = parts per billion, or micrograms per liter (ug/l)

pCi/l = picocuries per liter (a measure of radioactivity)

ND = Not Detected
N/A = Not Applicable

mrem/year = milliremms per year (a measure of radiation absorbed by the body)

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

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.

5. WATER QUALITY TESTING RESULTS

What Does This Data Represent?

The water quality information presented in the table(s) 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(s). The presence of contaminants in the water does not necessarily indicate that the water poses a health risk.

The Massachusetts Department of Environmental Protection has reduced the monitoring requirements for Synthetic Organic Compounds at Well #3, and Inorganics at Well #4, because the source is not at risk of contamination. The last sample collected for these contaminants was taken in 1994 at Well #3 and in 1999 at Well #4

	Date(s) Collected	90 TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	8/27 – 8/29/2018	4	15	0	20	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	8/27 – 8/29/2018	0.342	1.3	1.3	20	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Bacteria	Dates Collected	Highest # Positive in a month	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination	
Total Coliform	Jan. – Dec. 2018	Date: 9-18-18	1	0	N	Naturally present in the environment	
Fecal Coliform or E.coli	2018	-	*	0	N	Human and animal fecal waste	

* Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing.

Regulated Contaminant	Date(s) Collected	Highest Detect	Detection Limit	Highest Average	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants								
Perchlorate (ppb)	3/13,9/1,9/29 2017	ND	-	-	2.0	N/A	N	Discharge from fertilizer factories
Fluoride (ppm) ■	Jan-Dec 2018	0.8	-	0.6-0.8	4	4	N	Water additive which promotes strong teeth
Nitrate (ppm)								
Wells 1&2	5/29/18	2.73						
Well 3	5/29/18	3.57	0.01		10	10		
Well 4	5/29/18	1.11	0.01		10	10	N	Runoff from fertilizer use; leaching from septic tanks
Wells 5	2/27/18	0.444	0.01		10	10		
Well 6	5/29/18	0.637	0.01		10	10		
Radioactive Contaminants								
Gross Alpha (pCi/L) (next sampling due in 2024)	3/7,6/1,12/17 2015	+/-0.69	2.95	-0.9-0.64	-	0	N	Erosion of natural Deposits
Synthetic Organic Contaminants	3 year waiver	2017	2019					
Dinoseb (ppd)	6/23/16	ND	-	-	7	0.02	N	Runoff from herbicide Used on vegetables

■ Fluoride also has a secondary contaminant level (SMCL) of 2 ppm.

▲ The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

Unregulated contaminants are those for which 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.

Unregulated Contaminant		Date(s) Collected	Result or Range Detected	Detection Limit	SMCL	ORSG	Possible Source
Inorganic Contaminants							
Sodium	Well 3	5/29/18	78.1	-	None	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
	Well 4	5/29/18	23.5	-	None	20	
	Well 5	2/27/18	38.9	-	None	20	
	Well 6	5/29/18	22.7	-	None	20	
	Wells 1&2	6/21/16	53	-	None	20	
Sulfate (ppm) Well 3		12/13/16	14	2.0	250	-	Natural sources
	Well 4	12/17/15	5.9	2.0	250	-	
	Wells 5	12/17/15	12	2.0	250	-	
	Wells 1&2	12/13/16	18	2.0	250	-	
Organic Contaminants							
Samples were collected from wells 1, 2, 3, 4, 6 on 5/29/18, and quarterly on wells 1&2 for Volatile Organic Compounds.							
Secondary Contaminant Report							
Iron		Date(s) Collected	Highest Result	Detection Limit	SMCL	ORSG	Possible Source
	Wells 1&2 Well 4	5/29/18 5/29/18	ND ND	0.05	300	-	Naturally occurring, corrosion of cast iron pipes
Manganese (ppb)		Date(s) Collected	Highest Result	Highest Detected	SMCL	ORSG	Possible Source
	Well 4	3/28/18 4/10/18 5/8/18 5/29/18 8/29/18	0.0339 0.0352 0.0339 0.0388 0.0632	0.0632	50*	Health Advisory Of 300 ppb	Erosion of natural deposits

* The EPA established a lifetime health advisory (HA) value of 300 ppb for manganese to protect against concerns of potential neurological effects, and one-day and 10-day HA of 1000 ppb for acute exposure see more under #7 Educational Information.

6. COMPLIANCE WITH DRINKING WATER REGULATIONS

Does My Drinking Water Meet Current Health Standards?

- Millis Water Department is committed in providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government.

7. EDUCATIONAL INFORMATION

Do I Need To Be Concerned About Certain Contaminants Detected In My Water?

- Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-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).

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.

Fluoride

- This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 ppm of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system the Millis Water Department has a fluoride concentration of 0.9-1.2 mg/l. Dental fluorosis, in its moderate or severe forms may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride containing products. Older children and adults may safely drink the water. Drinking water containing more than 4 ppm of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 ppm of fluoride, but we're required to notify you when we discover the fluoride levels in your drinking water to exceed 2 ppm because of the cosmetic dental problem. Some home water treatment units are available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call the NSF International at 1-877-8-NSF-HELP. For more information, please call James McKay at 508-376-5424 or for additional information on fluoride in drinking water, contact the Massachusetts Department of Public Health, Office of Oral Health, 617-624-5943. 1 – Fluoride was added to prevent tooth decay/cavities.
- Fluoride has been added since 12/7/87 to prevent tooth decay/cavities.

Lead and Copper

- "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. The Millis Department of Public Works 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 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>.

Perchlorate

- Perchlorate may cause adverse effects on the thyroid gland. Sensitive individuals, such as women who are pregnant or nursing, infants, children under 12, or those with hypothyroidism should be aware of perchlorate levels in water and food sources that could contain perchlorate. If you have any concerns about exposure to perchlorate please consult your physician.

Radon

- Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout 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 home through tap water will be (in most cases) a small source of radon in indoor air. Radon is a known human 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 your 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 of radon per liter of air (pCi/l) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call your state radon program or call EPA's Radon Hotline, 800-SOS-RADON.

Manganese

- Manganese is a naturally occurring mineral found in rocks, soil and groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but can have undesirable effects on certain sensitive population 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, MassDEP's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for manganese. ***Drinking water may naturally have manganese and, when concentrations are greater than 50 ug/L, the water may be discolored and taste bad. Overtime, the EPA recommends that people *do not drink water with manganese levels over 300 ug/L and over the short term, EPA recommends that people limit their consumption of water with levels less than 1000 ug/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 300 ug/L, nor should formula for infants be made with that water for longer than 10 days.*** The ORSG differs from EPA's health advisory because it expands the age group to which lower manganese concentration applies from children less than 6 months of age to children up to 1 year of age to address concerns about children's susceptibility to manganese toxicity. See: EPA Drinking Water Health Advisory for Manganese.

http://www.epa.gov/safewater/ccl/pds/reg_determine1/support_cc1_magnese_dwreport.pdf and MassDEP office of Research and Standards Guideline (ORSG) for Manganese <http://www.mass.gov/eea/agencies/massdep/water/drinking/manganese-in-drinking-water.html>

8. ADDITIONAL INFORMATION

Cross-Connection Control and Backflow Prevention

The Millis Water Department makes every effort to ensure that the water delivered to your home or 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 from underground throughout the entire treatment and distribution system. But what happens when the water reaches your home or business? There is still a need to protect the water quality from contamination caused by a cross-connection.

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 allow the drinking water to come in contact with non-potable liquids, solids, or gases (hazardous to humans) in event of a backflow.

What is 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 (backpressure), 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 (backsiphonage). Backflow is a problem that many water customers are unaware of. And every water customer has a responsibility to help prevent them.

What you can 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:

- **Never** submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains or chemicals.
- **Never** attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bibb vacuum breaker on every 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 a backflow preventer.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.
- Call James McKay at 508-376-5424 for more information about cross connections or for a free hose bib vacuum breaker.

A cross connections is defined as any direct connection between the public water supply and a non-potable water source, contaminant, or sources of pollution. Cross connections can exist both in residential homes and in non-residential facilities.

The Millis Water Department maintains an effective Cross-Connection Control Program Plan (CCCPP) as required by MassDEP. This program consists of several components, including surveying all facilities serviced by the Department for Cross Connections, regular inspections of all testable backflow prevention devices, and educational outreach to residential and nonresidential customers regarding the importance of cross-connection elimination and protection.

Some important highlights of the Millis Water Department's CCCPP:

- The Millis Water Department requires that all facilities served by public water are equipped with appropriate backflow prevention devices where cross-connections exist. Unprotected cross connections are strictly prohibited by the Millis Water Department.
- The Millis Water Department has a Total Containment Policy which means that all facilities served by town water must have appropriate backflow protection at the meter to isolate that facility from the public water supply.
- The Millis Water Department is required to survey all facilities connected to the public water supply for cross connections.
- Failure to allow Millis Water Department personnel access to a facility to perform a cross-connection survey or backflow prevention device inspection will result in termination of water service to that facility.
- Backflow prevention devices must be approved by the Millis Water Department prior to installation. A completed Design Data Sheet and attached plan must be submitted to the Millis Water Department for review and approval prior to installation. A plumbing permit is required for installation of all testable backflow prevention devices.
- The installed backflow prevention device must be inspected by the Millis Water Department within 14 days of installation. A defective backflow prevention device must be repaired or replaced within 14 days of the failure date.
- Testable backflow prevention devices are inspected by the Millis Water Department on a regular basis. The Millis Water Department has MassDEP certified cross connection surveyors and backflow prevention device inspectors on staff.

Backflow Prevention Device Owner Responsibilities

The owner of any cross connection protected by a testable backflow prevention device must notify the Millis Water Department of all of these protected cross connections. Have suitable arrangements made so that inspections of backflow prevention devices and cross connection surveys can be made during regular business hours. Repair or replace within 14 days of the initial inspection data and retest pursuant to 310 CMR 22.22(13) (e), any device that fails a test or is found to be defective. Inspection of backflow prevention must be performed by Millis Water Department personnel.

Where can I get more information?

Millis Department of Public Works: James McKay, @ 508-376-5424.

Millis Department of Public Works: website www.millis.net

MassDEP Central Regional Office: 508-792-7650

Millis Water Conservation and protection Bylaws

- **In 2018** the Board of Selectmen voted to enforce an outside watering ban as required by MassDEP on Millis residences and businesses from watering between the hours of **9:00AM through 5:00PM from May 1st, through September 30th.** Wells 5&6 may be shut down if river flow falls below prescribed levels. The ability to pump more water, whether for Town use or sale, does not mean that future water bans will not be needed. The capacity of the storage tanks on Farm St. and Walnut St. have not increased, however, the time it takes for the tanks to recover may be lessened. Residents should continue to conserve water whenever possible, and adhere to any water ban policy to keep tank levels from dropping too low, putting increased demand on pumps, or stressing aquifer drawdown levels. Penalties for violation of the Policy are, \$50.00 for the first offense. Subsequent offenses would result in additional fines of \$100.00 per offense.

2019 Watering Restrictions

MILLIS DEPARTMENT of PUBLIC WORKS

****** ANNOUNCES ******

REGULATIONS FOR OUTSIDE WATERING **FOR ALL MILLIS RESIDENCES and BUSINESSES** **Effective May 1, 2019 through September 30th, 2019**

MANDATORY

NO OUTSIDE WATERING IS ALLOWED **BETWEEN the HOURS of** **9:00 AM THROUGH 5:00 PM**

PENALTIES FOR VIOLATION OF THE POLICY ARE:

\$50.00 FOR THE FIRST OFFENSE

\$100.00 FOR THE SECOND AND EACH SUBSEQUENT OFFENSE

Please Check the Millis website for updates
www.millis.net



WHAT YOU NEED TO KNOW:

- **Stormwater runoff** occurs when precipitation flows over impervious surfaces on the ground, like roads, sidewalks, driveways, and roofs. As the stormwater flows, it collects sediment, oils, trash, and other pollutants through the drainage system and into our public rivers and ponds.
- **Grass clippings** and **lawn fertilizers** are of specific concern in the Charles River.
- Residents can help **keep our waterways clean** by avoiding harmful fertilizers and by properly managing grass clippings on private property using the guidance below.

WHAT IS THE ISSUE?



Landscaping waste from yards (like grass clippings, leaves, and fertilizer) can contribute to water quality impairments in our rivers and ponds. When it rains, stormwater can transport yard waste and harmful chemicals into the Town's drainage system and into waterways.

Grass clippings and **lawn fertilizer** contain high levels of phosphorus and nitrogen. In large amounts, these nutrients can act as pollutants that harm water quality. Polluted waterways can turn green due to algae growth that can be fatal to aquatic life.

WHAT CAN YOU DO?

Leave it on the Lawn

- Save time, money, and trash by managing grass clippings on your property.
- Grass clippings left on lawns decomposes quickly and can help stormwater and nutrients reenter the soil.
- Sweep up driveways, sidewalks and walkways after completing yardwork.



Compost

- Don't want to or can't leave your grass clippings out? Try a compost pile!
- Use the compost for your garden, potting mix, or reseeding your garden.
- To find more information about composting, visit:

www.mass.gov/composting-organics

Minimize Fertilizer Use

- If using a fertilizer, select the appropriate type based on your soil type. University of Massachusetts offers soil testing. Visit www.ag.umass.edu/services to learn more.
- Avoid over-applying fertilizer to minimize contamination from stormwater runoff.

Questions & More Information:

Jim McKay, Department of Public Works Director

w | http://www.millis.org/Pages/MillisMA_DPW/index
e | jmckay@millis.net p | 508.376.5424

Approved Backflow Assemblies

The water purveyor relies on approved backflow prevention assemblies to protect the public water system. Approved assemblies are manufactured with isolation valves and test cocks to permit field-testing to demonstrate that the assemblies are properly functioning to prevent backflow.

In addition to the above assemblies, plumbing codes also allow the use of atmospheric vacuum breakers (AVB) on lawn irrigation systems without chemical addition. Because an atmospheric vacuum breaker is not designed to be tested, some water purveyors require the installation of approved, testable assemblies. Contact your water purveyor regarding the requirements for isolation of your lawn irrigation system.

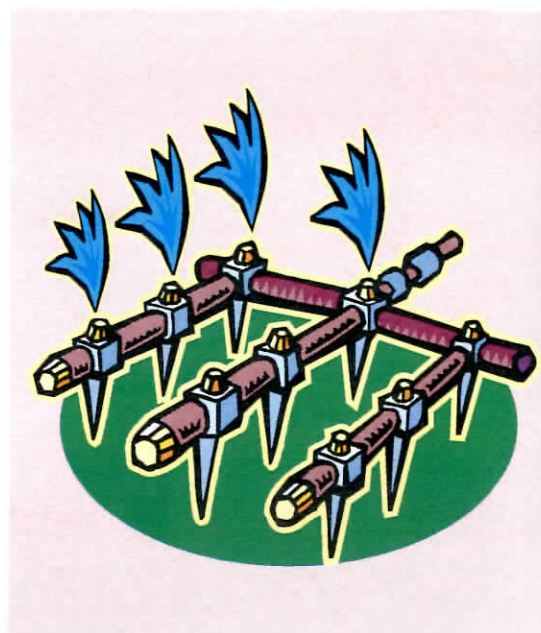
Note:

All irrigation piping should be considered a non-potable water system due to an actual or potential health hazard.

For further
information
contact your
local water
purveyor or the
PNWS/AWWA
Cross-Connection
Control Committee
through the
PNWS office at
(877) 767-2992
or on the web at
www.pnws-awwa.org

© 2003 R 06/03 [Brochure #3]

Lawn Irrigation Systems and *Backflow Prevention*



American Water Works Association
Pacific Northwest Section

Lawn (Turf) Irrigation Systems

For the protection of the water purveyor's distribution system, all irrigation systems must have an approved backflow prevention assembly that is compatible with the degree of hazard. Irrigation systems are categorized as high health hazard or moderate health hazard as defined below.

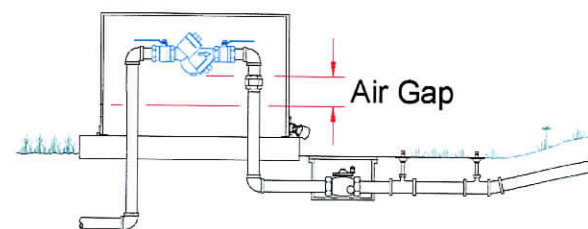
Any irrigation system that contains pumps or injectors for the addition of chemicals and/or fertilizers is considered a high hazard. This risk assessment is also based on the additional hazard posed by bacterial contaminants found on lawns, and on the possibility of changes being made to the irrigation system by the customer. An approved reduced pressure backflow assembly (RPBA), or an approved air gap separation, should be required in all cases where chemicals or herbicides may be injected into the irrigation system, or where an auxiliary water supply is also provided for irrigation water.

All irrigation systems that are not classified as a high health hazard are considered to be moderate health hazards. This risk assessment is based on the hazard posed by bacterial and chemical contaminants found on lawns, and on the possibility of changes being made to the irrigation system by the customer. An approved double check valve assembly (DCVA), or pressure vacuum breaker assembly (PVBA), should be required.

However, an approved PVBA does not provide adequate protection if it is subjected to flooding, backpressure, elevated piping, or if compressed air is used to winterize the irrigation system. In these situations, an approved DCVA should be required as a minimum level of protection.

Reduced Pressure Backflow Assembly for Isolation of Lawn Irrigation System

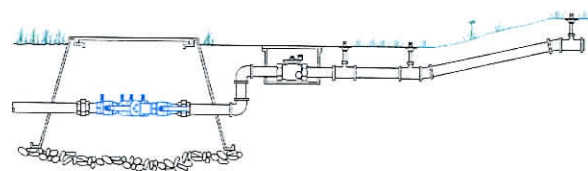
- The reduced pressure backflow assembly (RPBA) should be installed to isolate irrigation systems using injectors or pumps to apply fertilizer and other agricultural chemicals.
- The RPBA must be installed above ground to prevent the relief valve opening from becoming submerged.
- The RPBA should be installed in an insulated enclosure to provide freeze protection.
- The RPBA should be tested by a certified backflow assembly tester upon installation, after repair or relocation, and at least annually.



Reduced Pressure Backflow Assembly in Above-Ground Enclosure

Double Check Valve Assembly for Isolation of Lawn Irrigation System

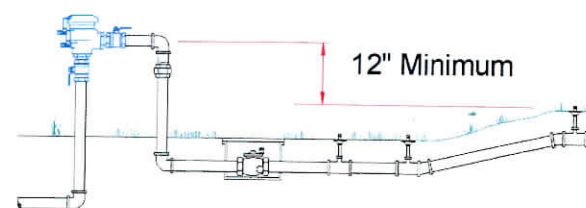
- The double check valve assembly (DCVA) may be installed to isolate all irrigation systems that do not use injectors or pumps to apply fertilizer and other agricultural chemicals.
- The DCVA may be installed in a below-ground enclosure provided the assembly test cocks are plugged; the test cocks are pointed up; adequate space is provided for maintenance and testing; and any compressed air connections are installed only downstream of the DCVA.
- The DCVA shall be tested by a certified backflow assembly tester upon installation, after repair or relocation, and at least annually.



Double Check Valve Assembly in Below-Ground Box

Pressure Vacuum Breaker Assembly for Isolation of Lawn Irrigation Systems

- The pressure vacuum breaker assembly (PVBA) may be installed to isolate all irrigation systems that do not use injectors or pumps to apply fertilizer and other agricultural chemicals.
- The PVBA shall be installed at least 12 inches above the highest point in the irrigation piping.
- The PVBA shall be tested by a certified backflow assembly tester upon installation, after repair or relocation, and at least annually.



Pressure Vacuum Breaker Assembly