

TOWN OF HUDSON DEPARTMENT OF PUBLIC WORKS – WATER DIVISION



1 MUNICIPAL DRIVE, HUDSON, MA 01749

Eric Ryder, Director Public Works

978 562-9333

Public Water Supply ID # 2141000

O relatório contém informações importantes sobre a qualidade da água da comunidade. Traduza-o ou peça ajuda de uma pessoa amiga para ajudá-lo a entender melhor.

2017 ANNUAL DRINKING WATER QUALITY REPORT

WATER SYSTEM

Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP). To ensure that we provide the highest quality of water available, your water system is operated by Massachusetts certified operators who oversee the routine operations of our system.

OPPORTUNITIES FOR PUBLIC PARTICIPATION

Water supply topics and concerns are addressed at Board of Selectmen's meetings, which are held biweekly at 7:00 PM in the Town Hall. If you would like to participate in discussions regarding your water quality, you may attend these meetings. Agendas are posted on the town website. Please contact the Department of Public Works for information on meetings that contain water supply related agenda topics.

DRINKING WATER SOURCES

Where Does My Drinking Water Come From?

Your water comes from a "blended water" supply. In 2017 Hudson's water came from the following sources: surface water drawn from Gates Pond Reservoir and groundwater that is pumped from four different wells and then treated to remove iron and manganese before entering the distribution system. Two of these wells are located off Chestnut Street, Kane Well is on Main St., and Cranberry Well is off of Parmenter Rd.

How Are These Sources Protected?

MassDEP has prepared a Source Water Assessment and Protection (SWAP) Report for the water supply sources serving this water system. The SWAP Report assesses the susceptibility of public water supplies.

What is My System's Ranking?

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

Where Can I See The SWAP Report?

The complete SWAP Report is available at the Gates Pond Water Treatment, 172 Gates Pond Rd., Berlin and online at www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2141000.pdf. For more information, call Chief Water Operator, Bob Moriarty at 978 568-9629.

How Is My Water Treated?

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat your drinking water in a number of different ways, depending on the source water quality. How we treat water from the different sources is described below. The water quality of our system is constantly monitored by us and MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required. All chemicals used for the various treatment processes described below are approved for water treatment by one of the following organizations: National Sanitation Foundation (known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

FILTRATION Gates Pond Reservoir is a surface water source that receives filtration. Small particles and organisms such as sediment, algae and bacteria can cause surface water to take on unpleasant odors or tastes, and sometimes make it unhealthy to drink. To remove this material, it is necessary to chemically treat the water and then pass it through two types of filtering units – an up flow clarifier and a mixed media filter bed.

The process begins when aluminum sulfate and a polymer are added to the water at a controlled rate. This helps the small particles to stick together and form larger particles. The chemically treated water flows upward through a clarifier with layers of coarse gravel. As the treated water passes through this unit, the large particles are trapped and most of the particles are removed. The cleaner water then flows onto a filter bed made from several layers of coarse and fine sand, which trap the remaining particles. Over time, the clarifier and filter bed start to clog and are backwashed (much like a swimming pool filter) and the treatment process is restarted.

DISINFECTION All reservoirs and some ground water sources contain numerous microorganisms. Some of the microorganisms can cause people to become sick. To eliminate disease-carrying organisms, it is necessary to disinfect the water. Disinfection does not sterilize the water; it destroys the harmful organisms. Sterilization is too costly and kills all organisms, even though most are not harmful. The Town uses sodium hypochlorite as a disinfectant. When combined with proper filtration, disinfection ensures the water is free of harmful organisms and is safe to drink.

IRON & MANGANESE FILTRATION Iron and manganese are often present in groundwater at levels that can discolor the water, or cause it to have unpleasant odors and tastes. Even though the water may be safe to drink, it is preferable that the iron and manganese be treated. Filtration is used to treat the water from Cranberry, Kane and the three Chestnut Street wells. Removal requires a two-step process of oxidation and filtration. Oxidation is done by adding sodium hypochlorite to the water at the wells. This chemical causes the iron and manganese to form tiny particles. The water then passes through filters that contain material that is designed to trap these iron and manganese particles. Over time these filters start to clog and are cleaned by a backwash operation.

CORROSION CONTROL Many New England water sources are naturally corrosive. The water from these sources tends to corrode and dissolve the metal pipes it flows through. This not only damages pipes, but it can also add metals such as lead and copper to the drinking water. For this reason, it is beneficial to add chemicals to the water to make the water noncorrosive. The Town adds controlled amounts of potassium hydroxide to its water for corrosion control. Testing throughout the Town's water system has shown this treatment has been effective in reducing lead and copper in the drinking water.

SUBSTANCES FOUND IN TAP WATER

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants -such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, domestic animal wastes and wildlife.

Inorganic contaminants -such as salts and metals 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 - 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 Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800)426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800) 426-4791.

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.

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

Maximum Residual Disinfectant Level Goal (MRDLG) -- The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known or expected risk to health.

MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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 every 10 homes sampled, 9 were at or below this level. This number is compared to the action level to determine lead and copper compliance.

ppm = parts per million, or milligrams per liter (mg/l) **ppb** = parts per billion, or micrograms per liter (ug/l)

ppt = parts per trillion, or nanograms per liter (ng/l) **pCi/l** = picocuries per liter (a measure of radioactivity)

NTU=Nephelometric Turbidity Units

ND – Not detected; the contaminant value measured was not above the detection level of the test method.

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.

WATER QUALITY TESTING RESULTS

In 2017 your drinking water met all applicable health standards regulated by the state and federal government. The water quality information presented in the tables below is from the most recent round of testing done in accordance with the regulations. This data represents the quality of the water provided from Hudson's sources. Reports of laboratory analysis for these samples were submitted to MassDEP as required. Only the detected contaminants are shown.

Each month the Hudson Water Supply collects treated water samples to monitor for the presence of bacteria within our distribution system. We are also required to sample untreated water from our sources so we can identify potential issues early.

The next table shows our turbidity results from 2017. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations. All of our samples were below this level.

Turbidity	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	1	---	0.129	N	Soil Runoff
Monthly Compliance	At least 95% below 0.3 NTU	100	---	N	Soil Runoff

The Town of Hudson is on a reduced Lead and Copper sampling schedule. 30 sites were sampled in September of 2015. **The next round of samples to be taken for lead and copper will be in September of 2018.**

	Date Collected	90 TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	09/17/15 & 9/24/15	0	15	0	30	0	Corrosion of household plumbing systems
Copper (ppm)	09/17/15 & 9/24/15	0.18	1.3	1.3	30	0	Corrosion of household plumbing systems

Regulated Contaminants	Date(s) Collected	Highest Result Detected	Range Detected	MCL	MCLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants							
Fluoride (ppm) *	Monthly	0.95	0.45 – 0.95	4	4	N	Water additive that promotes strong teeth
Nitrate (ppm)	5/16/17	0.74	ND – 0.74	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Barium (ppm)	4/11/17 4/14/15	0.016	0.007 – 0.016	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits

Regulated Contaminants	Date(s) Collected	Highest Result Detected	Range Detected	MCL	MCLG	Violation (Y/N)	Possible Source(s) of Contamination
* Fluoride also has a secondary contaminant level (SMCL) of 2 ppm. Fluoride is added in an effort to help prevent tooth decay / cavities.							
Radiological Contaminants							
Gross Alpha (pCi/l)	4/14/2015	0.28	--	15	0	N	Erosion of natural deposits
Radium 226 & 228 (pCi/L) (combined)	4/14/2015	0.027	ND – 0.27	5	0	N	Erosion of natural deposits
The next round of samples to be taken for Radioactive Contaminants will be in 2018.							

Disinfection Contaminants	Date(s) Collected	Highest RAA* Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)	Quarterly in 2017	61	21 – 82	80	-----	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Quarterly in 2017	29	11 - 37	60	-----	N	Byproduct of drinking water disinfection
Chlorine (Total) (ppm)	Monthly in 2017	0.92	0.04 - 1.92	4	4	N	Water additive used to control microbes
* Highest running annual average (RAA) is the highest average of four consecutive quarters.							

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

Unregulated and Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Sodium (ppm)	4/11/17 4/14/2015	5.3 - 41	23	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Chloride (ppm)	3/21/17	6.3 – 110	58	250	---	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage
Odor (T.O.N.)	3/21/17	2	1	3 TON	---	Erosion of natural deposits; Leaching from wood preservatives
pH	3/21/17	6.6 – 7.4	7.0	6.5-8.5	---	-----
Total Dissolved Solids (TDS) (ppm)	3/21/17	23 – 270	146.5	500	---	Erosion of natural deposits.
Sulfate (ppm)	3/21/17	14 - 16	15	250	---	Runoff and leaching from natural deposits; industrial wastes

PFAS Contaminants	Dates Collected	Range of Results Detected	Average Detected	ORSG or EPA Health Advisory	Possible Source
Perfluoroheptanoic acid (PFOA) (ppt)	2/28/17 5/23/17 8/23/17 11/28/17	30-41			Breakdown product of stain- and grease-proof coatings on food packaging, couches, carpets.
Perfluorooctanoic acid (PFOS) (ppt)	2/28/17 5/23/17 8/23/17 11/28/17	3.7-6	42 (2 combined)	70* (combined)	Used in the process of making Teflon and similar chemicals, firefighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives and photographic films.
Perfluoroheptanoic acid (PFHpA) (ppt)	2/28/17 5/23/17 8/23/17 11/28/17	6.5-10			Used as surfactants, to make fluoropolymers and as water and stain protective coatings for carpets, paper and textiles
Perfluorohexanesulfonic acid (PFHxS) (ppt)	2/28/17 5/23/17 8/23/17 11/28/17	ND-2.1	51 (5 combined)		Used as surfactants, to make fluoropolymers and as water and stain protective coatings for carpets, paper and textiles
Perfluorononanoic acid (PFNA) (ppt)	2/28/17 5/23/17 8/23/17 11/28/17	0			Used as surfactants, to make fluoropolymers and as water and stain protective coatings for carpets, paper and textiles
Perfluorobutanesulfonic acid (PFBS) (ppt)	2/28/17 5/23/17 8/23/17 11/28/17	3.3-4	3.7	---	Used as surfactants, to make fluoropolymers and as water and stain protective coatings for carpets, paper and textiles

* Per and Polyfluoroalkyl substances (PFAS), which were included under the EPA UCMR3 unregulated contaminant monitoring rule as perfluorinated compounds, are monitored by our water system with detections reported in the table above. *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.* In the interim, EPA has established health advisories for (HA) for two of these unregulated compounds (PFOA & PFOS) at 70 ppt (combined). The Health Advisories for both PFOA and PFOS are based on similar developmental effects and are numerically identical; when these two chemicals co-occur at the same time and location in a drinking water source, a conservative and health-protective approach that EPA recommends would be to compare the sum of the concentrations ([PFOA] + [PFOS]) to the HA (70 ppt).

Based on additional information about PFAS, in June 2018 MassDEP adopted an ORSG guideline for five of these unregulated compounds (PFOA, PFOS, PFHpA, PFHxS, PFNA) at 70 ppt (combined). Refer to MassDEP Fact Sheet - PFAS in Drinking Water at: <https://www.mass.gov/lists/contaminants#pfas-per-and-polyfluoroalkyl-substances-including-pfos-and-pfoa>

More information on the potential health effects of these chemicals can be found at: <https://www.atsdr.cdc.gov/pfas/index.html>; <http://www.epa.gov/iris>.

EPA also provides additional information for several of these chemicals. See: https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf

What is the Unregulated Contaminant Monitoring Rule (UCMR4)?

In accordance with provisions in the Safe Drinking Water Act (SDWA), public water suppliers are required to monitor for up to 30 unregulated contaminants on a five-year cycle. UCMR 4 monitoring will occur from May of 2018 through 2020 and includes monitoring for a total of 30 chemical contaminants: 10 cyanotoxins (nine cyanotoxins and one cyanotoxin group) and 20 additional contaminants (two metals, eight pesticides plus one pesticide manufacturing byproduct, three brominated haloacetic acid [HAA] disinfection byproducts groups, three alcohols, and three semi-volatile organic chemicals [SVOCs]). Unregulated contaminants are those that don't yet have a drinking water standard set by the United States Environmental Protection Agency (EPA). The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard.

For more information please see. <https://www.epa.gov/sites/production/files/2017-03/documents/ucmr4-fact-sheet-general.pdf>

COMPLIANCE WITH DRINKING WATER REGULATIONS IN 2017

Does My Drinking Water Meet Current Health Standards?

We are committed to 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.

EDUCATIONAL INFORMATION

Lead: 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 Hudson Water Supply is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

ADDITIONAL INFORMATION

During the year 2017 the Town supplied over 593 million gallons of water to its customers. Remember, water is a precious resource and it is everyone's responsibility to conserve it.

There is an outdoor water use restriction in place for the summer of 2018. See the Town's website (townofhudson.org) for these water use restrictions.

Protecting our water sources is just as important as conserving drinking water. You play an important role in protecting your water resources. To help us protect your water sources:

- Use fertilizers, insecticides, and herbicides sparingly and follow the manufacturers' instructions.
- Never pour harsh chemicals or cleaners down your toilet or sink. Instead, dispose of them and other materials such as paints and thinners during household hazardous waste collection programs.
- If you have a septic system, have it pumped out every two years and do not use septic system cleaners.
- Immediately notify the DPW (or Police outside 7AM to 3PM M-F) if you notice anyone - trespassing or riding motorized vehicles near the wells, reservoir, or storage tanks; swimming or allowing their animals to enter Gates Pond; vandalizing any water supply facilities.

CROSS CONNECTION CONTROL AND BACKFLOW PREVENTION

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

What is a cross-connection?

A cross-connection occur whenever the drinking water supply is or could be in contact with a potential sources of pollution or contamination such as a piping arrangement or equipment allowing the drinking water to come in contact with non-potable liquids, solids or gases hazardous to humans in event of a backflow occurs.

What is a backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of the water can occur when the pressure created by an equipment or 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 consumers are unaware of, a problem that each and every water customer has a responsibility to help prevent.

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

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

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

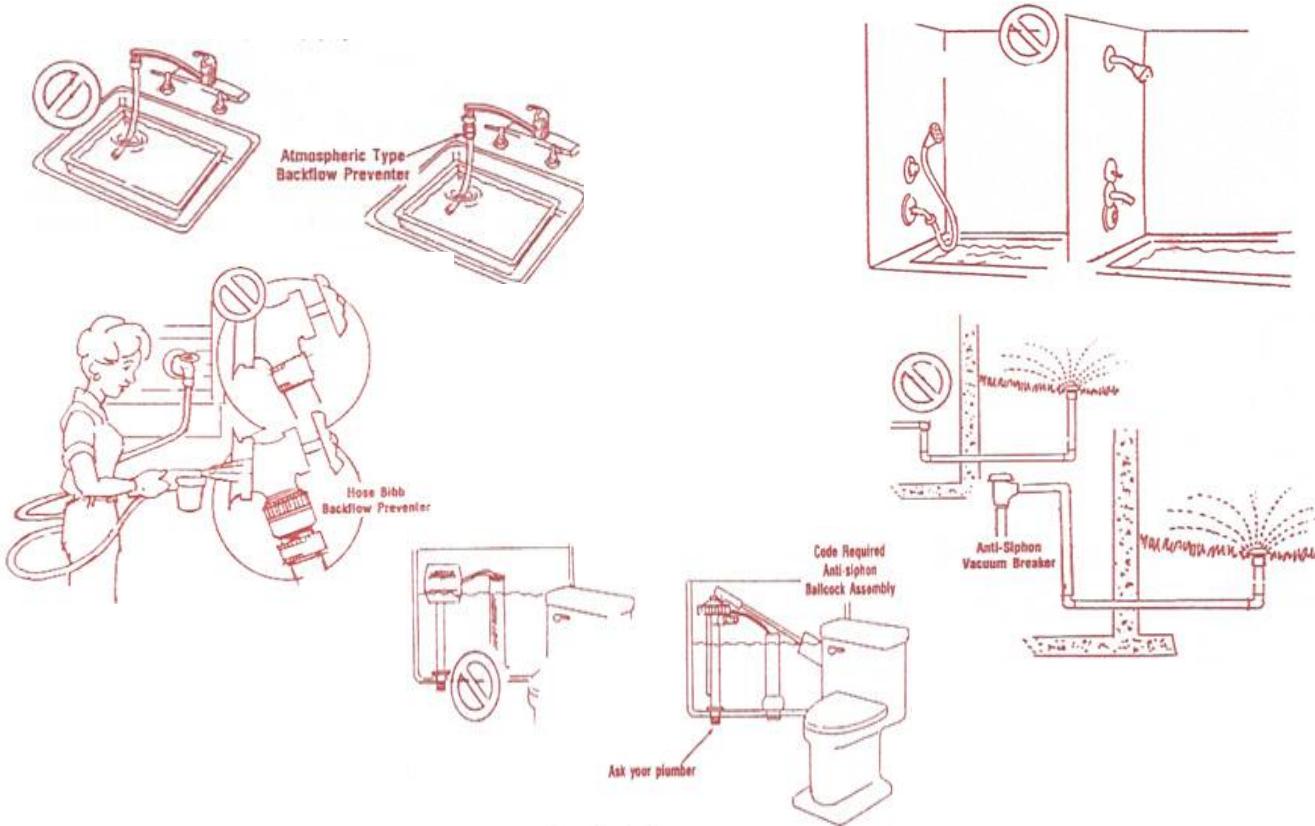
If you are the owner or manager of a property that is being used as a commercial, industrial or institutional facility you must have your property's plumbing system surveyed for cross-connection by your water purveyor. If your property has NOT been surveyed for cross-connection, contact your water department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

The Massachusetts Drinking Water Regulations, 310 CMR 22.00, requires all public water systems to have an approved and fully implemented Cross-connection Control Program (CCCP). The Hudson Water System is working diligently to protect the public health of its drinking water customers from the hazardous caused by unprotected cross-connections through the implementation of its cross-connection survey program, elimination or proper protection of all identified cross-connections, the registration of all cross-connections protected by a reduced pressure backflow preventers (RPBPs) or a double check valve assemblies (DCVAs), and the implementation of a testing program for all RPBPs and DCVAs.

Backflow prevention devices are required for all commercial, industrial, institutional and municipal water customers. These devices must be tested (yearly or semi-annually depending on the type of device) and the test report must be submitted to the DPW. There are 1230 backflow devices protecting the Hudson water system. DPW Water Division staff tested 460 of these devices. The balance of the devices were tested by private certified testers hired by the backflow device owners. Two (2) backflow violations were found and corrected during 2015. If you have questions about backflow prevention devices please contact us.

If you have any questions or comments about this report or the Department of Public Works - Water Division, please contact Mr. Eric Ryder, Public Works Director at (978) 562-9333.

SOME EXAMPLES WHERE CROSS CONNECTIONS OCCUR



DEPARTMENT OF PUBLIC WORKS
1 MUNICIPAL DRIVE
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TEL. 978 562 9333

Dear Water Consumers,

This is your ANNUAL DRINKING WATER QUALITY REPORT for 2017. It contains important information about your water that is supplied by the Town of Hudson.

Landlords:

Please make this report available to your tenants.

Businesses:

Please post this report where your employees and customers may read it.

Public Building and School Officials:

Please post this report where people who may drink this water may read it.

Additional copies of this year's report are available from the Department of Public Works office at One Municipal Drive. A very limited supply of previous years' reports is also available.

Our goal is to provide you with a continuous supply of quality water. We welcome comments and suggestions you may have to help us reach and maintain that goal.

Very truly yours,



Eric M. Ryder
Director of Public Works

DEPARTMENT OF PUBLIC WORKS
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