2012

Water Quality Report

CITY OF AMESBURY, MA | DPW–WATER DEPARTMENT | PWSID# 3007000

Amesbury's public water system operates under strict state and federal regulations. To help meet the stringent standards, quality control and quality assurance procedures are employed at every level of water system operations. A multi-barrier approach to drinking water protection is in place to eliminate contamination from the supply water all the way to the tap. The management and employee teams charged with the responsibility for providing safe drinking water to you are skilled and well-trained. With this combination of measures, we are able to provide a safe and reliable product that is essential to this community.

Each year at this time our customers are mailed a Consumer Confidence Report (CCR) summarizing information about your drinking water, which includes information on source water, the treatment plant process, distribution system, drinking water contaminants, and our compliance with drinking water regulations. These components all play a critical role in protecting public health.

This is the Fifteenth annual CCR that is part of the regulatory process of informing you, and it discusses the results of water quality testing during 2012. It reflects the water department's ability to achieve and maintain compliance with the federal Safe Drinking Water Act. It describes how we operate and manage our water resources to meet your needs.

Thatcher W. Kezer III
Mayor

Robert L. Desmarais, P.E.
DPW Director

For more information about the treatment process, or to schedule a tour of the facility, contact Tom Rogers at 978-388-0853.

Visit our website at:
www.amesburyma.gov

Our goal is to provide in the best interests of the public's health and welfare. If you have any questions or comments about this report, please feel free to contact me at 978-388-0853 or email masonj@amesburyma.gov.

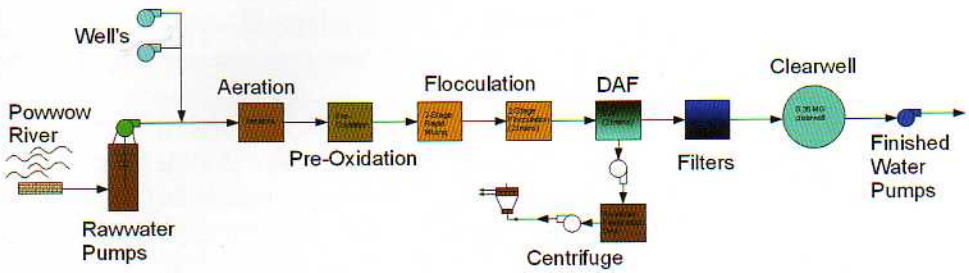
Sincerely,

Jeff Mason
Water System Manager

Facts:

- Total Finished Water Pumped to city (2012) = 434,700,998 gallons
- Average gallons per person per day in Amesbury (2012) = 52 gallons
- Leaky faucet at 1 drip per second = 3000 gal per year (EPA data)
- Amesbury Water rate = $6.40 per 100 cubic feet (748 gal) = 9/10ths of a penny per gallon

Where Your Drinking Water Comes From



Amesbury receives its drinking water from the Powow River which is supplemented by Tuxbury Pond, Lake Attitash and Meadowbrook. Two groundwater wells are also available for use during peak season. Each day millions of gallons of Powow River water is drawn directly into the water treatment plant for purification. The treatment process utilizes a series of physical and chemical steps designed to produce a safe and consistent quality product. The current treatment process is illustrated in the schematic below.

This consumer confidence report is the 15th publication to be issued under the Environmental Protection Agency (EPA) regulations requiring annual notification to all consumers about local drinking water sources and water quality information. It is being delivered to all consumers, the Amesbury Board of Health, the Massachusetts Department of Public Health (DPH), and the Massachusetts Department of Environmental Protection (DEP). Additional copies are available at the library, town hall, and water treatment plant. It summarizes Amesbury's drinking water sources, treatment facility, monitoring information, water quality parameters, and health-related water issues.

How to Read the Following Tables

The following tables present the results of most recent water quality testing during the 2012 calendar year, unless otherwise noted. All of the regulated drinking water contaminants that were detected in the water are listed in the tables that follow. The presence of contaminants in the water does not indicate that the water poses a health risk. Any potential health risk associated with a contaminant is clearly explained. All testing was done in accordance with EPA and MA DEP drinking water regulations. The following definitions have been provided to help you better understand Amesbury's water quality information.

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 as feasible using the best available treatment technology.

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 is necessary for control of microbial contaminants (ex. chlorine, chloramines, chlorine dioxide).

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.

Chemical Building

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

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

Parts Per Million (ppm), Parts Per Billion (ppb): These units are used to describe the levels of detected contaminants. One ppm is comparable to 1 cent in $10,000 dollars; one ppb is comparable to 1 cent in $10,000,000 dollars.

EPA = U.S. Environmental Protection Agency
DEP = Massachusetts Department of Environmental Protection (MA DEP)
CDC = U.S. Center for Disease Control and Prevention

Test Results

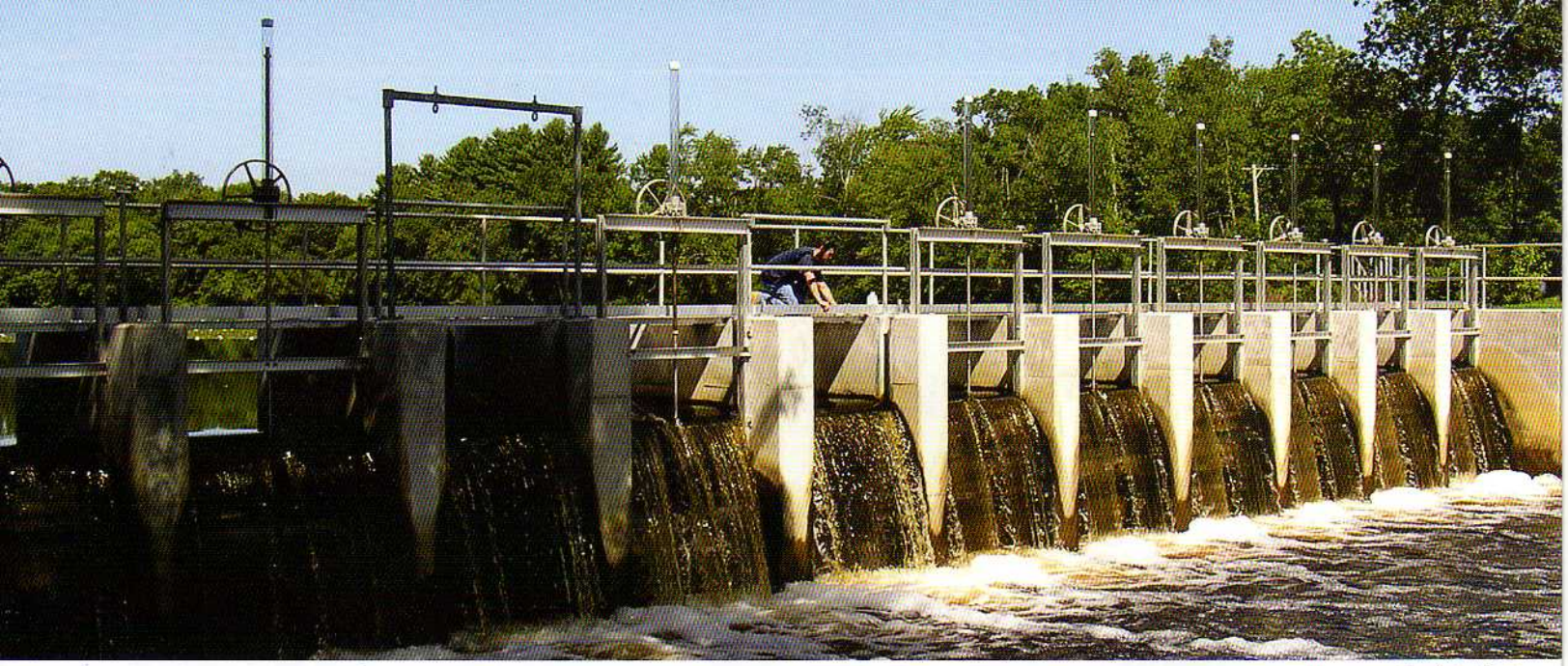
Thousands of water samples were analyzed for the presence of biological, inorganic, and organic contaminants throughout the year. The following tables show only those contaminants that were detected in Amesbury's water at some level. Although all of the results listed here are under the Maximum Contaminant Levels (MCL), we feel it is important that you know exactly what was detected in the drinking water and how much of the substance was present. Massachusetts Department of Environmental Protection (DEP) allows us to monitor for certain substances less than once per year because the concentration of these substances do not change frequently. In these cases, the most recent test results are included along with the year in which the sample was collected. All units of measure for test results are reported in parts per million (ppm) unless noted otherwise.

Information About 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 Amesbury 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. The values reported in the table below are from tests conducted in 2011. Results represent the highest concentration found in 90% of the homes sampled and are well below the EPA's action levels requiring additional corrective measure.

Range Levels

PARAMETER	90th Percentile Value	Range of Detection	MCL	MCLG	# of Sites Above AL	SOURCE OF CONTAMINANT
Lead (ppb) 2011	4.1	0—4.1	15 (action level)	Zero	Zero	Corrosion of household plumbing
Copper (ppm) 2011	0.22	0.037—0.22	1.3 (action level)	1.3	Zero	Corrosion of household plumbing



Tuxbury Dam

Biological Contaminants

PARAMETER	MAXIMUM	RANGE	MCL	MCLG	SOURCE OF CONTAMINANT
Total Coliform (colonies/ml)	0	0	< 5% of samples positive within a month	0	Naturally present in environment; human and animal waste
Total Organic Carbon	2.50	1.0 - 2.50	TT = 45% removal	N/A	Naturally present in environment

Miscellaneous Contaminants

PARAMETER	MAXIMUM	RANGE	MCL	MCLG	SOURCE OF CONTAMINANT
Fluoride *Note: discontinued 1/27/09*	—	—	4	4	Water additive that promotes strong teeth
Manganese	0.056	0.021– 0.056	N/A	0.05 (EPA guideline)	Naturally present in the environment
Perchlorate	0.302	N/A	2	N/A	Propellant for rockets and explosives
Sodium	35	N/A	N/A	20 (DEP guideline)	Naturally present in environment; deicing runoff; water treatment process residual
Sulfate	42	N/A	N/A	250 (EPA guideline)	Naturally present in environment; water treatment process residual
Turbidity (ntu)	0.24	0.05 - 0.24	TT = 1.0 max	TT < 0.3	N/A
			MRDL	MRDLG	
Chlorine	1.27	0.78-1.27	4	4	Water additive used to control microbes

Disinfection By-Products

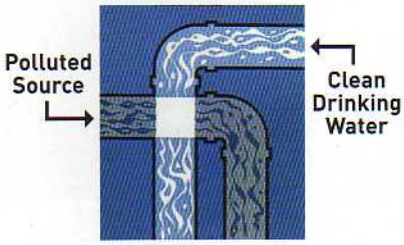
PARAMETER	MAXIMUM	RANGE	MCL	MCLG	SOURCE OF CONTAMINANT
Total Trihalomethanes (ppb)	51.0	15.0 – 51.0	80	N/A	By-product of chlorination
Haloacetic Acids (ppb)	28.0	1.8 - 28.0	60	N/A	By-product of chlorination

Other Water Quality Parameters

PARAMETER	RANGE	DESCRIPTION
pH	6.6 - 8.4	Measure of the acidity or basicity
Alkalinity (ppm as CaCO3)	13 - 20	Buffering capacity in respects to pH
Hardness (ppm as CaCO3)	26	Measure of the mineral content. Amesbury has soft water 26 ppm = 1.5 gpg (grains per gallon)

AMESBURY WATER DEPARTMENT
CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

The Amesbury Water Department (AWD) makes every effort to ensure that the water delivered to your home and business is clean, safe and free of contamination. Our staff works very hard to protect the quality of water from the time it is extracted from the surface water source at the Powwow River, or our back up wells, throughout the entire treatment process and distribution to your home. 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?



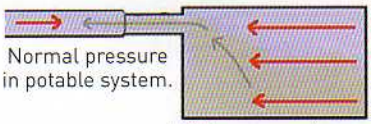
What is a cross-connection?

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

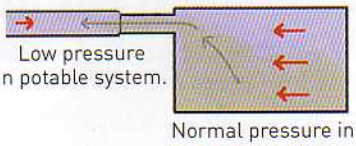
What is a backflow?

Backflow is the undesired reversed flow of water in the drinking water distribution lines. This backward flow of water can occur when the pressure created by a piece of equipment or system connected to a potable water installation (home or business) is higher than the water pressure inside the water distribution line servicing that system (backpressure). Also, when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand, such as a fire, causes 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.

Back Pressure:



Back Siphonage:



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 built-in backflow preventer when available.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections such as pools and hot tubs/spas. These devices require installation by a Massachusetts licensed plumber.

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-connections by the Amesbury Water Department. If your property has NOT been surveyed for cross-connections contact Amesbury's CCCP Coordinator, Jim Higgins at 978-388-0853 to schedule a cross-connection survey.

Requirements

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 Amesbury Water Department is working diligently to protect the health of its drinking water customers from the hazards 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 reduced pressure backflow preventers (RPBPs) or a double check valve assembly (DCVA), and the implementation of a testing program for all RPBPs and DCVAs.

The following chart shows how the AWD's CCCP is being implemented:

Cross-connection Surveys Information

Type of Facilities	Total # Facilities Served	# Facilities Surveyed for Cross-connection	# Facilities Remaining to be Surveyed for Cross-connection	# Facilities Surveyed for the First Time in [2012]	# Facilities Re-surveyed in [2012]
Commercial	233	40	51	142	0
Industrial	23	14	0	9	0
Institutional	10	4	0	6	0
Municipal	11	4	0	7	0

Backflow Prevention Devices and Assemblies Testing Information

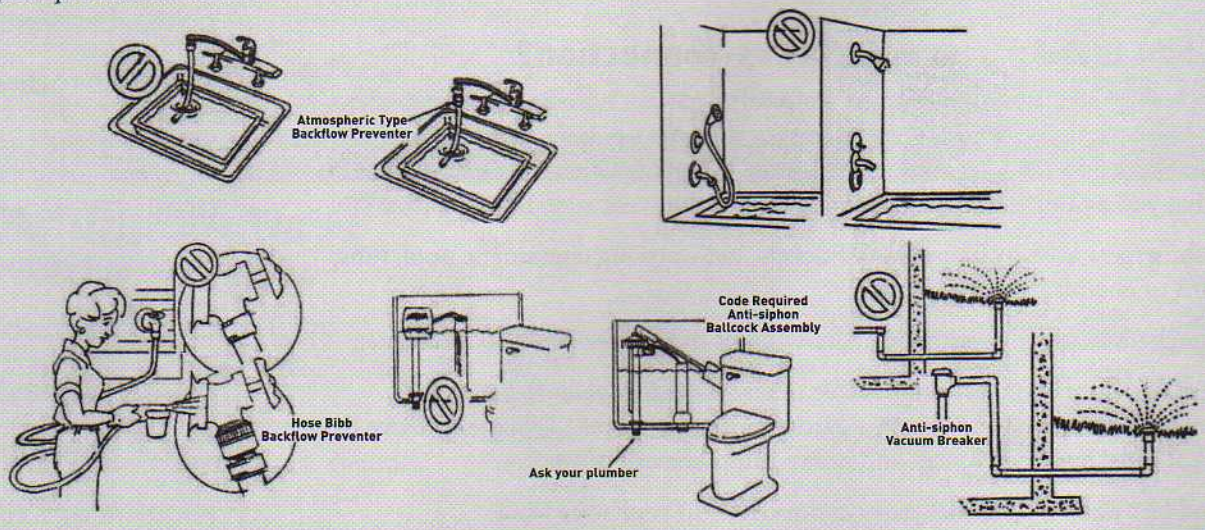
Type of Backflow Preventer	# Devices or Assemblies	Test Frequency	Total # of Routine Test	# Test Failures	# Re-test
Reduced Pressure Backflow Preventer (RPBP)	113	Semi-annual*	226	4	4
Double Check Valve Assembly Backflow Preventer (DCVA)	55	Annual*	55	2	2
Pressure Vacuum Breaker (PVB) & Anti-siphon Vacuum Breaker (AVB)	1	Annual**	1	0	0

*Required frequency **Recommended

If you have any questions, please contact your CCCP coordinator Jim Higgins at 978-388-0853.

Some Examples Where Cross-connections Occur

The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops at the same time you turn on the hose, the fertilizer may be sucked back into the drinking water pipes through the hose. This problem can be prevented by using an attachment on your hose called a *backflow-prevention device.*



The Amesbury 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 this at a hardware store 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 Amesbury! For additional information on cross connections and on the status of your water systems cross connection program, please contact Jim Higgins, Cross Connection Control Program coordinator at 978-388-0853.

A Watts Hose Bib Vacuum Breaker

City of Amesbury
Water Department
39 South Hunt Rd.
Amesbury, MA 01913

PRESORT STD.
U.S. POSTAGE
PAID
PERMIT NO. 51
AMESBURY, MA
01913

POSTAL CUSTOMER
AMESBURY, MASSACHUSETTS

What the EPA Says About Drinking Water

Contaminants and Health Risks

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 (1-800-426-4791).

Other Important Health Information

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 about drinking water from their health care providers. EPA/CDC (Center for Disease Control) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline.

Contaminants

The sources of drinking water (both tap and bottled) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of 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 animal or 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, and wildlife.

Inorganic contaminants, such as salts and metals, which 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 stormwater runoff, and residential uses.

Organic 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 stormwater runoff, and septic systems.

Radioactive contaminants, which can be either naturally occurring or the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, Mass DEP and US EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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.

Source Water Assessment and Availability

DEP assessed Amesbury's public water supply in a source water assessment and protection (SWAP) report. Based on the presence of at least one high threat land use within the protection areas, the water supply was assigned a high susceptibility ranking. The high threat activities listed by DEP are those that typically use, produce, or store contaminants of concern, which if managed improperly, are potential sources of contamination. It is important to understand that a release may never occur from a potential source, and the actual risk may be lower than the relative threat ranking assigned to it. The report notes several key issues to address, and Amesbury was commended for taking an active role in source water protection measures.

1 Million Gallon Storage Tank

The complete SWAP report is available online at http://www.mass.gov/dep/water/drinking/3007000.pdf