TOWN OF PAXTON

2014 Water Quality Report – Public Water Supply #2228000

This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process, and to protect our water resources. We are committed to ensuring the quality of your water.

In 2014, the Paxton Water Department distributed 97,372,900 gallons of water to our customers. 100% of our water is purchased pretreated from the city of Worcester.

Worcester obtains its drinking water from ten surface water sources, or reservoirs, located both in and out of the city. The watershed for these reservoirs cover a total of 40 square miles in Worcester, Leicester, Paxton, Rutland, Holden, Princeton, and Hubbardston. Worcester also has two groundwater sources which come from two different wells: the Coal Mine Brooke Well located on Lake Avenue North in Worcester, and the Shrewsbury well located off Holden Street in Shrewsbury. The wells are off line, but are an excellent emergency water source.

Worcester treats the water using disinfection, and filtration to remove or reduce harmful contaminants that may come from the source water. Worcester prohibits access to reservoir lands, which are patrolled regularly.

In our continuing efforts to deliver safe and dependable drinking water to our customers tap, it may be necessary for the department to make improvements throughout the distribution system. The cost of these improvements may be reflected in the rate structure. Rate adjustments may be unavoidable in order to address such issues.

We at the Paxton Water Department work around the clock to provide top quality water to every tap. We ask that all our customers help us to protect our water sources, which are the heart of our community, our way of life, and our children's future.

2014 Monitoring Results for the Town of Paxton

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as a person 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 for infections. These people should seek advice about drinking water from health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water hot line (1-800-426-4791).

The following results are from sampling done in 2014, or during the most recent monitoring period for each contaminant group.

Substance (Contaminant)	Date Collected	Highest Level Detected	Range	MCL or MRDLG	MCLG or MRDLG	Violation (Yes/No)	Possible Sources
Inorganic Contaminants							
Barium	2014	0.010ppm	N/A	2.0ppm	2.0ppm	No	Erosion of natural deposits
Manganese	2014	0.011ppm	N/A	Unregulated[1][3]	Unregulated[1][3]	No	Erosion of Natural Deposits
Nitrate Nitrogen	2014	0.074ppm	N/A	10 ppm	10ppm	No	Erosion of natural deposits, fertilizer, wastewater
Sodium	2014	11.0ppm	N/A	Unregulated[1]- ORSG: 20ppm	Unregulated[1]	No	Naturally present in the environment; road salt.
Radioactive contaminants (no samples required for 2014)							
Gross Alpha Activity	2003	0.6 pCi/L	N/A	15.0 pCi/L	0 pCi/L	No	Erosion of natural deposits
Beta Particle Activity	2003	0.1 pCi/L	N/A	50 pCi/L[2]	0 pCi/L	No	Erosion of natural deposits
Radium 226 & 228	2003	0.4 pCi/L	N/A	5 pCi/L	0 pCi/L	No	Erosion of natural deposits

[1]Unregulated means that USEPA has not set an MCL for this contaminant.
[2]The MCL for Beta Particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for Beta particles.
[3]The EPA has set a health advisory for Manganese of 0.3ppm

Microbiological Contaminants

Total Coliform Bacteria are a group of bacteria that serve as indicators of potential water quality problems. Total Coliform Bacteria are naturally present in the environment in soil, vegetation, and surface water. (Certain types of Total Coliform can survive in water distribution systems despite the presence of chlorine.) Total Coliform Bacteria are used as an indicator, and if they are found in any of the routine monthly samples taken the samples must then be tested for Fecal Coliform. The Paxton Water Department currently collects 6 coliform bacteria samples each month throughout the distribution system.

Bacteria	Highest # of Positive Samples in a Month	MCL	MCLG	Violation (Yes/No)	Possible Sources
Total Coliform	3	1	0	yes	Naturally present in the environment.

August, 2014 - The Department was notified by the laboratory that there were two samples on August 12th that showed the presence of total coliform bacteria. The Water Department flushed these sections of the distribution system, and then drew repeat samples of the sample locations, along with upstream and downstream samples. In our first set of repeat samples we had another sample that showed the presence of total coliform bacteria, so the Department continued flushing that section of the system. The department then took another set of repeat samples on August 15th which all came back free of total coliform.

Fecal Coliform are a group of bacteria that thrive at warmer temperatures such as those found in the gut-tract of warm blooded animals. The presence of Fecal Coliform may be a cause for concern since these organisms are sometimes, but not always, associated with sewage, or human/animal waste. **In 2014 there was no presence of fecal coliform in any of Paxton's water.**

Bacteria	Highest # of Positive Samples in a Month	MCL	MCLG	Violation (Yes/No)	Possible Sources
Fecal Coliform or E.coli	**0**	*	**0**	**No**	Human and animal fecal waste

THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) WANTS YOU TO KNOW

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 accruing minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animal, or from human activity.

Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewerage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminates, 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 agricultural, 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 runoff, and septic systems.

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

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA), and the Massachusetts Department of Public Health (DPH) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and drug administration and Mass DPH regulations establish limits for contaminants in bottled water as well, which must provide the same protection for public health.

SOURCE WATER ASSESSMENT PROTECTION AGENCEY (SWAP) REPORT

The Massachusetts Department of Environmental Protection (DEP) has completed a source water assessment program report for our reservoirs supplying the Paxton Water system. The purpose of SWAP is to identify potential threats to our water supply sources so we can take appropriate action to improve source protection.

The susceptibility to contamination for Worcester's water sources was ranked high. This means there is at least one high threat land use within the key water supply areas surrounding the reservoirs. These land uses have the potential to add contaminants to the supply source. Some of these high threat uses are: Dairy Farms, Manure Spreading or Storage, Pesticide storage or use, Landfills and dumps.

Worcester has been commended by DEP for taking an active role in promoting source water protection measures. For a complete copy of the SWAP Report please call the Worcester Water Department at 1-508-799-1484.

Turbidity				
Contaminant	**Maximum Turbidity Measured**	**% of Measurements Below Turbidity Limit**	**Number of Measurements Greater Than 1.0 NTU**	**Turbidity Limits (Combined for all filters)**
Turbidity (combined for all filters)	0.389 NTU	99%	0	Less than or equal to 0.3 NTU in 95% of monthly measurements, No measurements can exceed 1.0 NTU

Notes: [1]The state allows us to monitor for some contaminants less than once per year because the contaminants do not change frequently. Some of our data, though accurate, are more than one year old.

[2]Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Lead and Copper

Lead and copper are contaminants with a very specific and unique set of rules for sampling, and testing. Lead and Copper don't contaminate the water at the source as many other inorganics do. Generally it enters the water once it has flowed to the consumer's home. These metals typically dissolve from the water pipes within your house if the water is corrosive. Lead typically comes from the Lead Solder that was used prior 1986, to connect the copper piping in the buildings water supply lines. The copper comes from the piping itself. Ingesting large amounts of copper from water can cause an upset stomach, but there are no long term health effects unless you suffer from Wilson's disease. Lead, on the other hand is known to cause learning impairments in young children, and may cause delays in mental and physical development. Elevated lead ingestion is also known to cause kidney problems, and/or high blood pressure in adults. Elevated lead in water taken from the tap can cause serious health problems, especially in young children, and pregnant women. Lead in your drinking water is primarily from the materials which make up the plumbing inside the home. The Paxton Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials associated with home plumbing. After your water has been sitting unused for several hours you can minimize the potential for lead exposer by flush the tap for 30 seconds, to two minutes before using the water for drinking, cooking, or making formula. 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 your exposure to lead can be found through the Safe Drinking Water hot line, or at http://www.epa.gov/safewater/lead.

Lead and copper	Date collected	90th Percentile	Action Level	MCLG	# of sites Sampled	# of Sites Above Action Level	Exceeds Action Level (Y/N)	Possible Sources
Lead	2012	0.001mg/L	0.015 mg/L	0	21	1	No	Corrosion of household plumbing
Copper	2012	0.078mg/L	1.3 mg/L	1.3 mg/L	21	0	No	Corrosion of household plumbing

*Lead and Copper compliance is based on the 90th percentile value, which is the highest level found in 9 out of every 10 homes sampled. This number is compared to the action level for each contaminant.

Other Analysis

The compounds in this table are general measures of water chemistry. There are no established limits for these compounds since they are not recognized as having significant health effects at levels found in drinking water. These compounds are sometimes referred to as secondary contaminants. At certain levels some of these may discolor the water or create a bad taste. Many of these measurements are made as another way to track the effectiveness of Worcester's treatment process.

Unregulated Contaminants tested by the city of Worcester	Range Detected By the City of Worcester	Possible Sources
Alkalinity	10.8-14.3 ppm	Naturally Occurring. Buffering capacity of water.
Aluminum	0.039-0.110 ppm	From natural sources and water treatment processes
Calcium	7.5-10.9ppm	From natural sources and water treatment processes.
Chloride	26-35 ppm	Natural and manmade sources
Conductivity	130-181 umhos/cm	An indirect measure of dissolved solids.
Hardness	24-32 ppm	Naturally occurring. An indirect measure of Calcium & Magnesium.
Iron	0.029-0.233 ppm	From natural sources and old water mains.
Orthophosphate	0.401-0.741 ppm	Added to the water during treatment as a corrosion inhibitor.
PH	7.37-7.76 PH units	Measurement of the acidity or basicity of the water.
Sulfate	9.3-15.7 ppm	Natural sources and water treatment processes.

Temperature	4.7-24.4 degrees Celsius	Natural processes.
Total Organic Carbon	1.63-2.49 ppm	Natural sources.
Total Phosphate	0.94-1.08 ppm	Added to the water during treatment as corrosion inhibitor.
Zinc	0.003-0.004 ppm	Natural sources; galvanized pipes

Disinfection and Disinfection Byproducts

Chlorine is a disinfectant used to kill bacteria and microorganisms in drinking water. Its use is recognized as one of the most important public health measures ever taken in the modern world. New federal regulations limit the maximum amount of residual chlorine that can be present in the distribution system to 4.0ppm.

Substance (disinfectant or Byproduct)	Maximum Level Detected (HRAA)[3]	Range Detected	MCL (MRDL)[4]	MCLG (MRDLG)[5]	Violation (Y/N)	Typical Source of Contaminant
Total Chlorine	0.50ppm	0.02ppm – 2.22ppm	4.0 ppm	4.0 ppm	No	Added during treatment.
Total Tri-halomethanes (THM's)	55.8ppm	31.20ppb – 72.60 ppb	80.0 ppb	-	No	Byproducts of Chlorine Disinfection.
Halo acetic Acids (HAA's)	37.4ppm	19.00 ppb – 56.30 ppb	60.0 ppb	-	No	Byproducts of Chlorine Disinfection.

[3]Highest Running Annual Average. /[4]Maximum Residual Disinfectant Level. /[5]Maximum Residual Disinfectant Level Goal.

[4]Maximum Residual Disinfectant Level.

[5]Maximum disinfectant Level Goal.

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Drinking water <u>Notice of Non-compliance</u>:

- The **Monthly Maximum Contaminant Level (MCL)** for coliform bacteria for the month of August 2014 exceeded

PWS NAME: Paxton Water Department

The Department received a Notice of Non-Compliance for exceeding the Maximum Contaminant Level (MCL) for coliform bacteria in the month of August in 2014. The Department took subsequent actions, including flushing, sampling, and Public Notifications to return to compliance.

In response to the Maximum Contaminant violation(s) of the Massachusetts Drinking Water Regulations, the Paxton Water Department took the following corrective actions:

1. We notified our customers of the violation(s) by providing a public notice to you as well as submitting a copy of the public notice to the DEP and local board of health.
2. We posted copies of the Public Notice at the Post Office, Highway Department, Police Station, Light Department, Council of Aging Center, and the Library.
3. Sample Collection: The Department collected and analyzed sample(s) for the contaminants listed above and have submitted copies of the sampling results to the DEP.
4. The Department Flushed throughout the distributions system to ensure that all contaminants were no longer present.
5. We will continue to collect samples for all contaminants according to our most recent sampling schedule.

You can find further information in the Microbial Bacteria section of this report.

CONTACT INFORMATION:

For more information or questions regarding this notice, please contact Travis Thibault (the Paxton Water Departments Foreman) at # (508) 753-9077.

Cross Connection Information

The Paxton Water Department 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 the water delivered to you, our customers from the time it enters into the system, until it reaches your homes and businesses. But what when the water reaches your home or business? Is there still a need to protect the water quality from contamination caused by 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 allowed the drinking water to come in contact with non-potable liquids, solids, or gasses (hazardous to humans) in event of a backflow.

What is a 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 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 customers are unaware of, a problem that each and every water customer has a responsibility to help prevent.

What can you 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 involved unprotected garden hoses. There are very simple steps that you can take as a drinking water user to protect, and prevent against hazards your water:

- NEVER submerge a hose in soapy water buckets, pet watering containers, pools, tubs, drains, or chemicals.
- NEVER attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install hose bib vacuum breakers in any threaded water fixture. The instillation 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 already installed on it.
- Buy and install backflow prevention devices or assemblies for all high or moderate hazard conditions.

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 the Paxton Water Department. If your property has NOT been surveyed for cross-connection please contact the Paxton Water Department to schedule a cross-connection survey.

The Paxton Water Department would like to remind all homeowners with in-ground sprinkler systems that they must have the proper cross-connection devises to be in compliance with the DPW and DEP regulations. More education on cross connection is available at the town hall, or by contacting the Paxton Water Department at (508) 753-9077.

Glossary of Terms

90th Percentile – A statistical measure used in the Lead and Copper Rule. A test result at the 90th percentile level means that 90 percent of all the test results fall below that level.

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

Distribution System – The network of pipes, vaults, and storage tanks that bring water from the treatment plant to the homes and businesses where the water is used.

Massachusetts Department of Environmental Protection (DEP) – The State Agency responsible for setting and enforcing drinking water regulations in Massachusetts.

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's 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. MCLG's allow for a margin of safety.

Maximum Residual Disinfection 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 health risk. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Mg/L – Milligrams per liter

NTU - Nephelometric Turbidity Units

Office 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 (life time) exposure. If exceeded, it serves as an indicator of the potential need for further action.

Ppb – Parts per billion

Ppm – Parts per million

pCi/L – picocuries per liter (a measurement of radioactivity)

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

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

United States Environmental Protection Agency (USEPA) – The Federal Agency responsible for setting and enforcing drinking water regulations.

Variances and Exemptions – Is when State or EPA permission not to meet MCL or a treatment technique under certain conditions.

Water Shed – The land upon which rain falls then flows across as runoff that eventually collects into streams, rivers, lakes, ponds, and reservoirs. Watershed boundaries are determined by the topography with hills and mountains determining which direction the runoff will travel.

If you have any questions about this report or concerning your water utility, please contact either Mike Putnam (Paxton DPW director), or Travis Thibault (Paxton Water Dept. foreman) by calling (508) 753-9077, or by writing to this address: 107 Holden Road, Paxton, Ma. 01612. We at the Paxton Water Department want to make certain that all of our customers are informed about their drinking water, and their water utility. We welcome any of our customers to attend the Water Board meetings which are held monthly. The date, time, and location are posted at the Town Hall (697 Pleasant Street) in Paxton.