2016 Consumer Confidence Report

For

Pepperell DPW – Water Division

Pepperell, Massachusetts

MASSDEP PWSID # 2232000

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.

I. PUBLIC WATER SYSTEM INFORMATION

Address: 46 Chestnut Street, Pepperell, MA 01463

Contact Person: Joseph Jordan, Water Superintendent

Telephone #: 978-433-5591 Fax #: 978-433-0311

Internet Address: http://town.pepperell.ma.us/247/Water-Division

Introduction:

The Pepperell Water Division is pleased to present our Annual Report on the quality of the water that was delivered to you in 2016. This report meets the federal Safe Drinking Water Act (SDWA) requirement for "Consumer Confidence Reports" and contains information on the source of our water, its constituents, and the health risks associated with any contaminants.

In 2016, the Pepperell Water Division was in full compliance with all state and federal drinking water standards and operating requirements. The Pepperell Water Division supplied 250 million gallons of water to our customers through approximately 3,100 service connections. We tested over 400 samples for 60 contaminants. Total coliform bacteria samples were taken every month at 18 locations.

Water System Improvements

Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP inspects our system for its technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by a Massachusetts certified operator who oversees the routine operations of our system. As part of our ongoing commitment to you, last year we made the following improvements to our system: Various improvements to the water storage tanks were made which included the repair or replacement of screening and vents and the repair of minor defects in the tanks, installation of berms and spill containment to minimize the impact of any spills that may occur in the treatment area at the well sites; Initiated a valve exercise program to insure the proper operation of valves for maintenance and servicing; With regard to iron and manganese, the town has taken the following steps to mitigate and remove higher concentrations of iron and manganese from the water system: 1) Took the Bemis #1 Well, which exhibited higher concentrations of iron and manganese, out of service, 2) Performed an aggressive cleaning procedure known as Ice Pigging in various sections of the water system to remove a buildup of iron and manganese and 3) began process to construct a new filtering system at the Bemis Well site to remove iron and manganese.

Opportunities for Public Participation
If you would like to participate in discussions regarding your water quality, you may attend any of the DPW Board of Public Works meetings which are usually held the first and third Thursday of each month. Actual meeting days and time are posted on the town website at ***http://town.pepperell.ma.us/*** You may also contact the Water Division with any questions you may have at 978-433-5591 or by email at ***water@town.pepperell.ma.us***

2. YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?

Your water sources consist of five gravel packed wells at an average depth of sixty (60) feet. The wells are all owned and operated by the town are separated from each other at the following locations; the Bemis road Wells (2) are located at the end of Bemis road, The Jersey street Wells (2) are located off Jersey street, and the Nashua road Well (1) is located on Emerson road. As described previously, the Bemis Well #1 is currently off-line.

Your water is provided by the following sources listed below:

Source Name	MassDEP Source ID#	Source Type	Location of Source
Bemis Road Well #1	2232000-01G	Groundwater	End of Bemis Road
Bemis Road Well #2	2232000-04G	Groundwater	End of Bemis Road
Jersey Street Well #1	2232000-02G	Groundwater	Off Jersey Street
Jersey Street Well #2	2232000-03G	Groundwater	Off Jersey Street
Nashua Road Well #1	2232000-05G	Groundwater	Off Emerson Road

How Is My Water Treated?

The water system staff makes every effort to provide you with safe and clean drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants. The water pumped from the two Bemis Road Wells is first treated by the addition of potassium hydroxide. This raises the pH making the water less corrosive thereby assisting in the control of lead and copper residuals. Polyphosphate is added to sequester iron and manganese and also assist in the control of lead and copper concentrations. Bemis Road finished water is then treated with sodium hypochlorite for disinfection against bacteria. The water pumped from the Nashua Road Well and the two Jersey Street Wells is directed through a staggered tray aeration tower to reduce carbon dioxide levels which aids in corrosion control, then potassium hydroxide is added as needed to further adjust pH. The finished water is then treated with sodium hypochlorite to disinfect. Combined these wells are limited by MassDEP to pump no more than 1.3 million gallons per day. Finished water pumped into the distribution system is sent to one of three tanks. Pepperell Water has a storage capacity of 3 million gallons. Two booster pump stations send water from the Heald and Mason Street storage tanks to the Townsend Street storage tank. Townsend Street storage tank maintains the pressure we need to supply water to the town's higher elevations, and also provides ample storage for fire protection.

- We add sodium hypochlorite to protect you against microbial contaminants.
- We chemically treat the water with potassium hydroxide to increase pH.

- We aerate the water to remove carbon dioxide and increase pH.
- We add polyphosphate to sequester iron and manganese and control lead and copper levels.

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

Prior water quality test results show that the water needs to be treated to continue to meet these goals. To improve the quality of the water, our system is working on the installation of treatment to reduce or remove iron and manganese at the Bemis Road well site. The new treatment system will treat all the flow from both, the Bemis #1 and #2 wells. We expect this treatment to be on-line and operational by the end of 2019.

How Are These Sources Protected?

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

Our SWAP Report notes the key issue of developing a wellhead protection plan. The Town of Pepperell has completed its Wellhead Protection Strategy Report. This report addresses strategies for protection to our water supplies. We have installed security fencing at all our facilities and will soon be completing the installation of security devices. We continue to monitor for illegal dumping and trespassing.

What is My System's Ranking?

A susceptibility ranking of **moderate** 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 Water Division Office on Chestnut Street or the Town Engineer's Office located at the Town Hall. Contact either Trish DeLorey at (978) 433-5591 or Kenneth Kalinowski at (978) 433-0327 to make arrangements to view the report. The complete SWAP report is also available online at www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2232000.pdf.

What Are the Key Issues For Our Water Supply?

In the Pepperell water supply protection area, the SWAP Report notes the key issues:
1) Inappropriate activities in Zone I
2) Residential land uses
3) Transportation Corridor
4) Agricultural activities
5) Comprehensive wellhead protection planning

The report commends our water system on:
- Acquiring 19.93 acres to protect the Bemis road Well.
- Erecting a fence around the Bemis Road Well.
- Working with Town departments to review proposed development in the Zone II areas.

What Can Be Done To Improve Protection?

The SWAP report recommends:

- Continuing to inspect the Zone I regularly, and when feasible, remove any non-water supply activities
- Educate residents on ways they can help you to protect drinking water sources.
- Work with emergency response teams to ensure that they are aware of the storm water drainage in your Zone II and to cooperate on responding to spills or accidents.
- Work with horse owners in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- Develop and implement a Wellhead Protection Plan.

Residents can help protect sources by:

- Practicing good septic system maintenance
- Supporting water supply protection initiatives at the next town meeting
- Taking hazardous household chemicals to hazardous materials collection days
- Contacting the water department or Board of Health to volunteer for monitoring or education outreach to schools
- Limiting pesticide and fertilizer use, etc.

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 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 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 stormwater 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).

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 Pepperell DPW – Water Division 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.

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.

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 of 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.

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)
NTU = Nephelometric Turbidity Units
ND = Not Detected
N/A = Not Applicable
mrem/year = millimrems 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).

MassDEP has reduced the monitoring requirements for Total Trihalomethanes (TTHMs) and Haloacetic Acids HAA5 because the source is not at risk of contamination. The last sample collected for these contaminants was taken on August 2, 2016 and was found to meet all applicable US EPA and MassDEP standards. MassDEP also removed the monitoring requirements for the Bemis Well #1 during the period of inactivation.

	Date(s) Collected	90^{TH} percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	9/12/16 thru 9/14/16	0.0	15	0	**20**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	9/12/16 thru 9/14/16	0.24	1.3	1.3	**20**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

"*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 Pepperell DPW – Water Division 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."*

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants							
Antimony (ppb)	4/8/2015	ND	ND	6	6	N	Discharge from fire retardants; ceramics; electronics; solder
Arsenic (ppb)	4/8/2015	2	0 -2	10	-----	N	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	4/8/2015	0.009	0.004 – 0.009	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	4/8/2015	ND	ND	4	4	N	Discharge from electrical, aerospace, and defense industries; erosion of natural deposits
Cadmium (ppb)	4/8/2015	ND	ND	5	5	N	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	4/8/2015	ND	ND	100	100	N	Discharge from pulp mills; erosion of natural deposits
Cyanide (ppb)	4/8/2015	ND	ND	200	200	N	Discharge from metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm) ■	4/8/2015	ND	ND	4	4	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (ppb)	4/8/2015	ND	ND	2	2	N	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (ppm)	5/11/2016	1.4	0.1 - 1.4	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Nitrite (ppm)	4/8/2015	ND	ND	1	1	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Perchlorate (ppb)	8/2/2016	0.12	0.07 – 0.12	2	N/A	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Selenium (ppb)	4/8/2015	ND	ND	50	50	N	Discharge from metal refineries; erosion of natural deposits; discharge from mines
Thallium (ppb)	4/8/2015	ND	ND	2	0.5	N	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Volatile Organic Contaminants							
Benzene (ppb)	5/11/2016	ND	ND	5	0	N	Discharge from factories; leaching from gas storage tanks and landfills
Carbon tetrachloride (ppb)	5/11/2016	ND	ND	5	0	N	Discharge from chemical plants and other industrial activities

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
o-Dichlorobenzene (ppb)	5/11/2016	ND		600	600	N	Discharge from industrial chemical factories
para-Dichlorobenzene (ppb)	5/11/2016	ND		5	5	N	Discharge from industrial chemical factories
1,2-Dichloroethane (ppb)	5/11/2016	ND		5	0	N	Discharge from industrial chemical factories
1,1-Dichloroethylene (ppb)	5/11/2016	ND		7	7	N	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene (ppb)	5/11/2016	ND		70	70	N	Breakdown product of trichloroethylene and tetrachloroethylene
trans-1,2-Dichloroethylene (ppb)	5/11/2016	ND		100	100	N	Discharge from industrial chemical factories
Dichloromethane (ppb)	5/11/2016	ND		5	0	N	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane (ppb)	5/11/2016	ND		5	0	N	Discharge from industrial chemical factories
Ethylbenzene (ppb)	5/11/2016	ND		700	700	N	Leaks and spills from gasoline and petroleum storage tanks
MTBE - Methyl Tertiary Butyl Ether (ppb)	5/11/2016	ND		ORSGL 70	-	N	Fuel additive; leaks and spills from gasoline storage tanks
Styrene (ppb)	5/11/2016	ND		100	100	N	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene (PCE) (ppb)	5/11/2016	ND		5	0	N	Discharge from factories and dry cleaners; residual of vinyl-lined water mains
1,2,4-Triclorobenzene (ppb)	5/11/2016	ND		70	70	N	Discharge from textile-finishing factories
1,1,1-Trichloroethane (ppb)	5/11/2016	ND		200	200	N	Discharge from use in septic system cleaners
1,1,2-Trichloroethane (ppb)	5/11/2016	ND		5	3	N	Discharge from industrial chemical factories
Trichloroethylene (TCE) (ppb)	5/11/2016	ND		5	0	N	Discharge from metal degreasing sites and other factories
Toluene (ppm)	5/11/2016	ND		1	1	N	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories
Vinyl Chloride (ppb)	5/11/2016	ND		2	0	N	Leaching from PVC piping; discharge from plastics factories
Xylenes (ppm)	5/11/2016	ND		10	10	N	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories; discharge from chemical factories
Radioactive Contaminants							
Gross Alpha (pCi/l) (minus uranium)	5/11/2016	2.6	-	15	0	N	Erosion of natural deposits
Radium 226 & 228 (pCi/L) (combined values)	5/11/2016	0.9	-	5	0	N	Erosion of natural deposits

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Synthetic Organic Contaminants							
2,4-D (ppb)	1/4/2016 & 8/2/2016	ND	ND	70	70	N	Runoff from herbicide used on row crops
2,4,5-TP (Silvex) (ppb)	1/4/2016 & 8/2/2016	ND	ND	50	50	N	Residue of banned herbicide
Alachlor (ppb)	1/4/2016 & 8/2/2016	ND	ND	2	0	N	Runoff from herbicide used on row crops
Atrazine (ppb)	1/4/2016 & 8/2/2016	ND	ND	3	3	N	Runoff from herbicide used on row crops
Benzo(a)pyrene (ppt)	1/4/2016 & 8/2/2016	ND	ND	200	0	N	Leaching from linings of water storage tanks and distribution lines
Carbofuran (ppb)	1/4/2016 & 8/2/2016	ND	ND	40	40	N	Leaching of soil fumigant used on rice and alfalfa
Chlordane (ppb)	1/4/2016 & 8/2/2016	ND	ND	2	0	N	Residue of banned termiticide
Dalapon (ppb)	1/4/2016 & 8/2/2016	ND	ND	200	200	N	Runoff from herbicide used on rights of way
Di (2-ethylhexyl) adipate (ppb)	1/4/2016 & 8/2/2016	ND	ND	400	400	N	Discharge from chemical factories
Di (2-ethylhexyl) phthalate (ppb)	1/4/2016 & 8/2/2016	ND	ND	6	0	N	Discharge from rubber and chemical factories
Dibromochloropropane (DBCP) (ppt)	1/4/2016 & 8/2/2016	ND	ND	200	0	N	Runoff/leaching from soil fumigant used on soybeans, cotton, and orchards
Dinoseb (ppb)	1/4/2016 & 8/2/2016	ND	ND	7	7	N	Runoff from herbicide used on soybeans and vegetables
Endrin (ppb)	1/4/2016 & 8/2/2016	ND	ND	2	2	N	Residue of banned insecticide
Ethylene dibromide (EDB) (ppt)	1/4/2016 & 8/2/2016	ND	ND	20	0	N	Residue of leaded gasoline or runoff from soil fumigant used on tobacco or strawberries
Heptachlor (ppt)	1/4/2016 & 8/2/2016	ND	ND	400	0	N	Residue of banned pesticide
Heptachlor epoxide (ppt)	1/4/2016 & 8/2/2016	ND	ND	200	0	N	Breakdown of heptachlor
Hexachlorobenzene (ppb)	1/4/2016 & 8/2/2016	ND	ND	1	0	N	Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclopentadiene (ppb)	1/4/2016 & 8/2/2016	ND	ND	50	50	N	Discharge from chemical factories
Lindane (ppt)	1/4/2016 & 8/2/2016	ND	ND	200	200	N	Runoff/leaching from insecticide used on cattle, lumber, gardens

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Methoxychlor (ppb)	1/4/2016 & 8/2/2016	ND	ND	40	40	N	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Oxamyl (Vydate) (ppb)	1/4/2016 & 8/2/2016	ND	ND	200	200	N	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
Polychlorinated biphenyls (PCBs) (ppt)	1/4/2016 & 8/2/2016	ND	ND	500	0	N	Runoff from landfills; discharge of waste chemicals; residue of banned use in electrical transformers
Pentachlorophenol (ppb)	1/4/2016 & 8/2/2016	ND	ND	1	0	N	Discharge from wood preserving factories
Picloram (ppb)	1/4/2016 & 8/2/2016	ND	ND	500	500	N	Herbicide runoff
Simazine (ppb)	1/4/2016 & 8/2/2016	ND	ND	4	4	N	Herbicide runoff
Toxaphene (ppb)	1/4/2016 & 8/2/2016	ND	ND	3	0	N	Runoff/leaching from insecticide used on cotton and cattle
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)	8/2/2016	20	20	80	-----	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	8/2/2016	4.59	4.59	60	-----	N	Byproduct of drinking water disinfection
Chlorine (ppm) (free, total or combined)	Monthly in 2016	1.32	0.02-1.37	4	4	N	Water additive used to control microbes

■ 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 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
Inorganic Contaminants						
Sodium (ppm)	4/8/2015	7.1 - 20.3	15	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	7/7/2015	6.5 – 18.5	10.6	250	----	Natural sources
Secondary Contaminants						
Iron (ppb)	1/4/2016 and 5/11/2016	0 - 1,300 (1)	200	300	---	Naturally occurring, corrosion of cast iron pipes
Manganese* (ppb)	1/4/2016 and 5/11/2016	0 – 380 (1)	61	50	Health Advisory of 300 p	Erosion of natural deposits

Unregulated and Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source

* US EPA has established a lifetime health advisory (HA) value of 300 ppb for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1000 ppb for acute exposure.

(1) The 1,300 ppb for iron and 380 ppb for manganese were both detected at the Bemis Well #1 site. This well has been taken off-line until such time a treatment process is installed to reduce or remove these contaminates. The next highest detection was 75 ppb for iron and 50 ppb for manganese. Both of these detections were at the Bemis Well #2, which will also receive treatment once system is installed.

6. COMPLIANCE WITH DRINKING WATER REGULATIONS

Does My Drinking Water Meet Current Health Standards?

The Pepperell Water Division is 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.

Is My System Exempt from Meeting Certain Requirements?

Monitoring Waivers

For the 2014-2016 monitoring period, MassDEP has issued waivers to the Pepperell Water Division that reduce monitoring requirements for IOCS for Bemis Road Well #1 (01G) and Jersey Street Well 1 and 2 (02G & 03G). These waivers were granted for some of our sources because they met specific land use criteria and were determined not to be at risk of contamination. The last samples collected for these contaminants were found to meet all applicable EPA and MassDEP standards.

On July 24, 2015 MassDEP reduced the monitoring requirements for Total Trihalomethanes (TTHMs) and Haloacetic Acids HAA5 because the source is not at risk of contamination. The last sample collected for these contaminants was taken on August 2, 2016 and was found to meet all applicable US EPA and MassDEP standards.

On May 20, 2016 MassDEP removed the monitoring requirements for the Bemis Well #1 during the period of inactivation. Written MassDEP approval is required prior to re-activation.

7. EDUCATIONAL INFORMATON

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

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 Pepperell DPW – Water Division 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.

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 populations 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, and health advisory levels. In addition, EPA and MassDEP have also established public health advisory levels. ***Drinking water may naturally have manganese and, when concentrations are greater than 50 µg/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels less than 300 µg/L and over the short term, EPA recommends that people limit their consumption of water with levels over 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.*** See: http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_magnese_dwreport.pdf."

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.

8. ADDITIONAL INFORMATION

Corrosion Control Through pH Adjustment

Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). So, the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that make the water neutral or slightly alkaline. This is done by adding any one, or a combination of several, approved chemicals. The Pepperell Water Division adds potassium hydroxide and polyphosphate to its water. This adjusts the water to a non-corrosive pH. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

All chemicals used for coagulation are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International) or UL, both accredited by the American National Standards Institute (ANSI). Chemicals must also meet performance standards established by the American Water Works Association.

Primary Disinfection with Sodium Hypochlorite (without filtration)

All reservoirs and some ground water sources contain numerous microorganisms some of which can cause people to be sick. To eliminate disease carrying organisms it is necessary to disinfect the water. Disinfection does not sterilize the water, but it does destroy harmful organisms. Sterilization kills all microorganisms, even though most are not harmful, and is too costly to use on a routine basis. The Pepperell Water Division uses sodium hypochlorite as its primary disinfectant. Sodium hypochlorite destroys organisms by penetrating cell walls and reacting with enzymes. Disinfection with sodium hypochlorite has been proven effective at ensuring that water is free of harmful organisms and safe to drink.

Cross Connection Control Program

A cross connection is a connection between a potable water source and a polluted source. The Pepperell Water Division implements a cross connection control program for all industrial, commercial, municipal and institutional facilities. All surveying and testing is performed in accordance with the cross connection section (310 CMR 22.22) of the Commonwealth of Massachusetts Drinking Water Regulations.

Residents should be aware that pollution can come from their own homes. For instance, you are going to spray fertilizer on your lawn, you hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops (say because of a fire hydrant use in town) when the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. Using an attachment on your hose called a backflow-prevention device can prevent this problem.

The Pepperell Water Division recommends that homeowners install backflow prevention devices, such as low cost hose bib vacuum breakers, for all inside and outside hose connections. You can purchase them 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 our town!

All residential sprinkler systems must be installed with approved backflow prevention devices. The Pepperell Water Division recommends annual testing of these devices. Homeowners wishing to schedule a backflow prevention device test may do so by contacting the Pepperell Water Division.

Cross connections between the Pepperell water supply and a private well or individual water source are prohibited. If as a result of a survey of the premises, the Pepperell Water Division determines that a cross connection exists, the homeowner must contact a licensed plumber to disconnect the source of the cross connection. The private well may be used for outside purposes but must not be connected to the town source. Failure, refusal or inability to comply within the specified time shall constitute grounds for shutting off water to the premises until such repairs/disconnections have been properly installed.

Please visit our website at http://town.pepperell.ma.us/247/Water-Division for further information regarding the Rules and Regulations of the Pepperell Water Division; or please contact Joseph Jordan, Water Superintendent at 978-433-5591, if you have any questions regarding the status of our Cross Connection Control Program.

Water Conservation Regulation

In order to assure adequate supply of water for domestic and fire protection purposes, the Pepperell Water Division has adopted the following regulation: Effective May 1st through October 31st of every year, outdoor watering of any kind is restricted to even numbered days of the month with an even address and odd numbered days for homes with an odd number address. Should conditions require, this conservation measure will become a full-mandatory ban as declared by the Board of Public Works. Violations will be subject to a fine. This essential outside water conservation program should be effective enough so as to make a full-mandatory ban unnecessary except under extreme circumstances. All water customers are strongly encouraged to comply with the program to help avoid more extreme measures of water conservation.

Conclusion

The Pepperell Water Division is committed to providing consumers with water that meets or surpasses standards established by the state and EPA. We also want our customers to be informed of changes in water quality when they occur. If you have any questions, comments or complaints, please call the Pepperell Water Division at **(978) 433-5591 or (978) 433-5528.**