

2016 Annual Drinking Water Quality Report



For

Wellesley College
Wellesley, Massachusetts
MASSDEP PWSID # 3317001

This report is a snapshot of drinking water quality that we provided last year. Included are details about where your water comes from, what is found in the water and what we do to ensure high quality water for the College community and in compliance with state and federal standards.

I. PUBLIC WATER SYSTEM INFORMATION

Address: *106 Central Street, Wellesley, MA*

Contact Person: *John P Brown*

Telephone #: *781-283-2747*

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.

Water Flavor Quality Testing Report

In 2015 we conducted an extensive water flavor survey campus-wide. We employed GEI Consultants, Inc. of Woburn, MA (engineers and scientists) who surveyed a representative sampling of the campus population. These blind taste tests were conducted at several open booth tasting events as well as off-campus. During both blind tests the Wellesley tap and filtered tap water was compared for taste and aftertaste to a variety of commonly purchased bottled water. The results concluded that tasters did not discern any meaningful differences between bottled water and Wellesley's drinking water. Because of this result, the department of Facilities Management and Wellesley Sustainability will continue to add more bottle-filling stations campus-wide and encourage the community to purchase less bottled water.

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, please contact John P Brown (jbrown2@wellesley.edu) in Facilities Management.

2. YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?

Your water is provided by the following sources listed below:

Source Name	MassDEP Source ID#	Source Type	Location of Source
Botany Well #1	3317001-01G	Groundwater	East of Paramecium Pond
Botany Well #2	3317001-02G	Groundwater	East of Paramecium Pond

Is My Water Treated?

The quality of the water from the aquifer requires only a slight pH adjustment with potassium hydroxide, which is also used for corrosion control. The disinfectant against microbial contaminants is managed with sodium hypochlorite. Wellesley College does not fluoridate the water. In 2016, 99.5% of the potable water supply was obtained from the College's Botany Wells. Total potable water use from the wells for 2016 was 88,983,376 gallons

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

How Are These Sources Protected?

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

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 in 2003. This was based on the presence of at least one high threat land use (i.e., railroad tracks) within the water supply protection areas.

Note that susceptibility to contamination does not imply poor water quality. Actual water quality is best reflected by the results of regulatory water quality testing.

Where Can I See The SWAP Report?

The complete SWAP report is available online at

<http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3317001.pdf> For more information, call John Brown at 781-283-2747.

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 storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.

Pesticides and herbicides -which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants -including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

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

In order to ensure that tap water is safe to drink, the 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.

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. Wellesley College 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 or expected risk to health.

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

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 samples taken, 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)

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

N/A = Not Applicable

mrem/year = millirems 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 following table(s) is from the most recent round of testing completed in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the table(s).

The MassDEP and EPA require us to test our water for over 80 drinking water contaminants on a regular basis. The water quality table included in this report does not list all of constituents we actually tested for. It lists only those constituents that were present in water at concentrations above the laboratory detection limit. This table also compares the detected constituent concentrations to the EPA standards, or Maximum Contaminant Level (MCL), the Massachusetts standards, or Massachusetts Maximum Contaminant Level (MMCL), or the MA Secondary Maximum Contaminant Level (SMCL). EPA limits can be found on the Internet at <http://www.epa.gov/safewater/standards.html>, and Massachusetts limits can be found on the internet at <http://mass.gov/dep/water/dwstand.doc>.

Wellesley College tested for lead and copper at end user taps in September 2014. The action level for both lead and copper was not exceeded and Wellesley College was in compliance for both lead and copper for 2014. However, due to elevated lead levels in some samples during 2009, Wellesley College has been working on removing and replacing select plumbing systems where elevated lead concentrations were found. Testing for lead and copper will take place again in 2017.

	Date(s) Collected	90 TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	09/04/2014	4.2	15	0	10	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	09/04/2014	.62	1.3	1.3	10	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

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	Highest % Positive in a month	Total # Positive	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination
Total Coliform	6.38%	3	< 5%	0	Y	Naturally present in the environment
Fecal Coliform	2.12%	1	0%	0	Y	Naturally present in the environment

On 4/6/26 we were notified of a positive hit for E.Coli that was isolated to Fiske House. We believe this was due to a recent water service line replacement into Fiske House. Working in cooperation with DEP, Woodard and Curran and local authorities the problem was resolved by flushing and replacement of piping in Fiske House.

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found E. coli bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that were found during these assessments.

We were required to complete a Level 2 Assessment because we found E. coli in our water system. In addition, we were required to take 8 corrective actions and we completed 8 of these actions.

We had a total coliform-positive repeat sample following an E. coli-positive routine sample.

Working in cooperation with DEP, Woodard and Curran and local authorities the problem was resolved by flushing and replacement of piping in Fiske House. After subsequent testing coming back clear the boil water notice was lifted.

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							
Barium (ppm)	4/05/2016	0.1626	-	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium (ppm)	4/05/2016	.00135	-	.10	.10	N	Discharge from pulp mills; erosion of natural deposits
Nickel	4/05/2016	.00228	-	.10	.10	N	Erosion of natural deposits. Stainless steel piping.
Nitrate (ppm)	4/05/2016	2.3	-	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Perchlorate (ppb)	10/18/16	.249	-	2	N/A	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Volatile Organic Contaminants							
Chloroform (ppb)	4/05/2016	.51	-		0	N	Byproduct of drinking water chlorination
Chlorodibrommethane	4/05/2016	.54	-		0	N	Byproduct of drinking water chlorination
Disinfectants and Disinfection By-Products							

Total Trihalomethanes (TTHMs) (ppb)	Annually 2016	12.5	10-15	80	----	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Annually 2016	26.9	5.8-48	60	----	N	Byproduct of drinking water disinfection
Chlorine (ppm) (total)	Monthly 2016	1.36	.06-1.90	4	4	N	Water additive used to control microbes

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 ¹ (ppm)	4/05/2016	94		----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Secondary Contaminants						
Iron (ppb)	11/10/2015	ND		300	---	Naturally occurring, corrosion of cast iron pipes
Manganese ² (ppb)	11/10/2015	ND		50*	---	Erosion of natural deposits
Alkalinity (ppm)	11/10/2015	70		none		Erosion of natural deposits
Calcium (ppm)	11/10/2015	27		none		Erosion of natural deposits
Chloride (ppm)	11/10/2015	187		250	---	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage, and seawater intrusion in coastal areas
Color (C.U.)	11/10/2015	ND		15	---	Naturally occurring organic material
Copper	11/10/2015	.044		1.0		Erosion of natural deposits
Hardness (ppm)	11/10/2015	90		None		Erosion of natural deposits
Magnesium (ppm)	11/10/2015	5.2		none		Erosion of natural deposits
Odor (T.O.N.)	11/10/2015	ND		3 TON	---	Erosion of natural deposits; Leaching from wood preservatives ⁰
pH	11/10/2015	7.1		6.5-8.5	---	-----
Potassium (ppm)	11/10/2015	37		None		Erosion of natural deposits
Sulfate (ppm)	11/10/2015	18.4		250	---	Erosion of natural deposits
Total Dissolved Solids (TDS) (ppm)	11/10/2015	420		500	---	Erosion of natural deposits.
Turbidity	11/10/2015	.35		None	----	Soil runoff

Sodium¹ 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. This year's Sodium numbers reflect the finished water after treatment. Years past we have used the raw water numbers pretreatment.

Manganese² is a naturally occurring mineral. At a level greater than 50 ppb, the water will appear brown, taste unpleasant, and may leave black stains on fixtures or on laundry. While manganese is part of a healthy diet, it can be harmful if consumed in large concentrations; infants should not drink water that contains manganese above this level, especially if they are bottle fed. The U.S. EPA has established a lifetime health advisory (HA) of 300 ppb for manganese, to protect against concerns of potential neurological effects, and a one-day and ten-day HA of 1,000 ppb for acute exposure.

6. COMPLIANCE WITH DRINKING WATER REGULATIONS

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. With the exception of the Fiske House Incident.

We are also proud to report that Wellesley College was a recipient of the 2013 Public Water Systems Small Community Award. This award was announced by the MassDEP during National Drinking Water Week in early May of 2013.

With suggestions from the 2014 Sanitary Survey conducted by MassDEP, The College has. (1) Moved a routine coliform bacteria sampling point closer to the water storage tank in order to get a more representative sample from the tank. (2) The college has also submitted a written protocol documenting the current procedure by which the chemical feed pump interlocks in the well vault are tested. (3) and the Staff will participate in additional, annual training hours concerning the college's Emergency Response Plan. The next Sanitary Survey is scheduled for 2017.