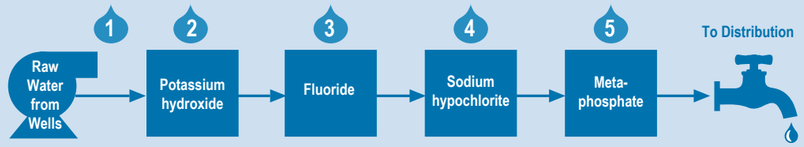
Franklin's Drinking Water Treatment Process



1 ***Ozone & membranes*** *treat water from Wells 1, 2, 2a, and 2b to remove iron and manganese.*

2 ***Potassium hydroxide*** *is added to adjust pH and control corrosion of lead and copper from household plumbing fixtures.*

3 ***Fluoride*** *is added to prevent* ***tooth decay/cavities****.*

4 ***Sodium hypochlorite*** *is added to disinfect water and ensure that microbes and other bacteria are killed.*

5 ***Metaphosphate*** *is added for corrosion control of lead and copper from household plumbing fixtures and to control iron.*

Radon

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will be (in most cases) a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picoCuries of radon per liter of air (pCi/l) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call the Massachusetts Radon Unit, 800-723-6695, or call EPA's Radon Hotline, 800-SOS-RADON.

Vulnerability

Some people may be more vulnerable to contaminants 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 provider.

EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline 800-426-4791.

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2015
Drinking Water Report
Town of Franklin, Massachusetts

Town of Franklin, Massachusetts 2015 Drinking Water Report

This report describes Franklin's drinking water sources and treated water quality for the calendar year 2015, and programs that protect the high quality of our water supply. This publication is mandated by the federal public right-to-know regulation requiring community water suppliers to provide specific treated water quality information annually to their customers. This report includes additional information beyond the minimum federal requirements in order to respond to typical questions our customers ask about Franklin's water system.

Lead Information

Franklin collects lead and copper samples for compliance with the EPA's Lead and Copper Rule. Since the inception of Franklin's corrosion control program in the early 1990s, lead and copper levels have remained well below the EPA action levels (AL). The most recent round of testing found lead levels ranging from non-detect to 3 parts per billion (ppb) (AL = 15 ppb) and copper levels ranging from 0.09 to 0.94 parts per million (ppm) (AL =1.3 ppm). 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 Franklin Department of Public Works 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 drinking 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 *www.epa.gov/safewater/lead*

Franklin Water Meets All Safety and Health Standards

We test our water regularly through a certified laboratory. During 2015 we collected nearly 500 water samples in the system that were then tested for compliance with federal and state health standards both at the source and throughout the distribution system. State and federal regulators routinely monitor our compliance and testing protocols to assure that we deliver safe drinking water to our customers.

Important Information About Drinking Water

All sources of drinking water (both tap water and bottled water) including rivers, lakes, streams, ponds, reservoirs, springs, and wells, contain some naturally occurring contaminants or substances. Because water is the universal solvent, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animal and human activity.

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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Removing all contaminants would be extremely expensive and in nearly all cases would not provide greater protection of health.

To ensure that your water is safe to drink, the MassDEP and the Environmental Protection Agency (EPA) regulates the allowable amount of certain contaminants in the water provided by public water systems. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health. This report provides you with information about the contaminants found naturally in your drinking water, the levels at which they are found, and the likely source of each contaminant.

Contaminants that can be present include:

- **Microbial contaminants**, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Pesticides and herbicides,** which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- **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, or farming.
- **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**, that can be naturally-occurring or be the result of oil and gas production and mining activities.

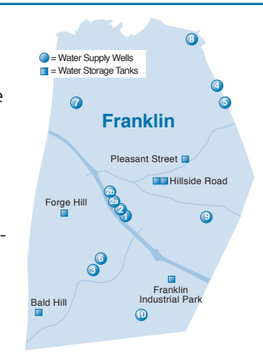
Customer Views Welcome

If you have any questions about this report or are interested in learning more about Franklin's water supply system, water quality, and other related information, please contact Laurie Ruszala, Water Superintendent, at the Department of Public Works at 508-520-4910. You may also attend the Town Council meetings, which are held two times per month on the second floor of the Municipal Building. For more information about the Town Council meetings, visit: *town.franklin.ma.us/Pages/FranklinMA_Council*

Franklin's Water Sources

Currently the Town of Franklin obtains its drinking water from 12 groundwater supply wells. In recent years this supply has been unable to meet peak water demands due to rapid growth and development in Franklin. As a result, and in accordance with our water withdrawal permit, annual water usage restrictions have been implemented during the spring and summer months. Franklin's water mains have interconnections with Bellingham, Medway, Wrentham, and Norfolk. In the event of an emergency, Franklin could utilize these interconnections to maintain water pressure throughout the distribution system.

In addition to the 12 active water supply wells, the Town operates 6 booster pumping stations, 6 water storage tanks, 2,000 hydrants, 158 miles of water main and approximately 9,000 water services.



Well #	Location	Source ID #
1	Hayward Street	2101000-01G
2	Hayward Street	2101000-02G
2a	Hayward Street	2101000-011G
2b	Hayward Street	2101000-012G
3	Grove Street	2101000-03G
4	Miller Street	2101000-04G
5	Miller Street	2101000-05G
6	Grove Street	2101000-06G
7	Elizabeth Avenue	2101000-07G
8	Populatic Street	2101000-08G
9	East Central Street	2101000-09G
10	Vine Street	2101000-10G

2015 Treated Water Quality Data

Listed below are 33 substances detected in Franklin's drinking water during 2015. Also listed are parameters that were not tested in 2015 as a result of a monitoring waiver, but are required to be reported until the next round of testing is performed. In addition, not listed are more than 80 other substances for which we tested that were not detected during 2015.

Substance	Highest Detected Levels	Range of Detected Levels	Highest Level Allowed (MCL)	Ideal Goal (MCLG)	Source of Contamination
Regulated After Treatment					
Barium	0.11 ppm	ND – 0.11 ppm	2 ppm	2 ppm	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Dinoseb	0.3 ppb	ND – 0.3 ppb	7 ppb	7 ppb	Runoff from herbicide used on soybeans and vegetables
Fluoride[1]	1.2 ppm	0.3 – 1.2 ppm	4 ppm	4 ppm	Erosion of natural deposits; Water additive which promotes strong teeth
Gross Alpha	2.2 pCi/L	0.52-2.2 pCi/L	15 pCi/L	0	Erosion of natural deposits
Nitrate	4.8 ppm	0.37-4.8 ppm	10 ppm	10 ppm	Runoff from fertilizer use; Leaching from septic systems; Erosion of natural deposits
Perchlorate	0.37 ppb	0.09-0.37 ppb	2 ppb	NA	Rocket propellants, fireworks, munitions, flares, blasting agents
Radium (226 & 228 combined) Hayward St. WTF	1.6 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Radium (226 & 228 combined) Well 3	3.3 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Radium (226 & 228 combined) Well 4	1.4 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Radium (226 & 228 combined) Well 5	2.5 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Radium (226 & 228 combined) Well 7	1.98 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Radium (226 & 228 combined) Well 8	2.76 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Radium (226 & 228 combined) Well 9	0.99 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Radium (226 & 228 combined) Well 10	0.78 pCi/L	No range, 1 sample required	5.0 pCi/L	0	Erosion of natural deposits
Regulated in the Distribution System					
Chlorine (free)	0.31 ppm[2]	0 –1.39 ppm[3]	4 ppm (MRDL)	4 ppm (MRDLG)	Water additive used to control microbes
Haloacetic Acids	6.1 ppb[2]	ND-8.6 ppb[3]	60 ppb	NA	By-product of drinking water chlorination
Total Coliform	1.2%	0 –1.2%	5%[4]	0%	Naturally present in the environment
Total Trihalomethanes	19.7 ppb[2]	4.9-26.0 ppb[3]	80 ppb	NA	By-product of drinking water chlorination
Regulated at the Customer's Tap					
Lead[5]	2 ppb[6]	ND – 3 ppb	AL = 15 ppb	0	Corrosion of household plumbing systems
Copper[5]	0.52 ppm[6]	0.09 – 0.84 ppm	AL = 1.3 ppm	1.3 ppm	Corrosion of household plumbing systems

Substance	Date Collected	Result of Range Detected	Average Detected	SMCL	Noticeable Aesthetic Effects Above the SMCL
Secondary Contaminants					
Aluminum	Various	ND-50 ppb	8.9 ppb	50 ppb	Colored water
Chloride	Various	55.3-216 ppm	129 ppm	250 ppm	Salty taste
Color	Various	3-30 CU	10.3 CU	15 CU	May produce a visible tint
Copper	Various	ND-0.06 ppm	0.0089 ppm	1 ppm	Metallic taste; blue-green staining
Iron	Various	ND-980 ppb	107 ppb	300 ppb	Taste and deposition on plumbing fixtures
Manganese [7]	Various	ND-1200 ppb	251 ppb	50 ppb	Taste and deposition on plumbing fixtures
Odor	Various	1-3 TON	2 TON	3 TON	"Rotten-egg", musty or chemical smell
Sulfate	Various	6.7-13.5 ppm	10.3 ppm	250 ppm	Salty taste
Total Dissolved Solids (TDS)	Various	220-520 ppm	356 ppm	500 ppm	Metallic taste
Zinc	Various	ND-0.006 ppm	0.00067 ppm	5 ppm	Hardness; deposits; colored water; staining; salty taste

Substance	Average Annual Results	Range of Detected Levels
Unregulated Contaminants		
Alkalinity	71.1 ppm	57.5-90.5 ppm
Bromodichloromethane	2.4 ppb	ND-8.6 ppb
Bromoform	406 ppt	ND-2,800 ppt
Calcium	21.3 ppm	14.5-33.7 ppm
Chlorodibromomethane	144 ppt	ND-700 ppt
Chloroform	2.7 ppb	ND-14.1 ppb
Dibromochloromethane	4.0 ppb	2-9 ppb
Hardness	70.7 ppm	50.6-107 ppm
Magnesium	4.3 ppm	3.4-5.7 ppm
Potassium	43.5 ppm	33.6-58.1 ppm
Sodium[8]	67.7 ppm	26.5-119 ppm

Footnotes:

1. EPA's MCL for fluoride is 4 ppm. However, our state has set a lower MCL, 2 ppm, to better protect human health.
2. The highest level detected is based on the average of four quarterly samples.
3. This range represents the individual results of all samples, rather than the averages.
4. The MCL for total coliform requires that 5% or less of samples taken within one month were positive.
5. Results from the most recent testing in 2014. No sites exceeded the AL.
6. Level shown indicates the 90th percentile which is used to determine compliance with the Lead and Copper Rule and must be below the AL.
7. EPA has established a lifetime health advisory (HA) of 300 ppb to protect against and 1-day and 10-day HA of 1.0 ppm for acute exposure. Manganese is naturally present in the environment.
8. The Massachusetts DEP Office of Research and Standards has set a guideline concentration of 20 ppm for sodium. Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart disease, should be aware of the sodium levels where exposures are being carefully controlled.

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Terms and Abbreviations:

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

CU – Color Unit

MCL (Maximum Contaminant Level) – 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.

MCLG (Maximum Contaminant Level Goal) – 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.

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

MRDLG (Maximum Residual Disinfectant Level Goal) – The highest level of a drinking water disinfectant (chlorine) below which there is no knowledge of expected risk to health. MRDLGs do not reflect the benefits of the use of disinfection to control microbial contaminants.

SMCL (Secondary Maximum Contaminant Level) – Concentration limit for a contaminant which may have aesthetic effects such as taste, odor, or staining.

90th percentile – Out of every 10 homes, 9 were at or below this level.

ND – Not detected

NA – Not available

pCi/L – Picocuries per liter is a measure of the radioactivity in water. A picocurie is 10-12 curies and is the quantity of radioactive material producing 2.22 nuclear transformations per minute.

ppb (Part Per Billion) – One part per billion is the equivalent of $1 in $1,000,000,000.
ppm (Part Per Million) – One part per million is the equivalent of $1 in $1,000,000.
ppt (Part Per Trillion) – One part per trillion is the equivalent of $1 in $1,000,000,000,000

TON – Threshold Odor Number

Information About Manganese

Manganese is a naturally occurring mineral found in rocks, soil and groundwater and surface water. The EPA and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 0.05 milligrams per liter (mg/L) (50 micrograms per liter (ug/L) or 50 parts per billion (ppb)). At levels greater than 0.05 mg/L, the water may appear brown, taste unpleasant and may leave black stains on bathroom fixtures and laundry. While manganese is part of a healthy diet, it can be harmful if consumed in large concentrations.

Manganese is a nutrient that is part of a healthy diet. Drinking water may naturally have manganese and, when concentrations are greater than 50 ug/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels less than 300 ug/L and over the short term, EPA recommends that people limit their consumption of water with levels over 1,000 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. This recommendation is based on concerns about effects to the nervous system that are more likely to occur in younger children, and because formula-fed infants/children already receive adequate manganese as an added essential nutrient in their formula. Formula fed infants or children may consume more manganese than the rest of the family if the manganese fortified formula is prepared with water that also contains manganese. In addition, young children appear to absorb more but excrete less manganese than older children. See: *www.epa.gov/sites/production/files/2014-09/documents/support_cc1_magnese_dwreport_0.pdf*

Water Leak Detection Survey

A leak detection survey was performed by Conservation Technologies, Inc. on the entire Franklin water distribution system between November 10, 2015 and December 15, 2015. This survey covered 158 miles of distribution main and detected 11 leaks: 7 service line leaks and 4 hydrant leaks. The estimated volume of losses from all of these leaks was 694,000 gallons.

Source Water Assessment and Protection (SWAP) Program

The Source Water Assessment and Protection (SWAP) program assesses the susceptibility of public water supplies to contamination due to land uses and activities within the recharge area of the water supply. Franklin's water supply consists of the 12 wells listed below and their locations are shown in the figure. A susceptibility ranking of high was assigned to this system using the information collected during the assessment by the Massachusetts Department of Environmental Protection (MassDEP). A high ranking is given to any water supply that has at least one high threat land use within the water supply protection area. Since Franklin has ten high threat land uses within the protection area the town must be assigned a high susceptibility ranking. Potential sources of contamination within the water supply protection area are: body shops, gas stations, furniture stripping and refinishing, paint shops, railroad tracks and yards, foundries or metal fabricators, fuel oil distributors, machine/metalworking shops, landfills and dumps, and large quantity hazardous waste. This ranking does not imply that Franklin has poor water quality or will have poor water quality in the future. It only draws attention to various activities within the watershed that may be potential sources of contamination.

The SWAP then assesses what the town is doing to prevent contamination and recommends other measures that can be taken to further protect the sources. Some source protection measures Franklin has already implemented include maintaining tight security at the supply wells, protecting open space vital to water supply protection through an active land acquisition program, and having an aggressive Aquifer Protection Bylaw. If you would like more information, the complete SWAP report is available at the Franklin Board of Health and online at *www.mass.gov/eea/docs/dep/water/drinking/swap/cero/4101000.pdf*

For more information contact Deacon Perrotta, Director of Operations, at 508-520-4910.

Information on Fluoridation

Fluoride occurs naturally in all water supplies in trace amounts. In many Massachusetts communities the fluoride level is adjusted so that it is optimal for better oral health. There are now over 3.9 million people in 140 Massachusetts communities and 184 million people in the United States who receive the health and economic benefits of fluoridation. Since introduction of fluoridation of drinking water in 1951, the U.S. Department of Health and Human Services (HHS) has recommended a fluoride dose of 0.7 to 1.2 ppm. However, in April 2015, HHS revised its recommended optimal dose to 0.7 ppm. At this level, it is safe, odorless, colorless, and tasteless. The change was recommended because Americans now have access to more sources of fluoride, such as toothpaste and mouth rinses, than they did when water fluoridation was first introduced in the United States.

Cross Connection Control Program

A cross connection is a connection between a drinking water pipe and a polluted source. 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 (say because of fire hydrant use in the 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 Franklin 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 your town!