

2020 Town of Sterling Water Department

Annual Drinking Water Quality Report

MassDEP PWSID # 2282000

This report includes water quality data for 2020. In 2021, as we continue to serve the residents of Sterling, our goal is to provide our customers with high quality drinking water that meets all state and federal standards for quality and safety. We have made significant investments in infrastructure repair and testing. The Massachusetts Department of Environmental Protection (MassDEP) periodically inspects our water 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, the Sterling Water Department has three Massachusetts certified water operators who oversee the routine operations of the system.

I. PUBLIC WATER SYSTEM INFORMATION

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Where Does My Drinking Water Come From?

The Town of Sterling draws its water from six groundwater supply wells (03G, 04G, 05G, 06G, 07G, and 08G). The water sources and DEP ID numbers are listed below. We also have three remote storage tanks to help maintain even pressure throughout the system. In emergencies, we have the ability to pull water from Leominster or West Boylston.

Well ID	Well Common Name	Location	Well ID	Well Common Name	Location
03G	Redemption Rock Trail Well No. 3	Redemption Rock Trail	06G	Worcester Rd Well #2A	Worcester Road
04G	Redemption Rock Trail Well No. 4	Redemption Rock Trail	07G	Worcester Rd Well #2B	Worcester Road
05G	Redemption Rock Trail Well No. 5	Redemption Rock Trail	08G	Worcester Rd Well #2C	Worcester Road

Is My Water Treated?

To meet state and federal requirements for public drinking water, our source water receives the following treatment before it is supplied to our customers.

- We disinfect the water system with ultraviolet (UV) light to keep it free of coliform bacteria and microorganisms. If for some reason the UV fails, we are equipped with a chlorine backup system.
- We run trace amounts of chlorine during the summer for added protection per the suggestion of the MassDEP.
- We chemically treat the water with potassium hydroxide to maintain pH and to reduce lead and copper concentrations.

II. SOURCE WATER PROTECTION

MassDEP has prepared a Source Water Assessment and Protection (SWAP) Report for the water supply sources serving this water system. A susceptibility ranking of High was assigned to this system using the information collected during the assessment by MassDEP. The Sterling Water Department also has an updated Source Water Protection Plan. Both documents are available at the Water Department Office. The SWAP Report is also available online at <https://www.mass.gov/doc/central-region-source-water-assessment-protection-swap-program-reports-0/download>.

What Are the Key Issues for Our Water Supplies?

The SWAP Report and Source Water Protection Plan identify the key issues for protecting the Zone I and Zone II areas around our wells from potential contamination. Sterling's Water Department has been commended by MassDEP for taking an active role in promoting source protection measures. Some threats in the Zone II areas are auto repair shops, gas stations, paint shops, recycling, and underground storage tanks. Stormwater runoff is always an issue. We must all remain vigilant in our efforts to control what ends up in stormwater before it enters out streams, lakes, and wetlands. Anything you put in the ground can possibly end up in the drinking water system.

To Improve Protection, the SWAP Report and Source Water Protection Plan recommend:

- Removing all non-water supply activities from the Zone I, a 250- to 400-foot radius around each well.
- Storing pesticides, fertilizers, or road salt outside of the Zone I.
- Keeping any new non-water supply activities outside of the Zone I.

Our Public Water Systems Plans to Address the Protection Recommendations by:

- Educating residents on best management practices (BMPs) for protecting water supplies.
- Promoting BMPs for stormwater management and pollution controls.

Residents Can Help Protect Sources by:

- Practicing good septic system maintenance.
- Supporting water supply protection initiatives.
- Taking hazardous household chemicals to hazardous materials collection days.
- Limiting use of pesticides, fertilizers, and other household chemicals.

III. SUBSTANCES THAT MAY BE FOUND IN DRINKING WATER

In order to ensure that tap water is safe to drink, MassDEP and the U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the 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 (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).

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 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, agriculture 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, or 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 byproducts 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.

IV. IMPORTANT DEFINITIONS

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to 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 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 below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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.

90th Percentile- Out of every 10 homes sampled, 9 were at or below this level.

pCi/L- picocuries per liter (a measure of radioactivity) ppb- parts per billion, or micrograms per liter (ug/l)

ppm- parts per million, or milligrams per liter (mg/l) ppt- parts per trillion

NR- not regulated

ND- not detectable at testing limit

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

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

V. WATER QUALITY TESTING RESULTS

The water quality results presented in the following tables are from 2020 or the most recent round of testing done in accordance with the drinking water regulations and our MassDEP sampling schedule. We currently

take 17 bacteria samples per month: nine routine samples within the distribution system, two samples at the plant tap, and six raw water samples:

Bacteria	Highest # Positive Samples in a Month	MCL	MCLG	Violation (Y/N)	Possible source of contamination
Total Coliform	0	0	0	No	Naturally present in the environment

Lead and Copper (Tap water samples were collected for lead and copper analysis throughout the community)							
Substance	Dates Collected	Units	AL	MCLG	Amount Detected (90 th %tile)	Sites above AL/ Total Sites	Possible Source
Copper	2020 Quarter 2	ppm	1.3	1.3	0.119	0/41	Corrosion of household plumbing; Erosion of natural deposits; Leaching from wood preservatives
	2020 Quarter 4				0.146	0/40	
Lead	2020 Quarter 2	ppb	15	0	6	2/41	Corrosion of household plumbing; Erosion of natural deposits
	2020 Quarter 4				5	1/40	

Regulated Substances	Date Collected	Units of Measure	MCL [MRDL]	MCLG [MRDLG]	Sample Result Range (Low-High)	Highest Detected Level	Violation (Yes/No)	Possible Source
Inorganic Contaminants								
Arsenic	6/1/2020	ppb	10	n/a	7.0	7.0	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronic production wastes
Barium	6/1/2020	ppm	2	2	0.012	0.012	No	Discharge of drilling wastes and metal refineries; Erosion of natural deposits
Nitrate	6/1/2020	MG/L	10	0.05	0.12-3.0	3.0	No	Fertilizer/ Septic Runoff; erosion of natural deposits
Perchlorate	10/20/200	UG/L	2	N/A	ND-0.06	0.06	No	Blasting agents, munitions, rocket propellants, flares, fireworks

PFAS6 (Per- and Polyfluoroalkyl Substances)	10/13/2020	ppt	20	N/A	0-49	49	No*	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including protection of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.
Regulated Substances	Date Collected	Units of Measure	MCL [MRDL]	MCLG [MRDLG]	Sample Result Range (Low-High)	Highest Detected Level	Violation (Yes/No)	Possible Source
Total Trihalomethanes	8/26/2020	UG/L	80	N/A	10.6	10.6	No	By-product of drinking water disinfection
Radioactive Contaminants								
Gross Alpha	9/15/2017	pCi/L	15	N/A	ND-4.1	4.1	No	Erosion of natural deposits
Radium 226 & 228 (combined)	6/1/2020	pCi/L	5	N/A	2.2	2.2	No	Decay of natural and manmade deposits

*Although the PFAS levels exceeded the MCL, the Sterling Water Department was not required to begin compliance monitoring until 2021.

Unregulated and Secondary Contaminants	Date Collected	Units of Measure	SMCL	ORSG	Sample Result Range (Low-High)	Highest Detected Level	Possible Source
Iron	6/1/2020	ppb	300	N/A	15-2,050	15-2,050	Naturally occurring; corrosion of cast iron pipes
Manganese	6/1/2020	ppb	50	N/A	27-125	125	Erosion of natural deposits
Nickel	6/1/2020	ppb	N/A	100	4	4	Discharge from domestic wastewater, landfills, and mining and smelting operations

Sodium	6/1/2020	mg/l	N/A	20	15.1	15.1	Natural sources; runoff from roadway salt; by-product of treatment process
pH	3/31/2020	N/A	6.5-8.5	N/A	6.2-7.2	7.2	Runoff and leaching from natural deposits; seawater influence
Perfluorohexanoic Acid	10/13/2020	ppt	N/A	N/A	0-3	3	--

Compliance with Drinking Water Regulations

The Sterling Water Department passed testing for lead and copper in the third and fourth quarters of 2020 at Chocksett and Houghton schools. The Sterling Water Department is required to test for lead and copper twice per year at schools. Typically, the Sterling Water Department tests in the second and fourth quarters, but due to COVID-19, the tests were collected in the third and fourth quarters. The Sterling Water Department took samples from the schools for lead. The Chocksett Middle School Kitchen lead result was 0.005 ppm in the third quarter and <0.001 ppm in the fourth quarter, the Chocksett Middle School Bubbler lead result was 0.006 ppm in the third quarter and <0.001 ppm in the fourth quarter, the Houghton Elementary School Kitchen lead result was 0.002 ppm in the third quarter and <0.001 ppm in the fourth quarter, the Houghton Elementary School Bubbler lead result was 0.006 ppm in the third quarter and <0.001 ppm in the fourth quarter. Our system exceeded the lead action level with two homes in quarter two and one home in quarter four over the 0.015 ppm action level.

Elevated PFAS levels were detected in the finished water at the Worcester Road Water Treatment Plant in October. Upon receipt of the PFAS results, the Sterling Water Department shut down the Worcester Road wells for eight months. Two rounds of PFAS samples were taken again after eight months and both sets of results came back with no PFAS being detected. With state approval from MassDEP, the Sterling Water Department has reactivated two of the Worcester Road wells and continues monthly PFAS sampling. Testing for volatile organic compounds (VOC's), asbestos, haloacetic acids, and tetrachloroethylene all showed no detections or violations.

VII. Educational Information

Vulnerable Populations: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/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).

Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Sterling Water Department is responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When your water

has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Manganese: The EPA has established a lifetime health advisory (HA) value of 0.3 ppm for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1 ppm for acute exposure.

However, it is advised that for infants younger than 6 months, the HA of 0.3 ppm be used even for an acute exposure of 10 days.

Arsenic: While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

PFAS6: Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.

Perchlorate: This inorganic contaminant interferes with the normal function of the thyroid and thus has the potential to affect growth and development, causing brain damage and other adverse effects, particularly in fetuses and infants. Pregnant women, the fetus, infants, children up to the age of 12, and people with hypothyroid condition are particularly susceptible to perchlorate toxicity.

VIII. Additional Information

Cross Connection Control Program

A cross connection is a connection between a potable water source and a non-drinkable source.

The Sterling Water Department implements a cross connection control program for all industrial, commercial, municipal, and institutional facilities. We have a certified backflow device tester and cross connection surveyor on our staff, and all surveying and testing is performed in accordance with the cross connection section (310 CMR 22.22) of the Massachusetts Drinking Water Regulations. A complete updated survey was performed in 2016. In the near future, we plan to implement testing of all residential irrigation systems.

Residents should be aware that pollution can come from their own homes through residential cross connections. For instance, if you were planning to spray fertilizer on your lawn, you might hook up your hose to the spray that contains the fertilizer. If the water pressure were to drop because of a water main break or fire hydrant use in town, the fertilizer could 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 Sterling Water Department 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 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 in our town.

Meter Program

The Sterling Water Department installed new advanced metering infrastructure (AMI) meters in 2018 which replaces older meters that have become inaccurate. The new AMI meters help control water loss issues and save manpower and pollutants as a result of an in office read system capability as compared to physically going to each specific location in which to read the meter.

Water Conservation

We have a mandatory water main in effect beginning on May 1st and ending on September 30th. In addition, because of high lawn watering use we are asking that lawn watering be done on an odd-even basis. So we ask everyone to please conserve water.

Financial Outlook

We did see an increase in costs for potassium hydroxide (KOH) and testing. We will continue to do as much as we can to make sure our operations are as cost-effective as possible while ensuring compliance with all state and federal requirements for safe drinking. The Sterling Water Department had to increase rates on high end users in 2014 to help mitigate future costs for overdrawn our withdrawal permit.

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, you may attend the regular Board of Public Works meetings. These meetings occur on the second and fourth Tuesdays of each month at the Department of Public Works, 171 Worcester Road, Sterling, MA. The public is welcome. Additional copies of this report are available upon request.

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