2020 Annual Drinking Water Quality Report
For
BLACKSTONE WATER DEPARTMENT
Blackstone, Massachusetts
MASSDEP PWSID # 2032000

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.

1. PUBLIC WATER SYSTEM INFORMATION

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Internet Address: http://www.townofblackstone.org/Pages/BlackstoneMA_DPW/CCR's

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: securing final wellhead protection area for Well #9, pilot testing existing water supply wells to evaluate potential manganese treatment systems.

Opportunities for Public Participation
If you would like to participate in discussions regarding your water quality, you may attend the following meetings or educational events: The Water and Sewer Commission meetings are normally scheduled for 6:30PM on the second Thursday of each month at the Blackstone Corrosion Building on Elm Street. The public is welcome to attend.

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
Well # 2	2032000-02G	Groundwater	Park & Summer Street
Well # 4	2032000-04G	Groundwater	Elm Street
Well # 5 & 5A	2032000-05G	Groundwater	Elm Street
Well # 6 & 6A	2032000-06G	Groundwater	Elm Street
Well # 7	2032000-07G	Groundwater	Park & Summer Street
Well # 8	2032000-08g	Groundwater	Glenside Drive

Overview
In 2020 the Blackstone Department of Public Works pumped 190,723,000 gallons of water to the residents, schools and businesses in town. The system currently maintains approximately 2,767 service connections. This means we serve about 80% of the households in town.

Is My Water Treated?

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- We add Sodium Hypochlorite as a disinfectant to protect you against microbial contaminants.
- We chemically treat the water with Blended Phosphate to reduce levels of iron and manganese.
- Sodium Hydroxide is added to control corrosion and for PH adjustment.

The water quality of our system is constantly monitored by us and MassDEP to determine 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 high 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 Blackstone Department of Public Works and online at: http://www.mass.gov/dep/water/drinking/sourcewa.htm#reports. For more information, call James M. Sullivan at 508-883-9331.

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 Blackstone 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.

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.

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

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
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 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).

Mass DEP has reduced the monitoring requirements for Inorganic Compounds and Synthetic Compounds because the source is not at risk of contamination. The last sample collected for these contaminants was taken in September 2019 and was found to meet all applicable US EPA and Mass DEP standards.

Lead (ppb)	9/10/19 - 9/19/19	0	.015	0	25	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	9/10/19 - 9/19/19	0.1	1.3	1.3	25	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. Blackstone Department of Public Works 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.

Secondary Contaminants						
Iron (mg/L)	Monthly in 2020	0.0 – 0.658	0.23	0.30	---	Naturally occurring, corrosion of cast iron pipes
Manganese* (mg/L)	Monthly in 2020	0.0 – 0.286	0.11	0.05	Health Advisory of 300 ppb	Erosion of natural deposits

* 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.

Total Coliform	10.8/100ml	1 positive sample per month*	0	N	Naturally present in the environment
Fecal Coliform or *E.coli*	<1/100ml	^	0	N	Human and animal fecal waste

*For a system serving <33,000 people if no more than one sample collected during a month is positive, the system is in compliance with the MCL for total coliform.
^Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing.

Regulated Contaminant	Date of Sample	Highest Result Level Detected	Range of Results	MCL	MCLG or MRDLG	Violation (Y/N)	Possible Source of Contamination
Inorganic Contaminants							
Antimony (ppb)	7/5/18	ND	--	6	6	N	Discharge from fire retardants; ceramics; electronics; solder
Arsenic (ppb)	7/5/18	ND	--	10	-----	N	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Asbestos (MFL)	7/28/20	ND	--	7	7	N	Decay of asbestos cement water mains; erosion of natural deposits
Barium (ppm)	7/5/18	0.326	--	2	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	7/5/18	ND	--	4	4	N	Discharge from electrical, aerospace, and defense industries; erosion of natural deposits
Cadmium (ppb)	7/5/18	ND	--	5	5	N	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	7/5/18	ND	--	100	100	N	Discharge from pulp mills; erosion of natural deposits
Cyanide (ppb)	7/5/18	ND	--	200	200	N	Discharge from metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm) ■	7/5/18	ND	--	4	4	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (ppb)	7/5/18	ND	--	2	2	N	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (ppm)	7/30/20	1.67	0.293 – 1.67	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Nitrite (ppm)	9/18/18	ND	--	1	1	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Selenium (ppb)	7/5/18	ND	--	50	50	N	Discharge from metal refineries; erosion of natural deposits; discharge from mines
Thallium (ppb)	7/5/18	ND	--	2	0.5	N	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Volatile Organic Contaminants							
Benzene (ppb)	4/1/2020	ND	--	5	0	N	Discharge from factories; leaching from gas storage tanks and landfills

Regulated Contaminants	Collection Date	Highest Result Found	Range	MCLG	MCL	Violation	Possible Source of Contamination
Carbon tetrachloride (ppb)	4/1/2020	ND	--	5	0	N	Discharge from chemical plants and other industrial activities
Monochlorobenzene (ppb)	4/1/2020	ND	--	100	100	N	Discharge from and agricultural chemical factories
o-Dichlorobenzene (ppb)	4/1/2020	ND	--	600	600	N	Discharge from industrial chemical factories
1,2-Dichloroethane (ppb)	4/1/2020	ND	--	5	0	N	Discharge from industrial chemical factories
Para-dichlorobenzene (ppb)	4/1/2020	ND	--	5	75	N	Discharge from pesticides and deodorants
1,1-Dichloroethylene (ppb)	4/1/2020	ND	--	7	7	N	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene (ppb)	4/1/2020	ND	--	70	70	N	Breakdown product of trichloroethylene and tetrachloroethylene
trans-1,2-Dichloroethylene (ppb)	4/1/2020	ND	--	100	100	N	Discharge from industrial chemical factories
Dichloromethane (ppb)	4/1/2020	ND	--	5	0	N	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane (ppb)	4/1/2020	ND	--	5	0	N	Discharge from industrial chemical factories
Ethylbenzene (ppb)	4/1/2020	ND	--	700	700	N	Leaks and spills from gasoline and petroleum storage tanks
MTBE - Methyl Tertiary Butyl Ether (ppb)	4/1/2020	ND	--	ORSGL 70	-	N	Fuel additive; leaks and spills from gasoline storage tanks
Styrene (ppb)	4/1/2020	ND	--	100	100	N	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene (PCE) (ppb)	4/1/2020	ND	--	5	0	N	Discharge from factories and dry cleaners; residual of vinyl-lined water mains
1,2,4-Triclorobenzene (ppb)	4/1/2020	ND	--	70	70	N	Discharge from textile-finishing factories
1,1,2-Trichloroethane (ppb)	4/1/2020	ND	--	5	3	N	Discharge from industrial chemical factories
Trichloroethylene (TCE) (ppb)	4/1/2020	ND	--	5	0	N	Discharge from metal degreasing sites and other factories
Toluene (ppm)	4/1/2020	ND	--	1	1	N	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories
Vinyl Chloride (ppb)	4/1/2020	ND	--	2	0	N	Leaching from PVC piping; discharge from plastics factories
Xylenes (ppm)	4/1/2020	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)	2/24/14	.22	.22	15	0	N	Erosion of natural deposits

Regulated Contaminant	Date of Sample	Highest Result or Highest Average	Range of Detected Results	MCL	MCLG or MRDLG	Violation (Y/N)	Possible Source of Contamination
Radium 226 & 228 (pCi/L) (combined values)	2/24/14	0.59	0.14 to 0.59	5	0	N	Erosion of natural deposits
Synthetic Organic Contaminants							
2,4-D (ppb)	7/6/2020	ND	--	70	70	N	Runoff from herbicide used on row crops
2,4,5-TP (Silvex) (ppb)	7/6/2020	ND	--	50	50	N	Residue of banned herbicide
Alachlor (ppb)	7/6/2020	ND	--	2	0	N	Runoff from herbicide used on row crops
Atrazine (ppb)	7/6/2020	ND	--	3	3	N	Runoff from herbicide used on row crops
Benzo(a)pyrene (ppt)	7/6/2020	ND	--	200	0	N	Leaching from linings of water storage tanks and distribution lines
Carbofuran (ppb)	7/6/2020	ND	--	40	40	N	Leaching of soil fumigant used on rice and alfalfa
Chlordane (ppb)	7/6/2020	ND	--	2	0	N	Residue of banned termiticide
Dalapon (ppb)	7/6/2020	ND	--	200	200	N	Runoff from herbicide used on rights of way
Di (2-ethylhexyl) adipate (ppb)	7/6/2020	ND	--	400	400	N	Discharge from chemical factories
Di (2-ethylhexyl) phthalate (ppb)	7/6/2020	ND	--	6	0	N	Discharge from rubber and chemical factories
Dibromochloropropane (DBCP) (ppt)	7/6/2020	ND	--	200	0	N	Runoff/leaching from soil fumigant used on soybeans, cotton, and orchards
Dinoseb (ppb)	7/6/2020	ND	--	7	7	N	Runoff from herbicide used on soybeans and vegetables
Endrin (ppb)	7/6/2020	ND	--	2	2	N	Residue of banned insecticide
Ethylene dibromide (EDB) (ppt)	7/6/2020	ND	--	20	0	N	Residue of leaded gasoline or runoff from soil fumigant used on tobacco or strawberries
Heptachlor (ppt)	7/6/2020	ND	--	400	0	N	Residue of banned pesticide
Heptachlor epoxide (ppt)	7/6/2020	ND	--	200	0	N	Breakdown of heptachlor
Hexachlorobenzene (ppb)	7/6/2020	ND	--	1	0	N	Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclopentadiene (ppb)	7/6/2020	ND	--	50	50	N	Discharge from chemical factories
Lindane (ppt)	7/6/2020	ND	--	200	200	N	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor (ppb)	7/6/2020	ND	--	40	40	N	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Oxamyl (Vydate) (ppb)	7/6/2020	ND	--	200	200	N	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
Pentachlorophenol (ppb)	7/6/2020	ND	--	1	0	N	Discharge from wood preserving factories
Picloram (ppb)	7/6/2020	ND	--	500	500	N	Herbicide runoff

Regulated Contaminant	Date(s) Collected	Highest Result Detected	Range Detected	MCLG	MCL or TT Violation	Likely Source of Contamination
Simazine (ppb)	7/6/2020	ND	--	4	4	N	Herbicide runoff
Toxaphene (ppb)	7/6/2020	ND	--	3	0	N	Runoff/leaching from insecticide used on cotton and cattle
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)	8/10/2020	25.2	--	80	-----	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	8/10/2020	5.23	--	60	-----	N	Byproduct of drinking water disinfection
Chlorine (ppm) (free, total or combined)	Monthly in 2020	1.41	0.0 to 1.41	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.

Regulated Contaminant	Date(s) Collected	Highest Result Detected	Range Detected	MCLG	MCL or TT Violation	Likely Source of Contamination
PFAS6						
PFAS6 (ppt)	-	-	20	-	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production 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.	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.
PFAS6 was regulated on October 2, 2020. These results are from October 2 through December 31, 2020. Any detects before that time will be reported in the unregulated table below.						

Unregulated Contaminant	Date(s) Collected	Highest Result Detected	Range Detected	HAL	Health Effects Language	Likely Source of Contamination
Unregulated Contaminants						
Perchlorate (ug/L)	7/28/2020	ND	ND	2.0	---	Rock blasting discharge or ammunition residual
perfluorooctane sulfonic acid (PFOS) (1763-23-1)	11/5/2019	2.7 – 19 (ppt)	8.5 (ppt)	-	0.000020 mg/L (20 ppt)	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production 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.
perfluorooctanoic acid (PFOA) (335-67-1)						
perfluorohexane sulfonic acid (PFHxS) (355-46-4)						
perfluorononanoic acid (PFNA) (375-95-1)						
perfluoroheptanoic acid (PFHpA) (375-85-9)						
perfluorodecanoic acid (PFDA) (335-76-2)						

6. COMPLIANCE WITH DRINKING WATER REGS

Does My Drinking Water Meet Current Health Standards?
The Blackstone Water Department was in compliance with all Drinking Water Regulations for 2020.

Health Effects Statements

Total Coliform: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

7. EDUCATIONAL INFORMATION

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. Blackstone Department of Public Works 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 is a naturally occurring mineral found in rocks, soil and groundwater and surface water. The USEPA and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 0.05 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.

EPA has also set a health guideline for lifetime exposure to manganese in drinking water of 0.3 mg/L (300 ppb). EPA considered this level to be a protective limit for adults from potential neurological effects over a lifetime of exposure. For short-term 10-day exposures, EPA advises that levels in drinking water be below 1 mg/L (100 ppb). Infants and children less than 3 years of age should consume drinking water with manganese levels below 0.3 mg/L (300 ppb), or preferably as low as possible. 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: http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_magnese_dwreport.pdf

8. ADDITIONAL INFORMATION

Additional Contaminants Monitored
Many substances and microscopic organisms found in water may be a concern if they occur at high concentrations; however, maximum safe levels have not been set for them because we do not know if they pose a health risk, or because we do not have a good way of detecting them, or because they are rarely found in treated water.

Water Conservation
40,000 to 50,000 gallons of water is used every six months for an average family of four. Some billings may be a little higher or lower depending on the season. If you look at your last water bill you can see the number of gallons that you consumed in the last six months. The two biggest wastes of water are leaking toilets/faucets and improper lawn and garden watering.

If all the leaking faucets or toilets in your home only leak the equivalent of a glass of water in a minute you will waste in excess of 16,425 gallons that billing period. A toilet running at ½ gallon per minute (which is not unusual) will waste over 21,600 gallons in a month.

Conservation measures that you can use inside your home include:

Fix leaking faucets, pipes, toilets, etc.
Install water saving devices in faucets, toilets and appliances.
Wash only full loads of laundry.
Do not use the toilet for trash disposal.
Do not let the water run while brushing teeth or shaving.

Lawn sprinklers are very popular and many people have installed underground automatic systems. While this can be positive, it can also create serious problems if not installed properly. Any landscaping company will tell you that the best time to water is the early morning or in the evening. Watering during the day, wastes water due to the evaporation that occurs. Some experts say that as much as 50% of the water will evaporate before it soaks into the ground on a hot sunny day. Also, please be advised that our regulations require both a backflow prevention device and an automatic rain shut-off device on all lawn sprinkler systems.

Conservation measures to conserve outside as well:
Water the lawn and garden in the early morning or evening.
Use mulch around plants and shrubs.
Repair leaks in faucets and hoses.
Use water saving nozzles.

Grass plants grow in the soil; specifically the grass roots grow in the pore space within the soil. In an ideal situation, the pore space would be 50% of the volume of the soil and would be half filled with air and half filled with water, both of which the roots need to live and grow. Under conditions of excess moisture, such as after heavy rain or irrigation cycle, most of the pore space is filled with water and air for the roots to respire is lacking. After time, the excess moisture drains out of the root zone and the proper balance of air to water in the pore space is again achieved. During extended wet periods or because of over watering, roots do not have the oxygen they need and the grass plant is weakened. This makes the plant more susceptible to wear and abrasion damage, fungus disease, weed encroachment, and general turf decline. Excess water or irrigation also leaches nutrients and fertilizer beyond the root zone where it is of no use to the grass plant and can degrade the groundwater.

One of the major problems associated with over watering is an increase in fungal diseases on the turf grass. Fungus disease needs three components to be a problem: the fungus organism, the host plant and the proper environmental conditions. The fungus is always present in the soil and the grass plant is a given. The environmental conditions of proper temperature and moisture are needed for healthy lawns. We cannot control the temperature or the rainfall, but we can control the irrigation of the lawn. Watering every day supplies the moisture needed for the fungus disease to actively grow and damage the turf plant. Damage can also occur from continual, light applications of water. This scenario will not only cause excess soil moisture and the above stated problems, but it will also weaken the grass plant in another way. Roots of lawn grasses grow 6 to 12 inches deep and are capable of removing nutrients and water from the soil to this depth. Frequent, light applications of water give the roots no incentive to grow deep. Shallow rooted grass has less root zone area for nutrient and water uptake, and is more susceptible to drought damage than a healthy, deep-rooted lawn. A mature, healthy lawn needs between 0.7" and 1.0" of water per week during the summer, less in the spring and fall. This moisture can occur naturally from rainfall or it may come from irrigation. During cool, cloudy weather, 0.7" of water per week should be sufficient. During hot, sunny, windy periods, 1.0" of water per week may be needed. Generally, a home lawn will not need to be irrigated in the spring or fall as rainfall is usually adequate. Use a rain gauge to monitor what Mother Nature gives us for free, and use your irrigation system to add enough water to achieve the totals per week listed above.

Please keep in mind that our current regulations require all lawn sprinkler systems to have an automatic rain shutoff installed and also that we currently have a mandatory water use restriction in effect.

Cross Connection Control

A cross-connection is defined as actual or potential connections between a potable and non-potable water supply, this constitutes a serious public health hazard. The Blackstone Department of Public Works shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or back siphonage of contaminants. If, as a result of a survey of the premises, the BDPW determines that an approved backflow prevention device is required at the town's water service connection or as in–plant protection of any customer's premises shall issue a cross connection violation form. Said customer shall be required to install an approved device or devices within a time frame determined by the BDPW at his/their own expense. Failure or refusal or inability on the part of the customer to install said device or devices within the specified time frame shall constitute a ground for discontinuing water service to the premises until such device or devices have been properly installed and inspected.

National Primary Drinking Water Regulation Compliance

This report was prepared by the staff of the Blackstone Department of Public Works. This report will not be mailed to customers but is available at the Robert Dubois Corrosion Control Facility, 53 Elm Street and Blackstone Town Hall, 15 St. Paul Street. If you have any questions concerning how this report was prepared and is presented or would like more information about our water system, please contact James M. Sullivan, Blackstone Department of Public Works, 53 Elm Street, Blackstone, MA 01504, 508-883-9331 or e-mail jsullivan@townofblackstone.org.

Member Affiliations
American Water Works Association
New England Water Works Association
Northeast Rural Water Association
Massachusetts Water Works Association

Per- and Polyfluoroalkyl Substances (PFAS)
Consumer Confidence Report (CCR)

PFAS samples collected in 2020 must be reported in the Consumer Confidence Report (CCR) that is due July 1, 2021. On October 2, 2020, MassDEP published its PFAS public drinking water standard, called a Massachusetts Maximum Contamination Level (MMCL), of 20 nanograms per liter (ng/L) (or parts per trillion (ppt)) – individually or for the sum of the concentrations of six specific PFAS. These PFAS are perfluorooctane sulfonic acid (PFOS); perfluorooctanoic acid (PFOA); perfluorohexane sulfonic acid (PFHxS); perfluorononanoic acid (PFNA); perfluoroheptanoic acid (PFHpA); and perfluorodecanoic acid (PFDA). MassDEP abbreviates this set of six PFAS as "PFAS6." This drinking water standard is set to be protective against adverse health effects for all people consuming the water.

Community Systems: In accordance with 310 CMR 22.16A, if you are a community system you must provide your consumers with a CCR for all detected chemicals monitored in your system for the calendar year by July 1st of each year.

Non-Community Systems: MassDEP will create your CCR and will notify you when it is posted online. Non-community systems must download the CCR, print, sign, and post it within 30 days of such notification. Please note: Failure to comply with CCR requirements may result in enforcement action.

If you sampled for PFAS in 2020 and there were no detections, you are not required to include that information in your CCR. However, you may wish to notify your consumers of your sampling results.

As of October 2, 2020, all detected PFAS6 must be reported in accordance with 310 CMR 22.16A(4)(g) and (i). If your community system detected PFAS6 (PFOS, PFOA, PFHxS, PFNA, PFHpA, and PFDA) after the MassDEP PFAS MCL promulgation date of October 2, 2020, in any finished water sample, you must report the concentrations in your CCR Regulated Contaminant Table.

Your table must include:

- The contaminant name, PFAS6 (these six contaminants are reported as one), and the unit of measure.
- The highest quarterly average and the range of all sampling results (the highest and lowest result). Note that PFAS6 is site specific and you would average each location, not between locations. You would report the single highest average of all your sites. But for the range you take the lowest and the highest individual detects of all the sites.
- Note that "j" values are not used in calculations as these are estimated values.
- If more than one location exceeds the MCL, include each quarterly average that exceed the MCL. Use the same line – always use one line for one contaminant
- The MCL
- Violations
- Sources of contamination
- The health risk language from 310 CMR 22.16A(27)(a) if the MCL was violated.
- Any abbreviations (e.g., ppt or ng/L)

- If your lab reports detections in mg/L you will need to convert them into CCR units of ng/L or ppt; the MCL must also be converted from mg/L to ng/L by multiplying it by 1 million (1,000,000)(See charts in Appendix M <https://www.mass.gov/lists/consumer-confidence-reporting-forms-templates> , or in 310 CMR 22.16A <https://www.mass.gov/regulations/310-CMR-22-the-massachusetts-drinking-water-regulations>.)

Table 1 - Example Regulated PFAS6 CCR Tables

Regulated Contaminant	Detect Result or Range	Quarterly Average	MCL	Violation	Possible Sources	Health Effects
PFAS6 (ppt)	2 to 45	21	20	yes	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production 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.	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.
PFAS6 was regulated on October 2, 2020. These results are from October 2 through December 31, 2020. Any detects before that time will be reported in the unregulated table below.						

Or in the case of MCL exceedances for multiple sites report:

Regulated Contaminant	Sites	Detect Result or Range	Quarterly Average	MCL	Violation	Possible Sources	Health Effects
PFAS6 (ppt)	02G 06G	2 to 45	21 26	20	yes	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production 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.	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.

PFAS6 detected before October 2, 2020, and all other PFAS detected during 2020 must be reported in accordance with 310 CMR 22.16A(4)(l), and 310 CMR 22.16A(5)(c).

For the calendar year 2020 CCR only, if you detected any PFAS including PFAS6 before the October 2, 2020, PFAS regulation promulgation date, report these as individual unregulated contaminants. Unregulated contaminants are not reported by sample site. Instead, average any detects for each individual unregulated contaminant. *(Please remember any PFAS6 detected after October 2, 2020, must be reported as regulated contaminants.)*

Your CCR Unregulated Contaminant Table must include:

- The contaminant name and the unit of measure
- The average concentration found of the contaminant.
- The range of detections (the lowest and the highest detection).

It is recommended that you also include the ORSG in place at the time of monitoring, possible sources of contamination, and any available health language. If you are reporting PFAS6 detections add a note explaining the later effective date of the MCL.

Table 2 - Example Unregulated PFAS Table

Unregulated Contaminant (CASRN)	Detect Result or Range	Average	ORSG	Possible Sources	Health Effects
Perfluorotetradecanoic acid. (PFTA) (376-06-7) (ppt)	ND to 25	7.5	*	-	-
perfluorooctane sulfonic acid (PFOS) (1763-23-1)* (ppt)	2 to 43	19	20	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production 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.	Some people who drink water containing these PFAS in excess of the ORSG 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.
PFOS was an unregulated chemical from January 1 – October 2, 2020 and had an ORSG of 20 ppt. After October 2, 2020 it became regulated with an MCL of 20 ppt and any detects found at that time would be reported in the regulated table above.					

*There is no ORS Guideline for this compound.

Table 3 - Unregulated PFAS chart

Use this chart to help you fill out your PFAS unregulated table.

Chemical (CASRN)	ORSG	To convert for CCR, multiply by	ORSG in CCR units, ppt	Sources to Drinking Water	Health Effects
Hexafluoropropylene oxide dimer acid (HFPO-DA) (13252-13-6)	†	-	-	-	-
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) (2991-50-6)	†	-	-	-	-
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) (2355-31-9)	†	-	-	-	-
Perfluorobutancesulfonic Acid (PFBS) (375-73-5)	†	-	-	-	-
Perfluorododecanoic acid (PFDoA) (307-55-1)	†	-	-	-	-
Perfluorohexanoic acid (PFHxA) (307-24-4)	†	-	-	-	-
Perfluorotetradecanoic acid (PFTA) (376-06-7)	†	-	-	-	-
Perfluorotridecanoic acid (PFTrDA) (72629-94-8)	†	-	-	-	-
Perfluoroundecanoic acid (PFUnA) (2058-94-8)	†	-	-	-	-
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (763051-92-9)	†	-	-	-	-
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)(756426-58-1)	†	-	-	-	-
4,8-dioxa-3H-perfluorononanoic acid (ADONA) (919005-14-4)	†	-	-	-	-
January through to September 2020 detections of PFAS6 contaminants (before promulgation):					
perfluorooctane sulfonic acid (PFOS) (1763-23-1)	0.000020 mg/L	1,000,000	20	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Addi	Some people who drink water containing these PFAS in excess of the ORSG 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.
perfluorooctanoic acid (PFOA) (335-67-1)					
perfluorohexane sulfonic acid (PFHxS) (355-46-4)					
perfluorononanoic acid (PFNA) (375-95-1)					

perfluoroheptanoic acid (PFHpA) (375-85-9)				tional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.	
perfluorodecanoic acid (PFDA) (335-76-2)					

† There is no ORS Guideline