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Drinking Water Program
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Fact Sheet

Water Main Flushing FAQ for Consumers

What is water main flushing?

Water main flushing moves water systematically through sections of a drinking water distribution system, creating a scouring action to clean the line. The increased flow rate scours the water pipe's inner walls and helps to remove build-up of naturally occurring debris and sediment. The water is discharged through select fire hydrants onto local roads or other surface areas.

- The process is critical to the overall maintenance of a distribution system and is one of the most important practices carried out by public drinking water systems to maintain high water quality, improve the carrying capacity of pipes, and ensure proper operation of distribution system components, such as hydrants and valves.
- Flushing the water main lines also ensures that fire hydrants are operational and allows the operator to assess the available water pressure and flow rate for firefighting purposes. Flushing at lower velocities can also be used to bring fresh water into a part of the distribution system where the water main ends or dead-ends. Water main flushing is typically carried out through either conventional or unidirectional flushing (UDF). The type of flushing performed is based on the specific goals to be achieved within the distribution system.
    - Conventional flushing consists of opening hydrants in targeted areas and discharging the water until any accumulations are removed and the water becomes clear. The water moves freely from all directions to an open hydrant. Since there is less flow in a given pipe, velocities may be too low to adequately clean, or scour, the pipes.
    - UDF means that water mains are flushed systematically from areas closest to the source water to the outer edges of the water system. Certain valves are closed during UDF operations to minimize disturbance. Fire flow tests are not conducted during UDF because the closed valves alter the normal flow pattern and may skew results.
- Flushing may be done as an important part in maintaining adequate chlorine residuals in outer areas of a water distribution system
- MassDEP recommends and in some instances requires public water systems to maintain a flushing program.

Why is a flushing program important?

- Removes sediment- Loose sediment and other deposits may slowly build up on the inside of the water mains over time causing discolored water. Flushing at the appropriate velocities can remove these sediments and deposits and will improve taste, odor and color that may be problematic e.g. naturally occurring iron or manganese deposits in the distribution system may affect color.
- Reduces biofilm - Biofilm is a thin layer of microorganisms that can grow on the inside of the distribution piping, A proper scouring velocity must be achieved to effectively minimize biofilm.
- Maintains proper distribution system operation- Flushing requires the opening and closing of hydrants and valves to ensure that water moves through pipe segments for effective cleaning. This operational practice also provides water operators with the opportunity to identify broken or inoperable valves and hydrants which is important to ensure that they will work properly in an emergency.

- Improves the age of the water in the distribution system - Flushing can remove water from areas of the distribution system that have low water use. Older water may no longer have the desired chlorine residual.
- Allows the assessment of the flow rate available for firefighting purposes.

How will you know when your local water supplier will be flushing in your area?

Your Public Water Supplier (PWS) should notify you of the location (streets), date and time of flushing. PWSs may use more than one of the following methods to notify you: hand delivered notice, postal letter, posters, newspaper, website, electronic boards, telephone, text, emails, social media, etc. For a list of Massachusetts PWSs see the contacts section of https://www.mass.gov/lists/drinking-water-health-safety.

What should you do when your public water supply informs you that they will be flushing your water distribution lines?

MassDEP recommends the following:

- Prior to the designated flushing period: consider collecting water for drinking, cooking and other human consumption purpose. Fill a pitcher or pot.
- During the designated flushing period in your area, you may experience water discoloration or sediment.
    - Do not use the water in your home, as the water quality may be temporarily reduced at this time and you do not want to draw the water being flushed from the mains into your home piping. **Using the water during flushing may result in staining or sediment in laundry, ice machines, dishwasher, bathtubs, or hot water tanks.**
- If you water appears dirty after the designated flushing period:
    - Run a cold water tap closest to your meter (usually found in the basement or a first floor sink) for a few minutes up to 15 minutes.
    - Keep the tap open until the water runs clear. If you have trouble seeing if the water is clear, fill a light or white colored cup or container to view the water. If the water coming from the tap is not clear after running for 15 minutes, wait 15-30 minutes and try again.
    - Do not run a tap that has a water filter connected to it or the sediment may clog your filter.
    - Avoid running a hot water tap because it could draw sediment into your hot water tank.
    - If you inadvertently drew discolored water into your home and the staining of clothes or fixtures does occur, rust removal products are available at most home products stores and may be available from your water supplier.

When (time of day) is flushing normally conducted?

Flushing may be done at any time depending on the situation, particularly if there has been a water main break that requires emergency flushing during off hours. However, in many communities planned flushing for distribution system maintenance is more commonly done during daylight when it is safer for staff to work on the streets. Daylight also provides better visibility to see discolored water being flushed out of the system and when water is running clear. Customers should understand that the schedule for flushing may change (perhaps with little to no notice) based on the progress of the crews.

What time of year is flushing typically conducted?

Flushing is typically conducted in the spring and the fall but flushing can be conducted at any time it is needed and safe to do so. During the summer, it may be necessary for some water suppliers to flush certain locations to remove stagnant water to ensure that the water is adequately disinfected to the limits of their piping system. In warmer weather disinfectants in the water are consumed more rapidly than in the winter, creating the need to flush even during drought conditions.

How will you be affected?

There may be a slight drop in pressure or noticeable discoloration of the water from the minerals and sediments that are being flushed out. During the flushing operation in your neighborhood, you will be able to see crews flushing the water mains through fire hydrants and ends of water main pipes commonly called blow-offs. Crews will usually direct the water being flushed into appropriate areas to avoid sediment erosion or localized pooling of water, but you may notice water on the street or roadway. In some communities, the fire department may be the crew operating the fire hydrants during the flushing operation. There may also be traffic and parking changes because specific hydrants will be used to discharge water.

What about water pressure and safety?

Flushing may cause short-term pressure fluctuations; however, specific water pressure is required to be maintained within the system. If you experience little to no water pressure during flushing, you should contact your water supplier.

How long does it typically take to clean the water mains on each street?

Typically it takes 30 minutes to 60 minutes to flush the water mains on each street.

What should I do if my water is discolored after flushing of water mains?

Water is often discolored after water main flushing, but this should not last long. In the event customers draw discolored water into the home, flush a cold tap for a few minutes, up to 15 minutes. As a precaution, prior to using hot water run the cold water tap to ensure discolored water is not drawn into the hot water tank.

What should I do if the water is still discolored after three to four hours?

Contact your local water supplier. For a list of Massachusetts PWSs see the contacts section of https://www.mass.gov/lists/drinking-water-health-safety.

What if you notice a chlorine smell?

It is normal for there to be an increased amount of chlorine in the water during flushing, because the velocity the water is moving through the pipes shortens the travel time from the treatment plant. Systems that normally do not use chlorine may add it during flushing. Customers can easily remove the chlorine taste and smell by filling an open container with water and keeping it in the fridge for drinking as chlorine will dissipate.

Is water main cleaning a waste of water?

No, this is a normal and necessary part of maintaining a safe and reliable drinking water supply, and in some instances the water is returned to the aquifer, rivers or streams from which it was withdrawn as groundwater recharge or surface water runoff.

Is it possible to capture and reuse the water being flushed?

In most cases, it is not feasible to capture and reuse the water being flushed due to the high velocities and volume of water being released. If you are running water to clear out your own pipes after flushing, you can capture that water and use it for watering plants.

What if discolored water gets into the hot water tank?

If you are sure that sediment got into your hot water tank, use the clean out tap at the bottom of the tank to remove any settled material. Follow the instructions which came with the tank to drain the tank and be careful of the hot water.

What if you don't have a hot water tank – you have an on-demand water heater?

The hot water should run clear when the cold water is clear.

Do most public water suppliers have similar water main cleaning programs?

MassDEP recommends that all public water suppliers have a routine flushing program. These programs are considered the best way to improve water quality and increase the reliability of the water distribution system.

Are there particular situations when MassDEP requires a public water system to implement a flushing program or flush certain segments of a system?

After a public health order has been issued for bacteria or some other contaminant of concern, MassDEP may require a water supplier to implement a flushing program to remove the contaminant and to notify its consumers to flush their household and building lines. For information on consumer flushing after a Boil Water Order see https://www.mass.gov/service-details/consumer-information-on-boil-orders.

How is routine flushing impacted by drought conditions?

During times of drought, suppliers may consider delaying routine water main flushing, if such delay will not adversely affect water quality. Suppliers with mandatory flushing schedules consult with MassDEP to discuss the possibility of delaying scheduled water main flushing to protect the availability of the supply.

For more information:

For questions on individual PWS flushing programs please contact your local PWS. For a list of Massachusetts PWSs see the contacts section of https://www.mass.gov/lists/drinking-water-health-safety.

You may also contact the MassDEP Drinking Water Program at program.director-dwp@state.ma.us or 617-292-5770.