

## Flushing a Water System's Pipelines

- According to the U.S. Environmental Protection Agency's (EPA) "Distribution Systems: A Best Practice Guide," the suggested frequency of flushing is annually for all pipes and more often in areas with water quality issues, such as dead ends, or pipes that don't loop.
- Flushing is used to maintain water quality in the distribution system. It has no effect on the quality of the water source. If the source water has high levels of iron and manganese, the water used to flush the pipes will have the same.
- Flushing can be used as a tool to flush accumulated minerals out of the distribution system, which might cause customer complaints, especially during high-flow events such as extraordinary customer demand (for example, irrigation), main breaks or hydrant use. Flushing is necessary after the installation of source-water treatment to gain the full benefit of the treatment results (for example, less discoloration, less sediment and lower pumping costs).
- Flushing has little to no direct positive effects on a customer's plumbing. Unless customers flush their household plumbing, they will still experience a buildup of sediment. Sediment could also build up on electric hot water heater elements, which could cause premature failure.
- In many Aqua systems, there is insufficient water volume available to create enough velocity to achieve sufficient scouring of the inside of pipes. Velocities of 2.5 feet per second for flushing are normally recommended. In a 2" main, this is 25 gallons per minute (gpm), and in a 4" main, it is 100 gpm.
- Even with proper notice, flushing can cause some customer complaints because it stirs up sediments in the mains, which affects the water delivered to homes. During water distribution system flushings, customers should minimize water use and avoid washing laundry. After completion of the flushing, it is beneficial for customers to run a faucet, outside if available, for a few minutes to prevent any sediment in the service line from entering indoor plumbing.

## Provisions of the North Carolina Administrative Code Relevant to Iron and Manganese

### 15A NCAC 18C .1511 Concentration of Iron

- (a) The requirements of this Rule apply only to community water systems. A community water system which has an iron concentration in excess of 0.30 mg/l shall provide treatment to control the water quality. Analysis of samples shall be made on an as needed basis determined by the Department. Such need basis shall include, but not be limited to, addition

of a new well or other raw water source, approval of a new community water system, approval of an existing system not previously approved, or problems and complaints of water quality normally associated with iron concentration.

**15A NCAC 18C .1512 Concentration of Manganese**

- (a) The requirements of this Rule apply only to community water systems. A community water system which has a manganese concentration in excess of 0.05 mg/l shall provide treatment to control the water quality. Analysis of samples shall be made on an as needed basis determined by the Department. Such need basis shall include, but not be limited to, addition of a new well or other raw water source, approval of a new community water system, approval of an existing system not previously approved, or problems and complaints of water quality normally associated with manganese concentration.