What is water main flushing?

Water main (supply pipes buried within the city streets) flushing is the process of cleaning or “scouring” the interior of water distribution mains by sending a rapid flow of water through the mains. Water mains convey water to homes, businesses and hydrants in your neighborhood. The City cleans water mains to remove the buildup of natural minerals with your water that collects on the pipe walls due to the waters long journey from the water treatment plant. The cleaning process is accomplished by opening fire hydrants which are connected to the drinking water system. As the water flows at high velocities through the water mains the mineral scale is dislodged and flows out the opened hydrant. The resulting rush of water with minerals may cause discolored water which may get into your residence piping. This is a general practice amongst city water systems and helps extend the life of our water system. The water used during water main flushing typically gets diverted into the storm drain system.

What is hydrant testing?

The North Lyon County Fire Department also conducts routine “flow testing” of fire hydrants. This is an important effort toward ensuring hydrant effectiveness for fire control purposes. Such testing is a separate effort independent from the City’s flushing program and assists us with knowing if our fire hydrants are working properly.

How does this affect my service?

Water main flushing and hydrant testing may result in a brief period of discolored tap water and periods of lower water pressure during the flushing.

What should I do if my water looks dirty?

Flushing operations may lead to discolored water, which can be drawn into homes and businesses if the water is being used during or immediately following the flushing. Such events should affect customers only briefly. The discoloration is caused by iron (red color) or manganese (black color) mineral particles being dislodged from the water main pipe walls. If discoloration occurs, open the cold water tap nearest the water meter—usually a hose bib or a basement sink—to full flow until the water runs clear. In some situations this may take up to 15 or 20 minutes. Make sure your water is clear before doing laundry or other projects for which discolored water could cause problems. Avoid using hot water to prevent sediment accumulation in your hot water tank.
Why is there sediment or dirty water in the water mains?

Many of the water mains have been in service for decades and are constructed with a variety of materials. The City has PVC, steel, cast iron, and transite pipes in our system. Over a period of time, naturally occurring mineral particulates attach to the pipe walls during low or non-flowing periods. The minerals deposit in sections of the pipe as a scale buildup which will get stirred up by flushing, pressure fluctuations, or opening and closing valves. These particulates consist mostly of iron and manganese as noted above. Iron sediment results from corrosion of iron pipes and valves used in the distribution system. Other iron sediments result from the change of dissolved iron, which occurs naturally in our water, into scale build up. This precipitation of minerals occurs in the presence of chlorine and oxygen under certain low flow conditions. Dissolved manganese also occurs naturally in our water and it can be precipitated into scale as with iron.

Although iron and manganese do not pose health concerns, they can degrade the "esthetical pleasure" of the water through affecting the taste, clarity, and color of the water. Therefore, sediments need to be removed periodically through flushing.

How much water is used to flush mains?

The amount of water used to flush a particular section of pipe depends on a lot of factors, such as water main size, system pressure, the amount of accumulated sediment in the main and the ability to safely dispose of the water. In general, the City tries to purge the water in the main at least three times and at a high enough velocity to remove any accumulated sediment.

How does flushing fit in with water conservation goals and the drought?

Water is a limited resource that must be carefully managed to ensure adequate quantities for growing human and environmental needs. However, since flushing is critical to maintaining high-quality drinking water, an efficient flushing program is also essential. The flushing program is monitored to ensure that the least amount of water is used. Additionally, the City continually analyzes system-wide performance practices to minimize water use, including on-going efforts to identify and repair leaks.

Why does the City flush water mains?

Flushing helps maintain our high water quality. The water entering distribution mains is of very high quality; however, water quality can deteriorate in distribution mains if the mains are not properly managed. This is why flushing is important. Flushing maintains water quality in several ways:

1) Flushing removes scale/sediments from the mains.

2) Flushing exposes system issues or equipment problems.

3) Flushing utilizes fire hydrants to expel the flushed water. If the hydrant is not operational the City will discover the problem while flushing and repair the hydrant.

4) Finally, flushing helps remove “stale” water. Much of our distribution system is designed with “loops” or interconnected grids, which keep water constantly fresh. However, some areas don’t have looping systems where water moves slowly and sits for longer periods of time. Such areas need to be flushed to ensure the presence of fresh water with sufficient dissolved oxygen, disinfectant levels and an acceptable taste/smell.

Is it safe to drink the discolored water?

While the discolored water has been treated and distributed to acceptable and healthy standards, it is recommended that water users wait until the water has cleared before using it for potable purposes. If discoloration lasts longer than a few hours contact the Public Works Department at 775.784.9910.