



Executing Unidirectional Flushing

By David Lewis

Flushing water from a clean source at high velocities has the benefit of scouring pipe and removing corrosion sediment and debris. This generally accepted principle, combined with the overall need to turn water over in distribution pipes, aligns well with water quality objectives in most utilities. For those systems with high treatment costs and/or limited water supply, the idea that these objectives can be met with better results and with less water is compelling. Unidirectional hydrant flushing (UDF) is the answer.

UDF is a relatively new method that consists of flushing the system's water mains in segments at high velocities, ensuring the entire distribution system is flushed in one direction from a clean source. Systems that do not employ UDF often open multiple hydrants in high complaint areas, creating waste from water flow at 1 ft/sect in all directions, and increasing operating costs. UDF, however, may only require one hydrant to be operated with a 4-fold increase in water velocity.

Developing a UDF program should involve short and long term planning. In the short term, all valves within the system must be in the correct operating position. On average, 4 to 8% of in-line distribution valves are in the wrong position, open when they should be closed (at pressure boundaries) and closed when they should be open. By returning the valves to their proper

operating position and ensuring they continue in that fashion through repair and rehabilitation, water quality and velocity are improved and UDF made effective.

Before valves in the system can be operated in the short term, they must be located. In most water systems, 2 to 5% of all water assets are not mapped accurately enough to be located. Moreover, approximately 4% of all valves are covered with pavement or earth. An asset inventory that accurately locates and operates each valve with a recorded history is essential. Software-based technology using Geographical Information Systems (GIS) is available now to locate and record assets.

In the long-term, a UDF program is sequential. Systems are divided into zones and flushed according to a schedule. Water is directed appropriately, never compromising pressure within the system or quality levels. Significantly less water is used for flushing and less debris is reintroduced into the system.

A comprehensive UDF program can help utilities lower operating costs and increase customer satisfaction. To learn more about UDF, and to discuss the creation of your UDF program, contact Wachs Waters Services today.