Fire Hydrants

An Informational Document Prepared by
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The topic of fire hydrants is an interesting and occasionally controversial one. The purpose of this document is to clarify the Lake Don Pedro CSD's role and responsibility in the installation, operation and care of fire hydrants.

Overview

There is no specific legal requirement to flush a fire hydrant. There is also no requirement in law or in water system standards for a public water system to even have fire hydrants. Fire hydrants are considered by the State Drinking Water Division as purely a firefighting apparatus, with their installation, operation and maintenance at the discretion of the district. Public agencies are immune from all liability associated with fire protection activities and equipment.

That said, there is a distinction between flushing hydrants and operating or testing hydrants. Flushing is typically done to maintain water quality (in mains and tanks) only. Flushing hydrants has nothing to do with firefighting as it is done as a waterworks practice to clean a system and bring in fresh water. Operating and testing hydrants, on the other hand are important maintenance and system operating/troubleshooting practices. Operating hydrants also makes sure that they function properly, and help keep local fire insurance costs lower.

Liability for Fire Hydrants

California Government Code section 850.4 provides an immunity to the District for any liability related to operating fire hydrants and states:

"Neither a public entity, nor a public employee acting in the scope of his employment, is liable for any injury resulting from the condition of fire protection or firefighting equipment or facilities …." So even though the District is not legally responsible or liable if a fire hydrant fails to work, our commitment to our community and customer service requires that we ensure functioning fire hydrants throughout the system. The base rate portion of the monthly fees charged to customers pays the cost of fire hydrant maintenance and repair.

Fire Hydrant Flushing

Water providers maintain water quality in their water systems by "flushing" water mains using the high water velocity produced when a fire hydrant is opened to full flow. Flushing is a practice that also keeps the water "fresh" in systems that have low consumption amounts, such as Don Pedro. Many times in order to remove sediment, rust, sand and organic material from inside water mains, multiple fire hydrants must be opened simultaneously to achieve enough water flow to move the debris out of the large pipes. There is no law describing how often or the method for fire hydrant flushing. Even the California Department of Public Health does not tell the district exactly how to clean water mains or operate their system, including hydrants.

Flushing typically uses between 20,000 and 40,000 for each hydrant flushed, which can be seen as a huge waste of precious water and the water wasted equates to a cost of between $50 and $100. You might wonder why that flushed water cannot be captured in a truck rather than wasted, but in reality even a semi sized water truck would be filled up in less than ¼ of the time it takes to flush the normal hydrant. This means you would have to open and close the fire hydrant 5 to 6 times, filling and moving trucks in between which would be extremely inefficient, prohibitively costly and could even damage the water system.

In times of drought and water supply shortages, fire hydrant flushing is strongly discouraged in some areas, and prohibited in others. In the Don Pedro water system, with drought we also have low lake levels, which equates to the use of an emergency floating pump system and the associated added pumping cost. Flushing during drought while on the pump barge system actually increases the risk of system failure; which outweighs the limited benefit of flushing. The current prolonged drought is the primary reason we have not been flushing fire hydrants on a routine basis. We have been flushing on an as-needed basis where required to solve water taste and odor problems. It is our intent to once again begin a routine flushing program once the water supply recovers to the point where we can use our normal pumps.

Fire Hydrant Operation and Testing

Fire hydrants are devices filled with water under pressure that, like all mechanical equipment, must be operated periodically to keep the parts moving freely. Hydrants are operated very infrequently and therefore the water inside them can become somewhat stagnant and cause corrosion of the hydrant's metal parts; actually causing it to freeze shut or not close properly once opened. California waterworks and American Waterworks Association (AWWA) both have standards for hydrant installation, materials and operation.

Just as with a vehicle, all fire hydrant manufacturers will recommend a maintenance schedule. Maintenance typically involves operation of the hydrant "closed to open and back closed" approximately once annually. The more aggressive your water (lower Ph) the more frequent hydrant operation is needed to remove rust and debris and the more likely the operating components of the hydrants are to freeze up. Our Lake McClure surface water is soft and aggressive although we add chemical to neutralize it. Our standard is to operate all fire hydrants once per year and we are currently evaluating and prioritizing all work to be done in the water system and will ensure that hydrant maintenance standards are met going forward.

Fire Hydrants and Insurance Ratings

When hydrants are operated for maintenance purposes, it is also a standard practice to test and document the maximum amount of flow from the hydrant and its operating pressure. Comparing this information over time can help identify problems with the water system. This documentation is also critical for maintaining the highest rating possible with the Insurance Services Office (ISO).

ISO classifies communities from 1 (the best) to 10 (the worst) based on how well they score on the ISO Fire Suppression Rating Schedule, which grades such features as water distribution, fire department equipment and manpower and fire alarm facilities. ISO field representatives use the schedule when surveying a community's fire protection capability. The score that is determined from applying the Fire

Suppression Rating Schedule is translated into a public protection classification. The documented condition of the water system, including fire hydrants, make up 40% of the total ISO score! It can be very difficult to obtain or renew homeowners fire insurance in communities with ISO ratings of greater than 7 in California.

Bottom line

To ensure that fire hydrants will work when needed to fight a fire, they must be operated and tested every year. The District should flush hydrants when good water supply is available and only when and where necessary for water quality purposes. All maintenance must be meticulously documented in a permanent file.