



CHIEF'S FILE CABINET

Ronny J. Coleman

THE ANCIENT MARINER'S SONG AND FIRE PROTECTION ENGINEERING

Water, water everywhere but not a drop to drink! That was the lament of the ancient mariner. Adrift in a boat, his very survival depended upon finding a water source.

The automatic fire sprinkler system is also dependent upon water for its survival. And, while there can be water everywhere, if it isn't delivered in its appropriate volume and pressure at the time when a fire occurs the most sophisticated sprinkler head in the world is not much more than a metal nozzle. So what?

We spend a lot of time and effort in our design of sprinkler systems to make sure that water supply is being adequately provided. The identification of water sources and the analysis of the hydraulic calculation of a sprinkler system is an important consideration. The question I would like to raise in this month's column is not whether we look at water supplies during the design stage but rather whether we know what happens to that water supply after we walk away from the building when it is permitted.

Recently, I was involved in a series of conversations regarding a drought situation in California. We were talking about the deplorable condition of our reservoirs and the fact that it could have some impact on the manual fire fighting forces in the event of widespread brush fires.

Someone casually mentioned that this was only the tip of the iceberg. Many of the water companies have been giving serious consideration to reducing the static pressures in their systems in order to reduce the volume of domestic consumption. It sounds simple. It sounds almost logical if one is attempting to preserve capacity. However, it could well spell a death knell for sprinkler head performance.

Many sprinkler systems, especially in life safety occupancies, have been calculated in accordance with a given static pressure. Because of the sensitive nature of these occupancies, their sprinkler head performance does have a built-in liability. This is especially true because very few life safety systems are supported by fire department connections where system pressure can be increased after head activation.

Can you imagine what is going on in some of these sprinkler systems when the static pressures have been dialed down on the domestic water supply? All assumptions are off. Hydraulic calculations that have been inscribed on system risers are irrelevant at that point.

The real question is not whether this has actually occurred. I honestly believe that it already has and in some parts of the country it may have already impacted sprinkler head performance. The more



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significant aspect of it is it points out one of the inherent weaknesses in the relationship between water departments and fire departments relative to water supply. There needs to be a strong relationship between the two authorities with respect to monitoring, evaluating, and utilizing information from the water system.

Historically, we have been fairly sensitive to this issue with regard to fire hydrants. Inadequate pressures usually come to light fairly quickly just because of either routine maintenance or relatively minor fire scenarios. However, a sprinkler system can sit there for a hundred years before it is called upon to act. An AHJ should devote a certain amount of its liaison time and effort in establishing an ongoing relationship with the water authority. Periodic staff meetings should be conducted with the water authority to discuss pressure zones, perhaps evaluate such things as daily consumption rates, trends and patterns in domestic usage, and the water authority's plans for improving or modifying water supply in specific areas of the city.

Granted, many agencies do this as a matter of course, especially if the water authority happens to be under the same municipal corporate structure as the fire authority. On the other hand, there are many jurisdictions that have three or four different water authorities providing them with their most essential greeting of fire combat - water. If this liaison is not enacted there is a high possibility there can be malfunction.

How many fire departments actually appoint someone as a liaison with the water authority? How many water departments actually appoint someone to participate in liaison meetings with the fire department? There are probably some of them out there but not nearly enough. As we in the fire service continue to embrace the sprinkler system technology as part of the arsenal against fire we must reinforce our relationship with the life bred of those sprinkler systems.

A little bit of time spent today during the planning phases should pay large dividends down the road when we have sprinkler head activation. As one reads the statistics of Operation Life Safety and a recent article of the NFPA regarding sprinkler activations in board and care facilities, it is clear that sprinkler systems are doing what we've called upon them to do. They are extinguishing fires. It would be tragic for both the movement and the specific individuals involved for a sprinkler system to fail to function because its water system has deteriorated.

Don't forget that the father of American fire protection once stated, "An ounce of prevention is worth a pound of cure."