Stand By to Stand By

Water as an extinguishing agent is as ancient as you can get. Cro-Magnons and Neanderthals probably knew how to use it to control fire. It's hard to have something new to say about the subject. In order to spice up the topic of using water a lecturer in a fire science class may have to tell firefighters that there are many new additives that could be put into it to make it more effective. Most of these modern chemicals to make water more effective are relatively new and almost all very expensive. This lecturer may have to explain the concepts of foams, wet water and rapid water by describing what the chemical does in the water.

Once, as a joke while conducting a similar lecture, I added a additional additive to my blackboard notes by talking about "copious water". A curious student raised his hand and asked just exactly was added to water to make it copious. The answer was that the only thing that was added to water to make it copious was volume.

Other lecturers and opinion makers in the fire service have offered us a series of clichés about water that have been expressed hundreds of thousands of times; wet-stuff, red-stuff, etc. This has been clichéd to the point where there is almost a point of short hand that assumes that putting water on the fire assumes that the fire is going to go out.

Which, by the way, is not true. Spraying water, especially large amounts of water not only does not assure fire control, but actually creates an environmental issue that has haunted many a contemporary fire agency when they could not contain the runoff that contained toxic products. That wet stuff by any other name is called "fire flow". By definition fire flow is the amount of water that is anticipated to be discharged on a specific building and occupancy that has a fire that results in the total involvement of the building.

Read that last line again, beginning with "has a fire that results in the total involvement of the building". Right, the building is a total loss when you have exercised maximum fire flow. That's copious water if I ever saw it!

Fire flow is based upon the idea that size and construction of buildings results in specific amounts of water being needed to confine a fire to a building that is well involved. It used to be a topic of a lot of lecturers but as I examine a lot of curriculum today I have noted that many of our instructional people do not seem to care about the concept of fire flow, except to provide some "rules of thumb".

At least from a standpoint of its importance strategically, the only people who do seem to focus on calculating fire flow these days are fire prevention bureaus who are still utilizing the Insurance Services

Office (ISO), concept to establish fire flows in the general vicinities in certain buildings. Everyone else seems to link fire flow back into the back water of tactics and strategy discussions until the big one occurs. The subsequent water carnival is often a life-rendering experience.

Have you ever been in one of those big events when all of those 1,500 GPM pumpers are thumping their way through copious gallons of water, inserted into hose lines, feeding aerial ladder master streams, or hand placed deck guns? It is a glorious sight to behold, let me tell you.

But there is an incongruity to it all. Do you know that when those huge events occur no one gets a bill from the water department? No one! The taxpayer or I guess a better person to identify would be the water rate payer, gets to pay out the bill for the distribution and utilization of huge amounts of water discharged during anyone of these events. But that is not the true incongruity. The argument that I am really struggling with is the idea that those water providers that give all that water away have now chosen to penalize the users of sprinkler systems. They have now determined that they must charge "stand-by" fees in the case of a sprinkler systems installation. Which, by the way, the presence of a sprinkler system reduces fire flow by 50% and probably reduces the runoff in the environment pollution by 90%.

Isn't there something wrong with this picture? I think so.

Let's take a look at the base idea of a single fire agency responding to a well involved structure that has the potential of having exposure at least on two sides. Just for the sake of argument, let's say that the company officer lays a couple of 1 ¾ lines and asks for a backup line. This could generate about 750 GPM for a period of 7 to 10 minutes. Initial attack on a single family dwelling could be generating as much as about 7,500 gallons of water that would be running off. That water would be primarily placed in the building and on the contents. More importantly it is probable that 90% of that water is not going to be used to extinguish the fire itself. No, it will be totally in run off. If we go back to tactical shorthand of what's that red stuff, there is a point called steam generation. Remember from your rookie academy the concept of the steam and heat inversion in the room you are fighting the fire in? Remember that heat has to be converted to steam to reduce temperature? Remember that water running out of the front door, down into the gutter and into the storm drain has missed the red part.

It comes as a little bit of a shock to me that water distribution companies have defined their need to charge standby fees on a residential sprinkler as a serious issue and can totally ignore the significance of the facts about fire flow. It is almost as if common sense has eluded the discussion when in such a large sum amount of money is charged for standby charges. Especially when it is being assessed against the device it primary service is to preserve the city's water supply for domestic purposes instead of sending it down the proverbial drain.

A sprinkler head does put wet stuff on the proverbial red stuff faster and more accurately than any other technological solution that we have at this time. And, it puts it there under reasonable and limited amount for a period of time that can be contained and controlled to prevent pollution. There is no rational reason to establish a "stand-by" fee for a residential sprinkler system except to improve an arbitrary and capricious requirement that generates revenue to a utility. That utility by charging this stand-by fee lacks a fundamental understanding of their responsibilities in preserving their resources.

If there was as much concern about water shortages as contemporary political wisdom would seem to indicate, why are water prevayers going after the building, why aren't they going after the buildings with excessive fire flows?

How about every building that generates a fire flow area of 3,000 GPM which according to base fire flows could create a total discharge in excess of 90,000 gallons of water in a 2 hour firefight with a standby fee? There should be some logic to cover the acre feet that needs to be retained in reservoirs, pumped out of the ground or fed through mains that have to be increased in size because of fire flow.

What about a fire department standby charge to a building that has a fire flow of 5,000 gallons per minute for the necessary cost of providing the staff to deliver 5,000 gallons per minute and/or the cost to retain 150,000 in water runoff?

The public policy debate over this issue is continuing. The solution is long overdue. What prevayers are hiding behind is a façade of regulatory rhetoric. If they imply that there is something that they have to do special to support a sprinkler system in reducing the community fire risk, they are reversing the logic of the entire concept. From my perspective, standby charges on sprinkler systems don't make sense. But, I have heard from various parties that there are reasons for the fear. One water person even told me that his water company was fearful of the liability that they could not, or did not; provide sufficient pressure to operate a system correctly. I agree that pressure to operate a system must be accomplished. But that is the best example I have ever heard of legislation through litigation.

Should something be done to level the playing field on the topic? Directors of water boards should be examining how to be a better partner in reducing fire risks in the community. City Councils should be contemplating what they can do to reduce this impact on the development of sprinkler installations. Public interest groups should be encouraging policies that preserve our water resources rather than encouraging scenarios where large fire losses contribute to economic and environmental impact while small fires are paying the bill.

Recently I was reading an article about a fire department in California that is facing a very serious problem. The city has authorized a number of dwellings to be developed that are huge, in excess of 12,000 square feet - mansions. But, they simultaneously did not upgrade the local fire mains, hydrants

and water supply reservoirs to provide adequate water. The only mitigation that makes any sense under that scenario is to sprinkler the risk…..but the water company that is NOT going to upgrade the system wants to charge "standby fees" for the meters to the sprinklers. Give me the rationale for that decision.

Maybe it's time for our federal and state legislators to start looking at the wisdom of policies that may actually be counter-productive to public safety. Standby for the next series of debates on the topic.