Florida Fire Sprinkler Association, Inc.

February 4, 1993

Mr. Steve Tribble, Director
Division of Records and Reporting
Florida Public Service Commission
101 East Gaines Street
Tallahassee, Florida 32399-0850

Dear Mr. Tribble:

Enclosed is an original and fifteen (15) copies of our response to the opposition comments presented on behalf of Florida Cities Water Company. Being an outsider to the Public Service Commission process, please advise me as to any additional actions we must take to ensure that our response is shared with those who make the decisions.

Thanking you in advance for your cooperation.

Sincerely,

Buddy Dewar
Executive Director

cc: B. Kenneth Gatlin, Esquire

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Response to Opposition Comments of the Florida Cities Water Company to the Rule Revision Proposal of the Florida Fire Sprinkler Association

Docket 911082-WS

Florida
Fire Sprinkler
Association, Inc.

March 3, 1993

B. Kenneth Gatlin, Esquire
Gatlin, Woods, Carlson & Cowdery
1709-D Mahan Drive
Tallahassee, Florida 32301

Dear Mr. Gatlin:

Please accept this letter as an acknowledgement of receipt and response to your letter, this date, concerning the Proposed Revision of PSC Water and Wastewater Rules, Docket No. 911082-WS. The arguments posed in your opposition comments, quite frankly, do not hold water. We wish you would have contacted us prior to your response. You will find that we are very straight forward, totally absent of misrepresentation, and most willing to share with you and your client knowledge on the operation of automatic fire sprinkler systems.

Your client is charging the small business owner with a 6-inch tap $78.69 per month for water standing in fire sprinkler pipes within the building. In many cases, but clearly not all, the property owner has installed the fire sprinkler system because of a fire department mandate. The small business owner pays fees for all connections to the waterworks system; your client actually makes a profit on these connections. The design of a fire sprinkler system, which will be covered in greater detail later in this response, is such that often, the *design* demand for water is less than 10% of the fire flow demand of an identical non-sprinklered building. Your client is charging the non-sprinklered building owner who creates over 90% of the fire flow demand absolutely *nothing* per month in addition to his domestic fees for water standing at the hydrant.

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1. Your first point, "The fact is that most communities have minimum fire flow requirements regardless of whether or not a building is sprinkled." In response, one must understand the factors that lead up to a community's fire flow. In proposed Rule 25-30.432 *Used and Useful in Rate Case Proceedings,* specifically (5)(b)3, it is clear that governmental authorities set fire flow rates. Most governmental authorities that impose fire flow demands on private waterworks companies base their fire flow requirements on an evaluation report of the community's fire protection conducted by the Insurance Services Organization (ISO). If you should contact ISO, they will tell you that during the evaluation process, the needed fire flow is determined by evaluating the type of construction, building use, exposure hazards, etc. of buildings within a fire department's response zone. ISO will tell you that fire flows in excess of 3,000 gallons per minute are more common than not in a typical Florida community. ISO will also tell you that the water demand for fire sprinklers is that determined by the design engineer, which is usually measured in hundreds of gallons, not the thousands of gallons typical for non-sprinklered buildings. Communities like Altamonte Springs, who controlled the escalating cost of providing governmental services during periods of growth through progressive fire sprinkler ordinances, is the typical example of the cost savings on waterworks companies. It is significant to note that the types of buildings required to be sprinklered in Altamonte Springs include many which are not required by typical codes to be equipped with a fire sprinkler system. Ask the Altamonte Springs waterworks director to estimate the needed fire flow demands within the city if there were no fire sprinkler systems. I would not be surprised if his estimate would be a fire flow demand greater than his existing sprinklered fire flow demand by at least 70%. In closing on this point, ISO acknowledges the reduced demand on water distribution systems, cities and counties in Florida and elsewhere in the country

can show that of fire sprinkler buildings reduce fire flow demands. Your comment is not supported by fact.

You further state in your first issue that "the only people benefiting from the sprinkled building are those occupying the building." We must ask who pays for the tens, and sometimes thousands, of gallons per minute flow that is typical from fire department hoses used to fight fires? Do fire department pumpers have flow meters installed and a budget to reimburse your client for water use? Having a fire suppression background, I have, on a number of occasions, flowed water at rates of 90,000 gallons per hour from aerial towers and I do not recall the waterworks department billing me for this water. Could it be that the ratepayer pays for the water used for fire suppression? You betcha! See proposed Rule 25-30.432(5)(c), *Unaccounted for Water.* I have a videotape of a research project funded by the U.S. Fire Administration. This project involved live fire tests of two identical and identically furnished buildings, one equipped with fire sprinklers, the other without. The sprinklered building used 72 gallons of water to extinguish the fire and one fire department company to manage the fire with little fire damage to the building. The non-sprinklered building was completely gutted by fire, and was responded to by five fire departments, 55 firefighters, who used over 20,000 gallons of water. Ask the Altamonte Springs Fire Chief how many more fire apparatus and fire fighters he would need if there were no fire sprinkler ordinance. Again, it is an ordinance which requires fire sprinklers in many more occupancies than normally required by code. The state average cost of operating a fire pumper with a four-man crew is over $500,000. Is not the reduced need of a fire apparatus a savings to all taxpayers, including the owner of fire sprinklered buildings?

And you suggest in issue 1 that fire sprinkler systems will lead to "increased plant capacity, and thus rates, to provide adequate pressure and flow

for the sprinkler system." This is an untrue statement. Fire sprinkler systems are designed to meet the fire suppression needs of a specific occupancy or building use. The design begins at a point most remote from the source of water. A commercial application of the design standards, the Governor's Square Mall, for example, is based on a 12 sprinkler head design. This means that the gallon per minute flow of the fire sprinkler systems is based on only 12 fire sprinkler heads even though there may be over 100 heads in the systems. Then the demand for water is 12 heads times the 24gpm or 288gpm. The most remote head must flow at 24gpm at a pressure of 20psi. If you had a one-inch diameter pipe connected to this most remote sprinkler head and you were 100 feet from the source of water, you could not maintain the 24gpm @ 20psi without upsizing the pipe because of friction loss. This accounts for the 4-inch taps which you discuss later in your opposition response. After all the piping is plumbed from that remote design area back to the source of water, if the source does not have adequate volume or pressure, the local fire official will require the property owner to install an alternative source of water or a fire pump. Waterworks companies rarely fail to provide adequate volumes of water except in the Florida Keys. The more common issue is inadequate pressure, thus the need for the booster pumps. We implore you to find **one** case where the installation of a fire sprinkler system caused the need for increased plant capacity. We can show you many non-sprinklered buildings that have placed increased demands on the waterworks company.

2. Your second issue is replete of statements indicating a misunderstanding on the operation of a fire sprinkler system. Each fire sprinkler head activates individually; the vast majority of fires are controlled by a few sprinklers. In fact, the National Fire Protection Association reports that 30% of all fires in sprinklered buildings are controlled by **one** fire sprinkler head. To

ensure that 20psi and 24gpm is available at the most remote fire sprinkler head, pipe sizing must be upsized over distance, thus the reason for the 4-6 inch tap. The hydraulic calculation of friction loss as a result of pipe length and elbows is the paramount activity of a fire sprinkler designer. The system may have 100 fire sprinkler heads, but is normally designed to meet the volume and pressure demands of the most remote 12 sprinklers. Surely, you do not think that all 100 heads discharge all at once? Some residential systems are hydraulically designed for two or four quick-response sprinklers which put the water on the fire even quicker. The booster fire pump is used for "boosting" the pressure within the system. These pumps are needed when the hydraulic calculations indicate that there will not be sufficient pressure from the waterworks system to that most remote head. If a fire sprinkler activates, regardless where it is in the system, regardless if there exists a fire booster pump, the flow of water through that head is determined by the size of the fire sprinkler orifice, or typically 24gpm.

To your comment in this section that a fire pump can put a very high demand on a water distribution system, we must draw your attention to the previous paragraph. The demand on a waterworks system created by a fire pump is based upon "water flowing." If a fire pump is turned on, but no fire sprinkler head is activated, water is not flowing. In this scenario, the pressure in the fire sprinkler piping, or on the discharge side of the pump, will have an increase in pressure. When one fire sprinkler head activates; only 24gpm is needed. If a second fire sprinkler head activates, only 48gpm is needed. In the vast majority of cases, the fire is controlled or extinguished by the 48gpm. The typical 1-3/4 inch fire hose flows 150gpm. A fire that has burned uncontrolled by a fire sprinkler system will typically require 2-1/2 hose which flows at 250gpm. It is uncontroverted that fire sprinkler systems use less water fighting a fire than

the fire department hoses. Any arguments you may envision to the contrary are baseless and without factual support.

Also in this section of your paper you express concern about backflow prevention or cross connection protection when alternative sources of water are used. Fire sprinkler systems have had backflow protection since 1874. Our industry is extremely concerned about cross connection protection, and quite frankly, are pioneers in many aspects of preventing the backflow of water. We feel that there should be national standards promulgated by people knowledgeable on cross connection protection as well as fire sprinkler design and technology. There is such a national standard, published by the American Water Works Association (AWWA) in Manual M-14. We feel that a waterworks company should refer to the advice and direction to those with expertise who developed AWWA M-14. One of the major reasons for the larger main tap size in your client's jurisdiction is his propensity to require redundant, unnecessary and very costly cross connection far above what is needed. The backflow assembly required by your client does not provide a greater degree of safety to his ratepayers, but rather a greater risk of fire sprinkler system failure. Many of the *unnecessary* valves and meters your client is forcing business owners to install are restricting water flow so such an extent that the national fire sprinkler design standards are being compromised. The potential failure of these valves and meters, never intended by nationally accepted standards to be installed in fire sprinkler systems, has caused our industry to promote the enforcement of nationally accepted standards. We suggest that your concerns on cross connection protection is appropriate up to the point of requiring cross connection protection consistent with national standards. We do not feel that your client should have unbridled authority to require whatever costly cross connection protection that he feels like requiring on a specific day, particularly in light of his

obvious lack of knowledge of fire sprinkler system operations. Using your example of a fire pumper drafting water from a canal and pumping the canal water into a fire sprinkler system, we agree that there is the potential of a contaminated source of water entering the waterworks system. In these cases, one must install na air gap, a reduced pressure, or a double-check valve backflow prevention device, as called for in AWWA M-14. But, what if there is no potential for a fire department to pump contaminated water into a fire sprinkler system, or no potential for cross connection contamination, do we need the expensive RPZ cross connection protection? The American Water Works Association, an organization that represents your client's industry says no, AWWA M-14 says no, the Florida Fire Service Community says no, the fire sprinkler industry says no. What special knowledge and expertise is possessed by your client that makes them feel that RPZ backflow protection is always needed? Why has not this extraordinary expertise on backflow protection been shared with those of state and national prominence in cross connection protection?

While I am on backflow protection demands of your client, the national fire service community actively promotes residential fire sprinkler installations. Why is it that your client requires a special tap for residential fire sprinkler systems when the national standards allow and encourage using the existing domestic tap? Why is it that your client requires redundant unnecessary backflow prevention which has the effect of reducing water flow to the extent that a larger tap size is needed? Could it be solely for the purpose of generating additional revenue for standby water fees?

In summary on this point, we do not believe that your client has a working knowledge of fire protection systems. This lack of knowledge has resulted in an unrealistic cross connection requirement, the diminishment of fire sprinkler

effectiveness and potential problems of fire sprinkler system failure because of the use of meters and valves not intended for use in fire sprinkler systems. We are unaware of any national standard or any reason for the extraordinary cross connection requirements imposed on the ratepayer by your client. The cross connection protection policy of your client is a lose/lose situation for everyone except the people who sell the valves and your client who is counting the monies generated from standby water fees.

3. The issue you present in #3 is also without substance. Many political jurisdictions relax the fire hydrant spacing requirements when fire sprinklers are used in the area. Please review the Sarasota County Growth Management Plan in which you will be able to determine the reduced waterworks demands as a result of a progressive fire sprinkler requirement in areas of planned growth. The water mains are sized based on zoning but are also sized based upon the fact that fire sprinklers must be installed in all properties within this zone. The size of the water main is less than what would be required if the zoned area were not required to be equipped with automatic fire sprinkler systems. If your client actively pursued automatic fire sprinkler requirements in areas of planned growth, the demand of fire flow would be less as would the potential size of water mains. If your client has doubt, we would be willing to provide a list of engineer contacts that could assist in a master growth plan for your client's waterworks system.

4. Your fourth issue does raise an important point. First, however, let us say that a properly designed and maintained fire sprinkler system is a guarantee of safety. We hate referring you to others for validation of what we say as we have often done in this response. However, the Fire Chief who responded to the devastating explosion at the World Trade Center would be one who will verify the effectiveness of fire sprinkler systems, even in situations and conditions outside

its design structure. Trust me when I tell you that we have a long list of uncontroverted fire sprinkler success stories.

The important point you raise deals with your contention that standby water fees are not a deterrent to fire sprinkler installation. We totally disagree with your assessment of the impact of standby water fees. You may find this hard to believe, but, in many cases, the majority of the cost of a fire sprinkler system is not the aboveground plumbing of pipe. The cost of connecting to the water distribution system, expensive unnecessary backflow protection above and beyond that required by national standards, and the permit fee process often are more than 50% of the cost of fire sprinkler installations. This is particularly true of the smaller installations. The smaller buildings are often not required by local code to install fire sprinkler systems. The cost imposed on the ratepayer who wishes to install a fire sprinkler system could be reduced by as much as 15% if the provisions of AWWA M-14 were enforced without additional requirements. Again, the AWWA M-14 backflow prevention requirements provide the level of cross connection protection necessary for fire sprinkler installations. AWWA M-14 standards are recognized by the State Department of Environmental Regulation, a copy of this recognition sent to your client in 1990. The cost of a residential fire sprinkler system is under $.80 per square foot throughout Florida, except in your client's district. Your client requires the homeowner to pay for tapping the main, installing a separate meter, installing a backflow preventer, and running a separate line to the house for the fire sprinkler system. After this mostly unnecessary trim is installed, your client will charge $13.64 each month **forever** for the water standing in the fire sprinkler piping. Additionally, a yearly inspection fee for the backflow preventer will be charged. Even after all this expense, **none of which is incurred by your client,** you end up with an inferior system that is susceptible to failure. God forbid should the water main be on the

other side of the street, which would cost another few thousand dollars. Yes, people complain about the cost of fire sprinkler systems. We wish that your client was part of the solution rather than the main source of the problem. Please understand that the standby water fees and the redundant backflow prevention is a major deterrent to fire sprinkler systems.

5. Your fifth issue, for the most part has already been addressed in other sections of this response. However, we would estimate that 70% of the fire sprinkler systems installed in Florida are installed because of local governmental mandates. If we add insurance companies to local government mandates, we have hit on 85% of the reason that fire sprinkler systems are installed. The wise and prudent business owner understands the lost revenue and potentially forever lost clients to competition if a fire should close his doors. The fire-caused downtime of businesses in fire sprinklered buildings is measured in hours verses months or years in the non-sprinklered building. Because good business sense dictates protecting investments and client lists, many fire sprinkler systems are installed at the discretion of the property owner. A monthly standby fee of $78.69, as charged by your client for a 6-inch connection, is a blatantly obvious deterrent to fire sprinkler installation. If we sprinkler, we pay $78.69 per month. If we do not sprinkler, we pay nothing. Your argument that people do not voluntarily install fire sprinkler systems is without substance, except, perhaps in your client's district because of its abusive use of standby fees.

6. It is clear that AWWA M-14 is a state accepted standard for backflow protection. We agree that the public health should not be compromised on this issue. You are forgetting public safety. We implore your client to present us with one bit of factual data, not foundationless assumptions, to support the need for this redundant backflow prevention. The redundant backflow prevention devices mandated by your client does absolutely nothing to improve public health over

AWWA M-14 requirements. On what technical basis does your client profess the need for this cross connection protection overkill? The redundant backflow protection required by your client does diminish the operation of fire sprinkler systems. The water purveyor should follow nationally accepted standards for cross connection protection (AWWA M-14) and deviate from this requirement only when conditions are such that extra protection is necessary. The water purveyor should be required to bare the burden of proving that the extra cross connection protection is necessary, and the ratepayer should have access to an appellate board or commission that could hear any disputes. Water purveyors should not have unbridled authority to demand whatever that feel like demanding from the ratepayer.

We trust that you have a better understanding of our concerns on this issue. We must clearly state our interest in working with you and your client to formulate a better understanding. We must also state, in the strongest terms possible, our interest in fair and impartial treatment of ratepayers. There is no cost incurred by your client for the water standing in the fire sprinkler pipes. We know this; your client knows this. Charging $78.69 for water standing in a fire sprinkler system that has a 6-inch tap is unreasonable, discriminatory and, morally wrong. The *sole reason* for the standby fee is to generate revenue.

Of paramount concern is the **discriminatory practices of standby water fees.** The used and useful analysis formulas proposed in Rule 25-30 clearly provide for the addition of fire flow. It is uncontroverted that fire sprinkler systems significantly reduces fire flow requirements, typically a fire sprinklered building fire flow is normally less than 10% of an identical non-sprinklered building. **Why is the ratepayer that is creating the demand for over 90% of the fire flow not charged a standby fee?**

We respectfully ask that you and your client revisit your opposition to our position on standby water fee charges and cross connection protection overkill and withdraw your opposition. If you do so, we will withdraw this response. We must also ask that you advise us of your clients decision on this request to reconsider before March 19, 1993. On March 22, 1993, the Joint Council of Fire Service Organizations will meet to discuss issues of importance to the Florida Fire Service Community. The major fire service organizations have already public opposed standby water fees and redundant backflow protection. As President of the Florida State Firemen's Association, I will ensure that the issue is revisited with an intensity commensurate with the tone of this response.

Please feel free to contact us on this issue.

Sincerely,

Buddy Dewar
Executive Director