



**DEPARTMENT OF FORESTRY AND FIRE PROTECTION**

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**Residential Fire Sprinkler/Water Supply Task Force  
MINUTES  
Monday, March 30, 2009**

**MEMBERS PRESENT:**

Dennis Mathisen, Roseville Fire Department (Co-chair)  
Ernie Paez, CAL FIRE, OSFM (Co-chair)  
Jim Bollier, Nor Cal Fire Prevention Officers  
Heather Collins, California Department of Public Health – Drinking Water  
Darren Drake, Nor Cal Fire Prevention Officers  
Doug Dupree, So Cal Fire Prevention Officers  
John Graham, American Water Works Association\*  
Steve Hart, Consultant  
Shawn Huff (for Doug Hensel), Housing & Community Development  
Bill Kirkpatrick, East Bay Municipal Utility District  
Ed Kriz, City of Roseville Water Utility\*  
Mark Krause, Desert Water Agency\*  
Bruce Lecair, National Fire Sprinkler Association  
Ian Mac Donald, So Cal Fire Prevention Officers\*  
Bob Raymer, California Building Industry Association  
Julie Spacht, Los Angeles Department of Water & Power\*  
Mike Stewart, Sacramento Metro Fire District

**MEMBERS ABSENT:**

Ray Bizal, National Fire Protection Association  
Richard Hinrichs, California Department of Public Health  
Dave Luker, Desert Water Agency  
Gene Paolini, California Building Officials  
Jennifer Whiting, League of California Cities  
Representative, So Cal Water Utilities Association  
Representative, American Water Works Association  
Representative, Northern California Water Association  
Representative, Regional Council of Rural Counties

**STAFF:**

Vickie Sakamoto, Division Chief, Fire & Life Safety  
Judy Bankert, Office Technician, Support Services

**GUESTS:**

Dale Evenson, Riverside County Fire Department  
\*via telephone conference call

**INTRODUCTIONS**

The meeting began at 10:10 a.m., and self introductions were made by all present.

**APPROVAL OF MINUTES FROM FEBRUARY 24, 2009, MEETING**

There were no changes to the minutes.

**SUBCOMMITTEE REPORTS**

- **Fees**  
Bruce Lecair went over the following report with the group:

### PHASE I Recommendations

1. Use the Best Practices Philosophy when applicable for making recommendations and suggestions for specific applications that are appropriate for the conditions within a specific region of California.
  - a. Society: This will provide water purveyors information regarding what is being done throughout the State of California. Best practices will ultimately improve the quality of life by providing the best possible water service and fire and life-safety with practices developed in accordance with a best practice standard.
  - b. Technological: Allows stakeholders to share and to utilize the best technological standards throughout the State giving the best value for the consumers.
  - c. Economical: Should insure that residents are protected from higher fees through sharing best practice billing among water purveyors throughout the State of California.
  - d. Environmental: Provides the greatest opportunity to place water quality at the forefront while sharing best practices with stakeholders throughout California.
  - e. Political: Establishment of best practices within the water purveyor industry builds trust with consumers and enables shared interests in forming alliances with stakeholders in the Fire Protection Industry to promote the fire sprinkler concept while allowing local control and decision making.
  
2. Eliminate as a best practice and in accordance with NFPA 13-D, the combination of the domestic and fire sprinkler flows when calculating flows for service sizes. This recommendation reduces the flow requirement and allows meter service sizing accordingly.
  - a. Society: Allows for a more cost efficient way of adequately protecting the consumer.
  - b. Technological: Technology is available (such as Residential Domestic Shutoff Valves and other similar devices) when needed for conditions that require redirection of the water flow from the domestic to the fire sprinkler system to meet conditions where water pressure and flow is not sufficient to meet the combined demand. This technology can be utilized to eliminate the necessity for increased over sizing of the meter and service line.
  - c. Economical: Reduction in meter sizes reduces builder and water purveyor cost and makes the Fire Sprinkler Concept more affordable to the consumer.
  - d. Environmental: Best practices in line (b.) result in fewer raw materials needed to construct service laterally and reduces meter size.
  - e. Political: Reduction in the service laterally and meter size is a cost benefit to the consumer and becomes a political asset for the local constituents.
  
3. Develop a Best Practice Philosophy/Program for the State of California for determining fees for technology, maintenance, inspection, service and monthly standby or utility fees for use in billing consumers with residences that are constructed with NFPA 13-D Residential Fire Sprinkler Systems.
  - a. Society: Increases fire and life safety and quality of life in California by making the systems more affordable and consistent in application among jurisdictions.
  - b. Technological, No technological impact
  - c. Economical: Consumers would be assessed for costs of water service similarly throughout the state with exceptions for situations that require extraordinary measures to meet existing conditions.
  - d. Environmental: No environmental impact
  - e. Political: Increases public acceptance of the residential fire sprinkler concept by the use of a statewide Best Practice Standard for establishing fees nexus and like treatment for residences constructed with NFPA 13-D Residential Fire Sprinkler Systems.
  
4. Discourage the use of backflow devices through system design methods such as with looped or water diversion systems, until a study is thoroughly completed by a qualified outside agency demonstrating the need for backflow or other measures to prevent contamination of the water supply. Encourage fire sprinkler designers and other stakeholders to use loop systems or other water diversion methods approved in NFPA 13-D to create periodic water flow through the system that will minimize the potential threat of stale water and resulting water quality issues.
  - a. Society: Looped or other approved means provides a measure of safety that will protect the water supply from future/unknown water contaminants.
  - b. Technological: The technology is built into the NFPA 13-D standard through the use of looped systems or other means for creating periodic water flow such as tying the system into a frequently plumbing device. Tying the system into a plumbing device ensures that the residential fire sprinkler system is charged with water at all times.

- c. Economical: Eliminates the need for backflow devices and related fees through the simple means of looping the piping system or tying the system into a frequently used plumbing device.
- d. Environmental: Has the potential to better protect the public water supply.
- e. Political: Reduces the concern that residential fire sprinkler systems may contaminate the public water supply without creating an additional expense to the consumer and promoting confidence in water supply integrity.

*There was discussion regarding 4 above, and **Bruce was going to rework it before submitting his final draft to the co-chairs.***

*There was also discussion regarding anti-freeze and food grade glycerin. The consensus was this would be a big issue for Phase II and there would need to be specific delineation of the type of anti-freeze (glycerin) to be used in fire sprinkler systems.*

#### Potential PHASE II Recommendations

1. Recommend a statewide best practice for calculating fees for plan review by fire jurisdictions and related stakeholders of NFPA 13-D Residential Fire Sprinkler systems.
  - a. Society: Communicates that plan review fees throughout the State of California are in accordance with a best practice standard and consistent with other agencies thus promoting the Fire Sprinkler Concept and improving the quality of life and safety throughout the state.
  - b. Technological: Will share the best technological standards with water purveyors throughout the State giving the best value for the consumers
  - c. Economical: Provides consistency in plan review fees throughout the state insuring that system designs and plan review costs are similar and in accordance with a best practice standard.
  - d. Environmental: Will provide the best opportunity to keep water quality at the forefront while sharing best practices throughout the state.
  - e. Political: Reduces differences between system design and review processes between agencies making it easier to understand and comply with requirements for residential fire sprinkler design and construction.
2. Identify common terminology used by stakeholders in the water purveyor and fire industry for use in all aspects of NFPA 13-D Residential Fire Sprinkler System construction and design.
  - a. Society: Assists public awareness by enabling citizens to better understand the residential fire sprinkler concept.
  - b. Technological: Allows the stakeholders to communicate on a similar plane.
  - c. Economical: Assists the public in quicker and easier understanding of what is constructed into their homes and what they are purchasing with their fire sprinkler systems.
  - d. Environmental: No impact
  - e. Political: Develops common communication, which will ease political communication among stakeholders throughout the state.
3. Identify methods of periodic inspections of NFPA 13-D Residential Fire Sprinkler systems such as during major remodeling, resale inspections or refinancing of residences to ensure that the quality of the systems exists throughout the lifetime of the system.
  - a. Society: Improves life safety and quality of life by periodically performing maintenance and inspection of the fire sprinkler systems.
  - b. Technological: Insures that the technology constructed into the fire sprinkler systems operates when needed.
  - c. Economical: Reduces life and structure loss liability by increasing confidence that the fire sprinkler systems work when needed.
  - d. Environmental: Decreases the environmental footprint in the landfills from burned structures, reduces smoke emissions, and keeps the water delivery systems clear of fire contaminants.
  - e. Political: Demonstrates to constituents and consumers that jurisdictions are committed to the fire sprinkler concept and willing to perform periodic inspections to maintain the fire and life safety of their communities.
4. Identify and Define liability protection for water purveyors with regard to NFPA 13-D Residential Fire Sprinkler Systems. **(Covered in the Laws and Regulations Sub-committee)**
  - a. Society: Protects society while reducing unnecessary lawsuits.
  - b. Technological: No impact
  - c. Economical: Reduces unnecessary lawsuits.
  - d. Environmental: No impact

- e. Political: Eliminates the public perception that Residential Fire Sprinkler Systems are a legal liability to the water purveyors, fire agencies, local communities and consumers.

*Bruce was asked to change the wording in 1 above from "fire jurisdictions and related stakeholders" to "enforcing agencies", and he said he would make that change.*

- **Connection Configuration**

Julie Spacht gave the following report:

#### INTRODUCTION

A water supply connection, whether provided by a quasi-governmental agency, public utility, or private supply source, supplies water for public and private uses and must always consider health, safety and economics. Configuration of connections is provided to supply adequate pressure and flow as economically and reliably as possible.

#### PHASE I Recommendations

1. Recommends a configuration with the following characteristics:
  - a. Single lateral feed from main; branching from the domestic supply to the meter. Least cost, simplest design, provides greatest flexibility.
  - b. Service sized based upon sprinkler demand and/or domestic demand – worst case, without concern for simultaneous demand. Usually 1½-2 inches. Issues of simultaneous demand requiring private domestic shutoff valve complicates household design. Smaller 1-inch meter acceptable if the two flows are not combined and domestic flow appropriate.
  - c. Service lockout as per agency policy. Shutoff ability is required by the water purveyors for a variety of reasons. Agencies should use best practice to word shutoff notices to include potential loss of fire sprinkler protection.
  - d. Metering per purveyor agency policy (and commonly by guiding statutes). Use agency standard water meters, fire rated only if necessary due to water quality, selected by the water purveyors.
  - e. Include maximum flexibility in the service configuration, which allows agencies to use existing policies, procedures and time-tested material resulting in appropriate cost for long-term reliability.
  - f. Continue the industry standard that facility costs are 100 percent captured in the fees directly associated with installation, maintenance, reading, and replacement of the meters. Monthly billing prices should have clear nexus to both the fixed and variable cost of service provided and should remain a local purveyor policy issue.

*Julie was going to change 1, d, above for the final report to address concerns expressed by group members.*

2. Recommendations for type/listing of meter; meter size/arrangement; meter versus no meter.
  - a. Social: Not applicable – the configuration has no impact positive or negative on society.
  - b. Technology: Current technology is available. Selection of particular meter and configuration to be in keeping with agency's policies and engineering requirements based on demand flows.
  - c. Economical: Configuration is a water purveyor decision based on cost and technical factors. Standby charges based on local rate structure developed on a case-by-case basis. Meter type and size directly impact the cost of maintenance and replacement of the meters.
  - d. Environmental: Potential positive impact; metering supports water conservation owing to direct billing to each customer.
  - e. Political: Variable in that size of service and meter will affect cost and that can raise questions like what is driving the meter size, for what benefit, and at what cost? Who should pay? Water purveyors charge the beneficiary, i.e., the customer. Sizing of the meter is based on maximum flow rate, which can be either the aggregate of domestic and fire sprinkler flow or one or the other, whichever is larger. Since cost, benefit, and configuration are all a function of independent agencies, political implications are intrinsically present.
3. Recommendations for rural versus municipal supply.
  - a. Social: No specific differences in terms of configuration.
  - b. Technology: Current technology is available though water supply capability may be quite different. Municipal is likely more reliable in terms of supply owing to larger base of resources to operate and maintain the system.

- c. Economical: No difference in configuration, but supply facilities may be affected, e.g., onsite storage tank or large well flow owing to the sprinkler flow if additive. Routine annual inspection costs may be higher for private (and rural) systems.
- d. Environmental: Flexibility of configuration supports environmental interests and concerns.
- e. Political: Using best practices should be a positive impact in terms of life safety, but cost as noted in 3.c. may be a political issue for local jurisdiction.

***After some discussion, the decision was made to delete the last sentence in 3, c, above.***

- 4. Recommendations for backflow protection.
  - a. Social: Allows for onsite backflow – not currently required by California for normal residential. Optional backflow does not provide 100 percent guarantee of backflow protection, however, protection is in keeping with current level of overall protection.
  - b. Technology: Current backflow prevention technology is available. The main unknown is the issue of contamination of domestic water (both the specific home and public system from stale water in the sprinkler piping system). Solutions are available (if it is a problem), but not well studied. A key point is the number of opportunities for contamination to increase significantly if the requirement for sprinklers is ubiquitous. At present, no specific problems are obvious and some purveyors require residential backflow prevention.
  - c. Economical: Backflow prevention is a cost and requires maintenance and inspection. Typically, homeowner would pay for installation and maintenance and agency would inspect for a fee. Configuration alternatives would affect cost depending on size, type and location of the backflow prevention device.
  - d. Environmental: Materials for backflow prevention remove resources from the earth, but, if indicated, backflow prevention could minimize or prevent related communicable disease propagation via the water supply if it were determined to be a problem (unlikely at this writing, see 4.b.).
  - e. Political: If public health and safety indicate backflow need, political action should be positive. If not clear, political response could go either way: be conservative on safety and require or be conservative on cost and not require. In either case it may be recommended to study this issue (say through the Water Research Foundation, Denver, Colorado).

***Julie said she was going to make some changes to 4, e, above.***

- 5. Recycled water – not considered a necessary concern at this time as it is unlikely that this would be a cost-effective or even safe application of recycled water for residential even if an adjacent supply were available in that a dual system would be required (at home or both home and purveyor) and the issue of homeowner-performed plumbing and cross-connections would be a concern (nearly impossible to prevent or inspect).
- 6. Recommendations for water supply criteria – pressure/flow/duration.
  - a. Social: Ensuring a coordinated approach to purveyor supply, configuration, and cost with other regulatory agencies (State and fire agencies) for an adequate water supply is in the best interest of the citizens.
  - b. Technology: Current technology is available. Water purveyors can ensure adequate flow and pressure by design. Duration is normally not an issue for an urban water purveyor as the distribution storage is driven by larger domestic demands of numerous customers and fire flows from hydrants (typically at or about 500 to 1000 gpm for two hours in California, sometimes higher). Occasionally remote systems that are attached to urban systems function like rural systems. Rural systems will/may need special attention in all three of these components.
  - c. Economical: Appropriate configuration minimizes pressure loss and therefore minimizes impact. Some low pressure services may require onsite hydropneumatic supplemental system beyond that required for domestic supply to adequately supply the sprinklers (and the domestic demand).
  - d. Environmental: No significant independent impacts would be expected here other than those dealt with in developing the overall water supply, which is nearly always independent of this issue.
  - e. Political: In some locations and cases, considerations in 4.b. and 4.c. could have political issues and concerns; so this would be variable and case-by-case.
- 7. Recommendations for liability.
  - a. Social: Potential liability issues are shutoff and backflow.
  - b. Technological: Not applicable.

- c. Economical: Liability exposure poses potential unknown economic impact. Water systems have inherent basic service liability and would not want to take on any additional liability for sprinkler systems.
- d. Environmental: Not applicable.
- e. Political: Water purveyors would not want to take on any additional liability for sprinkler systems. Homeowners, building inspectors, builders and contractors would have construction, testing and warranty liability, which is standard. Post-warranty, fire agencies and/or building officials would have annual inspection responsibilities if required and that may come with inherent liability. Ultimately, the homeowner is responsible, which seems to require some sort of formal notice regarding operations, maintenance, and standard inspection to ensure the system works. This is, to the Committee's knowledge, an unfunded liability at this time.

***Julie was going to add a "Hold Harmless" clause to this section to address concerns raised by some members. Steve Hart asked Julie if she could obtain a few "Hold Harmless" clauses, and she said she would and would forward them to the entire group.***

- 8. Recommendations for consistency – although configurations may not be consistent from jurisdiction-to-jurisdiction, configurations would be flexible to situations and circumstances.
  - a. Social: Consistency regarding Statewide BMP and statutory direction means all are treated equally with a clear social benefit (fire life safety) and this would be a benefit to the citizens.
  - b. Technology: Clear direction on the water supply system is needed in terms of designing for the sum of both domestic and fire flow versus one or the other would clear up the technical configuration choices and thus meter system sizing and cost. Water purveyors will determine the design domestic flow and the fire agencies would determine the fire sprinkler flow.
  - c. Economical: Solving 8.a. and 8.b. would produce the most economical package for each specific housing development.
  - d. Environmental: Not applicable.
  - e. Political: If 8.a., 8.b. and 8.c. were in place with clear direction to the fire agencies throughout the State, the political views would likely be positive from all interested parties given the base assumption that the cost is justified by the benefit, life safety and structural and personal property damage minimization.

- **Laws and Regulations**

Steve Hart gave an overview of the sub-committee's activities and research which will be reflected in the Phase I Final Report. Steve noted that due to the nature of laws and regulations, the sub-committee report will be in an outline format rather than the STEEP format. Steve referenced several of the Government Code and Health & Safety Code Sections which govern the manner by which water purveyors and local enforcing agencies (building and/or fire departments) function—such as the open hearing procedures (Brown Act and/or Bagley-Keene Act), water service disconnections (PUC General Order 103), and other state and federal regulations (CA Safe Drinking Water Act) and issues regarding backflow/cross-connection requirements to name a few.

Steve also discussed some outdated statutes/code provisions with regard to backflow/cross-connection, which reference an outdated AWWA Manual (M-14 - 1966 edition) that has been superseded by two revisions (the 2004 edition is currently published and available). Steve stressed the fact that the original AWWA M-14 referenced Class 1 and Class 2 conditions are no longer categorized as to "Classes" (Class 1 thru 6) for defining backflow/cross-connection criteria.

Steve noted that the sub-committee's final report will contain the following two recommendations from Phase I to be expanded upon in Phase II:

1) Proposal for a new section in the NFPA-13D Standard (for California) which would define the requirement for "Working Plans" and what they should contain. This would be consistent with what is currently required for NFPA-13 and NFPA-13R; however, the number of items required would be minimal—due in part to the simplified nature of an NFPA-13D automatic fire sprinkler system. Steve also noted that virtually every enforcing agency which issues permits for and inspects residential fire sprinkler systems requires some type of working drawings to be submitted along with the supporting calculations when applying for a building permit to install a sprinkler system.

2) Proposal for a series of one-day seminars to be presented throughout the state under a joint partnership concept (CSFM, HCD, Cal-Chiefs [NorCal-SoCal FPO's], CalBO, AWWA [Cal/Nevada Chapters], and CBIA) which will provide critical information on the new 2010 CRC (Title-24, Part 2.1) and the state mandate for "All

newly constructed SFD's and Townhouses to have an automatic residential fire sprinkler system installed". It is critical to insure that the appropriate stakeholders be given the necessary information to perform efficiently and uniformly during the initial transitional period of this new requirement which will become effective on January 1, 2011.

There was discussion regarding the training which will be needed for implementation of residential fire sprinklers and all the periphery issues caused by that implementation. **Ernie Paez said he thought it would be a good idea to form a sub-group made up of members from both Phase I and Phase II sprinkler task forces to handle the whole training issue.** Some of the challenges involved will be who will do the training and how will it be paid for. **Ernie said a survey would be sent out to find out who might be interested in being a part of this training sub-group.** The general consensus from the group was that training was very important and should be addressed.

**Steve indicated he would have the Final "Laws and Regulations Sub-Committee Report" to the Co-Chairs by Friday, April 3.**

- **Process Efficiencies & Cost Impacts**

Steve Hart gave this report for Bob Raymer since Bob had to leave early. Steve passed out a three-page Formal Petition for Code Change which was prepared by the California Building Industry Association (CBIA) for a proposed code change to the 2010 adoption of the California Residential Code (CRC) that addresses the side-yard setback (Table R-302.1). Under this proposal, the side-yard setbacks would be returned to the pre-adoption of the 2006 IBC which changed the long standing 3-foot side-yard criteria to the current 5-foot side-yard setbacks. Bob's research has determined that as far back as 1927 under the Uniform Building Code the national baseline was 3 feet, and for more than 80 years this was acceptable with no significant identified problem.

In his formal petition, Bob expanded on his findings and even though this item had been discussed at several Phase I Task Force Meetings, he felt it was necessary and appropriate to submit this code change to get the issue on the agenda for the adoption cycle at this time. Kevin Scott indicated this code change is being proposed for the 2012 IBC/IRC and will be heard as that code cycle proceeds.

#### **ROUNDTABLE DISCUSSION**

For the final report, Bill Kirkpatrick asked that the names of agencies and organizations be spelled out the first time they are used followed by the appropriate acronym in parenthesis.

Dennis and Ernie asked the group if another meeting was needed. The four sub-committees will submit their final reports, and they will be put together in one final report by Ernie and Dennis using GoToMeeting during a conference call. If there is anything that needs to be discussed with other task force members regarding the document, those discussions can be held on the telephone and, if necessary, through GoToMeeting. Dennis asked that Word 2003 be used for each report—rather than Word 2007.

**Steve Hart asked that Phase I task force members** be kept advised of what is going on in Phase II—minutes, draft reports, and handouts. Ernie Paez said that was a good idea, and **Judy Bankert said she would do that.**

#### **MEETING ADJOURNED**

The meeting was adjourned at 2:30 p.m.