

Melott and Associates

Fire Protection Consulting

EM915-1

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PROPOSED RULE

PR-50 (15)
(45 FR 36082)

June 23, 1980



Secretary of the Commission
US Nuclear Regulatory Commission
Attn: Docketing and Service Branch
Washington, DC 20555

RE: Fire Protection in Nuclear Power Plants

Dear Sir:

I have reviewed the proposed rule which adds Section 50.48 and Appendix R to 10 CFR Part 50. This proposal was forwarded by Region V and the opportunity to comment is appreciated. A few comments from a cursory review are as follows:

1. Page 18 of Enclosure "A", Appendix R, Part II.A.2.c. I question the wisdom of specifying manually actuated fixed suppression systems particularly for the two specified situations, fire hazards are large or access for fire fighting is restricted. The need for fire suppression indicates that fire prevention has failed, so our next best tact is to keep the fire small. Situations which allow the fire to grow larger while decisions are made or fires which are allowed to escalate while humans respond to the emergency area or other control point in order to manually activate a fire suppression system, are costly and not good fire protection. Brown's Ferry is a testimony to this fact. Automatic systems equipped with manual trips are preferable. For some systems, carefully designed abort systems can be used but they must be designed with safeguards to prevent human error or sabotage.

2. Appendix R, Part II.A.2.i. Not only should fire barriers and fire suppression systems be checked for operational capability, but they must be inspected to maintain integrity and functionality. Construction changes which create holes in fire walls and not properly plugged, or fire doors which have been replaced with a door of a lower rating or obstructions to sprinkler heads or improper distribution of sprinkler heads due to construction changes without fire protection system updating, are all examples of devices which are basically operationally okay but their true capability has been compromised. Again, the combustible plug in the fire wall at Brown's Ferry should have not been allowed in reconstruction, and should have been ordered for correction if found on an inspection.

Acknowledged by card

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3. Page 22 of Enclosure "A", Part III.E. Hose must be periodically inspected for mildew, rot, cuts, or other damage and service tested (hydrostatic) when any question on serviceability is discovered. I have personally seen many hoses fail because of slow leaks (periodic drips) from standpipe hose valves or hose in damp locations developing severe mildew.

4. Part III.G.2.h. (Are paragraphs d thru i missing or is "h" a typographical error.) The minimum fire brigade size is questionable. What is the real intent of the fire brigade? If it is fire suppression only, what size hose lines, and how many hose lines, are to be placed in operation? At least two people per 1½ inch hose line are necessary to properly stretch it out and for safety of operation, the buddy system. If the hose is 2½ inch, at least three people are needed. These personnel requirements can be reduced if, all stretches are in a straight line from the valve location, other guaranteed safety measures are implemented, and the individual who is going to operate the hose will, stretch it out, making sure the nozzle is shut off, go back and turn on the valve and follow the hose length to remove all kinks and straighten the hose. The current requirement for five people allows for one rescue team of two people, one hose team of two people (1½ inch hose) and one supervisor. If there is any less, rescue, or fire suppression will have to be sacrificed until personnel forces are reinforced. Another factor is the response time of the municipal or outside fire forces and the totality and adequacy of the built-in fire suppression systems. Since the fire brigade cannot always be in the fire location at the time of the emergency, consideration must be given to the time delay for the personnel to respond. Knowing that some facilities are fairly large this time response could be lengthy and thus another reason for having a larger fire brigade (a larger pool of personnel) and thus a more timely likelihood of being able to muster teams of individuals to fight a fire rather than encouraging a person to try it alone.

There should be a sufficient operations personnel, or other knowledgeable people assigned to the fire brigade on each shift so that all possibilities are covered. The present wording would allow all operations personnel to be on one shift or divided so there is only one per shift. Neither of the latter two situations are desirable.

5. Table 1. I am finding it difficult to equate manually activated fixed water systems with automatic gas suppression systems which Note 1 seems to do. The requirement for manual fixed systems seems to also be unreasonable in the table. If a fixed suppression system is required, it should be automatic with a manual back up. Unless the ten feet horizontal and vertical distances can be verified as reasonable by full scale test, I would question this distance validity. Heat rises from a fire and radiant heat will also quickly travel the ten foot distance. Melting Point or other temperatures which can damage cable insulations will quickly be reached in a fire situation and one of the basic features of some fixed suppression systems is cooling, which is necessary to prevent damage.

6. Part III, G.2.h.1 (page 28 to Enclosure "A") The personal protective equipment should meet at least NFPA and ANSI standards. A hard hat is not sufficient, since most hard hats will quickly soften and/or melt and drip in a high heat atmosphere.

7. Part III.I.1.a.(5). The fire brigade member must know and understand the limitations and hazards of the fire extinguishing agents he is using. For example the use of multi purpose dry chemical (acidic base) on electrical or electronic equipment should be avoided because it will corrode contacts; Halon 1221 used in a confined area will possibly create hazardous levels of phosgene gas; personnel must be evacuated from an area before a total flooding carbon dioxide system is discharged or they must be equipped with SCBA; etc.

8. Part III.I.1.c. Training records must be maintained to ensure that all personnel are trained in all subjects. Untrained fire brigade members should be very limited in the activities they can participate in.

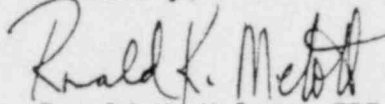
9. Part III.I.3.b. Fire brigade members should participate in at least 75% of the drills. An untrained fire brigade member can compromise the safety of other brigade members and other employees, as well as himself. Fire fighting in a nuclear plant is not for the amateur.

10. Part III.K.10 (page 34 of Enclosure "A"). It is not the control room operators prerogative to "determine the need" for brigade assistance. He can determine the level of alarm, but not the need, i.e. he can notify the brigade leader only or he can sound the full alert. The control room operator will only know that a problem exists, not what the exact problem is and what assistance is needed to control the incident.

11. Part III.P (page 44 of Enclosure "A"). All fire protection systems must have some built-in seismic protection. An earthquake will more than likely create fire situations and the need for automatic fire suppression.

Thank you for the opportunity to comment and I trust that the above brief statements will be beneficial. If there are questions please let me know.

Sincerely,



Ronald K. Melott, FPE (CA)

RKM/mm

cc. Region V