

# STONE & WEBSTER ENGINEERING CORPORATION

245 SUMMER STREET, BOSTON, MASSACHUSETTS

ADDRESS ALL CORRESPONDENCE TO P.O. BOX 2325, BOSTON, MASS. 02107

W U. TELEX: 94-0001  
94-0977



BOSTON  
NEW YORK  
CHERRY HILL, N.J.  
DENVER  
CHICAGO  
HOUSTON  
PORTLAND, OREGON  
SAN DIEGO  
WASHINGTON, D.C.

DESIGN  
CONSTRUCTION  
REPORTS  
EXAMINATIONS  
CONSULTING  
ENGINEERING

(45 FR 36082)  
DOCKET NUMBER PR 50 (38)  
PROPOSED RULE



Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Attention Docketing and Service Branch  
Washington, D.C. 20555

Dear Sir:

We have reviewed the proposed Section 10CFR50.48 Fire Protection and proposed Appendix "R" with interest in respect to a better fire protection program in the nuclear power industry.

We believe the objective will not be met by imposing additional arbitrary rules in a field where consensus guidance, good judgment and common sense are needed. Currently, there is growth in the amount of available experimental data. However, evaluation of the data is slow and the application to existing designs should still be tempered by judgment.

Engineers in the fire protection discipline agree that there are equally acceptable alternative ways to meet particular problems. To extend differences of opinion on alternatives to legal argument does not serve to make the plants safer. The goal of safety would be better served if the time and effort which could be expended in litigation were directed to improving existing fire protection programs in cooperation between the NRC and the utilities.

We consider that the case-by-case review and resolution at the lowest possible level is the better course of action. We believe that it is inappropriate for Appendix "R" to attempt to resolve specific differences found at isolated plants.

The additional manpower requirements for the fire brigade definition and other burdens placed on the unit operation are excessive. The burden of costs to contest differences of opinion must be evaluated by the utility while, on the other hand, the NRC does not appear to bear a similar burden. In the public interest, the differences should be settled for the least total cost.

Acknowledged by card: ?-?-80-50

L-41, R-50

8007300 064

We note that in the supplementary information on (page 5) that "All licensees will be expected to meet the requirements of this rule, in its effective form, including whatever changes result from public comment." It appears that prior agreements reached and being implemented in good faith could now be void and subject to another round of inquiry and changes as a result of new interpretation. We suggest that there should be some commitment that current agreements would be binding for some minimum period.

We have the following comment on Section 10CFR50.48:

Section 50.48 1.b The rule states in the footnote to Section 50.48 1.b that both Appendix R and Appendix A to BTP 9.5-1 set forth the minimum requirements for compliance with GDC 3 of Appendix A to part 50. This is in conflict with the guidance published in the discussion section which states that Appendix R sets forth the minimum requirements for compliance with GDC-3 Fire Protection.

We have the following detailed comments on Appendix "R":

Section II, A, 2c "Manually actuated fixed suppression systems shall be installed where fire hazards of grouped electrical cables are large or access for the fire brigade is restricted."

The undefined words "large" and "restricted" are subject to wide interpretation. A defined "large" could be established by using a fire loading with a + tolerance or other criteria. "Restricted" could mean anything less than the two remote entrances and aisles 3 ft by 8 ft high as described in Appendix A to 9.5-1 for cable spreading room. We note that most man-doors are 7 ft high and OSHA permits projections from the ceiling to be not more than 6 ft 8 in from the floor.

Section II, A, 2e "Automatic suppression systems shall be provided to control large fire hazards or to protect redundant systems or components important to safe shutdown."

As before, we believe "large" needs definition. Both here in Section e and in Section c, the distinction should be made that the fixed suppression systems are only required when both of the redundant safety systems could be involved in the single postulated fire.

Section II, A, 2e "Fire barriers surrounding each fire area shall have a 3-hr fire rating unless the fire hazards analysis demonstrates that a lesser rating exceeds the duration of the in-situ fire load by at least one-half hour."

We consider that the half hour margin to be an excessive conservatism. The barriers do not collapse after the fire resistance test. In most confined spaces, the postulated fires would not follow the standard E119 time temperature curve and the time of equivalent fire severity is only approximately equivalent to that under the E119 test curve. Sufficient conservatism is inherent in the fire resistance ratings of barriers; therefore, the phrase "by at least one half hour" should be deleted.

Section II E "Separation of redundant systems and components by 3-hr rated fire barriers of at least 50 ft both horizontal and vertical of clear air space shall be deemed adequate. Lesser ratings or distances shall be justified by analysis or test." The arbitrary separation by 3 hr fire barriers or at least 50 ft of clear air space may be far more than adequate. To require analysis and test for all lesser ratings or distances is an unreasonable requirement and should be deleted.

Section III A Fire Water Distribution System "Fresh water" should not be mandatory. Alternate methods of providing backup water supplies for existing plants should be acceptable. Other sources such as cooling water, brackish water, or sources which may have a high conductivity may be used with due consideration of availability and consequences.

"These supplies shall be separated so that a failure of the one supply will not result in a failure of the other supply."

We believe that it would be more prudent to have both tanks interconnected and so valved that either tank may be isolated if a leak develops. Catastrophic failure of suction tanks are so rare we believe it would be preferable that "they should be so connected that the pumps can take suction from either or both." (Appendix A to BTP APCSB 9.5-1)

III C Hydrant Block Valves "Block valves shall be installed in hydrant laterals, if necessary, to permit isolation of outside hydrants from the yard main without interrupting the fire water supply to any area containing or presenting a fire hazard to safety-related or safe shutdown equipment."

Hydrant block valves are a convenience. Whether they are required in every supply to any area containing or presenting a fire hazard to safety-related or safe shutdown equipment depends on whether all water supplies to the area would be interrupted. We suggest the word "single" be inserted before fire water supply.

Section III L "Alternate Shutdown Capability" This section does not address the acceptability of operator action in response to fire induced damage in many cases, most of the damage inflicted on the electrical system occurs in the control circuitry. This is due to the fact that there are many more control wires than there are power cables. Failures in the control wires can be bypassed in many cases by removing the control power and manually operating the motor starter or switch gear. In the case of motor operated valves it is often possible to manually open or close them when the power cables or power source is lost. The use of local manual operation (at the switch gear, the motor starter or at the valve) requires that the device be accessible and that the operator has sufficient time to operate the device.

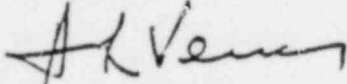
Section III M "Fire Barriers" 1.1 The second paragraph requiring that structural steel forming part of or supporting a 3-hr fire barrier shall have a fire resistance equivalent to that of the barrier is not in either RG 1.120 or BTP 9.5-1.

An alternate approach is to specify a total assembly, such as in the Fire Resistance Directory of the Underwriters Laboratories having a fire rating of 3-hrs, rather than rating the individual components. There are assemblies rated at 3 hrs where the steel is bare, but is protected such as a suspended ceiling arrangement.

In the third paragraph, it states the door openings, shall be protected by doors with fire rating equivalent to the barriers. The doors are classified by the U.S. Building Materials Directory as 3 hrs (A) and 1 1/2 hrs (B). Since the 1 1/2 hr (B) is commonly used in the two hour fire barrier it would be more accurate to state that the Class B doors may be used in the 2 hr fire barrier.

S&W appreciates this opportunity to contribute to the improvement of the proposed fire protection criteria for operating nuclear power plants.

Very truly yours,



Er S. B. Jacobs  
Chief Licensing Engineer

TC:MRA