



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PDR

December 12, 1978

MEMORANDUM FOR: Victor Stello, Director
Division of Operating Reactors

FROM: Bernie Snyder, Assistant Director for Policy Review
Office of Policy Evaluation *Bernie*

SUBJECT: PETITION FOR RECONSIDERATION - FIRE PROTECTION

Additional questions have come up regarding fire protection in operating plants. I would appreciate your response to the following:

1. Please specify in some detail whether the staff position relies on the low probability of a fire occurring for its approval of the operation of plants during the interim period in which the requirements of the staff reg guide are put into effect. For example, in a July 6 staff response, Enclosure 1, Item 1 the staff says (page 4):

"For those plants not yet evaluated and those plants for which the staff has required enhancement of the fire protection systems, the staff believes that the probability of occurrence of severe damaging fires is acceptably low for the interim period until staff evaluations and licensing enhancements are completed. (emphasis added)

"This conclusion is based upon the information discussed by the Browns Ferry Special Review Group and NUREG-0500 (sic) and upon the additional defense in-depth protection provided by the staff's overall fire protection upgrading program which provides:

- (a) controls over ignition sources, combustibles and access to the areas;
- (b) physical separation and use of flame retardants to delay or prevent propagation; and
- (c) fire detection, fire suppression and trained fire brigades to affect prompt manual suppression of fires."

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The staff's reliance on probability is also reflected on page 33 of the December 15, 1977 report and page 36 of that report which stated:

"While our evaluations are ongoing, the continued operation of plants is acceptable since the probability of a fire which would threaten public health and safety is low as concluded in the Browns Ferry Special Review Group report."
[as well as other factors]

- (a) In light of the above, to what extent has the staff placed reliance on probability in making decisions?
- (b) How can staff rely on fire suppression systems in its probability judgment when in approximately one half of the plants evaluated prior to July 1978 the staff has required an alternate or dedicated shutdown mechanism after taking possible fire suppression into account?
- (c) Why is the staff reliance on probability not inconsistent with the Vermont Yankee case which states:

"Turning to that situation, we rejected at the outset two of staff's arguments in support of continued facility operations. The first is the factual one, presented by affidavit (discussed infra p. 530), that there is a low probability of a loss of coolant accident in the time required for the reopened proceeding. That argument may be factually sound, but it constitutes an indirect challenge to the applicable criteria, in that it would permit licensing of a non-complying reactor. Consequently, we need not consider the factual question concerning the degree of probability of a LOCA in the next few months."
6 AEA 520 at 529.

2. Page 34 of the December 15, 1977 staff report states:

"The staff has recognized since the Brown's Ferry fire that there are certain locations in some operating plants in which an unmitigated fire could affect redundant systems."

- (a) The equivalent statement now reads:

"The results to date of the ongoing staff evaluations of fire protection programs show that each plant contains a few fire areas where a postulated unmitigated cable fire may affect both divisions of redundant safety systems. . ."
(See Enclosure 1, Item 1, page 3 of July 8, 1978 staff response.)

What has caused this change?

- (b) In those critical areas where an unmitigated fire could destroy redundant safety systems, have particular steps been taken to protect these critical areas in the interim? If so, what steps? Has I&E been notified of the location of those critical areas and does I&E have any special procedures concerning these areas? For the critical areas in Pilgrim, Rancho Seco and Three Mile Island 1, please identify the number and type of areas, and list the specific fire protection measures currently in effect, including physical distance, electrical isolation, barriers, resistance to combustion, sprinkler systems and fire watches, etc.
- (c) In those plants which have been evaluated, approximately one-half have been required to install a dedicated or alternate shutdown system. Can the 1980 date for installation of the alternative shutdown system for those evaluated plants be moved up? What is the status of the other plants which have not been evaluated? When will this evaluation be completed? If alternative or dedicated shutdown systems are required, would their deadlines for installation be beyond 1980?

3. Item 3 of the staff's July 6, 1978 response states:

"In most cases, the systems can still be placed in operation by manual operation of valves and manually energizing the pumps."

What specific plants are there where this is not the case?

- 4. Why is the single failure criterion met in those cases where a single unmitigated fire could destroy redundant safety systems, e.g., in those plants where an alternative shutdown has been required, but not installed? Note that pp. 76-77 of the 12-15-77 staff report imply that when cross-divisional fires remain a concern, an alternative safe shutdown system must be provided in order to meet single failure criterion.
- 5. With regard to the September 15, 1978 Underwriters Laboratory test, please discuss, in some detail whether or not this test has direct significance for operating plants. In order to assess the significance, please clarify whether any operating plants have in use the type of blanket barriers tested or the type of sprinkler heads which failed to activate. Also, are there particular operating plants where the actual combination of protective features and configurations is potentially more prone to fire damage than that which was tested?

6. The July 6, 1977 cable tray test showed that the Reg Guide 1.75 cable separation criteria by themselves are inadequate under exposure fire conditions. What is the staff's current thinking on whether the cable separation criteria themselves should be revised or whether reliance should be placed on these existing criteria supplemented by other fire protection measures? Does ACRS agree with this staff position?

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