



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

APR 10 1981

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Docket No.: STN 50-483

Mr. John K. Bryan  
Vice President  
Union Electric Company  
1901 Gratiot Street  
P. O. Box 149  
St. Louis, Missouri 63166

Dear Mr. Bryan:

Subject: Request for Additional Information for the Review of the  
Callaway Plant, Unit 1

As a result of our continuing review of the Callaway Plant, Unit 1 FSAR, we find that we need additional information to complete our evaluation. The specific information required is in the area of fire protection and is presented in the Enclosure.

To maintain our licensing review schedule for the Callaway Plant FSAR, we will need responses to the enclosed request by May 15, 1981. If you cannot meet this date, please inform us within seven days after receipt of this letter of the date you plan to submit your responses so that we may review our schedule for any necessary changes.

Please contact Mr. Dromerick, Callaway Licensing Project Manager, if you desire any discussion or clarification of the enclosed request.

Sincerely,

Robert L. Tedesco, Assistant Director  
for Licensing  
Division of Licensing

Enclosure:  
As stated

cc: See next page

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## FIRE PROTECTION SUPPLEMENTAL QUESTIONS

In accordance with section 9.5.1, Branch Technical Position ASB 9.5-1, position C.4.a.(1) of NRC Standard Review Plan and section III.G of new Appendix R to 10 CFR Part 50, it is the staff's position that cabling for redundant safe shutdown systems should be separated by walls having a three-hour fire rating or equivalent protection (see section III.G.2 of Appendix R). That is, cabling required for or associated with the primary method of shutdown, should be physically separated by the equivalent of a three-hour rated fire barrier from cabling required for or associated with the redundant or alternate method of shutdown. To assure that redundant shutdown cable systems and all other cable systems that are associated with the shutdown cable systems are separated from each other so that both are not subject to damage from a single fire hazard, we require the following information for each system needed to bring the plant to a safe shutdown.

- 280.10 Provide a table that lists all equipment including instrumentation and vital support system equipment required to achieve and maintain hot and/or cold shutdown. For each equipment listed:
- Differentiate between equipment required to achieve and maintain hot shutdown and equipment required to achieve and maintain cold shutdown.
  - Define each equipment's location by fire area.
  - Define each equipment's redundant counterpart.

- d. Identify each equipment's essential cabling (instrumentation, control, and power). For each cable identified: (1) Describe the cable routing (by fire area) from source to termination, and (2) Identify each fire area location where the cables are separated by less than a wall having a three-hour fire rating from cables for any redundant shutdown system, and
- e. List any problem areas identified by item 1.d.(2) above that will be corrected in accordance with Section III.G.3 of Appendix R (i.e., alternate or dedicated shutdown capability).

280.2 C

Provide a table that lists Class 1E and Non-Class 1E cables that are associated with the essential safe shutdown systems identified in item 1 above. For each cable listed: (\* See note on Page 3).

- a. Define the cables' association to the safe shutdown system (common power source, common raceway, separation less than IEEE Standard-384 guidelines, cables for equipment whose spurious operation will adversely affect shutdown systems, etc.).
- b. Describe each associated cable routing (by fire area) from source to termination, and
- c. Identify each location where the associated cables are separated by less than a wall having a three-hour fire rating from cables required for or associated with any redundant shutdown system.

280.3 C Provide one of the following for each of the circuits identified in item 2.c above:

- (a) The results of an analysis that demonstrates that failure caused by open, ground, or hot short of cables will not affect it's associated shutdown system, \* Note \*
- (b) Identify each circuit requiring a solution in accordance with section III.G.3 of Appendix R, or
- (c) Identify each circuit meeting or that will be modified to meet the requirements of section III.G.2 of Appendix R (i.e., three-hour wall, 20 feet of clear space with automatic fire suppression, or one-hour barrier with automatic fire suppression).

280.4 C To assure compliance with GDC 19, we require the following information be provided for the control room. If credit is to be taken for an alternate or dedicated shutdown method for other fire areas (as identified by item 1.e or 3.b above) in accordance with section III.G.3 of new Appendix R to 10 CFR Part 50, the following information will also be required for each of these plant areas.

- a. A table that lists all equipment including instrumentation and vital support system equipment that are required by the primary method of achieving and maintaining hot and/or cold shutdown.

\* NOTE

Option 3a is considered to be one method of meeting the requirements of Section II.G.3 Appendix R. If option 3a is selected the information requested in items 2a and 2c above should be provided in general terms and the information requested by 2b need not be provided.

- b. A table that lists all equipment including instrumentation and vital support system equipment that are required by the alternate, dedicated, or remote method of achieving and maintaining hot and/or cold shutdown.
- c. Identify each alternate shutdown equipment listed in item 4.b above with essential cables (instrumentation, control, and power) that are located in the fire area containing the primary shutdown equipment. For each equipment listed provide one of the following:
  - (1) Detailed electrical schematic drawings that show the essential cables that are duplicated elsewhere and are electrically isolated from the subject fire areas, or
  - (2) The results of an analysis that demonstrates that failure (open, ground, or hot short) of each cable identified will not affect the capability to achieve and maintain hot or cold shutdown.
- d. Provide a table that lists Class 1E and Non-Class 1E cables that are associated with the alternate, dedicated, or remote method of shutdown. For each item listed, identify each associated cable located in the fire area containing the primary shutdown equipment. For each cable so identified provide the results of an analysis that demonstrates that failure (open, ground, or hot short) of the associated cable will not adversely affect the alternate, dedicated, or remote method of shutdown.

280.5 C

The residual heat removal system is generally a low pressure system that interfaces with the high pressure primary coolant system. To preclude a LOCA through this interface, we require compliance with the recommendations of Branch Technical Position RSB 5-1. Thus, this interface most likely consists of two redundant and independent motor operated valves with diverse interlocks in accordance with Branch Technical Position ICSB 3. These two motor operated valves and their associated cable may be subject to a single fire hazard. It is our concern that this single fire could cause the two valves to open resulting in a fire-initiated LOCA through the subject high-low pressure system interface. To assure that this interface and other high-low pressure interfaces are adequately protected from the effects of a single fire, we require the following information:

- a. Identify each high-low pressure interface that uses redundant electrically controlled devices (such as two series motor operated valves) to isolate or preclude rupture of any primary coolant boundary.
- b. Identify each device's essential cabling (power and control) and describe the cable routing (by fire area) from source to termination.
- c. Identify each location where the identified cables are separated by less than a wall having a three-hour fire rating from cables for the redundant device.



- d. For the areas identified in item 5.c above (if any), provide the bases and justification as to the acceptability of the existing design or any proposed modifications.