

10/22/01 BACKFIT PANEL

ANO Triennial Fire Protection Inspection

FIRE PROTECTION REGULATIONS

10 CFR 50.48, Fire protection.

- (b) Appendix R to this part establishes fire protection features required to satisfy Criterion 3 of Appendix A to this part with respect to certain generic issues for nuclear power plants licensed to operate before January 1, 1979.
- (2) With respect to all other fire protection features covered by Appendix R, all nuclear power plants licensed to operate before January 1, 1979, must satisfy the applicable requirements of Appendix R to this part, including specifically the requirements of Sections III.G, III.J, and III.O.

10 CFR Part 50, Appendix R, Paragraph III.G, Fire protection of safe shutdown capability.

- 1. Fire protection features shall be provided for structures, systems, and components important to safe shutdown. These features shall be capable of limiting fire damage so that:
 - a. One train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage; and
 - b. Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours.
- 2. Except as provided for in paragraph G.3 of this section, where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:
 - a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
 - b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or

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- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating, In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area;

FINDING



LICENSING BASIS

ANO was licensed prior to January 1, 1979. Appendix R, Sections G, J, and O were backfit by 10 CFR 50.48.

NRC SAFETY EVALUATION REPORTS

Fire Zone 98J (diesel generator corridor):

- SER dated March 22, 1983:

"The Commission has issued the enclosed Exemptions to certain requirements of Appendix R to 10 CFR 50 in response to your letter of July 1, 1982, as supplemented and amended by your letter of November 11, 1982."

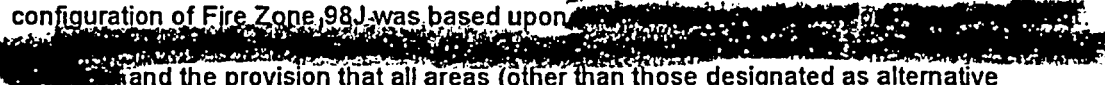
With respect to 98J - *"The corridor contains primarily B-train cables, however there is one A-train conduit in the corridor." ... "By letter dated November 11, 1982, the licensee proposed to enclose the single A-train conduit in the corridor in a one-hour rated barrier."*

"The licensee has indicated that enclosure of the corridor A-train conduits in a one-hour rated fire barrier and separation of the DC equipment room from the corridor by three-hour rated fire barriers will be provided. With these modifications, the area will comply with Section III.G of Appendix R, and no exemption is needed."

- SER dated May 13, 1983:

"By submittals dated July 1, and July 29, 1982, the Licensee described the means by which safe shutdown can be achieved in the event of fire and proposed modifications to the Arkansas Nuclear One Units 1 and 2 to meet the requirement of Appendix R to 10 CFR 50, Items III.G.3 and III.L."

"All other areas of the plant not required to have alternate safe shutdown will comply with the requirements of Section III.G.2 of Appendix R, unless an exemption request has been approved by the staff."

From the above statements, the team determined that the NRC staff's approval of the configuration of Fire Zone 98J was based upon  and the provision that all areas (other than those designated as alternative shutdown) would meet the requirements of Section III.G.2 of Appendix R, unless an exemption was granted. 5

Fire Zone 99M (north electrical switchgear room):

- Amendment No 35 and SER dated August 27, 1978:

Regarding Fire Zone 99M, in the safety evaluation of August 27, 1978, the NRC staff

stated, "The licensee has proposed to provide fire retardant board or blanket barriers to prevent fire from involving redundant cables required for safe shutdown in each of the switchgear rooms" (emphasis added).

- SER dated May 13, 1983: This SER addressed the safe shutdown capability of both units compared to the requirements of Sections III.G and III.L of Appendix R.

Regarding areas of the plant not requiring an alternative shutdown capability, Section C of this SER stated, "All other areas of the plant not required to have alternative safe shutdown will comply with the requirements of Section III.G.2 of Appendix R, unless an exemption request has been approved by the staff."

From the above statements, the team determined that the NRC staff's approval of the configuration of Fire Zone 99M was based upon the provision that all areas (other than those designated as alternative shutdown) would meet the requirements of Section III.G.2 of Appendix R, unless an exemption was requested and granted.

LICENSEE SUBMITTALS

- Licensee letter dated July 1, 1982:

"This zone [98J] is predominantly of the "green" or "B" safety division, although certain cables associated with the "red" or "A" division are also located in the corridor portion of the zone. The "A" cables in this zone are routed in conduit and are predominately associated with the "red" D.C. equipment room."

"The "red" division cabling located in the corridor that is required for safe shutdown will be wrapped in a 1-hour fire barrier. The circuits involved are the power supplies to the RS panels [120V ac to vital instrumentation] which are located in the control room. With the suppression system in this area and the addition of the 1-hour fire barrier, the corridor portion of this zone will comply with Appendix R."

"The "red" division cabling located in the corridor that is required for safe shutdown will be wrapped in a 1-hour fire barrier. The circuits involved are the power supplies to the RS panels which are located in the control room. With the suppression system in this area and the addition of the 1-hour fire barrier, the corridor portion of this zone will comply with Appendix R."

- Licensee letter dated November 11, 1982:

"Modifications to this zone will be made as stated in our July submittal except for those designed to "separate" the corridor area from the "red" D.C. equipment room. This separation will be accomplished by the addition of a 3-hour rated fire door and fire dampers in the ventilation ducts.

"With this modification, no exemptions are required for zone 98J."