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Docket Nos.: 50-361
and 50-362

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SUBJECT: RAI ON FIRE HAZARDS ANALYSIS FOR SAN ONOFRE NUCLEAR GENERATING STATION (SONGS), UNITS 2 AND 3

By letter dated March 19, 1984, you submitted an updated Fire Hazards Analyses Report for SONGS 2 & 3. This information was supplemented and amended by your subsequent letters dated September 25, 1984, March 25, 1985 and September 19, 1985. Included were requests for approval of a number of deviations from the guidelines contained in Appendix A to BTP APCSB 9.5-1 and the requirements of Appendix R to 10 CFR Part 50. In order to complete our evaluation of this information, we require clarification on several issues. Accordingly, we have prepared the enclosed request for additional information. The enclosure also identifies a number of issues where your technical approach is not in conformance with the above referenced guidelines and which we can not accept. Our concerns have previously been discussed with you by conference call. We suggest that a meeting to discuss these issues in detail would be of mutual benefit. If you have any questions regarding this request please contact me.

Sincerely,

151

Harry Rod, Senior Project Manager
PWR Project Directorate No. 7
Division of PWR Licensing-B

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Enclosure:
As stated

cc: See next page

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San Onofre Nuclear Generating Station
Units 2 and 3

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REQUEST FOR ADDITIONAL INFORMATION SAN ONOFRE, UNITS 2 AND 3,
UPDATED FIRE HAZARDS ANALYSES AND APPENDIX R DEVIATIONS

Updated Fire Hazards Analyses (FHA)

1. On page iii of the FHA it is stated that the only damage likely to be realized to the majority of safe shutdown related components and cables would be to those "directly engulfed by flame." This conclusion does not conform to the staff's fire protection guidelines as contained in Appendix R to 10 CFR Part 50. The licensee should assess the adequacy of fire protection on the basis that all cables and components within the fire area are damaged, except where systems within the fire area are protected per Section III.G.2 of Appendix R or by an alternate level of protection that the staff has specifically reviewed and approved.
2. Regarding page 3-4, how has smoke stratification been considered in the design of fire detection systems?
3. Regarding page 3-8, how have bus ducts, spare conduit sleeves and seismic gaps been sealed so as to conform with the fire rating of the walls and floor/ceiling assemblies in which they are located?
4. Regarding page 3-8, how do seals around metal penetrations of fire barriers (conduit, pipe, cable tray) conform with the protected side temperature limits of ASTM E-119?
5. Regarding page 3-8, how have security-related modifications affected the U.L. listing of fire doors?
6. Regarding page 3-8, how has the licensee confirmed that fire dampers will close under ambient air conditions (reference 10 CFR Part 21 notification concerning Ruskin Dampers)?
7. Regarding page 3-9, how is structural steel protected in the Safety Equipment, Cable Tunnel, and Diesel Generator Buildings?
8. Regarding page 3-9, are all fire rated cable wraps covered by the technical specifications?
9. Regarding page 3-11, when portable fans are utilized, how is smoke removed from a fire area so as not to affect redundant shutdown equipment in non-fire-affected areas?
10. Regarding page 3-11, how has the adequacy of installed emergency lighting been verified with regard to specific locations where readings or manual actions are taken and for areas outdoors?

11. Regarding page 4-1, are all fire zone boundaries, including penetrations, fire-rated? Conflicting information on this point is presented on page 9 of 25 of the BTP 9.5-1 comparison.
12. If the answer to 11. is no, provide the justification for each unrated zone boundary. This justification should conform with the guidance on fire hazards analyses contained in Generic Letter 86-10.
13. Regarding page 4-5, what types of components (e.g., valves, piping, heat exchangers) are assumed not to be damaged by fire?
14. Regarding page 5-1, is "maximum permissible fire load" used in conjunction with plant administrative controls on transient combustible material?
15. Regarding page 5-4, explain why diesel generator systems and instrument air are not part of the shutdown support systems?
16. Provide a summary of manual actions required for safe shutdown (including repair) and the time limit to accomplish the action before an unrecoverable plant condition occurs.
17. Is it necessary for an operator to enter or pass through the fire area for which alternate shutdown is required in order to effect a safe shutdown? If yes, identify the areas and state the time after the discovery of a fire that this activity must take place.
18. Regarding page 2/PE-15, explain the inconsistency between systems assumed lost in a fire and systems identified in the matrix.
19. Regarding page 2/SE-1, explain why the floor/ceiling above the CCW pump cubicles are not covered by the technical specifications for fire barriers.
20. Provide an explanation of the use of unit 2/3 vital bus crosstie cables to compensate for the loss of essential electrical systems in all applicable areas and clarify the statement that these cables are "outside the fire area."
21. Regarding page 2/TK-2, why isn't the fire barrier between the AFW pump covered by the technical specifications?
22. Regarding page 2/TK-3, what are the consequences of a fire and subsequent sprinkler system actuation on the gravity-fed lube oil system for the auxiliary feedwater pumps?
23. Regarding page 2/TK-4 (and others), how have valve operators been protected from fire damage?
24. Regarding pages AC-1-5, explain why all shutdown systems have not been identified in the matrix and why these systems have not been assumed to be damaged due to a fire in those areas in which they are located.

25. Regarding pages AC-1-5, does a physically and electrically independent alternate shutdown capability exist for all shutdown related systems located in the cable spreading room? Provide a description of this capability.
26. Regarding zones 2-AC-50-36/37, for those redundant shutdown-related cables that are routed in these cable galleries, how are the "B" division cables on elevation 70 feet separated from the "A" division cables?
27. Regarding page AC-114, explain the reasons for the alternate approach for assuring safe shutdown capability in HVAC Rooms 2A and 2B.
28. Regarding pages AR 8/12 and AR 20/24, why are only division "A" components shown in all four boric acid make-up pump rooms?
29. Regarding page AR-29, what is the routing of charging pump cables after they leave the pump cubicles?
30. Regarding page AR-29, provide a fire hazards analyses of the affects on safe shutdown of fire spread from the corridor area on elevation 9 (zone 2-AR-9-76) into the three charging pump cubicles via the unrated piping and cable penetrations.

Appendix B

31. Regarding Section 8.3 of Appendix B, the safe shutdown system assumptions concerning spurious and inadvertent actuation of equipment, complete loss of offsite power, zones of fire influence (in unsprinklered areas), and fire inside of containment do not conform with previously referenced fire protection guidelines or the supplemental guidance provided in Generic Letters 81-12, 83-33, and 86-10. The licensee should revise the methodology presented in Appendix B to conform with these guidance documents and make any necessary modification to meet Appendix R requirements.
32. Regarding Section 8.4 of Appendix B, the activities performed by control room operators prior to leaving the areas as a result of a fire is not consistent with the above referenced guidelines. Other than initiating a manual scram, the licensee should demonstrate a capability to achieve safe shutdown independent of the control room.
33. Regarding page 8 of 8, the licensee states that a fire involving more than one unit is postulated for facilities shared between units. For the shared control room, what assumptions are made concerning the extent of fire damage and habitability with regard to post-fire safe shutdown?
34. Regarding page 4 of 14, the licensee should provide the (missing) response to paragraph 5.
35. Regarding page 5 of 25, are shutdown related cables or components located in the fire area in which combustible concealed spaces exist?

36. Regarding page 24 of 25, how has the adequacy of radio communication during shutdown been verified with regard to structural interference and joint use by the fire brigade?
37. Regarding page 2 of 20, are all fire alarm system circuits associated with fire suppression systems Class A supervised?
38. Regarding page 10 of 20, considering the lack of isolation valves for the standpipe system, how much of the system can be rendered inoperable due to a single break?
39. Regarding page 10 of 20, how will the licensee establish "back up" hose stations if a single failure as postulated in question 38 occurs?
40. Regarding page 12 of 20, the licensee has not provided sufficient justification for the inability to reach all plant areas with an effective hose stream. The licensee should propose compensatory measures for this concern as were previously accepted in our SER.

Appendix R Comparison

41. Regarding page 7 of 13, for the areas identified as having an alternate shutdown capability, demonstrate that this capability is physically and electrically independent of the area and that it conforms with previously-referenced staff guidance (See question 31).

September 25, 1984 Letter

42. How have safety-related, non-safety-related and Class IE circuits been analyzed to assure that a fire will not prevent achieving post fire safe shutdown?
43. For the associated circuits identified above, as well as non-class IE circuits, explain how existing circuit protection conforms with the guidance issued in Generic Letter 81-12 and its subsequent clarification.
44. Identify all high-low pressure interfaces that employ redundant electrically operated valves and describe the means used to assure that a fire in any one fire area will not cause both valves to open resulting in a fire-induced LOCA.
45. Describe the method used to prevent multiple high impedance faults from causing the loss of power to shutdown equipment.
46. Provide a response to IE Information Notice 86-79.
47. The licensee has not provided sufficient justification to accept the deviations from the separation/protection guidelines for redundant systems located within 20 feet of each other in containment. The licensee should identify a means of compensating for fire damage (as was done for the pressurized heater cables) or should install a radiant energy shield to protect one shutdown division.

September 19, 1985 Letter

48. With regard to the licensee's commitment to submit the fire test reports on the fire wrap material, the submittal should include a description of how structural steel which supports or is framed into wrapped cable trays and conduit is protected.
49. With regard to the licensee's intent to withdraw deviation requests based upon the performance of an internal analysis, it is our position that this is only appropriate where individual fire areas do not feature area-wide fire detection and suppression systems or where the fire area boundary is not completely fire-rated.