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SUBJECT: Discusses comparison of Units 2 & 3 fire protection program w/acceptance criteria of SRP Section 9.5-1 (NUREG-0800),per Unit 2 License Condition 2.C.(14)c.Inconsistencies between SER statements & FSAR info encl.

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July 22, 1982

Director, Office of Nuclear Reactor Regulation
Attention: Mr. Frank Miraglia, Branch Chief
Licensing Branch No. 3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
San Onofre Nuclear Generating Station
Units 2 and 3

The purpose of this letter is to satisfy license condition 2.C.(14)c of the San Onofre Nuclear Generating Station Unit 2 (SONGS 2) Operating License, NPF-10. License condition 2.c.(14)c requires that Southern California Edison Company (SCE) identify and describe any deviations of the SONGS 2 fire protection system from the acceptance criteria of Section 9.5.1 of the Standard Review Plan (NUREG-0800, dated July, 1981).

To satisfy this requirement, SCE has compared the SONGS 2 and 3 fire protection program with the specific acceptance criteria which are detailed in Branch Technical Position (BTP) CMEB 9.5-1 and Regulatory Guides 1.78 and 1.101. In performing this comparison, SCE reviewed all relevant documents which discuss the SONGS 2 and 3 fire protection program. Included in this review were the Fire Hazards Analysis (FHA), the Final Safety Analysis Report (FSAR), responses to NRC questions relating to fire protection, the Safety Evaluation Report (SER, NUREG-0712) including SER Supplements, and Appendix B of the Unit 2 Technical Specifications.

In conducting the comparison, several inconsistencies were noted between statements made in the SER and information conveyed in the FSAR, FHA, responses to NRC questions and other relevant communications with the NRC staff. Because the SER is indicative of the NRC staff's perception of the SONGS 2 and 3 fire protection program, SCE considers that it is important to highlight these inconsistencies so that the comparison of the SONGS 2 and 3 fire protection program with Section 9.5-1 of the Standard Review Plan can be assessed by the NRC staff from the same standpoint as it was produced.

Enclosure 1 identifies statements in the SER relating to SONGS 2 and 3 fire protection which are inconsistent with the information provided by SCE in the FSAR, FHA and other relevant communications with the NRC staff. The

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comparison of the SONGS 2 and 3 fire protection program with the acceptance criteria of Section 9.5-1 of the Standard Review Plan is discussed in the following paragraphs.

Comparison With BTP 9.5-1 (July, 1981)

Southern California Edison provided a comparison of the San Onofre Units 2 and 3 fire protection program with the previous BTP 9.5-1 (August, 1976) in the Fire Hazards Analysis (FHA). This review against the current BTP 9.5-1 (July, 1981) identifies and describes only those items where SCE has provided equivalent protection by alternate means, clarification of SCE's position is required, or clear deviation from new requirements exist, which were not previously covered in the Fire Hazards Analysis.

BTP 9.5-1 (July, 1981) presents recommended guidelines for acceptable means of satisfying the requirements of General Design Criterion 3 of Appendix A to 10 CFR 50. Previously, guidelines were provided in Appendix A to BTP 9.5-1 (August, 1976) and its predecessors. The guidelines contained in Appendix A to BTP 9.5-1 (August, 1976) differentiated between plants which were under construction or operating before July 1, 1976 (e.g., SONGS 2 and 3) and those which were docketed for construction after July 1, 1976. The current BTP 9.5-1 incorporated Appendix A of the old 9.5-1 but makes no distinction between old and new plants. The current 9.5-1 guidelines pertaining to building design (item C.5.a) are more specific concerning the provision of three hour fire rated barriers and physical separation of redundant trains of equipment than were the previous guidelines which took into account plant vintage.

Because of the vintage of SONGS 2 and 3 and the advanced stage of construction when the current BTP 9.5-1 guidelines were produced, and because the design was based on guidelines which existed at the time, SCE has not provided three hour fire rated barriers in all areas where they are recommended in position C.5.a nor have separate cable spreading rooms and tunnels been provided for redundant trains. However, fire barriers have been provided, as detailed in the Fire Hazards Analysis, which have been reviewed by the staff with respect to fire loading and safe shutdown capability and found to be acceptable in meeting the requirements of General Design Criterion 3. Additionally, the requirements of position BTP 9.5-1 C.5.b(1) were met by incorporating the design features described in C.5.b(2) and by the provision of alternate shutdown capability independent of the control room and the cable spreading room should fire occur in either of these areas.

Therefore, Southern California Edison considers that SONGS 2 and 3 meets the acceptance criteria pertaining to building design contained in BTP 9.5-1 (July, 1981) C.5.a because SCE has provided acceptable equivalent fire protection which has been reviewed with regard to Appendix A to BTP 9.5-1 (August, 1976), follows the guidelines of BTP 9.5-1 (July, 1981) C.5.b(2)c and 10 CFR 50, Appendix R, Section III.G.2 and, as such, satisfies the requirements of General Design Criterion 3 of 10 CFR 50, Appendix A.

The six BTP 9.5-1 items wherein the SCE fire protection program differs from current guidelines are described below:

1. BTP 9.5-1 Item C.3.b

   Item C.3.b recommends that a five man Fire Brigade be provided, of which the Brigade leader and at least two Brigade members should have sufficient knowledge of plant safety related systems to assess the effects of fire and fire suppressants on safe shutdown capability. Previous guidelines, such as Appendix A to BTP 9.5-1 (August 1976), did not specify the requirement for the Fire Brigade to be able to assess the effects of fire on plant safe shutdown capability. SCE has currently under contract a full time professional Fire Brigade consisting of five members on each shift. The brigade members are all certified Fire Fighters and have had training in plant systems in order to develop basic skills with which to assess the effects of fire on safe shutdown capability. All members of the Fire Brigade will continue to participate in training designed to develop and keep current their skills with respect to fire suppression and the assessment of the effects of fire on safe shutdown. In order to insure an expert level analysis of safe shutdown capability degradation, each shift will have an Assistant Control Operator (ACO. Referred to as AO in Technical Specification 6.2.2) to serve as the sixth member of the Fire Brigade. The ACO will respond with the Fire Brigade in the event of a fire. The ACO will not participate in actual fire suppression activities, but rather perform the function of assessing the effects of the fire and fire suppressants on safe shutdown capability and communicating the same to the Watch Engineer in the Control Room. SCE considers that this arrangement provides for the best of effective fire suppression and accurate determination of the effects of fire and fire suppression on plant safe shutdown capability.

2. BTP 9.5-1 Item C.5.a(5)

   Item C.5.a(5) recommends that areas protected by total flooding gas suppression systems have electrically supervised self-closing fire doors. Previous guidelines did not specify electrical supervision of the doors. Unit 2 and Unit 3 Computer Rooms located on the 30' elevation of the Auxiliary Building are protected by total flooding Halon systems. Doors to the computer rooms are not electrically supervised. Electrical supervision is considered unnecessary because the computer rooms are in the control room area close to the continuously manned operator consoles.

3. BTP 9.5-1 Item C.6.a(1)

   Item C.6.a(1) recommends that fire detection systems be provided for all areas that contain or present a fire exposure to safety related equipment. Previous guidelines were not specific as to the installation of fire detection in all areas containing safety

related equipment. Consistent with previous guidelines, SCE installed fire detection in areas containing equipment required for safe shutdown based on the fire hazards present in the fire zone. Fire detection systems and safety related equipment in each fire zone are detailed in the Fire Hazards Analysis (FHA). As previously reported in the FHA which was reviewed by the staff and found to be acceptable, 23 low fire severity fire zones which contain safe shutdown or other safety related equipment are not equipped with fire detection. Additional fire detection is considered unnecessary because of the low fire loading in these zones.

4. BTP 9.5-1 Item C.7.f

Item C.7.f recommends that redundant safety related panels remote from the control room be separated from each other by a minimum of three hour fire rated barriers. Additionally panels providing remote shutdown capability should be separated from the control room complex by a minimum of three hour fire rated barriers. SCE has provided alternate safe shutdown capability independent of the control room and cable spreading room should fire occur in these areas. As noted in the FHA, fire zone 66 which contains the train A and train B remote shutdown panels, is separated from the control room complex by two hour fire rated barriers, which are adequate considering the fire loading. The train A and B remote shutdown panels are not separated from each other by a three hour fire rated barrier. However, these panels would only be required for safe shutdown in the event of a fire in the control room or cable spreading room. The simultaneous occurrence of independent fires in separate plant areas is not postulated. Separation of the remote shutdown panels from each other is considered unnecessary because safe shutdown capability would still exist in the control room in the event of a fire in zone 66.

5. BTP 9.5-1 Item C.7.i

Item C.7.i suggests that automatic fire suppression systems, installed to combat diesel generator fires, be designed for operation when the diesel generator is running without affecting the diesel. This criteria was not part of previous guidelines for fire suppression systems in diesel generator areas. The San Onofre Unit 2 and 3 diesel generators are not designed and have not been tested to operate while being sprayed by the sprinkler system. In the event that one diesel generator is disabled by fire and operation of the sprinkler system, the second unaffected diesel generator would provide for safe shutdown of the plant.

6. BTP 9.5-1 Item C.7.k

Item C.7.k recommends that redundant trains of safety related pumps be separated by three hour fire rated barriers. Appendix A to BTP 9.5-1 (August, 1976) provided guidance only concerning the separation of safety related pumps from other areas of the plant.

As indicated in the Fire Hazards Analysis, the auxiliary feedwater pumps are not separated from each other by a three hour fire rated barrier. However, cabling to the train B pump is wrapped with a one hour fire retardent blanket and the auxiliary feedwater pump room is protected by a pre-action sprinkler system. Additionally, a curb to prevent the spreading of oil fires separates the train A and B floor areas and a missile shield separates the pumps. SCE considers that these features provide fire protection equivalent to that recommended by item C.7.K.

Two items in BTP 9.5-1 were identified where clarification of SCE's position relative to the guidelines is in order. These are described below:

1. BTP 9.5-1 Item C.6.b(6)

   Item C.6.b(6) recommends that each fire pump and its driver and controls be separated from the remaining fire pumps by three hour fire rated barriers. As described in the Fire Hazards Analysis, the SONGS 2 and 3 fire pumps are not separated by three hour fire rated barriers. However, in the event that the fire pumps are disabled by a fire, fire fighting water would still be available to all areas of the plant containing safe shutdown equipment by using the fire truck and/or the intertie between the Unit 1 and Units 2 and 3 fire mains.

2. BTP 9.5-1 Item C.7.a(1)(e)

   Item C.7.a(1)(e) recommends that the reactor coolant pumps be equipped with an oil collection system which is designed, engineered and installed such that its failure will not lead to fire during normal or design basis accident conditions and that there is a reasonable assurance that it will withstand a safe shutdown earthquake (SSE). SCE has provided a reactor coolant pump oil collection system which will prevent the spread of reactor coolant pump oil fires during normal operation and design basis accident conditions. It is designed to withstand a safe shutdown earthquake in that it will not prevent the functioning of safe shutdown equipment following an SSE. This interpretation of the requirement to withstand a safe shutdown earthquake is consistent with paragraph C.2 of Regulatory Guide 1.29 which is referenced by 10 CFR 50, Appendix R, Section III.O which addresses the requirements for oil collection systems for reactor coolant pumps.

Comparison With Regulatory Guides 1.78 and 1.101

Southern California Edison has reviewed the SONGS 2 and 3 fire protection program and has found that it complies with the recommendations relating to fire protection programs contained in Regulatory Guides 1.78 and 1.101.

The information contained in this letter is submitted to satisfy License Condition 2.C.(14)c. It is Southern California Edison's belief that although the SONGS 2 and 3 fire protection program differs, as noted, from the specific recommendations of BTP 9.5-1 (July, 1981) it provides equivalent fire protection which has been previously reviewed by NRC staff and found to satisfy General Design Criteria 3 and 5 of 10 CFR 50, Appendix A.

If you have any questions regarding this information, please call me.

Very truly yours,

K P Baskin

Enclosure

cc: Harry Rood, NRC (to be opened by addressee only)
R. H. Engelken, NRC Region V

ENCLOSURE 1

SER Statements Which are Inconsistent With Information Provided by SCE

ITEM	SER LOCATION	SER STATEMENT	REMARKS
1	Pages 9-20. Paragraph two. First sentence.	"All valves in the fire protection water supply system are electrically supervised except for the post indicator valves, which are in the underground yard main system."	Header isolation valves for seismic standpipes and locked open manual isolation valves to deluge systems are not electrically supervised.
2	Pages 9-20, 9-21. List.	"*Sprinkler system installed at our request." Control Room Complex - Zone 31* - Turbine Lab - Instrument Repair Area - Storage, Rooms 249, 251, 252	For the reasons stated in the response to FQ015.55, an automatic suppression system is not considered necessary for these areas. No commitment was made by SCE to install an automatic suppression system. Additionally the Instrument Repair Area is now the Technical Support Center (TSC).
3	Pages 9-21. First paragraph following list. Second sentence.	"At our request, the applicants have installed standpipe hose stations in five zones 4, 10, 28 and 45."	The responses to questions FQ015.29 and FQ015.31 committed SCE to install standpipes in fire zones 4 and 10 respectively. As stated in the responses to FQ015.31 and FQ015.57, the equivalent fire severity in zones 28 and 45 is one minute and the zones do not contain any equipment or cabling required for safe shutdown. Portable hand held extinguishers are provided and considered adequate. No commitment was made to install standpipes in zones 28 and 45.
4	Pages 9-24. Paragraph one. Last sentence.	"However, the ventilation ducts which penetrate the heavy concrete walls enclosing the charging pump room (Zone 50) were not provided with dampers. At our request, the applicants have committed to provide 1-1/2 hour dampers for these duct penetrations."	SCE has not committed to, nor have fire dampers been installed in these duct penetrations.

ITEM	SER LOCATION	SER STATEMENT	REMARKS
5	Pages 9-27. Paragraph one. Second sentence.	"However, at our request, the applicants have committed to providing automatic sprinkler systems to protect the adjacent turbine lab area, instrument repair area, and storage areas in the control room complex."	See remarks to Item 2.
6	Pages 9-21. List.	"Corridor 442, Elevation 70', Auxiliary Building - Zone 72*"	This statement is consistent with information provided by SCE in the FHA. However, the FHA incorrectly identified corridor 442, instead of corridor 401, as containing the redundant cabling for the HVAC batteries' exhaust fans. Corridor 401 contains the cabling and the sprinkler system. The FHA is being amended accordingly. This should be noted in the SER.
7.	Pages 9-20, 9-21. List.	"The areas that have been equipped with water suppression systems include the following:" - Fan Rooms 219 and 221, Charcoal Filter - Zone 32A - Emergency A.C. Unit Room 308, Charcoal Filters - Zone 9 - Emergency A.C. Unit Room 301, Charcoal Filters - Zone 9 - Piping Penetration Area (El 30') Charcoal Filter - Zone 28	To clarify the statement in the SER, the following should be noted: Water suppression systems are provided for the charcoal filters only. No area sprinklers are provided in these zones. The charcoal filter deluge systems are manually actuated.
8.	Page 9-22. Paragraph 5. Second last sentence.	"Fire detection systems will be installed in all areas having safety related equipment."	Fire detection is installed in zones according to the fire hazards present. As noted in the FHA, 23 low severity fire zones containing safe shutdown or other safety related equipment are not equipped with fire detectors.

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