

September 22, 1998

Mr. Harold B. Ray  
Executive Vice President  
Southern California Edison Company  
San Onofre Nuclear Generating Station  
P. O. Box 128  
San Clemente, California 92674-0128

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON CHANGE TO  
PRESSURIZER LEVEL TECHNICAL SPECIFICATION,  
PCN-470 (TAC NOS. MA0387 AND MA0388)

Dear Mr. Ray:

In a letter dated December 19, 1997, Southern California Edison (SCE) submitted a request for amendment to the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 technical specifications for pressurizer level. The request was precipitated by a change in pressurizer total loop uncertainty.

To complete our review of the implications of this change to Chapter 15 analyses, we need the additional information identified in the enclosure. Your timely response to the request for additional information will assist us in completing our review.

Please contact me at (301) 415-1352 if you have any questions.

Sincerely,

Original Signed By  
James W. Clifford, Senior Project Manager  
Project Directorate IV-2  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket Nos. 50-361  
and 50-362

Enclosure: Request for Additional  
Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION  
TECHNICAL SPECIFICATION ON PRESSURIZER LEVEL  
SOUTHERN CALIFORNIA EDISON COMPANY, ET AL.  
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3  
DOCKET NOS. 50-361 AND 50-362

1. For the feedwater line break event, please explain the difference in the maximum pressurizer water volume indicated in Table 15.2.3-8 and Figure 15.2-41. Describe the margin available between the maximum transient pressurizer water level and the point the pressurizer becomes solid.
2. Page 2 of the December 19, 1997, submittal states "Inadvertent Operation of ECCS During Power Operation was analyzed with concurrent single failure of an active component." Please provide the following:
  - a. List of assumptions for the analysis,
  - b. Sequence of events (including the time of alarm, operator actions and the maximum pressurizer water volume),
  - c. Transient curves (including the pressurizer water volume), and
  - d. Brief description of Emergency Operating Procedures (EOPs) applicable to mitigate this event.

The staff requires this information to confirm your conclusion that this event is bounded by the results of a chemical and volume control system (CVCS) malfunction. The qualitative assessment currently provided in the proposed FSAR Section 15.5 is not sufficient.

3. During the event of a CVCS malfunction, confirm that the assumed 15 minute operator action time is available between the positive indication to the operators (alarms, etc) and the operator action to terminate the event. Describe the positive indications used in this scenario and EOPs involved in mitigating this event.
4. The proposed reduction in allowable pressurizer water level for operability from 60 percent to 57 percent includes an assumed time allowed for operators to perform certain actions to mitigate two types of events; CVCS malfunction and inadvertent emergency core cooling system (ECCS) actuation during power operation. For these events, the proposal reduces the allowed operator response time from 30 minutes to 15 minutes. Questions a. through d. below request information on the evaluations of these events.

a. CVCS Malfunction Event

The December 19, 1997, submittal states that a full scope simulator was used to demonstrate that operators could recognize and terminate the CVCS malfunction event in approximately 5 minutes. The submittal also states that on March 2, 1995, SONGS Unit 3 experienced a CVCS malfunction event and operator action "was implemented within approximately 5 minutes which terminated the event, demonstrating that an operator response time of 15 minutes can be accommodated." To fully evaluate the operator ability to mitigate the CVCS malfunction event in the reduced time allowed, please provide the following additional information:

- 1) Describe the composition of the crew(s) used in the simulator evaluation (i.e., full crew complement verses minimum crew complement; experienced licensed operators verses inexperienced licensed operators or combination, verses simulator instructors).
- 2) What portion of SONGS operating crews have been evaluated on the simulator? If all crews have not been evaluated on the scenario, what basis does the licensee have for believing that all crews can perform reliably within the time required? Have all crews evaluated on the simulator performed successfully? If the crews have performed unsuccessfully on the scenario, what has been done to address the performance deficiencies?
- 3) Were the operators "naive" to the event, i.e., were they unaware that they would be evaluated on the event or, did they have advance knowledge of the scenario on which they would be evaluated?
- 4) Describe the steps and actions that are required by the operators to mitigate this event and provide a copy of the steps/operator actions as they appear in the associated procedures.
- 5) Were changes to any procedures required as a result of this proposal? If so, please describe the changes and the training provided the operators on the changes.
- 6) Are all required operator actions performed from the control room or, are local actions necessary? If local actions are necessary, how were they simulated and evaluated? Do local actions cause the operators to be placed in an inhospitable environment?
- 7) What are the consequences of the operator/crew not taking the required actions in the time allowed? What actions would the operator/crew perform to recover from not taking the actions in the required time?

b. Inadvertent Operation of ECCS During Power Operation Event

The December 19, 1997, submittal does not adequately describe a basis for supporting the conclusion that operators can mitigate this event within the 15 minute time allowed. The submittal identifies the potential cause for this event as operator error (i.e., inadvertent

actuation of safety injection actuation signal) which results in an unplanned increase in reactor inventory and pressurizer level. The submittal further states that this moderate frequency event has consequences which "are less adverse than the CVCS malfunction event... and there is at least as much time for operator action as in the CVCS malfunction event. Therefore, there is at least 15 minutes for the operator to correct the malfunction and prevent filling of the pressurizer."

The submittal does not provide evidence that operators can successfully mitigate this event in the time allowed. Please address the seven questions (4.a.1 through 4.a.7) previously identified for the CVCS malfunction event as they relate to the inadvertent operation of ECCS during power operation event.

c. CVCS Malfunction with Concurrent Single Failure of an Active Component (Loss of Offsite Power)

The December 19, 1997, submittal does not provide a basis to conclude that operators can mitigate this infrequently occurring event within the 15 minute time allowed. The evaluation in the submittal states that 15 minutes can elapse before operator action is necessary; however information is not provided to demonstrate that operators can accomplish the actions required in the time allowed.

Please address the seven questions (4.a.1 through 4.a.7) identified for the CVCS malfunction event as they relate to the CVCS malfunction with concurrent single failure of an active component event.

d. Inadvertent Operation of ECCS During Power Operation with Concurrent Single Failure of an Active Component (LOOP)

The December 19, 1997, submittal does not provide a basis for supporting the conclusion that operators can mitigate this infrequently occurring event within the 15 minute time allowed. The submittal states that the core and system performance parameters would be less adverse than those for a CVCS event with a single failure. "...[T]here is at least as much time for operator action as in the CVCS malfunction with a concurrent single failure event...".

Evidence is not provided that the operator actions required to mitigate this event can be performed successfully within the allowable time. Please address the seven questions (4.a.1 through 4.a.7) identified for the CVCS malfunction event as they relate to inadvertent ECCS operation with a concurrent single failure of an active component.

e. Feedwater System Pipe Break Event

The December 19, 1997, submittal states that the feedwater system pipe break event is a "limiting fault event" and "sensitive to pressurizer water volume." The submittal states that operator action can be deferred until 30 minutes into the event without consequences if operators take the required actions at that time.

Please provide a basis for the conclusion that operators can mitigate this event within the 30 minute time allowed after the event is initiated. Address the seven questions (4.a.1 through 4.a.7) identified for the CVCS malfunction event as they relate to feedwater system pipe break.

f. Other Events Crediting Operator Action

In addition to the preceding events, the December 19, 1997, submittal states that two other events in the Updated FSAR take credit for operator action in less than 30 minutes (i.e., within 15 minutes); dropped control rod assembly (CEA) and boron dilution events.

Regarding these two events, please clarify the purpose for citing these two events. Does crediting operator actions within 15 minutes for both these events constitute a change to the FSAR analysis previously reviewed by the staff? If so, specifically, what has changed from their previous analysis and why? What operator actions are required to be taken for each of these events within the 15 minute time frames? What is the basis for concluding that operators can reliably take the actions required (i.e., see questions 4.a.1 through 4.a.7)?