BEFORE THE UNITED STATES NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY and SAN DIEGO GAS & ELECTRIC COMPANY for a Class 104(b) License to Acquire, Possess, and Use a Utilization Facility as Part of Unit No. 1 of the San Onofre Nuclear Generating Station	)	DOCKET NO. 50-206 Amendment No. 171

SOUTHERN CALIFORNIA EDISON COMPANY and SAN DIEGO GAS & ELECTRIC COMPANY, pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 171.

This amendment consists of Proposed Change No. 213 to Provisional Operating License No. DPR-13. Proposed Change No. 213 modifies the Technical Specifications incorporated in Provisional Operating License No. DPR-13 as Appendix A.

Proposed Change No. 213 is a request to revise Technical Specifications to reflect the use of steam generator narrow range transmitters for actuation of the Auxiliary Feedwater System. Currently, the Auxiliary Feedwater System is actuated by wide range transmitters. This proposed change will revise the actuation setpoint as referenced on a narrow range scale. This change will not impact the level in the steam generators at which Auxiliary Feedwater is actuated.

In the event of conflict, the information in Amendment Application No. 171 supersedes the information previously submitted.

Based on the significant hazards analysis provided in the Description and Significant Hazards Consideration Analysis of Proposed Change No. 213, it is concluded that (1) the proposed change does not involve a significant hazards consideration as defined in 10 CFR 50.92, and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change.

Subscribed on this 13th day of June, 1989.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: _____
L. T. Papay
Senior Vice President

Subscribed and sworn to before me this 13th day of June, 1989.

OFFICIAL SEAL
CAROL A. GOMEZ
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My Comm. Expires Feb. 26, 1993

_____
Notary Public in and for the County of
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of SOUTHERN CALIFORNIA EDISON COMPANY and SAN DIEGO GAS & ELECTRIC COMPANY (San Onofre Nuclear Generating Station, Unit No. 1)	))))	Docket No. 50-206

CERTIFICATE OF SERVICE

I hereby certify that a copy of Amendment Application No. 171 was served on the following by deposit in the United States Mail, postage prepaid, on the 13th day of June, 1989.

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DESCRIPTION AND SIGNIFICANT HAZARD CONSIDERATION ANALYSIS OF PROPOSED CHANGE NO. 213 TO THE TECHNICAL SPECIFICATIONS PROVISIONAL OPERATING LICENSE NO. DPR-13

This is a request to revise Specification 3.5.7, "Auxiliary Feedwater Instrumentation," of the Appendix A Technical Specifications for San Onofre Nuclear Generating Station, Unit 1.

DESCRIPTION OF CHANGE

Proposed Change No. 213 (PCN 213) requests to revise Technical Specification 3.5.7, "Auxiliary Feedwater Instrumentation," to reflect the use of steam generator narrow range level transmitters for actuation of auxiliary feedwater (AFW) in lieu of the existing specification that refers to the use of wide range transmitters. PCN 213 will revise Table 3.5.7-2, "Auxiliary Feedwater Instrumentation Setpoints," Item C, Steam Generator Water Level-Low, to establish a Setpoint and Allowable Value as referenced on a narrow range instrument span. The proposed narrow range values represent steam generator levels equivalent to those on a wide range scale. Thus, PCN 213 will not change the point at which AFW is actuated. It is noted that these changes return this specification back to the pre-Cycle 10 requirements. That is, prior to Cycle 10, AFW was actuated by steam generator narrow range level instrumentation with a setpoint and Allowable Value consistent with those proposed by PCN 213. As part of startup from the Cycle 10 refueling outage, the need to convert the wide range level transmitters back to narrow range was identified. Thus, it was necessary to change the affected specifications back to the pre-Cycle 10 configuration.

Currently there is one narrow range (NR) and four wide range (WR) level instruments per steam generator. Two of the WR instruments on each steam generator are safety related, environmentally qualified, and powered from separate class IE power sources (Trains A and B). The proposed change will convert these two trains of WR level instruments to narrow range and provide signals from these transmitters to automatically initiate auxiliary feedwater. Modifications associated with this proposed change also include installation of a new set of environmentally qualified, safety related WR level instruments to satisfy the AFW flow verification Post-Accident Monitoring Instrumentation requirements as stated in Table 3.5.6-1 of Specification 3.5.6 and in accordance with Regulatory Guide 1.97 Rev. 2. It is also planned to modify the steam generator high level alarm to have two trains of narrow range level as the inputs in lieu of the current configuration which has inputs from one train of narrow and one train of wide range. There are no technical specification changes associated with this modification.

Technical Specification 4.1.1, "Operational Safety Items," provides for the minimum frequency and type of surveillance to be applied to plant equipment and condition. Table 4.1.2 of this specification states that in Modes 3, 4, and 5, the steam generators required to be operable shall have a water level greater than or equal to 256 inches (Wide Range). PCN 213 does not change this requirement. Compliance with this specification will continue to be verified using a wide range scale. However, in the event of a wide range scale not being available, the remaining steam generator level instrumentation (e.g., the converted narrow range instruments) may be used to verify steam generator level. Any necessary correction factors including density, cold versus hot calibration and mode of operation will be implemented to assure that the required steam generator water level of $\geq$ 256 inches (WR) is maintained.

JUSTIFICATION FOR AN EMERGENCY T. S. CHANGE REQUEST

On May 25, 1989, San Onofre Unit 1 experienced an initiation of auxiliary feedwater system on low steam generator level. The unit had just completed Cycle X refueling outage and was in the process of ascension to 25% power to perform auxiliary feedwater (AFW) system testing when the initiation occurred. The cause of the event was determined to be an unexpected decalibration of the wide range steam generator level instrumentation which led to a low water level auxiliary feedwater actuation signal. As part of the auxiliary feedwater system modifications performed during Cycle X outage to integrate a third AFW pump, the steam generator level instrumentation was modified to provide environmentally qualified wide range indication. These modifications included conversion of the existing qualified narrow range transmitters to wide range.

After the AFW initiation event of May 25, 1989, it was determined that based on the current configuration, the wide range level decalibration will result in initiation of the AFW whenever return to power is attempted. Therefore, it is necessary to convert the wide range transmitters back to the original configuration (i.e., narrow range) for purposes of initiation of the AFW, and install a new train of environmentally qualified wide range transmitters (one per steam generator) for the purposes of post-accident monitoring to verify AFW flow initiation. Because these changes affect the existing Technical Specifications, resumption of power operation is dependent upon the NRC approval of this proposed change. The schedule for the completion of the modifications associated with this proposed change is June 25, 1989. For each amendment proposed to be issued, the normal period allowed by the Commission for public comments is thirty days. This would significantly impact the scheduled startup date of June 25, 1989. Therefore, an emergency situation exists, in that failure to act in a timely manner would prevent the resumption of operation of SONGS 1; and since the proposed change involves no significant hazards consideration, an emergency license amendment is hereby requested in accordance with 10 CFR 50.91.

EXISTING TECHNICAL SPECIFICATION

See Attachment 1

PROPOSED TECHNICAL SPECIFICATION

See Attachment 2

SIGNIFICANT HAZARD CONSIDERATION ANALYSIS

As required by 10 CFR 50.91(a)(1), this analysis is provided to demonstrate that a proposed license amendment to revise Table 3.5.7-2 of Specification 3.5.7 to state the auxiliary feedwater system initiation setpoint and allowable levels based on steam generator narrow range level does not represent a significant hazard consideration. In accordance with the three factor test of 10 CFR 50.92 (c), implementation of the proposed license amendment was analyzed using the following standards and found not to: 1) involve a significant increase in the probability or consequences for an accident previously evaluated; or 2) create the possibility of a new or different kind of accident from any accident previously evaluated; or 3) involve a significant reduction in a margin of safety.

Discussion

During the Cycle 10 refueling outage, modifications were implemented to eliminate single failure susceptibilities in the AFW system by integrating a third pump. As part of these modifications, SCE identified that the existing steam generator wide range level instruments were not environmentally qualified in accordance with post-TMI requirements, specifically NUREG-0737, Supplement 1. To resolve this, modifications were implemented to convert two fully qualified narrow range level transmitters to wide range on each steam generator. These new wide range instruments were to serve a dual function as the initiating instruments for AFW and a post-accident monitoring function (i.e., a backup indication of AFW flow to the steam generators). This latter function is required since San Onofre Unit 1 has only one train of AFW flow transmitters.

Subsequent to completion of the above modifications, SONGS 1 was returned to service. During startup the unit experienced an AFW system actuation resulting from a low steam generator water level signal. It was determined that the new steam generator wide range level instrumentation decalibrates as power is increased. This decalibration anomaly is attributed to the flow friction losses in the steam generator downcomer affecting the lower taps of the wide range level transmitters. As reactor power increases, the downcomer flow which is equal to the feedwater plus the recirculation flow will also increase. This results in a larger friction loss in the steam generator downcomer, causing the wide range level transmitters to decalibrate and read a water

level lower than actual level. In reference to the recent startup, the decalibration was sufficient at approximately 20% reactor power to reduce the indicated wide range steam generator level down to the AFW setpoint while the level indicated by the narrow range instruments remained constant.

Currently two wide range level instruments per steam generator are provided for automatic initiation of auxiliary feedwater. Changing the wide range level instruments to narrow range eliminates the decalibration problem experienced with the wide range transmitters. As stated above, the lower taps on the wide range level transmitters are located in a region of the steam generator that is affected by significant friction losses resulting in the decalibration anomaly. The lower taps for the narrow range transmitters, however, are located in the upper downcomer area in which the effect of the flow friction losses are negligible. The proposed narrow range level instruments are safety related, environmentally qualified, and are powered from separate trains.

The water level in the steam generator at which the auxiliary feedwater system is initiated is not being revised. By using the narrow range transmitters, however, the reference point for initiation will change due to the different instrument span (i.e., narrow range span).

The post-accident monitoring indication (PAMI) function will be provided by adding new WR level indicators (one per steam generator) which are environmentally qualified, Train A powered and hot-calibrated. The accident monitoring function is needed both during and following postulated accidents and anticipated operational occurrences consistent with the requirements of NUREG-0737 Item II.E.1.2 and the recommendations of Regulatory Guide 1.97. The redundant qualified NR channels provide level indication during accidents and the qualified WR channel provides level indication post-accident. The WR channel will provide accurate level indication for the EOI and backup AFW flow indication functions because the reduced feedwater flow following reactor trip post-accident is low enough that significant decalibration will not occur.

The steam generator high level alarm/turbine trip function is provided to mitigate the consequences of excess feedwater flow events as described in UFSAR Section 15.1.2. Previously this function was provided for each steam generator by a NR channel and a WR channel. Annunciation is provided on either channel, while turbine trip and auto-closure of the main feedwater flow control valves is provided on coincidence of both channels. The modifications associated with this proposed change will remove the alarm/turbine trip/valve closure function from the Train A WR channel, and add this function to the Train B NR channel. This will provide redundant NR channel input for those functions powered from separate trains (Qualified isolation devices are used to maintain Train A and B separation). The NR channels are subject to negligible flow decalibration and hence

either channel will provide an accurate high level alarm. Credit is taken for manual operator action following the alarm to terminate the excess feedwater event following receipt of the high level alarms.

The detailed design description for the modifications associated with this proposed change is given in Attachment 3.

ANALYSIS

Conformance of the proposed changes to the standards for a determination of no significant hazard as defined in 10 CFR 50.92 (three factor test) is shown in the following:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   Operation of the facility in accordance with this change has no effect on the accidents analyzed in the UFSAR. The modifications associated with this proposed change involve converting two trains of qualified wide range level instruments to narrow range. A new train of wide range level indicators which are environmentally qualified will be provided for purposes of accident monitoring. The narrow range level monitors will provide for the automatic AFW actuation. This modification would eliminate the decalibration problem associated with the wide range level transmitters which led to the AFW actuation event of May 25, 1989. The steam generator water level at which the AFW system is actuated does not change.

   The modifications associated with this proposed change also include changes to the steam generator high level alarm/turbine trip function. The high level alarm/turbine trip function is currently provided by one train of NR and one train of WR level instruments. The proposed change would include using two trains of NR level instruments for the high level alarm/turbine trip function. This will eliminate the decalibration problem associated with the use of the wide range level instruments.

   The modifications associated with this proposed change will ensure that the systems involved will function according to their design. The actual AFW initiation level is not being changed. Thus, previous accident analyses are not impacted by this proposed change, and therefore, the probability or consequences of the analyses are not impacted by this proposed change.

2. Will operation of the facility in accordance with this change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The AFW system functions in a mitigating capacity during design basis events. The most limiting design basis events do not credit automatic initiation of AFW. Rather, manual initiation is assumed at either 15 or 30 minutes depending on the type of transient. The modifications associated with this proposed change include utilizing steam generator narrow range transmitters versus wide range for automatic initiation of AFW. The steam generator water level at which AFW is initiated remains the same. Thus, this change does not impact the function of AFW during a design basis event. The installation of a new train of environmentally qualified, safety related steam generator wide range level transmitters ensures the ability to monitor steam generator level after a design basis event. These new transmitters, therefore, function in a post-accident monitoring capacity. Finally, modifications to ensure that the steam generator high level alarm and turbine trip functions are initiated from narrow range transmitters will eliminate potential misoperation of these functions due to the decalibration anomaly on the wide range transmitters. Based on the type of changes associated with PCN 213, the existing accident analyses are not impacted. Thus, operation of the facility in accordance with these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

PCN 213 does not involve a reduction in the margin of safety associated with the AFW initiation, accident monitoring, and alarm/turbine trip functions of the SG level instrumentation. The conversion of WR channels to NR channels will eliminate the decalibration anomaly for the instrumentation initiating AFW. This will ensure a more accurate AFW initiation at the setpoint and within the allowable uncertainty specified in the Technical Specifications. The accident monitoring function during postulated accidents is improved by providing a total of three NR channels per steam generator. The post-accident monitoring function continues to be provided by a qualified WR channel. The high level alarm/turbine trip function is improved by providing two NR channels compared to one WR and one NR channel previously. This

will eliminate the decalibration anomaly on the WR transmitter and will ensure adequate redundancy of this function in the event of failure of either NR channel. Therefore, operation of the facility in accordance with this proposed change will not involve a significant reduction in a margin of safety.

SAFETY AND SIGNIFICANT HAZARD CONSIDERATION DETERMINATION

Based on the preceding analysis, it is concluded that: (1) Proposed Change No. 213 does not involve a significant hazard consideration as defined by 10 CFR 50.92; and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change.

Attachment 1 - Existing Specifications

Attachment 2 - Proposed Specifications

Attachment 3 - Detailed Design Description

ATTACHMENT 1

EXISTING TECHNICAL SPECIFICATION

TABLE 3.5.7-2

AUXILIARY FEEDWATER INSTRUMENTATION SETPOINTS

FUNCTIONAL UNIT	SETPOINT	ALLOWABLE VALUES	
a. Manual Actuation	Not Applicable	Not Applicable	82 11/7/84
b. Automatic Actuation Logic	Not Applicable	Not Applicable	
c. Steam Generator Water Level-Low	≥ 238 inch level of wide range instrument span for each steam generator	≥ 233 inch level of wide range instrument span for each steam generator	
d. AFW Train Interlocks			
i. Decreasing Flow in Train B/ Start Train A Flow	23 gpm*	≥ 10 gpm	125 4/25/89
ii. Increasing Flow in Train B/ Stop Train A Flow	37 gpm*	≤ 48 gpm	

* Each flow switch monitoring Train B flow utilizes its set and reset points for permissive signals for starting and stopping Train A.