



SOUTHERN CALIFORNIA  
**EDISON**

An EDISON INTERNATIONAL<sup>SM</sup> Company

Dwight E. Nunn  
Vice President

March 25, 2003

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

**Subject: San Onofre Nuclear Generating Station Units 2 and 3  
Docket Nos. 50-361 and 50-362  
Proposed Change Number (PCN) 537  
Request to Revise Technical Specification 3.5.2. "ECCS - Operating"**

Gentlemen:

Pursuant to 10 CFR 50.90, Southern California Edison (SCE) hereby requests the following amendment: In Technical Specification 3.5.2, "ECCS – Operating," Surveillance Requirement (SR) 3.5.2.5, replace the requirement to verify specific surveillance test values for the Emergency Core Cooling System (ECCS) pumps with the requirement to verify the developed head for each ECCS pump in accordance with the Inservice Testing Program. This new requirement is identical to SR 3.5.2.4 in NUREG 1432, "Standard Technical Specifications, Combustion Engineering Plants," Revision 2. SCE has evaluated this request under the standards set forth in 10 CFR 50.92(c) and determined that a finding of "no significant hazards consideration" is justified.

SCE requests the amendments be implemented within 60 days of approval.

SCE is making no formal commitments that would result from NRC approval of the proposed amendments.

If you have any questions or require additional information, please contact Mr. Jack Rainsberry at (949) 368-7420.

Sincerely,

P. O. Box 128  
San Clemente, CA 92674-0128  
949-368-1480  
Fax 949-368-1490

A001

Enclosures

1. Notarized Affidavits
2. Licensee's Evaluation of the Proposed Change

Attachments:

- A. Existing Technical Specification page, Unit 2
- B. Existing Technical Specification page, Unit 3
- C. Markup of Technical Specification page, Unit 2
- D. Markup of Technical Specification page, Unit 3
- E. Retyped Technical Specification page, Unit 2
- F. Retyped Technical Specification page, Unit 3

- cc:
- E. W. Merschoff, Regional Administrator, NRC Region IV
  - B. M. Pham, NRC Project Manager, San Onofre Units 2, and 3
  - C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 and 3
  - S. Y. Hsu, Department of Health Services, Radiologic Health Branch

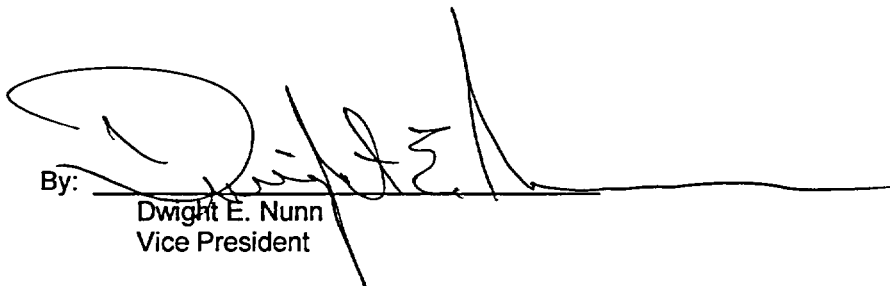
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

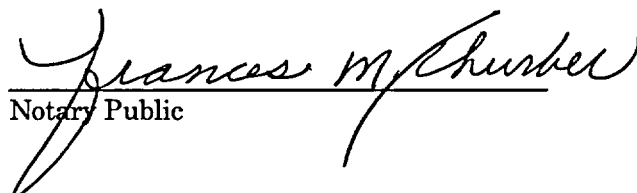
Application of SOUTHERN CALIFORNIA )  
EDISON COMPANY, ET AL. for a Class 103 ) Docket No 50-361  
License to Acquire, Possess, and Use )  
a Utilization Facility as Part of ) Amendment Application No. 219  
Unit No. 2 of the San Onofre Nuclear )  
Generating Station )

SOUTHERN CALIFORNIA EDISON COMPANY, et al pursuant to 10CFR50.90, hereby submit Amendment Application No. 219 This amendment application consists of Proposed Change Number (PCN) 537 to Facility Operating License NPF-10. PCN-537 is a request to replace the requirement to verify specific surveillance test values for the Emergency Core Cooling System (ECCS) pumps in Surveillance Requirement 3.5.2.5 in Technical Specification 3.5.2, "ECCS Operating," for San Onofre Nuclear Generating Station Unit 2 with the requirement to verify the required developed head for each ECCS pump in accordance with the Inservice Testing Program

State of California  
County of San Diego

Subscribed and sworn to (or affirmed) before me this 25 day of  
March, 2003.

By:   
Dwight E. Nunn  
Vice President

  
Notary Public



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA )  
EDISON COMPANY, ET AL. for a Class 103 )  
License to Acquire, Possess, and Use )  
a Utilization Facility as Part of )  
Unit No. 3 of the San Onofre Nuclear )  
Generating Station )

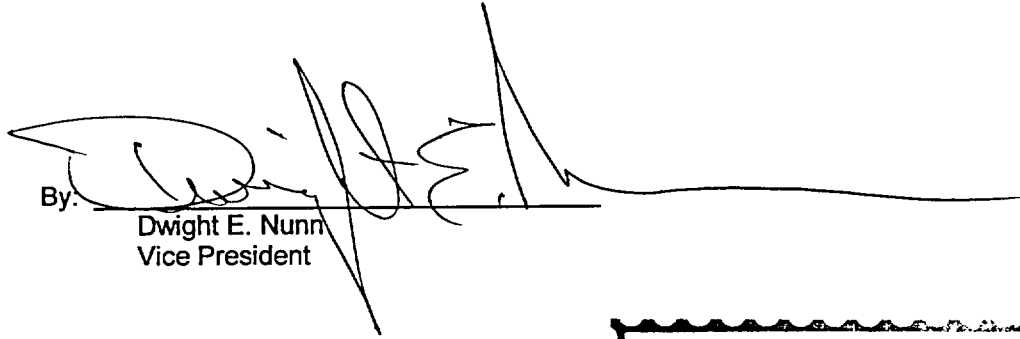
Docket No 50-362

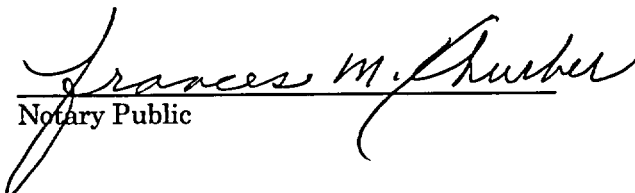
Amendment Application No 204

SOUTHERN CALIFORNIA EDISON COMPANY, et al. pursuant to 10CFR50.90, hereby submit Amendment Application No 204. This amendment application consists of Proposed Change Number (PCN) 537 to Facility Operating License NPF-15 PCN-537 is a request to replace the requirement to verify specific surveillance test values for the Emergency Core Cooling System (ECCS) pumps in Surveillance Requirement 3.5.2.5 in Technical Specification 3 5 2, "ECCS Operating," for San Onofre Nuclear Generating Station Unit 3 with the requirement to verify the required developed head for each ECCS pump in accordance with the Inservice Testing Program

State of California  
County of San Diego

Subscribed and sworn to (or affirmed) before me this 25 day of  
March, 2003.

By:   
Dwight E. Nunn  
Vice President

  
Notary Public



**LICENSEE'S EVALUATION  
Proposed Change Number 537**

**SUBJECT: Technical Specification 3.5.2, "ECCS-Operating," Surveillance Requirement 3.5.2.5 for the Emergency Core Cooling System (ECCS) pumps**

1. INTRODUCTION
2. DESCRIPTION OF PROPOSED AMENDMENT
3. BACKGROUND
4. TECHNICAL ANALYSIS
5. REGULATORY SAFETY ANALYSIS
  - 5.1. NO SIGNIFICANT HAZARDS CONSIDERATION
  - 5.2. APPLICABLE REGULATORY REQUIREMENTS/ CRITERIA
6. ENVIRONMENTAL CONSIDERATION
7. REFERENCES
8. ATTACHMENTS:
  - A. Existing Technical Specification page, Unit 2
  - B. Existing Technical Specification page, Unit 3
  - C. Markup of Technical Specification page, Unit 2
  - D. Markup of Technical Specification page, Unit 3
  - E. Retyped Technical Specification page, Unit 2
  - F. Retyped Technical Specification page, Unit 3

## 1.0 INTRODUCTION

This letter is a request to amend Operating Licenses NPF-10 and NPF-15 for San Onofre Nuclear Generating Station Units 2 and 3 (SONGS 2 and 3), respectively.

The proposed change is to amend the Operating Licenses and revise Technical Specification (TS) 3.5.2, "ECCS - Operating," by replacing the requirement to verify specific surveillance test values for the Emergency Core Cooling System (ECCS) pumps in Surveillance Requirement (SR) 3.5.2.5 with the requirement to verify the required developed head for each ECCS pump in accordance with the Inservice Testing (IST) Program. The ECCS pumps are the High Pressure Safety Injection (HPSI) pumps and Low Pressure Safety Injection (LPSI) pumps. This proposed requirement is identical to SR 3.5.2.4 in NUREG 1432, "Standard Technical Specifications, Combustion Engineering Plants," Revision 2.

## 2.0 PROPOSED CHANGE

Southern California Edison (SCE) is requesting a change to the operating licenses for SONGS 2 and 3 to replace the requirement to verify specific surveillance test values for the ECCS pumps in SR 3.5.2.5 with the requirement to verify the required developed head for each ECCS pump in accordance with the IST Program. This proposed requirement is identical to SR 3.5.2.4 in NUREG 1432, "Standard Technical Specifications, Combustion Engineering Plants," Revision 2. The existing SR 3.5.2.5 for Unit 2 and for Unit 3, also provided in Attachments A and B, respectively, are as follows:

SR 3.5.2.5 for Unit 2: Verify the following ECCS pumps develop the indicated developed head and/or flow rate.

<u>Pump</u>	<u>Full Flow</u> GPM	<u>Full Flow</u> Head (Ft)	<u>Miniflow</u> Head (Ft)
HPSI-P017	650	≥ 2142	-
HPSI-P018	650	≥ 2101	-
HPSI-P019	650	≥ 2103	-
LPSI-P015	-	-	≥ 406.1
LPSI-P016	-	-	≥ 406.1

SR 3.5.2.5 for Unit 3: Verify the following ECCS pumps develop the indicated developed head and/or flow rate.

<u>Pump</u>	<u>Full Flow</u> GPM	<u>Full Flow</u> Head (Ft)	<u>Miniflow</u> Head (Ft)
HPSI-P017	650	≥ 2093	-
HPSI-P018	650	≥ 2132	-
HPSI-P019	650	≥ 2099	-
LPSI-P015	-	-	≥ 396
LPSI-P016	-	-	≥ 396

SR 3.5.2.5 for both Unit 2 and Unit 3 is requested to be replaced with the following:

“Verify each ECCS pump’s developed head at the test flow point is greater than or equal to the required developed head.”

No change to the Bases is needed.

### **3.0 BACKGROUND**

Updated Final Safety Analysis Report (UFSAR) Sections 15.6.3.3 and 15.10.6.3.3 present the design basis accident analyses associated with postulated Loss-of-Coolant Accidents (LOCAs). LOCAs are accidents that would result in the loss of reactor coolant from piping breaks in the reactor coolant pressure boundary at a rate in excess of the capability of the normal reactor coolant makeup system. The piping breaks are postulated to occur at various locations and include a spectrum of break sizes, up to a maximum pipe break equivalent in size to the double-ended rupture of the largest pipe in the reactor coolant system pressure boundary. Loss of significant quantities of reactor coolant would prevent heat removal from the reactor core, unless the water is replenished.

To satisfy the requirements of the regulations for ECCS performance (10 CFR 50.46), safety analyses of ECCS performance under accident conditions are performed. These analyses provide input to the design of the reactor coolant system piping and support structures, HPSI system, LPSI system, safety injection tanks (SITs), chemical and volume control system (CVCS), and to the design of the steam generators and the containment structures.

The periodic surveillance testing of the ECCS pumps is to verify that measured pump performance is within an acceptable tolerance of the pump baseline performance and that the test flow and developed head are greater than or equal to the performance assumed in the safety analysis. In 1979 SCE committed to include HPSI performance values in the TSs to verify HPSI pump flow rates credited in the Small Break Loss-of-Coolant Accident (SBLOCA) analysis.

#### **3.1 System Description**

The purpose of the ECCS is to inject borated water into the Reactor Coolant System (RCS) to cool the core following a LOCA and to maintain the reactor subcritical following a LOCA or a Main Steam Line Break (MSLB). The Safety Injection System (SIS) is designed to provide emergency core cooling and reactivity control following any loss of reactor coolant. The SIS accomplishes these functions by providing borated water from the Refueling Water Storage Tank (RWST) to the RCS by means of the HPSI and LPSI pumps. Borated water is also provided to the RCS from the Safety Injection Tanks (SITs) in the event that RCS pressure falls below the pressure of the SITs. The ECCS or SIS is actuated automatically by a Safety Injection Actuation Signal (SIAS). SIS actuation mitigates fuel and clad damage that could interfere with continued effective core cooling, limits fuel clad metal-water reaction to negligible amounts, and ensures that reactivity control with appropriate shutdown margin for stuck rods is maintained under postulated accident conditions.

### 3.2 Safety Analysis

The LOCA and MSLB are the bounding accidents for HPSI delivery requirements, with the LOCA being the more challenging accident for safety injection considerations. Both of these accidents generate a SIAS.

SR 3.5.2.5 requires each HPSI pump to be capable of a specified developed head at an indicated flow rate of 650 gpm to ensure that, in the event of a SBLOCA, the 10 CFR 50.46 ECCS acceptance criteria (Reference 7.1) are met. The developed head requirements currently specified in SR 3.5.2.5 for each HPSI pump are derived from the SBLOCA analysis in effect when the operating licenses were issued, and are conservative compared to the values required to support the current SBLOCA analysis.

The SBLOCA safety analysis assumptions for RCS pressure and HPSI pump delivered flow are maintained in the Updated Final Safety Analysis Report (UFSAR) Table 6.3-5. The initial conditions for the SBLOCA are shown in UFSAR Table 15.10.6.3.3-6 (Reference 7.2). SBLOCA analyses determine that 10 CFR 50.46 ECCS acceptance criteria are met.

The SBLOCA break size range of 0.01 ft<sup>2</sup> to 0.06 ft<sup>2</sup> encompasses the break sizes for which hot rod cladding heat-up is terminated solely by injection from a HPSI pump. It is within this range that the limiting SBLOCA resides. Break sizes outside this range are either too small to result in any core uncover or are sufficiently large that injection from the SITs recovers the core and terminates cladding heat-up before the cladding temperature approaches the Peak Cladding Temperature (PCT) calculated for the limiting SBLOCA.

### 3.3 HPSI Pump Performance Requirements

SCE calculation M-0012-033, Rev. 2, HPSI Pump Technical Specification Minimum Performance Requirements determined the HPSI pump minimum performance requirements at the spectrum of RCS pressures and required delivery flows for SBLOCAs in UFSAR Table 6.3-5. The calculated flow requirements are conservative with respect to the assumed flow used in the safety analysis. A steady state computer model was used to calculate the flow and pressure distribution in the HPSI piping system and to determine the minimum pump requirements to meet the new analysis requirements.

The HPSI system piping has been modeled to account for flow resistance to determine the most limiting system alignment to ensure that the required flow is delivered to the RCS. Conservative assumptions are made concerning the availability of safety injection flow by consolidating the individual pump and system alignments into a single most limiting value. This system alignment was used to establish the minimum flow and head requirements for all HPSI pumps which bounds all possible system alignments to allow for simplification and additional conservatism.

The current SR 3.5.2.5 HPSI pump values are conservative compared to the values required to support the current safety analysis, and are the following:



<u>Pump</u>	<u>Full Flow</u> GPM	<u>Full Flow</u> Head (Ft)	
		<u>Current</u> <u>SR 3.5.2.5</u> <u>Values</u>	<u>Required by</u> <u>Current Safety</u> <u>Analysis</u>
Unit 2 HPSI-P017	650	≥ 2142	≥ 1737.4
Unit 2 HPSI-P018	650	≥ 2101	≥ 1737.4
Unit 2 HPSI-P019	650	≥ 2103	≥ 1737.4
Unit 3 HPSI-P017	650	≥ 2093	≥ 1737.4
Unit 3 HPSI-P018	650	≥ 2132	≥ 1737.4
Unit 3 HPSI-P019	650	≥ 2099	≥ 1737.4

### 3.4 LPSI Pump Performance Requirements

The IST criteria for the LPSI pumps do not need to be changed because sufficient margin exists in the current LPSI pump analysis.

## 4.0 TECHNICAL ANALYSIS

SCE requests the requirement in TS 3.5.2, "ECCS – Operating," SR 3.5.2.5 to verify specific surveillance test values for the ECCS pumps be replaced with the requirement to verify the developed head for each ECCS pump in accordance with the IST Program.

The specific test values are not needed in SR 3.5.2.5 because 10 CFR 50.46 and the NRC approved IST program (Reference 7.3) control the specific test values. The required surveillance test values are derived from the flow values assumed in the 10 CFR 50.46 ECCS performance analysis. Allowances for instrument accuracy are made consistent with ASME/ANSI OM Code for pump testing (Reference 7.4) to ensure that there is sufficient flow to meet the calculated minimum flow. Allowances for instrument accuracy for flow and head are incorporated in the IST procedures.

Verifying the developed head for each ECCS pump in accordance with the IST program will allow testing to the values obtained based on the current safety analysis of record. The head requirements currently specified in SR 3.5.2.5 are conservative compared to the values required to support the current safety analysis. Testing to the values based on the current safety analysis will allow performance of SR 3.5.2.5 with plant instrumentation that was permanently installed specifically to perform Inservice Testing, eliminating the need for temporarily installed special (1/4 % accurate) measurement and test equipment (M&TE).

Periodic surveillance testing of ECCS pumps to detect degradation caused by impeller structural damage or other hydraulic component problems is required by the ASME/ANSI OM Code. Inservice Testing verifies that the measured performance is within an acceptable tolerance of the pump baseline performance and that the performance at the test flow is greater than or equal to the performance assumed in the safety analysis.

The proposed SR 3.5.2.5 is verbatim from SR 3.5.2.4 in NUREG 1432, "Standard Technical Specifications, Combustion Engineering Plants," Revision 2.

## 5.0 REGULATORY SAFETY ANALYSIS

### 5.1 No Significant Hazards Consideration

Southern California Edison (SCE) has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

1. **Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No.

Deleting the specific surveillance test values for Emergency Core Cooling System (ECCS) pumps from Surveillance Requirement (SR) 3.5.2.5 does not affect the probability of occurrence or consequences of an accident previously evaluated because ECCS pumps are for accident mitigation and do not contribute to initiation of accidents. Periodic surveillance testing of the ECCS pumps in accordance with the Inservice Testing (IST) program provides assurance that the pumps will perform as assumed in the safety analysis. There is no change to the safety analysis.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

ECCS pumps are for accident mitigation and do not contribute to accident initiation. The ECCS system will still be verified capable of meeting its emergency core cooling and IST requirements. There is no change to the safety analysis.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. **Does the proposed change involve a significant reduction in a margin of safety?**

Response: No.

There is no change to the safety analysis. Testing of the ECCS pumps as required by the IST Program combined with the existing Technical Specification 3.5.2 –

“ECCS – Operating” surveillance requirements ensure that the ECCS requirements remain met without a significant reduction in a margin of safety. Therefore, there is no significant reduction in a margin of safety.

Based on the above, SCE concludes that the proposed amendments present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

## 5.2 Applicable Regulatory Requirements/Criteria

10 CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, requires the following criteria be met: peak fuel element cladding temperature, maximum cladding oxidation, maximum hydrogen generation, coolable geometry, and long-term cooling. In addition, Regulatory Guide 1.70, “Standard Format and Content of Safety Analysis Reports” provides guidance on the initial conditions and engineered safety features which should be addressed in a safety analysis of the small break Loss-of-Coolant Accident (LOCA).

In the NUREG-0712 Safety Evaluation Report for San Onofre Units 2 and 3 operation (Reference 7.5), in Section 15.3.5, “Small Break LOCA,” the NRC concluded that the LOCA calculations submitted for San Onofre were in conformance with 10 CFR 50.46 and were acceptable. By Reference 7.6 the NRC approved San Onofre license amendments on Small Break LOCA, Charging Flow, and Main Steam Safety Valve setpoints, which used the current safety analysis model to determine that the requirements of 10 CFR 50.46 are met.

10 CFR 50.55a, Codes and standards, subsection (f)(4) requires IST to verify operational readiness of ECCS pumps in accordance with the applicable edition of the ASME/ANSI Code and Addenda. Compliance with 10 CFR 50.55a(f) IST requirements is demonstrated by testing the ECCS pumps in accordance with the NRC approved IST program. The IST values for ECCS pumps are consistent with the 10 CFR 50.46 safety analysis.

NUREG 1432, “Standard Technical Specifications, Combustion Engineering Plants,” Revision 2, Surveillance Requirement (SR) 3.5.2.4, provides the following surveillance requirement for ECCS pumps: “Verify each ECCS pump’s developed head at the test flow point is greater than or equal to the required developed head.” The proposed SR 3.5.2.5, is verbatim from SR 3.5.2.4 in NUREG 1432, Revision 2.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission’s regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

## 6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component, the HPSI pumps, located within the restricted area, as defined in 10 CFR 20 or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## 7.0 REFERENCES

- 7.1 Code of Federal Regulations, Title 10, Part 50, Section 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light Water Nuclear Power Reactors"
- 7.2 San Onofre Nuclear Generating Station Updated Final Safety Analysis Report, Revision 16
- 7.3 August 31, 1994 letter from Theodore R. Quay (NRC) to Harold B. Ray (SCE), Subject: Second 10-Year Interval for Inservice Testing of Pumps and Valves, San Onofre Nuclear Generating Station, Unit No. 2 (TAC No. M87283) and Unit No. 3 (TAC NO. M87284)
- 7.4 ASME/ANSI OM-1987 Edition through OMa-1988 Addenda, Part 6, "Inservice Testing of Pumps in Light-Water Reactor Power Plants," paragraph 4.6 and Table 1 for the current second 10-year Inspection Interval and ASME OM Code-1998 Edition through OMb-2000 Addenda, Subsection ISTB, "Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants," paragraph ISTB-3500 and Table ISTB-3500-1 for the third 10-year Inspection Interval
- 7.5 NUREG-0712: Safety Evaluation Report related to the operation of San Onofre Nuclear Generating Station, Units 2 and 3, Docket Nos. 50-361 and 50-362, dated February 1981
- 7.6 Letter, L. Raghavan (NRC) to H. B. Ray (SCE), "San Onofre Nuclear Generating Station, Units 2 and 3 – Issuance of Amendments on Small Break Loss-Of-Coolant Accident, Charging Flow and Main Steam Safety Valve setpoints (TAC NOS. MA5700 and MA5702)," February 22, 2000

**ATTACHMENT A**

**SAN ONOFRE NUCLEAR GENERATING STATION  
PCN-537**

**EXISTING TECHNICAL SPECIFICATION PAGE, UNIT 2**

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY																								
SR 3.5.2.4	Verify ECCS piping is full of water.	31 days																								
SR 3.5.2.5	Verify the following ECCS pumps develop the indicated developed head and/or flow rate.	In accordance with the Inservice Testing Program																								
	<table border="1"> <thead> <tr> <th>Pump</th> <th>Full Flow GPM</th> <th>Full Flow Head (Ft)</th> <th>Miniflow Head(Ft)</th> </tr> </thead> <tbody> <tr> <td>HPSI-P017</td> <td>650</td> <td>≥ 2142</td> <td>-</td> </tr> <tr> <td>HPSI-P018</td> <td>650</td> <td>≥ 2101</td> <td>-</td> </tr> <tr> <td>HPSI-P019</td> <td>650</td> <td>≥ 2103</td> <td>-</td> </tr> <tr> <td>LPSI-P015</td> <td>-</td> <td>-</td> <td>≥ 406.1</td> </tr> <tr> <td>LPSI-P016</td> <td>-</td> <td>-</td> <td>≥ 406.1</td> </tr> </tbody> </table>		Pump	Full Flow GPM	Full Flow Head (Ft)	Miniflow Head(Ft)	HPSI-P017	650	≥ 2142	-	HPSI-P018	650	≥ 2101	-	HPSI-P019	650	≥ 2103	-	LPSI-P015	-	-	≥ 406.1	LPSI-P016	-	-	≥ 406.1
Pump	Full Flow GPM		Full Flow Head (Ft)	Miniflow Head(Ft)																						
HPSI-P017	650		≥ 2142	-																						
HPSI-P018	650		≥ 2101	-																						
HPSI-P019	650		≥ 2103	-																						
LPSI-P015	-	-	≥ 406.1																							
LPSI-P016	-	-	≥ 406.1																							
SR 3.5.2.6	Deleted																									
SR 3.5.2.7	Verify each ECCS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.8	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.9	Verify each LPSI pump stops on an actual or simulated actuation signal.	24 months																								

(continued)

**ATTACHMENT B**

**SAN ONOFRE NUCLEAR GENERATING STATION  
PCN-537**

**EXISTING TECHNICAL SPECIFICATION PAGE, UNIT 3**

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY																								
SR 3.5.2.4	Verify ECCS piping is full of water.	31 days																								
SR 3.5.2.5	Verify the following ECCS pumps develop the indicated developed head and/or flow rate.	In accordance with the Inservice Testing Program																								
	<table border="1"> <thead> <tr> <th>Pump</th> <th>Full Flow GPM</th> <th>Full Flow Head (Ft)</th> <th>Miniflow Head(Ft)</th> </tr> </thead> <tbody> <tr> <td>HPSI-P017</td> <td>650</td> <td>≥ 2093</td> <td>-</td> </tr> <tr> <td>HPSI-P018</td> <td>650</td> <td>≥ 2132</td> <td>-</td> </tr> <tr> <td>HPSI-P019</td> <td>650</td> <td>≥ 2099</td> <td>-</td> </tr> <tr> <td>LPSI-P015</td> <td>-</td> <td>-</td> <td>≥ 396</td> </tr> <tr> <td>LPSI-P016</td> <td>-</td> <td>-</td> <td>≥ 396</td> </tr> </tbody> </table>		Pump	Full Flow GPM	Full Flow Head (Ft)	Miniflow Head(Ft)	HPSI-P017	650	≥ 2093	-	HPSI-P018	650	≥ 2132	-	HPSI-P019	650	≥ 2099	-	LPSI-P015	-	-	≥ 396	LPSI-P016	-	-	≥ 396
Pump	Full Flow GPM		Full Flow Head (Ft)	Miniflow Head(Ft)																						
HPSI-P017	650		≥ 2093	-																						
HPSI-P018	650		≥ 2132	-																						
HPSI-P019	650		≥ 2099	-																						
LPSI-P015	-	-	≥ 396																							
LPSI-P016	-	-	≥ 396																							
SR 3.5.2.6	Deleted																									
SR 3.5.2.7	Verify each ECCS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.8	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.9	Verify each LPSI pump stops on an actual or simulated actuation signal.	24 months																								

(continued)



**ATTACHMENT C**

**SAN ONOFRE NUCLEAR GENERATING STATION  
PCN-537**

**MARKUP OF TECHNICAL SPECIFICATION PAGE, UNIT 2**

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY																								
SR 3.5.2.4	Verify ECCS piping is full of water.	31 days																								
SR 3.5.2.5	<p>Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head. <del>Verify the following ECCS pumps develop the indicated developed head and/or flow rate.</del></p> <table border="1"> <thead> <tr> <th>Pump</th> <th>Full Flow GPM</th> <th>Full Flow Head (Ft)</th> <th>Miniflow Head(Ft)</th> </tr> </thead> <tbody> <tr> <td>HPSI-P017</td> <td>650</td> <td>≥ 2142</td> <td>—</td> </tr> <tr> <td>HPSI-P018</td> <td>650</td> <td>≥ 2101</td> <td>—</td> </tr> <tr> <td>HPSI-P019</td> <td>650</td> <td>≥ 2103</td> <td>—</td> </tr> <tr> <td>LPSI-P015</td> <td>—</td> <td>—</td> <td>≥ 406.1</td> </tr> <tr> <td>LPSI-P016</td> <td>—</td> <td>—</td> <td>≥ 406.1</td> </tr> </tbody> </table>	Pump	Full Flow GPM	Full Flow Head (Ft)	Miniflow Head(Ft)	HPSI-P017	650	≥ 2142	—	HPSI-P018	650	≥ 2101	—	HPSI-P019	650	≥ 2103	—	LPSI-P015	—	—	≥ 406.1	LPSI-P016	—	—	≥ 406.1	In accordance with the Inservice Testing Program
Pump	Full Flow GPM	Full Flow Head (Ft)	Miniflow Head(Ft)																							
HPSI-P017	650	≥ 2142	—																							
HPSI-P018	650	≥ 2101	—																							
HPSI-P019	650	≥ 2103	—																							
LPSI-P015	—	—	≥ 406.1																							
LPSI-P016	—	—	≥ 406.1																							
SR 3.5.2.6	Deleted																									
SR 3.5.2.7	Verify each ECCS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.8	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.9	Verify each LPSI pump stops on an actual or simulated actuation signal.	24 months																								

(continued)

**ATTACHMENT D**

**SAN ONOFRE NUCLEAR GENERATING STATION  
PCN-537**

**MARKUP OF TECHNICAL SPECIFICATION PAGE, UNIT 3**

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY																								
SR 3.5.2.4	Verify ECCS piping is full of water.	31 days																								
SR 3.5.2.5	<p>Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head. <del>Verify the following ECCS pumps develop the indicated developed head and/or flow rate.</del></p> <table border="1"> <thead> <tr> <th>Pump</th> <th>Full Flow GPM</th> <th>Full Flow Head (ft)</th> <th>Miniflow Head(ft)</th> </tr> </thead> <tbody> <tr> <td>HPSI-P017</td> <td>650</td> <td>≥ 2093</td> <td>-</td> </tr> <tr> <td>HPSI-P018</td> <td>650</td> <td>≥ 2132</td> <td>-</td> </tr> <tr> <td>HPSI-P019</td> <td>650</td> <td>≥ 2099</td> <td>-</td> </tr> <tr> <td>LPSI-P015</td> <td>-</td> <td>-</td> <td>≥ 396</td> </tr> <tr> <td>LPSI-P016</td> <td>-</td> <td>-</td> <td>≥ 396</td> </tr> </tbody> </table>	Pump	Full Flow GPM	Full Flow Head (ft)	Miniflow Head(ft)	HPSI-P017	650	≥ 2093	-	HPSI-P018	650	≥ 2132	-	HPSI-P019	650	≥ 2099	-	LPSI-P015	-	-	≥ 396	LPSI-P016	-	-	≥ 396	In accordance with the Inservice Testing Program
Pump	Full Flow GPM	Full Flow Head (ft)	Miniflow Head(ft)																							
HPSI-P017	650	≥ 2093	-																							
HPSI-P018	650	≥ 2132	-																							
HPSI-P019	650	≥ 2099	-																							
LPSI-P015	-	-	≥ 396																							
LPSI-P016	-	-	≥ 396																							
SR 3.5.2.6	Deleted																									
SR 3.5.2.7	Verify each ECCS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.8	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months																								
SR 3.5.2.9	Verify each LPSI pump stops on an actual or simulated actuation signal.	24 months																								

(continued)

**ATTACHMENT E**

**SAN ONOFRE NUCLEAR GENERATING STATION  
PCN-537**

**RETYPE TECHNICAL SPECIFICATION PAGE, UNIT 2**

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify ECCS piping is full of water.	31 days
SR 3.5.2.5	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.6	Deleted	
SR 3.5.2.7	Verify each ECCS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.5.2.8	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months
SR 3.5.2.9	Verify each LPSI pump stops on an actual or simulated actuation signal.	24 months

(continued)

**ATTACHMENT F**

**SAN ONOFRE NUCLEAR GENERATING STATION  
PCN-537**

**RETYPE TECHNICAL SPECIFICATION PAGE, UNIT 3**

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.4	Verify ECCS piping is full of water.	31 days
SR 3.5.2.5	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.6	Deleted	
SR 3.5.2.7	Verify each ECCS automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.5.2.8	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months
SR 3.5.2.9	Verify each LPSI pump stops on an actual or simulated actuation signal.	24 months

(continued)