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SUBJECT: Application for amend to Licenses NPF-10 & NPF-15,consisting of Proposed Changes NPF-15-163,revising borated water source requirements & NPF-10/15-184,revising shutdown margin special test exception.Fee paid.

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May 9, 1985

Director, Office of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, 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

Enclosed for your review and approval are two proposed changes to the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 Technical Specifications. Proposed Change NPF-15-163 (PCN-163) revises borated water source requirements to reflect cycle 2 operation of SONGS Unit 3. Proposed Change NPF-10/15-184 (PCN-184) revises the shutdown margin special test exception to facilitate low power physics testing.

Proposed Change NPF-15-163 is identical to its Unit 2 counterpart, NPF-10-163, which was submitted to the NRC by letters dated August 21, 1984 and October 1, 1984 and approved in Amendment No. 28 to Facility Operating License NPF-10 dated December 19, 1984. Approval of PCN-163 for Unit 3 is required prior to reload of fuel during the upcoming Unit 3 refueling outage. The outage is currently anticipated to begin August 1, 1985, with loading of new fuel to commence on approximately August 25, 1985. Approval of PCN-163 is requested prior to loading of new fuel.

Proposed Change NPF-10/15-184 revises surveillance requirements associated with the shutdown margin special test exception to allow 7 days instead of 24 hours following verification of CEA trippability during which shutdown margin may be reduced to accommodate physics testing. This increase in the allowed interval will eliminate an unnecessary trip during physics testing thereby reducing challenges to the plant and the time required to complete low power testing prior to the return of the unit to service following refueling. Approval of the proposed change is requested to support Unit 3 startup testing following first refueling which is currently anticipated to begin approximately November 1, 1985.

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In accordance 10 CFR 170.12, enclosed is the required amendment application fee of $150.00. A formal request for these changes will be included in our next formal amendment application.

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

Very truly yours,

M O Medford

Enclosures

cc: Joseph O. Ward, California Department of Health Services
Harry Rood, NRC (To be opened by addressee only)
F. R. Huey, USNRC Senior Resident Inspector, Units 1, 2 and 3

DESCRIPTION OF PROPOSED CHANGE NPF-15-163 AND SAFETY ANALYSIS

This is a request to revise Sections 3.1.2.7 Borated Water Source-Shutdown, 3.1.2.8 Borated Water Sources - Operating, and Bases 3/4.1.2 Boration Systems of the Technical Specifications for San Onofre Nuclear Generating Station Unit 3.

Description

The proposed change revises Technical Specifications 3.1.2.7 Borated Water Source - Shutdown, 3.1.2.8 Borated Water Source - Operating and Bases 3/4.1.2 Boration Systems. Technical Specifications 3.1.2.7 and 3.1.2.8 require borated water source operability and specify volume, temperature and boron concentration requirements which ensure that sufficient negative reactivity control is available during each mode of facility operation. Sections 3.1.2.7 and 3.1.2.8 specify the minimum boric acid makeup tank (BAMUT) volume and temperature required as a function of boric acid concentration. The proposed change decreases the BAMUT volume, increases BAMUT concentration and increases the minimum refueling water storage tank (RWST) volume specified by Section 3.1.2.7, while maintaining reactivity control consistent with the revised safety analysis associated with plant refueling and Cycle 2 operation.

The BAMUT and RWST are part of the boron injection system which insures that negative reactivity control is available during each mode of facility operation. This system is required to satisfy 10 CFR Part 50, Appendix A, General Design Criterion 26, "Reactivity Control System Redundancy and Capability." Criterion 26 states that a nuclear power plant should contain two independent reactivity control systems, one of which is capable of holding the reactor core subcritical under shutdown conditions. The BAMUT and RWST are required to provide Reactor Coolant System (RCS) shutdown boration and makeup capability. Procedurally, boric acid from the BAMUT is charged into the RCS before cooldown begins in order to meet shutdown margin requirements at the end of the cooldown. Additional borated water from the BAMUT and RWST is charged into the RCS during the cooldown as required to maintain pressurizer level.

Core performance analyses of the Cycle 2 reactor fuel management design show that the boron concentration required to 1) maintain the required SHUTDOWN MARGIN after xenon decay and cooldown to 200°F and 2) satisfy Criterion 26 has increased due to the differences in core design and core performance characteristics from Cycle 1. As a consequence, the minimum borated water volume in the BAMUT (shown in Figure 3.1-1) and RWST must be revised for Cycle 2 operation in order to meet the Limiting Conditions for Operation on Shutdown Margin. The Modes 1 through 4 BAMUT volume requirement has been decreased in order to facilitate plant operation while providing the required Shutdown Margin. The minimum boric acid concentration in the BAMUT for

Modes 1 through 4 is set by the cold shutdown RCS boron concentration requirement (which is greater for the more reactive Cycle 2 core) and the pressurizer volume available for the pre-cooldown boration with letdown isolated (which is unchanged from Cycle 1). The minimum boric acid volume required in the BAMUT by Technical Specification 3.1.2.8 for Cycle 1, included both the initial boration volume and a portion of the cooldown makeup volume. For Cycle 2 operation, the cooldown makeup volume will be contained in the RWST; and the minimum boric acid volume required in the BAMUT will include the initial boration volume required to establish the Mode 5 Shutdown Margin. The combined effect of the increased boric acid concentration required for Cycle 2 operation and decrease in excessively conservative volume requirement, is a net decrease in the volume specified for operation in Modes 1 through 4, in Figure 3.1-1.

Sections 3.1.2.8 and B3/4.1.2 have been revised to specify the BAMUT volume/concentration and the RWST volume required for negative reactivity control consistent with the requirements of Cycle 2 operation. The minimum RWST volume for boration specified in Bases Section 3/4.1.2, is set by boration and makeup requirements with letdown available and BAMUT's unavailable. This volume (which has increased from 53,500 gallons for Cycle 1 to 81,970 gallons for Cycle 2, in Modes 1 through 4) exceeds that required for RCS cooldown makeup alone and remains bounded by the Safety Injection requirements of Technical Specification 3/4.5.4. The BAMUT volume/concentration required by Technical Specification 3.1.2.7 for operation in Modes 5 and 6, as shown in Figure 3.1-1, has increased for Cycle 2 in order to meet the increased Cycle 2 shutdown margin requirements. Accordingly, the minimum RWST volume for boration in Modes 5 and 6 with letdown available and BAMUT's unavailable has increased from 5465 gallons for Cycle 1 to 9970 gallons for Cycle 2.

The maximum allowed boric acid concentration specified in figure 3.1-1 remains unchanged for Cycle 2. Therefore, the boron mixing demonstrated during the preoperational natural circulation test remains valid.

Existing Technical Specifications

See Attachment A.

Proposed Technical Specifications

See Attachment B.

Safety Analysis

The proposed change discussed above shall be deemed to constitute a significant hazards consideration if there is a positive finding in any of the following areas.

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

The proposed change is designed to maintain the same or greater shutdown margins in the facility, thus avoiding any increase in the probability or consequences of an accident previously evaluated.

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

   Response: No

   The proposed change ensures that sufficient negative reactivity control is available during each mode of facility operation, and maintains the same or greater shutdown margins as in Cycle 1. The proposed change does not result in a condition which could lead to a new or different kind of accident.

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

   Response: No

   The specific purpose of the proposed change is to maintain the same margin of safety with respect to the design criteria during Cycle 2 operation as in Cycle 1.

The Commission has provided guidance concerning the application of standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 14870) of amendments that are considered not likely to involve significant hazards considerations. Example (iii) relates to a change resulting from a nuclear reactor core reloading where 1) no fuel assemblies are significantly different from those previously found acceptable to the NRC for the subject facility, 2) no significant changes are made to the acceptance criteria for the technical specifications, 3) the analytical methods used to demonstrate conformance with the technical specifications and regulations are not significantly changed, and 4) the NRC has previously found such methods acceptable. The proposed change is representative of Example (iii) in that it results from a nuclear reactor core reloading where, in particular, no significant changes have been made to the boration source technical specification acceptance criteria or the analytical methodology employed in the determination of the proposed criteria.

Safety and Significant Hazards Determination

Based on the above discussion, the proposed change does not involve a significant hazards consideration in that it does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (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. In addition, it is concluded that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (2) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

Attachment A

Existing Technical Specifications

BORATED WATER SOURCE - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.7 As a minimum, one of the following borated water sources shall be OPERABLE:

a. One boric acid makeup tank and at least one associated heat tracing circuit with the tank contents in accordance with Figure 3.1-1.

b. The refueling water storage tanks with:

   1. A minimum borated water volume of 5465 gallons above the ECCS suction connection,

   2. A minimum boron concentration of 1720 ppm, and

   3. A solution temperature between 40°F and 100°F.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no borated water sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.1.2.7 The above required borated water source shall be demonstrated OPERABLE:

a. At least once per 7 days by:

   1. Verifying the boron concentration of the water,

   2. Verifying the contained borated water volume of the tank, and

   3. Verifying the boric acid makeup tank solution temperature when it is the source of borated water.

b. At least once per 24 hours by verifying the RWST temperature when it is the source of borated water when the outside air temperature is less than 40°F or greater than 100°F.

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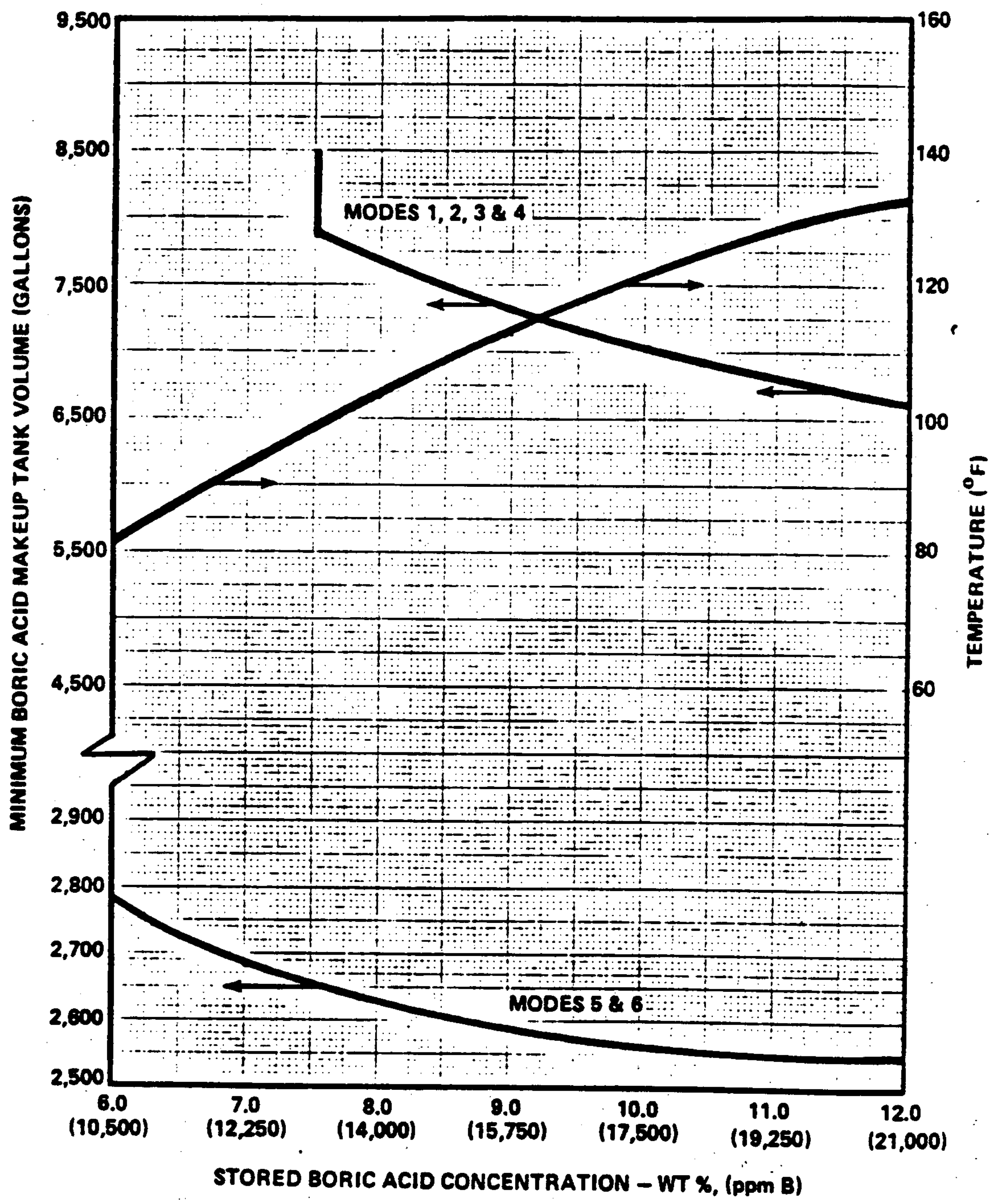

Figure 3.1-1

MINIMUM BORIC ACID STORAGE TANK VOLUME AND TEMPERATURE AS A FUNCTION OF STORED BORIC ACID CONCENTRATION

BORATED WATER SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.8 Each of the following borated water sources shall be OPERABLE:

a. At least one boric acid makeup tank and at least one associated heat tracing circuit with the contents of the tanks in accordance with Figure 3.1-1, and

b. The refueling water storage tank with:

1. A minimum contained borated water volume of 362,800 gallons above the ECCS suction connection,

2. Between 1720 and 2300 ppm of boron, and

3. A solution temperature between 40°F and 100°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With the above required boric acid makeup tank inoperable, restore the tank to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to at least 2% delta k/k at 200°F; restore the above required boric acid makeup tank to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the refueling water tank inoperable, restore the tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.8 Each borated water source shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the boron concentration in the water,

2. Verifying the contained borated water volume of the water source, and

3. Verifying the boric acid makeup tank solution temperature.

b. At least once per 24 hours by verifying the RWST temperature when the outside air temperature is less than 40°F or greater than 100°F.

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3/4.1.1.4 MINIMUM TEMPERATURE FOR CRITICALITY

This specification ensures that the reactor will not be made critical with the Reactor Coolant System average temperature less than 520°F. This limitation is required to ensure (1) the moderator temperature coefficient is within its analyzed temperature range, (2) the protective instrumentation is within its normal operating range, (3) the pressurizer is capable of being in an OPERABLE status with a steam bubble, and (4) the reactor pressure vessel is above its minimum RT_{NDT} temperature.

3/4.1.2 BORATION SYSTEMS

The boron injection system ensures that negative reactivity control is available during each mode of facility operation. The components required to perform this function include (1) borated water sources, (2) charging pumps, (3) separate flow paths, (4) boric acid makeup pumps, (5) associated heat tracing systems, and (6) an emergency power supply from OPERABLE diesel generators.

With the RCS average temperature above 200°F, a minimum of two separate and redundant boron injection systems are provided to ensure single functional capability in the event an assumed failure renders one of the systems inoperable. Allowable out-of-service periods ensure that minor component repair or corrective action may be completed without undue risk to overall facility safety from injection system failures during the repair period.

The boration capability of either system is sufficient to provide a SHUTDOWN MARGIN from expected operating conditions of 2.0% delta k/k after xenon decay and cooldown to 200°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions and requires boric acid solution from the boric acid makeup tanks in the allowable concentrations and volumes of Specification 3.1.2.8 or 53,500 gallons of 1720 ppm borated water from the refueling water tank. However, for the purpose of consistency the minimum required volume of 362,800 gallons above ECCS suction connection in Specification 3.1.2.8 is identical to the more restrictive value of Specification 3.5.4.

With the RCS temperature below 200°F one injection system is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single injection system becomes inoperable.

The boron capability required below 200°F is based upon providing a 2% delta k/k SHUTDOWN MARGIN after xenon decay and cooldown from 200°F to 140°F. This condition requires either 5465 gallons of 1720 ppm borated water from the refueling water tank or boric acid solution from the boric acid makeup tanks in accordance with the requirements of Specification 3.1.2.7.

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Attachment B

Proposed Technical Specifications