UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NORTHEAST NUCLEAR ENERGY COMPANY

THE CONNECTICUT LIGHT AND POWER COMPANY

THE WESTERN MASSACHUSETTS ELECTRIC COMPANY

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 220
License No. DPR-65

1. The Nuclear Regulatory Commission (the Commission) has found that:

A. The application for amendment by Northeast Nuclear Energy Company, et al (the licensee) dated August 23, 1995, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-65 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 220, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance, to be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

William M. Dean, Director
Millstone Project Directorate
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 3, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 220

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Replace the following pages of the Appendix A, Technical Specifications, with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

Remove	Insert
3/4 5-1	3/4 5-1
3/4 5-2	3/4 5-2
B 3/4 5-1	B 3/4 5-1
B 3/4 5-2	B 3/4 5-2
B 3/4 5-2a	B 3/4 5-2a*
B 3/4 5-2b	B 3/4 5-2b*

* overflow page - no change

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

SAFETY INJECTION TANKS (SITs)

LIMITING CONDITION FOR OPERATION

3.5.1 Each reactor coolant system SIT shall be OPERABLE with:

a. The isolation valve open and the power to the valve operator removed,

b. Between 1080 and 1190 cubic feet of borated water,

c. A minimum boron concentration of 1720 PPM, and

d. A nitrogen cover-pressure of between 200 and 250 psig.

APPLICABILITY: MODES 1, 2 and 3*.

ACTION:

a. With one SIT inoperable due to boron concentration not within limits, restore boron concentration to within limits within 72 hours.

b. With one SIT inoperable due solely to inability to verify level or pressure, restore SIT to OPERABLE status within 72 hours.

c. With one SIT inoperable, except as a result of boron concentration not within limits or inoperable level or pressure instrumentation, restore SIT to OPERABLE status within 24 hours.

d. With required ACTION a. or b. or c. and associated Completion Time not met:

1. Be in MODE 3 within 6 hours, and

2. Reduce pressurizer pressure to < 1750 psia within 12 hours.

e. With two or more SITs inoperable, immediately enter LCO 3.0.3.

*With pressurizer pressure $\geq$ 1750 psia.

SURVEILLANCE REQUIREMENTS

4.5.1 Each SIT shall be demonstrated OPERABLE:

a. Verify each SIT isolation valve is fully open at least once per 12 hours.(1)

b. Verify borated water volume in each SIT is ≥ 1080 cubic feet and ≤ 1190 cubic feet at least once per 12 hours.(2)

c. Verify nitrogen cover-pressure in each SIT is ≥ 200 psig and ≤ 250 psig at least once per 12 hours.(3)

d. Verify boron concentration in each SIT is ≥ 1720 ppm at least once per 31 days, and once within 6 hours after each solution volume increase of ≥ 1% of tank volume(4) that is not the result of addition from the refueling water storage tank.

e. Verify that the closing coil in the valve breaker cubicle is removed at least once per 31 days.

f. Verify that the SIT isolation valves open automatically before the Reactor Coolant System pressure exceeds 1750 psia and on a safety injection signal at least once per 18 months.

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(1) If one SIT is inoperable, except as a result of boron concentration not within limits or inoperable level or pressure instrumentation, surveillance is not applicable to the affected SIT.

(2) If one SIT is inoperable due solely to inoperable water level instrumentation, surveillance is not applicable to the affected SIT.

(3) If one SIT is inoperable due solely to inoperable pressure instrumentation, surveillance is not applicable to affected SIT.

(4) Only required to be performed for affected SIT.

3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the RCS SITs ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the SITs. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on SIT volume, boron concentration and pressure ensure that the assumptions used for SIT injection in the accident analysis are met.

If the boron concentration of one SIT is not within limits, it must be returned to within the limits within 72 hours. In this condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced, but the reduced concentration effects on core subcriticality during reflood are minor. Boiling of the ECCS water in the core during reflood concentrates the boron in the saturated liquid that remains in the core. In addition, the volume of the SIT is still available for injection. Since the boron requirements are based on the average boron concentration of the total volume of three SITs, the consequences are less severe than they would be if a SIT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

If one SIT is inoperable, for a reason other than boron concentration or the inoperability of water level or pressure channel instrumentation, the SIT must be returned to OPERABLE status within 24 hours. In this condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in Appendix K to 10CFR50.

Reference 1 provides a series of deterministic and probabilistic analysis findings that support 24 hours as being either "risk beneficial" or "risk neutral" in comparison to shorter periods for restoring the SIT to OPERABLE status. Reference 1 discusses recent best-estimate analysis that confirmed that for large-break LOCAs, core melt can be prevented by either operation of one LPSI pump or the operation of one HPSI pump and a single SIT. Reference 1 also discusses plant-specific probabilistic analysis that evaluated the risk-impact of the 24 hour recovery period in comparison to shorter recovery periods.

If the SIT cannot be restored to OPERABLE status within the associated completion time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3

Reference

1 CE NPSD-994, "CEOG Joint Applications Report on Safety Injection Tank AOT/SIT Extension," April 1995.

3/4.5.1 SAFETY INJECTION TANKS (continued)

within 6 hours and pressurizer pressure reduced to < 1750 psia within 12 hours. The allowed completion times are reasonable, based on operating experience, to reach the required plant condition from full power conditions in an orderly manner and without challenging plant systems.

If more than one SIT is inoperable, the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate and independent ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the safety injection tanks is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double ended break of the largest RCS cold leg pipe downward.

The ECCS leak rate surveillance requirements assure that the leakage rates assumed for the system outside containment during the recirculation phase will not be exceeded.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensures that at a minimum, the assumptions used in the accident analyses are met and that subsystem OPERABILITY is maintained. The purpose of the HPSI and LPSI pumps differential pressure test on recirculation ensures that the pump(s) have not degraded to a point where the accident analysis would be adversely impacted. The actual inputs into the safety analysis for HPSI and LPSI pumps differential pressure (discharge-suction) when running on recirculation are 1209 and 150 psi, respectively. The acceptance criteria in the Technical Specifications were adjusted upward to account for instrument uncertainties and drift.

The purpose of the ECCS throttle valve surveillance requirements is to provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

Verification of the correct position for the mechanical and/or electrical valve stops can be performed by either of the following methods:

1. Visuallly verify the valve opens to the designated throttled position; or

2. Manually position the valve to the designated throttled position and verify that the valve does not move when the applicable valve control switch is placed to "OPEN."

In MODE 4 the automatic safety injection signal generated by low pressurizer pressure and high containment pressure and the automatic sump recirculation actuation signal generation by low refueling water storage tank level are not required to be OPERABLE. Automatic actuation in MODE 4 is not required because adequate time is available for plant operators to evaluate plant conditions and respond by manually operating engineered safety features components. Since the manual actuation (trip pushbuttons) portion of the safety injection and sump recirculation actuation signal generation is required to be OPERABLE in MODE 4, the plant operators can use the manual trip pushbuttons to rapidly position all components to the required accident position. Therefore, the safety injection and sump recirculation actuation trip pushbuttons satisfy the requirement for generation of safety injection and sump recirculation actuation signals in MODE 4.

Only one HPSI pump may be OPERABLE in MODE 4 with RCS temperatures less than or equal to 275°F due to the restricted relief capacity with Low-Temperature Overpressure Protection System. To reduce shutdown risk by having additional pumping capacity readily available, a HPSI pump may be made inoperable but available at short notice by shutting its discharge valve with the key lock on the control panel.

The provision in Specification 3.5.3 that Specifications 3.0.4 and 4.0.4 are not applicable for entry into MODE 4 is provided to allow for connecting the HPSI pump breaker to the respective power supply or to remove the tag and open the discharge valve, and perform the subsequent testing necessary to declare the inoperable HPSI pump OPERABLE. Specification 3.4.9.3 requires all HPSI pumps to be not capable of injecting into the RCS when RCS temperature is at or below 190°F. Once RCS temperature is above 190°F one HPSI pump can be capable of injecting into the RCS. However, sufficient time may not be available to ensure one HPSI pump is OPERABLE prior to entering MODE 4 as required by Specification 3.5.3. Since Specifications 3.0.4 and 4.0.4

prohibit a MODE change in this situation, this exemption will allow Millstone Unit No. 2 to enter MODE 4, take the steps necessary to make the HPSI pump capable of injecting into the RCS, and then declare the pump OPERABLE. If it is necessary to use this exemption during plant heatup, the appropriate action statement of Specification 3.5.3 should be entered as soon as MODE 4 is reached.

3/4.5.4 REFUELING WATER STORAGE TANK (RWST)

The OPERABILITY of the RWST as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWST minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) after a LOCA the reactor will remain subcritical in the cold condition following mixing of the RWST and the RCS water volumes. Small break LOCAs assume that all control rods are inserted, except for the control element assembly (CEA) of highest worth, which remains withdrawn from the core. Large break LOCAs assume that all CEAs remain withdrawn from the core.

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