

SEP 29 1976

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Docket No. 50-336

Northeast Nuclear Energy Company  
ATTN: Mr. D. C. Switzer, President  
P. O. Box 270  
Hartford, Connecticut 06101

Gentlemen:

The Commission has issued the enclosed Amendment No. 18 to Facility Operating License No. DPR-65 for the Millstone Nuclear Power Station, Unit No. 2. The amendment consists of changes to the Technical Specifications in response to your application dated May 17, 1976.

The amendment will change the Technical Specifications for the Reactor Coolant Flow-Low reactor trip and the axial shape index operating limits.

Copies of the Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

Original signed by  
George Lear, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Enclosures:

1. Amendment No. 18
2. Safety Evaluation
3. Federal Register Notice

cc w/encls:

See next page

OFFICE ➤	ORB. #3	ORB. #3	OELD	ORB. #3	DOR	DOR
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DATE ➤	9/9/76	9/9/76	9/12/76	9/12/76	9/9/76	9/12/76

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

THE CONNECTICUT LIGHT AND POWER COMPANY  
THE HARTFORD ELECTRIC LIGHT COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY, AND  
NORTHEAST NUCLEAR ENERGY COMPANY

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

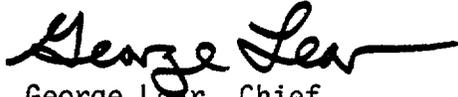
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 18  
License No. DPR-65

- I. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by The Connecticut Light and Power Company, The Hartford Electric Light Company, Western Massachusetts Electric Company, and Northeast Nuclear Energy Company (the licensees), dated May 17, 1976, 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 a change to the Technical Specifications as indicated in the attachment to this license amendment.
3. The license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



George Lear, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Attachment:  
Changes to the  
Technical Specifications

Date of Issuance: September 29, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 18

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Pages

2-4

3/4 2-14

## SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

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### 2.2 LIMITING SAFETY SYSTEM SETTINGS

#### REACTOR TRIP SETPOINTS

2.2.1 The reactor protective instrumentation setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2-1.

APPLICABILITY: AS SHOWN FOR EACH CHANNEL IN TABLE 3.3-1.

#### ACTION:

With a reactor protective instrumentation setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Manual Reactor Trip	Not applicable	Not Applicable
2. Power Level - High Four Reactor Coolant Pumps Operating	$\leq$ 9.88% above THERMAL POWER, with a minimum setpoint of 15% of RATED THERMAL POWER, and a maximum of $\leq$ 107% of RATED THERMAL POWER.	$\leq$ 9.88% above THERMAL POWER and a minimum setpoint of 15% of RATED THERMAL POWER, and a maximum of $\leq$ 107% of RATED THERMAL POWER.
3. Reactor Coolant Flow - Low (1) Four Reactor Coolant Pumps Operating	$>$ 91.7% of design reactor coolant flow with 4 pumps operating*	$>$ 91.7% of design reactor coolant flow with 4 pumps operating*
4. Pressurizer Pressure - High	$\leq$ 2400 psia	$\leq$ 2400 psia
5. Containment Pressure - High	$\leq$ 4.75 psig	$\leq$ 4.75 psig
6. Steam Generator Pressure - Low (2)(5)	$\geq$ 500 psia	$\geq$ 500 psia
7. Steam Generator Water Level- Low (5)	$\geq$ 36.0% Water Level - each steam generator	$\geq$ 36.0% Water Level - each steam generator
8. Local Power Density - High (3)	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-1 and 2.2-2.	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-1 and 2.2-2.
9. Thermal Margin/Low Pressure (1) Four Reactor Coolant Pumps Operating	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-3 and 2.2-4.	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-3 and 2.2-4.

\*Design reactor coolant flow with 4 pumps operating is 370,000 gpm.

TABLE 3.2-1

DNB MARGIN

<u>Parameter</u>	<u>LIMITS</u> Four Reactor Coolant Pumps Operating
Cold Leg Temperature	$\leq 544^{\circ}\text{F}$
Pressurizer Pressure	$\geq 2225 \text{ psia}^*$
Reactor Coolant Flow Rate	$\geq 370,000 \text{ gpm}$
AXIAL SHAPE INDEX	Figure 3.2-4

\*Limit not applicable during either a THERMAL POWER ramp increase in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step increase of greater than 10% of RATED THERMAL POWER.

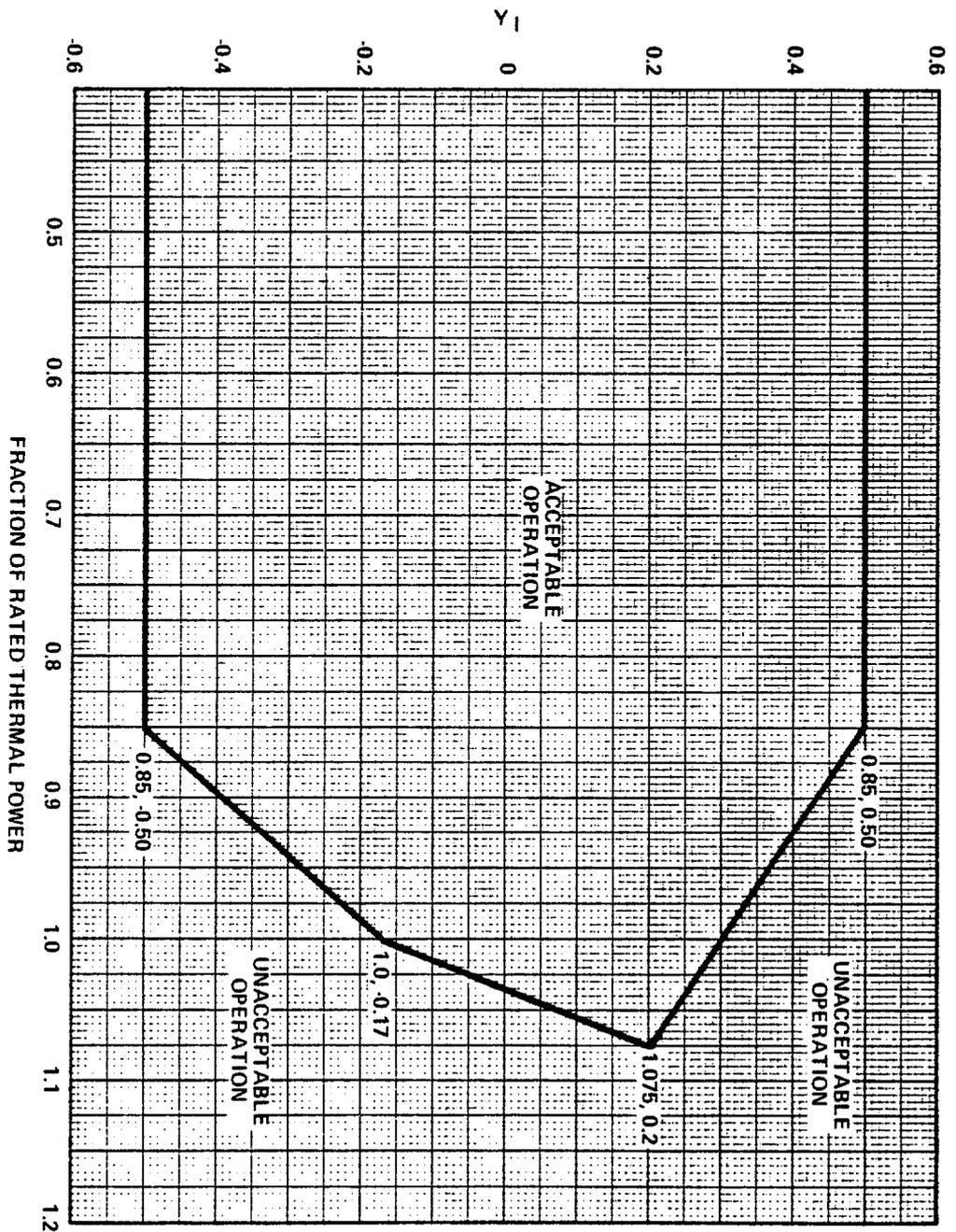


FIGURE 3.2.4  
AXIAL SHAPE INDEX Operating Limits with 4 Reactor Coolant  
Pumps Operating



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 18 TO FACILITY OPERATING LICENSE NO. DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY  
MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

DOCKET NO. 50-336

Introduction

On May 17, 1976, Northeast Nuclear Energy Company (NNECO) requested a change to the Technical Specifications for Millstone Unit No. 2. The amendment will change the Technical Specifications in response to the licensee's application dated May 17, 1976 to decrease the reactor coolant low-flow trip set point of the reactor protective system from  $\geq 95\%$  to  $\geq 91.7\%$  and to make the Axial Shape Index operating limits more restrictive. The decrease in the low-flow trip set point will be partially offset by operating within the more restrictive Axial Shape Index. The remainder of the decrease will be offset by allowing the DNBR for the loss of flow transient to decrease from a minimum of 1.34 to a minimum of 1.30 and by allowing the percent of the core experiencing a DNBR less than 1.30 for the seized rotor accident to increase from 0.42% to about 0.5%.

In the course of reviewing NNECO's proposed changes, we found it necessary to modify the proposed Technical Specifications. These modifications were made with the concurrence of NNECO.

Discussion

The Reactor Coolant Flow-Low trip setpoint of the RPS is intended to protect the fuel from incidents which produce limiting values for the Departure from Nucleate Boiling Ratio (DNBR) as a result of a decrease in reactor coolant flow. In the May 17, 1976 submittal, NNECO considered four such incidents as follows: (1) loss of power to one pump, (2) loss of one 6900-volt bus (loss of power to two pumps), (3) simultaneous loss of power to all four pumps, and (4) a seized rotor in one pump. Since incident (3) represents the limiting electrical failure and incident (4) represents the limiting mechanical failure incidents (3) and (4) were reanalyzed.

Lowering the reactor trip setpoint for Reactor Coolant Flow-Low from  $\geq 95\%$  to  $\geq 91.7\%$  of reactor coolant flow would yield a significant reduction in DNBR as a result of an electrical or a mechanical reactor coolant pump failure. Consequently, to compensate for this potential reduction in DNBR, NNECO also proposed to operate within a more restrictive Axial Shape Index. By adopting the more restrictive Axial Shape Index, the enthalpy in the coolant channel within the core that produces the highest relative enthalpy rise (limiting  $F_{\Delta h}$ ) is lowered. This lowering of local enthalpy rise in the

hot channel results in a minimum DNBR which is higher at the beginning of an incident than would be the case with a less restrictive Axial Shape Index.

### Evaluation

Our evaluation of NNECO's reanalysis of the "four pump loss of flow" resulting from electrical power failure and the "seized rotor in one pump" incidents is contained in the following sections.

#### Four Pump Loss Of Flow

The loss of flow transient analyzed in the Final Safety Analysis Report (FSAR) assumed a low flow trip at 95% reactor core flow less an uncertainty of 2%. With the less restrictive Axial Shape Index curve used in the FSAR, the loss of flow transient resulted in a minimum DNBR of 1.34 occurring approximately 1 second after the reactor trip.

The analysis performed for the proposed change used a low flow trip of 91.7% of reactor core flow less an uncertainty of 2.7%. With the more restrictive Axial Shape Index curve, the resulting minimum DNBR is 1.30 occurring 3.2 seconds after the reactor trip.

#### Seized Rotor In One Pump

With the FSAR assumptions, the seized rotor accident results in a minimum DNBR of 1.21 with 0.42% of the core experiencing a DNBR less than 1.30. Using the proposed changes, the minimum DNBR is also 1.21, but with less than 0.5% of the core experiencing a DNBR less than 1.30.

As can be seen from our evaluation, the revised "four pump loss of flow" incident indicates a small reduction in the DNBR safety margin compared to the FSAR analysis. In this regard, a DNBR of 1.30 represents a design limit for the fuel. In addition, the consequences of the "seized rotor in one pump" incident are slightly more severe than analyzed in the FSAR in that more fuel in the core has experienced a DNBR of less than 1.30.

However, neither the stated reduction in safety margin nor the increase in the consequences of the accidents analyzed are significant. Accordingly, we find the proposed changes to Technical Specifications 2.2.1 and 3.2.5 to be acceptable.

#### Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in

any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4), that an environmental statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

#### Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: September 29, 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-336

NORTHEAST NUCLEAR ENERGY COMPANY  
THE CONNECTICUT LIGHT AND POWER COMPANY,  
THE HARTFORD ELECTRIC LIGHT COMPANY, AND  
WESTERN MASSACHUSETTS ELECTRIC COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 18 to Facility Operating License No. DPR-65 issued to Northeast Nuclear Energy Company, The Connecticut Light and Power Company, The Hartford Electric Light Company, and Western Massachusetts Electric Company, which revised Technical Specifications for operation of the Millstone Nuclear Power Station, Unit No. 2, located in the Town of Waterford, Connecticut. The amendment is effective as of the date of issuance.

The amendment will change the Technical Specifications in response to the licensees' application dated May 17, 1976 to decrease the reactor coolant low-flow trip set point of the reactor protective system from  $\geq 95\%$  to  $\geq 91.7\%$  and to make the Axial Shape Index operating limits more restrictive. The decrease in the low-flow trip set point will be partially offset by operating within the more restrictive Axial Shape Index. The remainder of the decrease will be offset by allowing the DNBR for the loss of flow transient to decrease from a minimum of 1.34 to a minimum of 1.30 and by allowing the percent of the core experiencing a DNBR less than 1.30 for the seized rotor accident to increase from 0.42% to about 0.5%.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

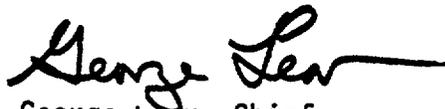
The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated May 17, 1976, (2) Amendment No. 18 to License No. DPR-65, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Waterford Public Library, Rope Ferry Road, Waterford, Connecticut 06385.

A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 29th day of September 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



George Lear, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors