

December 26, 1989

Docket No. 50-423

Mr. Edward J. Mrocza
Senior Vice President
Nuclear Engineering and Operations
Connecticut Yankee Atomic Power Company
Northeast Nuclear Energy Company
Post Office Box 270
Hartford, Connecticut 06141-0270

Dear Mr. Mrocza:

SUBJECT: MILLSTONE UNIT 3 - ISSUANCE OF AMENDMENT (TAC NO. 74212)

The Commission has issued the enclosed Amendment No. 43 to Facility Operating License No. NPF-49 for Millstone Nuclear Power Station, Unit No. 3, in response to your application dated August 1, 1989.

The amendment provides revised Technical Specifications to decrease the reactor trip set point and allowable value for the reactor coolant pump (RCP) low shaft speed (underspeed trip set point) from 97.8 to 95.8 percent of rated speed and from 94.6 to 92.5 percent rated speed, respectively.

A copy of the related Safety Evaluation is enclosed. Also enclosed is a copy of the Notice of Issuance which has been sent to the Office of the Federal Register for publication.

Sincerely,

/s/

David H. Jaffe, Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.43 to NPF-49
2. Safety Evaluation
3. Notice

cc: w/enclosures
See next page

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|------|-----------|-----------|-----------|----------|------------|-----------|
| OFC | :LA:PDI-4 | :PM:PDI-4 | :PD:PDI-4 | :OGC | :ICSB | :RSB |
| NAME | :SNorris | :DJaffe | :JStolz | :Stark | :SNewberry | :RJones |
| DATE | :11/20/89 | :11/21/89 | :12/1/89 | :12/7/89 | :11/29/89 | :11/24/89 |

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

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See next page

DATED: December 26, 1989

AMENDMENT NO. 43 TO FACILITY OPERATING LICENSE NO. NPF-49

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

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

DOCKET NO. 50-423

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 43
License No. NPF-49

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 1, 1989 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.

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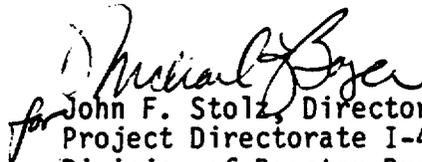
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 43, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


John F. Stolz, Director
Project Directorate I-4

Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 26, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 43.

FACILITY OPERATING LICENSE NO. NPF-49

DOCKET NO. 50-423

Replace the following page of the Appendix A Technical Specifications with the enclosed page. The revised page is identified by amendment number and contains a vertical line indicating the area of change. The corresponding overleaf page is provided to maintain document completeness.

Remove

2-6

Insert

2-6

REACTOR TRIP SYSTEM IDENTIFICATION TRIP SETPOINTS

| FUNCTIONAL UNIT | TOTAL ALLOWANCE (TA) | Z | SENSOR ERROR (S) | TRIP SETPOINT | ALLOWABLE VALUE |
|--|----------------------|-------|----------------------------|--|---|
| 1. Manual Reactor Trip | N.A. | N.A. | N.A. | N.A. | N.A. |
| 2. Power Range, Neutron Flux | | | | | |
| a. High Setpoint | | | | | |
| 1) Four Loops Operating | 7.5 | 4.56 | 0 | ≤ 109% of NTP | ≤ 111.1% of RT |
| 2) Three Loops Operating | 7.5 | 4.56 | 0 | ≤ 80% of NTP | ≤ 82.1% of RT |
| b. Low Setpoint | 0.3 | 4.56 | 0 | ≤ 25% of NTP | ≤ 27.1% of RT |
| 3. Power Range, Neutron Flux, High Positive Rate | 1.6 | 0.5 | 0 | ≤ 5% of NTP with a time constant ≥ 2 seconds | ≤ 6.3% of RT, a time constant ≥ 2 seconds |
| 4. Power Range, Neutron Flux, High Negative Rate | 1.6 | 0.5 | 0 | ≤ 5% of NTP with a time constant ≥ 2 seconds | ≤ 6.3% of RT, a time constant ≥ 2 seconds |
| 5. Intermediate Range, Neutron Flux | 17.0 | 0.01 | 0 | ≤ 25% of NTP | ≤ 30.9% of RT |
| 6. Source Range, Neutron Flux | 17.0 | 10.01 | 0 | ≤ 10 ⁻⁵ cps | ≤ 1.1 x 10 ⁻⁴ cpi |
| 7. Overtemperature Δ T | | | | | |
| a. Four Loops Operating | 0.3 | 5.76 | 1.67 + 1.17 (Temp + Press) | See Note 1 | See Note 2 |
| b. Three Loops Operating | 12.0 | 5.77 | 1.73 + 1.17 (Temp + Press) | See Note 1 | See Note 2 |
| c. Overpower Δ T | 4.0 | 1.22 | 1.67 | See Note 3 | See Note 4 |

^a Loop design flow = 94,600 gpm (Four Loops Operating); 99,600 (Three Loops Operating)
^b NTP = RATED THERMAL POWER

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

| <u>FUNCTIONAL UNIT</u> | <u>TOTAL ALLOWANCE (TA)</u> | <u>Z</u> | <u>SENSOR ERROR (S)</u> | <u>TRIP SETPOINT</u> | <u>ALLOWABLE VALUE</u> |
|---|-----------------------------|----------|-------------------------|--|--|
| 9. Pressurizer Pressure-Low | 5.0 | 1.77 | 3.3 | ≥ 1900 psia | ≥ 1890 psia |
| 10. Pressurizer Pressure-High | 5.0 | 1.77 | 3.3 | ≤ 2385 psia | ≤ 2395 psia |
| 11. Pressurizer Water Level-High | 8.0 | 5.13 | 2.7 | ≤ 89% of instrument span | ≤ 90.7% of instrument span |
| 12. Reactor Coolant Flow-Low | 2.5 | 1.52 | 0.78 | ≥ 90% of loop design flow* | ≥ 89.1% of loop design flow* |
| 13. Steam Generator Water Level Low-Low | 18.10 | 16.64 | 1.50 | ≥ 18.10% of narrow range instrument span | ≥ 17.11% of narrow range instrument span |
| 14. General Warning Alarm | N.A. | N.A. | N.A. | N.A. | N.A. |
| 15. Low Shaft Speed - Reactor Coolant Pumps | 3.8 | 0.5 | 0 | ≥ 95.8% of rated speed | ≥ 92.5% of rated speed |
| 16. Turbine Trip | | | | | |
| a. Low Fluid Oil Pressure | N.A. | N.A. | N.A. | ≥ 500 psig | ≥ 450 psig |
| b. Turbine Stop Valve Closure | N.A. | N.A. | N.A. | ≥ 1% open | ≥ 1% open |
| 17. Safety Injection Input from ESF | N.A. | N.A. | N.A. | N.A. | N.A. |

**RTP = RATED THERMAL POWER



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 43

TO FACILITY OPERATING LICENSE NO. NPF-49

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

INTRODUCTION

By an application dated August 1, 1989 Northeast Nuclear Energy Company (NNECO) requested changes to the Technical Specifications (TS) for Millstone Nuclear Power Station, Unit No. 3. The proposed amendment would provide revised Technical Specifications to decrease the reactor trip set point and allowable value for the reactor coolant pump (RCP) low shaft speed (underspeed trip set point) in TS Table 2.2-1 from 97.8 to 95.8 percent of rated speed and from 94.6 to 92.5 percent rated speed, respectively.

DISCUSSION AND EVALUATION

Electrical grid instabilities could cause significant changes in RCP speed in that grid frequency decay would cause a decrease in RCP pump shaft speed. The purpose of the licensee's proposed change to the TS is to lower the trip setpoint and allowable value plant trip on low RCP pump shaft speed to allow additional time to correct a grid underfrequency condition. A premature plant trip during a grid underfrequency transient would tend to further destabilize the electrical grid. Presently the Millstone Unit No. 3 underspeed setpoint is at 97.8 percent of rated speed or 1159 rpm which is equivalent to 58.7 hz. When instrument inaccuracy is considered, the RCP underspeed set point may drift as high as 59.1 hz. However, two channels must trip in order to trip the plant. Although the probability of two set point channels drifting high is very low, there is a possibility that Millstone Unit No. 3 may trip due to low grid frequency before the load shedding scheme has had a chance to operate and restore the load/generation imbalance. Therefore, NNECO requested Westinghouse to reanalyze the complete loss of forced reactor coolant flow accident to justify a reduction in the current RCP underspeed reactor trip safety analyses limit from 94 percent of rated speed to 92 percent. The safety analysis value of 92 percent was then used to generate the final trip set point of 95.8 percent with an allowable value of 92.5 percent.

Section 15.3.2 of the Millstone Unit 3 FSAR describes the analyses of the complete loss of forced reactor coolant flow. Under such conditions, reactor trip on RCP shaft underspeed is credited in order to "...trip the reactor for an underfrequency condition, resulting from frequency disturbances on the power grid." In the FSAR analysis, the DNBR was found to be greater than 1.30 and the radiological consequences were minimal.

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Westinghouse completed reanalysis of the complete loss of forced reactor coolant flow accident discussed in Section 15.3.2 of the Millstone Unit No. 3 FSAR. The complete loss of forced reactor coolant flow analysis is applicable in operational Modes 1, 2, 3 and the part of operational Modes 4 and 5 in which any of the RCPs are running. However, the analyses were done initiating the event from Mode 1 (102 percent RTP for four loop and 77 percent for three loop) which corresponds to technical specification operational Mode 1. The assumed RCP underspeed trip was chosen to be conservative when compared to the proposed TS "allowable value." These analyses of a complete loss of forced reactor coolant flow in operational Mode 1 bound operational Modes 2 and 3 as well as the part of operational Modes 4 and 5 in which any of the RCPs are running. For each case analyzed, the results show that the DNBR is maintained above the limit value and that 110 percent of the reactor coolant system (RCS) design pressure is not exceeded. However, in order to satisfy the DNBR acceptance criteria, 3.2 percent of generic DNBR margin was utilized. As with the FSAR analyses, the minimum DNBR is greater than, or equal to, 1.30 and the radiological consequences are minimal. Accordingly, the proposed change to TS Table 2.2-1, "Reactor Trip System Instrumentation Trip Setpoints," is acceptable.

ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact have been prepared and published in the Federal Register on October 31, 1989 (54 FR 45829). Accordingly, based upon the environmental assessment, we have determined that the issuance of these amendments will not have a significant effect on the quality of the human environment.

CONCLUSION

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

Principal Contributor: David H. Jaffe

Dated: December 26, 1989

UNITED STATES NUCLEAR REGULATORY COMMISSIONNORTHEAST NUCLEAR ENERGY COMPANYDOCKET NO. 50-423NOTICE OF OF ISSUANCE OF AMENDMENT TOFACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 43 to Facility Operating License No. NPF-49 issued to Northeast Nuclear Energy Company, et al (the licensee), which revised the Technical Specifications for operation of the Millstone Nuclear Power Station, Unit 3, located at the licensee's site in New London County, Connecticut. The amendment is effective as of the date of issuance.

The amendment provides revised Technical Specifications to decrease the reactor trip set point and allowable value for the reactor coolant pump (RCP) low shaft speed (underspeed trip set point) from 97.8 to 95.8 percent of rated speed and from 94.6 to 92.5 percent rated speed, respectively.

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.

Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on September 22, 1989 (54 FR 39068). No request for a hearing or petition for leave to intervene was filed following this notice.

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The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of this amendment will not have a significant effect on the quality of the human environment.

For further details with respect to the action see (1) the application for amendment dated August 1, 1989, (2) Amendment No. 4³ to License No. NPF-49, (3) the Commission's related Safety Evaluation, and (4) the Commission's Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street N.W., Washington, D.C. and at Waterford Public Library, 49 Rope Ferry Road, Waterford, Connecticut 06385.

A copy of items (2), (3) and (4) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Reactor Projects - I/II.

Dated at Rockville, Maryland, this 26th day of December 1989.

FOR THE NUCLEAR REGULATORY COMMISSION



David H. Jaffe, Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation