

February 9, 1995

Mr. John F. Opeka
Executive Vice President, Nuclear
Connecticut Yankee Atomic Power Company
Northeast Nuclear Energy Company
Post Office Box 270
Hartford, CT 06141-0270

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. M90240)

Dear Mr. Opeka:

The Commission has issued the enclosed Amendment No. 103 to Facility Operating License No. NPF-49 for the Millstone Nuclear Power Station, Unit No. 3, in response to your application dated August 16, 1994, as supplemented January 10, 1995.

The amendment revises Technical Specification 3.5.2.a. The one-time extension of the allowable Residual Heat Removal (RHR) pump outage time for mechanical seal replacement and related modifications is extended from 72 hours to 120 hours. This exception may only be used one time per pump and is not valid after April 30, 1995. The amendment clearly defines the times in which each RHR pump and associated RHR heat exchanger must be restored to an operable state.

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

Sincerely,

Original signed by:

Vernon L. Rooney, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures: 1. Amendment No. 103 to NPF-49
2. Safety Evaluation

cc w/encls: See next page

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NAME	SNorris	MGriggs:bf	VRooney	RJones	PMcKee	E Hollen
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NAME	SNorris	MGriggs:bf	VRooney	RJones	PMcKee	EHollon
DATE	01/27/95	02/08/95	01/27/95	01/27/95	01/30/95	02/2/95

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

February 9, 1995

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Connecticut Yankee Atomic Power Company
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Sincerely,

A handwritten signature in black ink, appearing to read "V. Rooney".

Vernon L. Rooney, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures: 1. Amendment No. 103 to NPF-49
2. Safety Evaluation

cc w/encls: See next page

Mr. John F. Opeka
Northeast Nuclear Energy Company

Millstone Nuclear Power Station
Unit 3

cc:

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

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

DOCKET NO. 50-423

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 103
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 16, 1994, as supplemented January 10, 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.

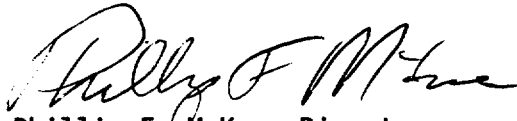
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 103, 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



Phillip F. McKee, 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: February 9, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 103

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 contain vertical lines indicating the areas of change.

Remove

3/4 5-3

Insert

3/4 5-3

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - T_{avg} GREATER THAN OR EQUAL TO 350°F

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent Emergency Core Cooling System (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE Safety Injection pump,
- c. One OPERABLE RHR heat exchanger,*
- d. One OPERABLE RHR pump,*
- e. One OPERABLE containment recirculation heat exchanger,
- f. One OPERABLE containment recirculation pump, and
- g. An OPERABLE flow path capable of taking suction from the refueling water storage tank on a Safety Injection signal and capable of automatically stopping the RHR pump and being manually realigned to transfer suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours* or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected Safety Injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

*The allowable outage time for each RHR pump/RHR heat exchanger may be extended to 120 hours for the purpose of pump modification to change mechanical seal and other related modifications. This exception may only be used one time per RHR pump/RHR heat exchanger and is not valid after April 30, 1995.



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 103

TO FACILITY OPERATING LICENSE NO. NPF-49

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

1.0 INTRODUCTION

By letter dated August 16, 1994, as supplemented January 10, 1995, the Northeast Nuclear Energy Company (the licensee), submitted a request for changes to the Millstone Nuclear Power Station, Unit No. 3 Technical Specifications (TS). The proposed changes would add a footnote to TS 3.5.2 that extends the outage time for each residual heat removal (RHR) pump and the associated RHR heat exchanger. This exception may only be used one time per pump and is not valid after April 30, 1995.

Nuclear industry experience has indicated that the mechanical seals on RHR pumps, similar to those on the Millstone Unit No. 3 RHR pumps, have a history of failing after approximately 5 to 7 years of operation. Therefore, the licensee plans to replace the RHR mechanical seals prior to the start of its next refueling outage which is scheduled to begin in April 1995.

The RHR pumps are a part of the RHR system whose primary function is to transfer heat from the reactor coolant system (RCS) to the Component Cooling Water System. During normal plant operations, the RHR system is used to remove decay heat from the reactor core and reduce the temperature of the reactor coolant to the cold shutdown temperature. This cooldown is referred to as the second phase of cooldown where the first phase of cooldown is accomplished by the Auxiliary Feedwater System and the steam generators. Once the plant is at cold shutdown the RHR system will maintain this temperature until the plant is started up again. Following a loss of coolant accident (LOCA), the RHR system serves as the low pressure injection portion of the Emergency Core Cooling System (ECCS). The RHR system also is used to transfer refueling water between the refueling water storage tank (RWST) and the refueling cavity before and after refueling operations. When the reactor is in Mode 1 (operating), each RHR pump is in a standby mode of operation until it is needed by the ECCS.

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The licensee plans to replace the mechanical seals on the RHR pumps while the plant is in Mode 1. A significant reduction in exposure to radiation can be achieved if the seal replacement is done while the reactor is in operation because the RHR pumps are used during shutdown. Subsequently, the exposure rate increases in the vicinity of the pumps during periods shortly after plant shutdown. In addition, one of the primary functions of the RHR system is heat removal during plant shutdown so it is desirable to have both trains available during that time. Therefore, it is proposed to make this seal replacement while the plant is in Mode 1. This will require a one time extension of the allowable outage time from 72 hours to 120 hours. The mechanical seal replacement will be made on one pump at a time.

2.0 EVALUATION

The replacement of the mechanical seals on the RHR pumps is a preventive maintenance activity. Performance of the seal replacement while at power will be made when the RHR system is not needed to perform its shutdown cooling function. This on line maintenance activity will also be performed under conditions that result in reduced exposure of personnel to radiation. The one time extension of the allowable outage time from 72 hours to 120 hours increases pump unavailability during operation. The licensee indicates that a net safety improvement results, however, because the increased allowable outage time permits the modifications to be performed while the plant is operating. This on-line maintenance activity reduces the pump unavailability during plant shutdown and the radiation exposure to workers.

The requested time of 120 hours is based on the licensee's estimate of the amount of time needed to perform the replacement (67 hours), assuming no failures, plus 25% to account for potential delays. Given the uncertainty associated with the actual task completion time, the proposed increase in the allowable outage time to 120 hours seems reasonable.

The ECCS consists of three separate subsystems: centrifugal charging, safety injection (SI), and RHR. Each subsystem consists of two redundant, 100% capacity trains. The ECCS accumulators and the RWST are also part of the ECCS, but are not considered part of an ECCS flow path as described by this limiting condition for operation (LCO) in TS 3.5.2. The ECCS flow paths consist of piping, valves, heat exchangers, and pumps such that water from the RWST can be injected into the RCS following a LOCA. Each of the three subsystems consists of two 100% capacity trains that are interconnected and redundant such that either train is capable of supplying 100% of the flow required to mitigate the accident consequences. This interconnecting and redundant subsystem design provides the reactor operators with the ability to utilize components from opposite trains to achieve the required 100% flow to the core.

In Mode 4 (hot shutdown), the required ECCS train consists of two separate subsystems: centrifugal charging and residual heat removal. Due to the stable conditions associated with operation in Mode 4 and the reduced probability of occurrence of a Design Basis Accident (DBA), the ECCS

operational requirements are reduced. It is understood in these reductions that certain automatic SI actuation is not available. In Mode 4, only one train of the two independent and redundant ECCS trains is required to be operable to ensure that sufficient ECCS flow is available to the core following a DBA. In this mode, sufficient time exists for manual actuation of the required ECCS to mitigate the consequences of a DBA.

During the time each train is made inoperable for the mechanical seal replacement, the redundant ECCS train will remain operable and be available to perform its safety function. The effects of having one RHR pump out of service for 120 hours instead of 72 hours was evaluated. The licensee examined the core melt frequency (CMF) increase when one RHR pump is unavailable. The licensee calculated the instantaneous CMF increase due to one RHR pump out of service at power to be $4E-08$ /year (based on the RHR pump being unavailable for an entire year). The proposed amendment would grant a one time extension of the allowed outage service time from 72 hours to 120 hours rather than for an entire year. The licensee indicates that even accounting for potential uncertainties, this is an insignificant increase. The change results in a small one time increase in CMF, which is not considered to be significant. The licensee also concluded that the increase in pump reliability and the decrease in radiation exposure during the mechanical seal replacement justify the performance of the seal replacement during Mode 1.

The safety function of the RHR system will continue to be provided by the redundant ECCS train. Licensee analyses indicates that the additional 48 consecutive hours over the current allowable outage time of 72 hours, for this one time, does not result in a significant increase in the CMF. In Mode 1, the RHR pumps are in standby; however, at least one RHR pump will remain operable when the plant is shut down. Therefore, performing the modifications in Mode 1 will allow both ECCS trains to be available for decay heat removal while the plant is shut down.

The staff finds the licensee's conclusions and proposed TS change, based on their analyses, to be reasonable. Therefore, we find this one-time extension of the TSs acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Connecticut State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 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 February 9, 1995 (60 FR 7800). Accordingly, based upon the

environmental assessment, the staff has determined that the issuance of the amendment will not have a significant effect on the quality of the human environment.

5.0 CONCLUSION

The Commission has 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, (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: M. Griggs

Date: February 9, 1995

UNITED STATES NUCLEAR REGULATORY COMMISSION
NORTHEAST NUCLEAR ENERGY COMPANY
DOCKET NO. 50-423
NOTICE OF ISSUANCE OF AMENDMENT TO
FACILITY OPERATING LICENSE

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. 103 to Facility Operating License No. NPF-49 issued to Northeast Nuclear Energy Company (the licensee), which revised the Technical Specifications (TS) for operation of the Millstone Nuclear Power Station, Unit No. 3 located in New London County, Connecticut. The amendment is effective as of the date of issuance.

The amendment modified TS 3.5.2.a to allow a one-time extension of the allowable Residual Heat Removal (RHR) pump outage time for the purpose of mechanical seal replacement and its related modifications. The allowable outage time is extended from 72 hours to 120 hours, may only be used one time per pump, and is not valid after April 30, 1995. The amendment clearly defines the times in which each RHR pump and associated RHR heat exchanger must be restored to an operable state.

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.

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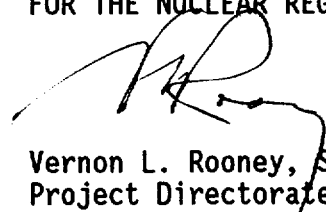
Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on October 14, 1994 (59 FR 52200). No request for a hearing or petition for leave to intervene was filed following this notice.

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 the amendment will not have a significant effect on the quality of the human environment (60 FR7800).

For further details with respect to the action see (1) the application for amendment dated August 16, 1994, and supplemented January 10, 1995, (2) Amendment No. 103 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 NW., Washington, DC, and at the local public document room located at the Learning Resource Center, Three Rivers Community-Technical College, Thames Valley Campus, 574 New London Turnpike, Norwich, CT 06360.

Dated at Rockville, Maryland, this 9th day of February 1995.

FOR THE NUCLEAR REGULATORY COMMISSION



Vernon L. Rooney, Sr. Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation