

Mr. Raymond P. Necci
Vice President-Nuclear Oversight and Regulatory Affairs
Northeast Nuclear Energy Company
c/o Mr. David A. Smith
Manager - Regulatory Affairs
P. O. Box 128
Waterford, CT 06385

April 16, 1999

SUBJECT: ISSUANCE OF AMENDMENT - MILLSTONE NUCLEAR POWER STATION, UNIT
NO. 3 (TAC NO. MA4762)

Dear Mr. Necci:

The Commission has issued the enclosed Amendment No. 169 to Facility Operating License
No. NPF-49 for the Millstone Nuclear Power Station, Unit No. 3, in response to your application
dated February 10, 1999.

The amendment incorporates alternative inspection requirements into Technical Specification
Surveillance Requirement 3/4.4.10, "Structural Integrity," for the reactor coolant pump flywheel.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in
the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:

John A. Nakoski, Project Manager
Project Directorate I-2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures: 1. Amendment No. 169 to NPF-49
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 16, 1999

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Sincerely,

A handwritten signature in cursive script, reading "John A. Nakoski", is positioned above the typed name.

John A. Nakoski, Project Manager
Project Directorate I-2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-423

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Millstone Nuclear Power Station
Unit 3

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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. 169
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 February 10, 1999, 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. 169 , 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 issuance, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


James W. Clifford, Section Chief
Project Directorate I-2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: April 16, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 169

FACILITY OPERATING LICENSE NO. NPF-49

DOCKET NO. 50-423

Replace the following page of the Appendix A, Technical Specifications, with the attached page. The revised page is identified by amendment number and contains a vertical line indicating the area of change.

Remove

3/4 4-42

Insert

3/4 4-42

REACTOR COOLANT SYSTEM

3/4.4.10 STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.4.10 The structural integrity of ASME Code Class 1, 2, and 3 components shall be maintained in accordance with Specification 4.4.10.

APPLICABILITY: All MODES.

ACTION:

- a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 50°F above the minimum temperature required by NDT considerations.
- b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.
- c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) from service.

SURVEILLANCE REQUIREMENTS

4.4.10 In addition to the requirements of Specification 4.0.5, each reactor coolant pump flywheel shall be inspected by either qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius or a surface examination (magnetic particle testing and/or penetrant testing) of exposed surfaces defined by the volume of the disassembled flywheels at least once every 10 years.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 169

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 February 10, 1999, the Northeast Nuclear Energy Company, et al. (the licensee), submitted a request for a change to the Millstone Nuclear Power Station, Unit No. 3 Technical Specifications (TS). The requested change would incorporate alternative inspection requirements into TS Surveillance Requirement 3/4.4.10, "Structural Integrity," for the reactor coolant pump (RCP) flywheel.

This issue was addressed in Westinghouse topical report, WCAP-14535, "Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination," which was approved by the Nuclear Regulatory Commission (NRC) with certain conditions. These conditions were specified in the NRC safety evaluation report (SER) dated September 12, 1996, for WCAP-14535. The licensee requested to apply this topical report to Millstone Unit 3 and change their RCP flywheel inspection intervals in accordance with the conclusions of the SER related to WCAP-14535.

2.0 BACKGROUND

The function of the RCP in the reactor coolant system (RCS) of a pressurized water reactor (PWR) plant is to maintain an adequate cooling flow rate by circulating a large volume of primary coolant water at high temperature and pressure through the RCS. A concern about overspeed of the RCP and its potential for failure led to the issuance of Regulatory Guide (RG) 1.14, "Reactor Coolant Pump Flywheel Integrity," in 1971. Since then, all licensees for PWR plants, with very few exceptions, have adopted the guidelines of RG 1.14 to conduct their RCP flywheel examinations. These requirements are normally specified in the individual plant's TS as is the case for Millstone Unit 3. These requirements are specified in Millstone Unit 3 TS 4.4.10 and state that in addition to the requirements of TS 4.0.5, each RCP flywheel shall be inspected per the recommendations of Regulatory Position C.4.b of RG 1.14, Revision 1, August 1975. The recommendations of Regulatory Position C.4.b are as follows:

Inservice inspection should be performed for each flywheel as follows:

- (1) An in-place ultrasonic volumetric examination of the areas of higher stress concentration at the bore and keyway at approximately 3-year intervals, during the refueling or maintenance shutdown coinciding with the inservice inspection schedule as required by Section XI of the ASME Code.
- (2) A surface examination of all exposed surfaces and complete ultrasonic volumetric examination at approximately 10-year intervals, during the plant shutdown coinciding with the inservice inspection schedule as required by Section XI of the ASME Code.
- (3) Examination procedures should be in accordance with the requirements of Subarticle IWA-2200 of Section XI of the ASME Code.
- (4) Acceptance criteria should conform to the recommendations of regulatory position C.2.f.
- (5) If the examination and evaluation indicate an increase in flaw size or growth rate greater than predicted for the service life of the flywheel, the results of the examination and evaluation should be submitted to the staff for evaluation.

3.0 EVALUATION

In the SER on Westinghouse topical report WCAP-14535, the staff stated that the evaluation methodology for RCP flywheels in WCAP-14535 is appropriate and the criteria are in accordance with the design criteria of RG 1.14. In addition, the staff specified:

- (1) Licensees who plan to submit a plant-specific application of this topical report for flywheels made of SA 533 B material need to confirm that their flywheels are made of SA 533 B material. Further, licensees having Group-15 flywheels need to demonstrate that the material properties of their A516 material are equivalent to SA 533 B material, and its reference temperature, RT_{NDT} , is less than 30 °F.
- (2) Licensees who plan to submit a plant-specific application of this topical report for their flywheels not made of SA 533 B or A516 material need to either demonstrate that their flywheel material properties are bounded by those of SA 533 B material, or provide the minimum specified ultimate tensile stress, S_u ; the fracture toughness, K_{IC} ; and the reference temperature, RT_{NDT} , for that material. For the latter, the licensees should employ these material-specific properties, and use the methodology in the topical report, as extended in the two responses to the staff's request for additional information (RAI), to provide an assessment to justify a change in inspection schedules for their plants.
- (3) Licensees meeting either (1) or (2) above should either conduct a qualified in-place ultrasonic testing (UT) examination of the volume from the inner bore of the flywheel to the circle of one-half the outer radius, or conduct a surface examination (MT and/or PT) of exposed surfaces defined by the volume of the disassembled flywheels once every 10 years. The staff considers this 10-year inspection requirement not

burdensome when the flywheel inspection is conducted during scheduled ISI inspection or RCP motor maintenance. This would provide an appropriate level of defense in depth.

Further, the staff required:

Licensees with Group-10 flywheels need to confirm in the near term that their flywheels have an adequate shrink fit of the flywheel at the maximum overspeed.

In its submittal, the licensee confirmed that the RCP flywheels for Millstone Unit 3 are made of SA 533 B material. Hence, only (1) and (3) apply. The staff further verified that the flywheels for Millstone Unit 3 do not belong to either Group 10 or Group 15 flywheels, for which additional analyses need to be performed. Therefore, the plant-specific applicability of WCAP-14535 to Millstone Unit 3 has been established.

4.0 TS CHANGE

In its submittal dated February 10, 1999, the licensee requested changes to TS 4.4.10, specifically, TS 4.4.10 would read:

In addition to the requirements of Specification 4.0.5, each reactor coolant pump flywheel shall be inspected by either qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius or a surface examination (magnetic particle testing and/or penetrant testing) of exposed surfaces defined by the volume of the disassembled flywheels at least once every 10 years.

The staff has determined that the analysis in the Westinghouse topical report WCAP-14535 is applicable to Millstone Unit 3 and the licensee's proposed change to TS 4.4.10 is consistent with the guidance contained in the SER related to WCAP-14535. Therefore, the staff has determined that the change to TS 4.4.10 is acceptable.

5.0 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.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (64 FR 11964). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR

51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 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: J. Andersen

Date: April 16, 1999