

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
WOLYONK WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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September 20, 1988

Docket No. 50-336

B13013

Re: 10CFR50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2
Proposed Changes to Technical Specifications

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend its Operating License DPR-65 by incorporating the changes identified in Attachment 1 into the Technical Specifications of Millstone Unit No. 2. A similar proposed Technical Specification amendment was requested in the NRC Staff's SER dated December 8, 1986,⁽¹⁾ which supported License Amendment No. 113.⁽²⁾ NNECO submitted a proposed License amendment request dated August 28, 1987⁽³⁾ which supported coastdown for Cycle 8. The NRC granted this request and issued Amendment No. 122 by letter dated November 18, 1987.⁽³⁾

It is possible that NNECO may operate Millstone Unit No. 2 beyond the projected end of core life for the current cycle (Cycle 9). The attached proposed changes to the Technical Specifications provide temporary restrictions to support coastdown operations.

DESCRIPTION OF CHANGE

NNECO proposes to add qualifying notes to pages 3/4 2-3 and B3/4 2-1 to restrict the linear heat rate to 14.0 kW/ft for operations past a cycle average burn-up of 10,000 MWD/MTU for Cycle 9. A multiplier of 1.115 will also be added to the calculation involving total planar radial peaking factor

- (1) A. C. Thadani letter to J. F. Opeka, "Safety Evaluation Report--Amendment No. 113," dated December 8, 1986.
- (2) E. J. Mrocza letter to U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2 Proposed Changes to Technical Specification," dated August 28, 1987.
- (3) D. H. Jaffe letter to E. J. Mrocza, "Issuance of Amendment (TAC #66056)," dated November 1, 1987.

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(F_{xy}^T) when cycle average burn-up of 10,000 MWD/MTU for Cycle 9 is achieved. The F_{xy}^T restriction will be added to pages 3/4 2-5, 3/4 2-6 and B3/4 2-2 in the Technical Specifications.

Amendment No. 113 to Millstone Unit No. 2's Operating License No. DPR-65 authorized changes to Technical Specifications based on supporting Cycle 8 operation with a reduced RCS flow rate of 340,000 gpm. Extended cycle operation beyond the projected end of core life for Cycle 8 was based on previous assumption of 350,000 gpm RCS flow rate. This restriction on coastdown was a result of not having a specific LOCA analysis to support operation at the reduced flow rate of 340,000. The same limitation on coastdown for Cycle 8 is also applicable to the Cycle 9 analysis. Therefore, this coastdown restriction must also apply to Cycle 9.

SAFETY ASSESSMENT

Westinghouse has performed an evaluation of the current Millstone Unit No. 2 LOCA analysis to verify the acceptability of coastdown operation with a minimum Reactor Coolant System (RCS) flow of 340,000 gpm and a maximum allowable peak Linear Heat Generation Rate (LHGR) of 14.0 kw/ft. This represents a reduction in the LHGR from the value of 15.6 kw/ft used during operation prior to coastdown. This evaluation was performed as discussed below.

A reduction in the RCS temperature at constant power can increase the calculated Peak Clad Temperature (PCT) for a LOCA. This sensitivity to PCT is dominant during the initial coastdown period, when core power remains constant and RCS temperature decreases. During the later portion of a coastdown, when both RCS temperature and core power are decreasing, the PCT calculated for a LOCA does not increase. Therefore, the greatest change on the PCT will occur at the lowest RCS temperature conditions consistent with full power operation.

The effect of these worst case conditions on the calculated PCT at a constant (15.6 kw/ft) LHGR was determined for both small and large break LOCAs. This PCT increase was then compared to the known sensitivity of LHGR to the predicted PCT. The peak LHGR of 14.0 kw/ft was selected because it more than compensated for the calculated increase in PCT due to the temperature reduction for both the large break and small break LOCAs. Therefore, the calculated PCT for a LOCA during a coastdown with a 14.0 kw/ft LHGR is below that calculated for a LOCA occurring during normal operation at 15.6 kw/ft. Since the PCT is lower, the calculated cladding oxidation and hydrogen generation for a LOCA is also reduced.

Since coastdown operation with the proposed reduction in the peak LHGR results in a decrease in PCT, cladding oxidation, and hydrogen generation calculated for a LOCA, it has been concluded that coastdown operation at the reduced flow rate of 340,000 gpm is acceptable as long as:

- 1) The maximum linear heat rate is reduced from 15.6 kw/ft to 14.0 kw/ft.

- 2) An additional multiplier of 1.115 (equal to 15.6/14.0, the ratio of the maximum linear heat rates) is included in the total planar radial peaking factor.

These additional restrictions apply only for operation past a cycle average burnup of 10,000 MWD/MTU, the predicted full power end of life for Cycle 9. All other transients (i.e., the non-LOCA transients) are shown to have acceptable consequences during coastdown operation without any additional restrictions for an RCS flow rate of 340,000 gpm. Therefore, only the LOCA-related values of maximum linear heat rate and the total planar radial peaking factor need to be changed to allow a coastdown with reduced RCS flow.

Evaluations performed by Westinghouse to support Millstone Unit No. 2 coastdown operation used known sensitivities to assure that the peak clad temperatures remained below that calculated in the current design basis analysis. These sensitivities were performed in conformance with 10CFR50.46 using NRC Staff approved methodology.

SIGNIFICANT HAZARDS CONSIDERATION

NNECO has reviewed the attached proposed changes in accordance with 10CFR90.92 and has concluded that they do not involve a significant hazards consideration in that these changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated. All transients (i.e., the non-LOCA transients) had been evaluated previously as having acceptable consequences during coastdown operation without any additional restrictions. Only the LOCA-related values of maximum linear heat rate and the total planar radial peaking factor need to be changed to allow a coastdown with reduced RCS flow. These restrictions ensure that the consequences of a design basis event are unchanged during coastdown at the end of Cycle 9. Since no plant changes are being made, there is no change in the probability of a design basis event.
2. Create the possibility of a new or different kind of accident from any previously analyzed. These changes have no impact on any of the systems in the plant and, therefore, the potential for a new accident has not been created. Also, there are no failure modes which can present a new unanalyzed accident.
3. Involve a significant reduction in a margin of safety. The changes proposed have no impact on the consequences of any design basis accidents, no failure modes associated with them, no change in the probability of occurrence of any design basis accidents, and have no effect on the plant's safety systems. In fact, the proposed restrictions ensure that all margins of safety are maintained for the period of coastdown operation at the end of Cycle 9. Therefore, there is no impact on any of the protective boundaries or their associated margins of safety.

U.S. Nuclear Regulatory Commission
B13013/Page 4
September 20, 1988

The Commission has provided guidance concerning the application of the standards in 10CFR50.92 by providing certain examples (51FR7750, March 6, 1986). Example (ii) most closely resembles this change, i.e., "a change that constitutes an additional limitation restriction, or control not presently included in the technical specifications, e.g., a more stringent surveillance requirement." The proposed restriction of a linear heat rate of 14.0 kw/ft and inclusion of a multiplier of 1.115 (equal to 15.6/14.0, the ratio between the maximum linear heat rates) in the calculations involved with the total planar radial peaking factor for the time period which exceeds cycle average burn-up of 10,000 MWD/MTU in Cycle 9 has been evaluated. The proposed limits will ensure that the 2200^oF peak fuel cladding temperature limit will not be exceeded in the event of a LOCA.

The Millstone Unit No. 2 Nuclear Review Board has reviewed and approved the attached proposed changes and has concurred with the above determinations.

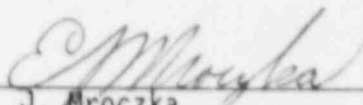
Since there is a potential for Millstone Unit No. 2 to operate beyond the projected end of core life for the current cycle (Cycle 9), NNECO requests that this amendment be approved and issued by February 1, 1989 which is the current prediction for the end of core life for the current cycle at Millstone Unit No. 2.

In accordance with 10CFR50.91(b), we are providing the State of Connecticut with a copy of this proposed amendment.

Pursuant to the requirements of 10CFR.10.10(c), enclosed with this amendment request is the application fee of \$150.00

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



E. J. Mroczka
Senior Vice President

Attachment

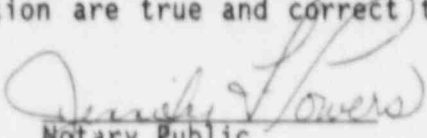
cc: Kevin McCarthy
Director, Radiation Control Unit
Department of Environmental Protection
Hartford, CT 06116

W. T. Russell, Region I Administrator
D. H. Jaffe, NRC Project Manager, Millstone Unit No. 2
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

U.S. Nuclear Regulatory Commission
B13013/Page 5
September 20, 1988

STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me, E. J. Mroczka, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensees herein, and that the statements contained in said information are true and correct to the best of his knowledge and belief.


Notary Public
My Commission Expires March 31, 1989