

NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
POLK BROOK WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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June 18, 1982

Docket No. 50-336
B10524

Director of Nuclear Reactor Regulation
Attn: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

- References:
- (1) W. G. Council letter to R. A. Clark, dated June 3, 1980.
 - (2) W. G. Council letter to R. A. Clark, dated November 17, 1981.
 - (3) R. A. Clark letter to W. G. Council, dated October 6, 1980.
 - (4) E. L. Conner letter to W. G. Council, dated March 5, 1982.
 - (5) W. G. Council letter to R. A. Clark, dated February 19, 1982.
 - (6) W. G. Council letter to R. Reid, dated March 22, 1979.

Gentlemen:

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2
PROPOSED REVISIONS TO TECHNICAL SPECIFICATIONS
REACTOR COOLANT FLOW RATE

Pursuant to 10 CFR 50.90, Northeast Nuclear Energy Company hereby proposes to amend its Operating License, No. DPR-65, by incorporating the attached revisions into the Millstone Unit No. 2 Technical Specifications. These proposed changes are intended for the remainder of Cycle 5 only.

The proposed changes revise the design reactor coolant system flow rate from 370,000 gpm to 362,600 gpm. This two percent reduction in reactor coolant system flow rate is proposed to be offset by a corresponding conservative reduction in the allowable power distribution limits.

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Specifically, the limits for the total planer and total integrated radial peaking factors are proposed to be reduced by approximately two percent. As discussed in References (1) and (2) and in the NRC Staff's Safety Evaluation Reports of References (3) and (4), a two percent change in flow is equivalent to a one percent change in power for DNB analyses. NNECO is conservatively proposing a factor of two greater reduction in the local power peaking factors to offset the proposed reduction in the reactor coolant flow rate.

The proposed changes to the reactor coolant flow rate are necessary based on plant reliability requirements. The reactor coolant flow has decreased due to the plugging of tubes in the steam generators and the resultant increase in system flow resistance. Currently, with the lower measured reactor coolant system flow rate coupled with the normal noise associated with the flow measurement channels, the previous margin between the measured flow rate and the low flow trip setpoint has been reduced. A further reduction in reactor coolant flow due to a minor reduction in the offsite electric grid frequency could result in a plant trip. This condition is contrary to Northeast Utilities' commitments to the Northeast Power Coordinating Council. The power distribution philosophy is such that load shedding features are designed to function to match the load to the available generating capacity. The present margin which exists to the low flow trip setpoints for underfrequency considerations is not sufficient to ensure that Millstone Unit No. 2 would remain on-line through an underfrequency condition enabling the automatic load shedding features for the grid to function as designed. This potential emphasizes the need for the proposed Technical Specification changes.

At present, an underfrequency condition of approximately 59 Hz (60 Hz normal) could potentially cause a reduction in reactor coolant flow rate large enough to result in a plant trip. The proposed change in the design reactor coolant flow rate with the associated change in the low flow trip setpoint, will restore the required margin between the measured flow and the low flow trip setpoint necessary to ensure reliable plant operation during a grid underfrequency condition.

The transient and accident analyses have been reviewed to determine what, if any, effects this proposed change would have on the results of these analyses. The greatest impact would be for those transients during which DNB considerations are paramount such as the four pump loss of flow and seized rotor events. Offsetting the reduction in reactor coolant flow with the conservative reduction in allowable local power peaking factors effectively results in no changes to the non-LOCA transient analyses conclusions presented in Reference (2). Therefore, the conclusions documented in the Cycle 5 Safety Evaluation Report remain unchanged.

An evaluation of the impact of these changes on the large break LOCA Analysis provided in Reference (5) has been completed. It has been concluded that an increase of less than 100°F in peak clad temperature

(PCT) will be bounding. This increase in PCT is due to a slight increase in fuel stored energy due to the reduction in flow. The current large break LOCA analysis results for Millstone Unit No. 2 exhibit adequate margin to the limits of 10 CFR 50.46 on PCT such that this change can be accommodated.

In addition, the small reduction in reactor coolant flow rate is not expected to alter the characteristic response of the peak clad temperature as a function of time during the event. That is, the PCT will still occur during the reflood stage and will dominate the blowdown peak.

NNECO concludes that the effects of the proposed Technical Specification changes on the large break LOCA analysis can be accommodated within the margins which exist in the current large break LOCA results for Millstone Unit No. 2.

NNECO has also reviewed the small break LOCA analysis results to determine if the proposed changes affect the conclusions presented in Reference (6). NNECO has concluded that the proposed reduction in reactor coolant flow rate has a negligible effect on the results presented in Reference (6). The basis for this determination follows. As in the case of the large break LOCA, the reduced reactor coolant flow will result in a slight increase in fuel stored energy. This increase in initial fuel stored energy, however, will not affect the results of the Reference (6) small break LOCA analysis on which operation of Millstone Unit No. 2 is based. The increased fuel stored energy will be removed from the fuel rod during the lengthy flow coastdown prior to the uncovering of the core when the fuel rod heatup transient begins. That is, core uncovering is predicted to occur after 500 seconds following initiation of the transient. Reactor trip occurs at 30 seconds and the ensuing flow coastdown over the next 500 seconds is more than sufficient to remove the additional fuel stored energy resulting from the proposed decrease in reactor coolant flow rate.

All transient and accident analyses have been reviewed to determine what effects, if any, the attached proposed changes have on the current licensing basis for Millstone Unit No. 2. NNECO has concluded that only the large break LOCA analysis results will be affected. The increase by 100°F in PCT is due to the increased fuel stored energy and is judged to be conservatively bounding. Current margin exists to the PCT limits of 10 CFR 50.46 to accommodate these changes.

All necessary reviews have been completed including the reviews pursuant to 10 CFR 50.59. NNECO has determined that the attached proposed license amendment does not constitute an unreviewed safety question.

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

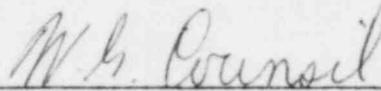
These changes have been reviewed pursuant to the requirements of 10 CFR 170. NNECO has concluded that the proposed license amendment constitutes a Class III license amendment.

The basis for this determination is that the proposed change involves a single safety issue. As such, please find enclosed the appropriate Class III license amendment fee of \$4,000.00.

We trust the Staff will act expeditiously on this proposed license amendment in order that a reliable source of electric generating capacity can be maintained in our service area.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



W. G. Council
Senior Vice President

