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THE CONNECTION VIENT AND POWER COMPAY WISTERNAMASGACHUSETTS ELECTRIC COMPAN HOL YORE WATER POWER COMPANY NORTHEAST UTULTISS BENICC'S COMPANY NORTHEAST MODULEAR ENERGY COMPANY General Offices . Selden Street, Berlin, Connecticut

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August 1, 1989

Docket No. 50-423 B13299 Re: 10CFR50.90

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

Gentlemen:

## Millstone Nuclear Power Station, Unit No. 3 Proposed Revision to Technical Specifications Reactor Trip Set Point-Low Shaft Speed-Reactor Coolant Pump

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend its operating license, NPF-49, by incorporating the attached proposed changes into the Technical Specifications of Millstone Unit No. 3. Specifically, the proposed changes would decrease the reactor trip set point and allowable value for the reactor coolant pump (RC?) 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.

## Discussion

The Northeast Power Coordinating Council's Guideline No. 3 describes the underfrequency protection scheme as follows:

"When the power system's self-regulation is insufficient to promote the establishment of a stable state, the system frequency will continue to decay unless some means are provided to force the load-generation balance. Automatic underfrequency load shedding is an acceptable mode of accomplishing the load-generation balance within the time constraints necessary to avoid system collapse."

Automatic load shedding occurs at the system frequencies of 59.3, 58.8, and 58.3 hz. During an underfrequency transient, the rotational speed of the RCP will decline. This results in a decrease in reactor coolant flow through the reactor core. In order to discriminate with the load shedding scheme, the RCP underspeed set point should be less than the equivalent of 58.2 hz, allowing for errors associated with the speed measuring system. The interrelationship between the power system grid load shedding scheme and the tripping of Millstone Unit No. 3 via RCP underspeed was reinvestigated. The results of this reinvestigation revealed that a grid disturbance which causes the system frequency to decay may also cause Millstone Unit No. 3 to trip off line before U.S. Nuclear Regulatory Commission B13299/Page 2 August 1, 1989

automatic load shedding can restore system frequency. A plant trip under this circumstance will cause even further system degradation.

Presently the Millstone Unit No. 3 underspeed set point 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 Westing-house 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.

## Safety Assessment

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. 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.

## Significant Hazards Consideration

In accordance with 10CFR50.92, NNECO has reviewed the proposed changes and concluded that they do not involve a significant hazards consideration. The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve a significant hazards consideration because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously analyzed. Changing the protection system set point will not change the probability of occurrence of the event. The major consequences associated with the complete loss of forced RCS flow are evaluated for the potential for fuel cladding damage resulting from the increase in RCS temperature and overpressurization of the RCS. The transient response for a complete loss of forced RCS flow from full power

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> was analyzed for both four- and three-loop operation. For each case analyzed, the results show that (1) the integrity of the fuel is maintained by the reactor protection system as the DNBR is maintained above the limit value, and (2) it is confirmed that the plant design is such that a complete loss of RCS flow event presents no hazard to the integrity of the reactor coolant boundary. For these reasons, the changes to the RCP underspeed set point do not significantly increase the probability or consequences of any previously analyzed accident.

- 2. Create the possibility of a new or different kind of accident from any previously analyzed. The existing design basis adequately covers the plant response with these changes. The changes do not introduce new failure modes. For these reasons, the changes do not have the potential to create a new type of accident from that previously analyzed.
- 3. Involve a significant reduction in the margin of safety. Since the safety limits of DNBR greater than or equal to 1.30 and the RCS pressure less than 110 percent of the design are still met, there is no reduction in the margin of safety.

Moreover, the Commission has provided guidance concerning the application of standards in 10CFR50.92 by providing certain examples (March 6, 1986, 51FR7751) of amendments that are considered not likely to involve a significant hazards consideration. The changes proposed herein are enveloped by Example (vi), a change that either results in some increase in the probability or consequences of a previously analyzed accident or may reduce in some way a safety margin, but the results of the change are clearly within all acceptable criteria with respect to systems or components specified in the standard review plan. As indicated above, 3.2 percent of generic DNBR margin was utilized to meet the DNBR acceptance criteria. For each case analyzed, the results show that: (1) the integrity of the fuel is maintained by the reactor protection system as the DNBR is maintained above the limit value and it is confirmed that the plant design is such that a complete loss of flow event presents no hazard to the integrity of the reactor coolant pressure boundary.

Based upon the information contained in this submittal and the environmental assessment for Millstone Unit No. 3, there are no significant radiological or nonradiological impacts associated with the proposed action, and the proposed license amendment will not have a significant effect on the quality of the human environment.

The Milstone Unit No. 3 Nuclear Review Board has reviewed and approved the attacked proposed revision and has concurred with the above determination.

Regarding our proposed schedule for this amendment, we request issuance at your earliest convenience with the amendment effective within 30 days upon issuance.

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

Vary truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Senior Vice President

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

Mr. Kevin McCarthy, Director Radiation Control Unit Department of Environmental Protection Hartford, CT C6116

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 Licensee herein, and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Notary Public + amico

My Commission Expires March 31, 1993