

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
NEW YORK WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
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January 18, 1991

Docket No. 50-423

B13690

Re: 10CFR50.90

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

- References:
- (1) D. H. Jaffe letter to E. J. Mroczka, Issuance of Amendment (TAC Nos. 75312 & 75393), dated March 2, 1990.
  - (2) E. J. Mroczka letter to the U.S. NRC, Proposed Revision to Technical Specifications, Hydrogen Recombiners, dated November 2, 1989.
  - (3) E. J. Mroczka letter to the U.S. NRC, Proposed Revision to Technical Specification--Hydrogen Recombiners, dated December 1, 1989.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3  
Proposed Revision to Technical Specifications  
Hydrogen Recombiner

In a letter dated March 2, 1990 (Reference (1)), the NRC Staff issued Amendment No. 47 to Northeast Nuclear Energy Company (NNECO) for Millstone Unit No. 3. This amendment was issued in response to a license amendment request submitted by NNECO on November 2, 1989 (Reference (2)) and later supplemented on December 1, 1989 (Reference (3)). This amendment, in part, modifies Technical Specification 4.6.4.2.b.4 "Electric Hydrogen Recombiners," to provide variable acceptance criteria for flow testing at different containment pressures. Specifically, the amendment added an acceptance curve to the Technical Specifications for flow rate through the hydrogen recombiners. This curve replaced a constant minimum flow rate requirement and allowed an acceptance criteria based on the actual containment air pressure by accounting for varying recombiner blower efficiency and performance over the operating containment pressure range. Also, a more flexible testing schedule resulted.

Since the issuance of Amendment No. 47, new technical information has been received from the blower manufacturer, M-D Pneumatics, which indicates that the flow versus containment pressure curve should be replaced by a series of equations for increased accuracy. These equations use actual inlet pressure and temperature and pressure rise across the blowers to predict the blower flow rate. Thus, a considerably more accurate flow acceptance

determination can be made. Therefore, pursuant to 10CFR50.90, NNECO hereby proposes to amend its operating license, NPF-49, by incorporating the changes identified in Attachment 1 into the Technical Specifications of Millstone Unit No. 3.

#### Description of Changes

##### 1. Revision to Section 4.6.4.2.b.2

Surveillance 4.6.4.2.b.2 could be misinterpreted as a requirement to dismantle portions of the hydrogen recombiners every eighteen months. Therefore, NNECO has proposed a clarification of this surveillance. The original intent remains the same, to visually examine the recombiners for signs of abnormal conditions (i.e., loose wiring or structural connections, deposits of foreign material, etc.).

To further demonstrate that the environmental integrity of the recombiners will remain intact, the following information is supplied.

- 1) The hydrogen recombiners are located in a separate dedicated building and are connected to containment only by 2" penetrations.
- 2) The recombiner cubicles are supplied with centrifugal fans, air and fire dampers. Since the recombiner cubicles are not normally open to containment, the recombiners are not subject to either the harsh environment of containment (i.e., caustic spray, 100% humidity, etc.) or normal operating conditions.
- 3) The cubicles are provided with controls and instrumentation to monitor temperature, radiation, and ventilation along with numerous recombiner alarms. Thus, abnormal conditions in the recombiner enclosure will not occur without activation of alarms and subsequent correction by plant operators.
- 4) The recombiner system is functionally tested every six months and instruments and control circuits are calibrated every 18 months. Thus, degradation, if it should occur, would be determined during this surveillance testing.

In conclusion, a visual examination of the recombiners is sufficient due to the provisions provided by the dedicated recombiner cubicle and other recombiner surveillances.

##### 2. Revision to Section 4.6.4.2.b.4 and addition of 4.6.4.2.b.5

The verification of the gas temperature and the flow rate have been separated for clarity.

3. Deletion of Figure 3.6.2

Recent information received from the blower manufacturer, M-D Pneumatics, indicates that this curve should be replaced by a series of equations. These equations use inlet pressure, inlet temperature and pressure rise across the blowers to predict the blower flow rate. The equations are too complex to have any meaning in the Technical Specifications, however, they will be incorporated into the revised surveillance procedure.

The flow rate placed into the technical specification is the required design flow rate at post-loss of coolant accident (LOCA) conditions.

Safety Assessment

Since issuance of Amendment No. 47, new technical information has been received from the blower manufacturer, M-D Pneumatics, which indicates that the flow versus containment pressure curve should be replaced by a series of equations. These equations use actual inlet pressure and temperature with the pressure rise across the blowers to predict the blower flow rate. Thus, a considerably more accurate flow acceptance determination can be made. The calculation of the acceptance criteria requires a complex calculation. The listing of the calculational details in the technical specifications would be inappropriate. As an alternative, the minimum flow performance of the recombiner blowers under post-LOCA conditions has been stated in the Technical Specifications. The ability of the blowers to deliver this flow rate will be confirmed by comparing the measured flow rates under various containment pressures and temperatures with the required flow rate determined using the equations. The acceptance equations will confirm that no unacceptable level of degradation has occurred in the blower performance. The accuracy range of flow measurement instrumentation has been incorporated into the acceptance criteria. This method of documenting acceptable blower performance will be incorporated into the revised surveillance procedure.

Changes to Section 4.6.4.2.b.2 provide a clarification of the surveillance and do not reduce the effectiveness of the Technical Specifications. Changes to Section 4.6.4.2.b.4 do not modify any safety system components or their method of operation. The changes only modify the calculation method used to verify acceptable performance. The revised acceptance criteria is based on the required system performance as determined by the accident analysis. It continues to verify that the system can perform its design function.

The proposed changes to the surveillance requirement will ensure a performance level of hydrogen recombiners which will keep the containment hydrogen concentration below 4 percent when placed in service within 24 hours of a LOCA. Therefore, it is concluded that the LOCA and its consequences as analyzed remain valid.

Significant Hazards Consideration

NNECO has reviewed the proposed changes in accordance with 10CFR50.92 and concluded that the changes 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.

The proposed changes to the surveillance requirement (Section 4.6.4.2.b.2) do not reduce the effectiveness of the Technical Specification. They only provide clarification to the existing surveillance requirement. The proposed changes to Section 4.6.4.2.b.4 and addition of 4.6.4.2.b.5 will continue to verify the capability of the hydrogen recombiners to meet design basis analysis assumptions. The appropriate plant procedures are in place to ensure that the hydrogen recombiners are placed in service within 24 hours of a LOCA. Therefore, it is concluded that the LOCA and its consequences as analyzed remain valid. Since no physical modifications are proposed, there is no impact on the probability of failure. Therefore, probability of a LOCA is not affected.

2. Create the possibility of a new or different kind of accident from any previously analyzed.

The proposed changes do not impact the plant response to a LOCA. Since there are no changes in the way the plant is operated, the potential for an unanalyzed accident is not created, and no new failure modes are introduced.

3. Involve a significant reduction in the margin of safety.

The proposed changes do not increase the consequences of any accidents. Also, none of the protective boundaries are adversely affected. The performance level of the hydrogen recombiners assured by the proposed surveillance requirements along with the appropriate plant procedures maintain the margin of safety as defined in the existing and proposed Technical Specifications.

Moreover, the Commission has provided guidance concerning the application of standard in 10CFR50.92 by providing certain examples (March 6, 1986, 51FR7751) of amendments that are considered not likely to involve a significant hazards consideration. Although the proposed changes are not enveloped by a specific example, the changes would not involve a significant increase in the probability or consequences of an accident previously analyzed. The proposed surveillance requirement will ensure a

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performance level of the hydrogen recombiners which meets the requirements of the design basis analysis.

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.

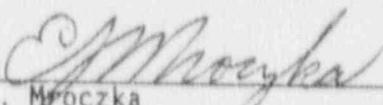
The Millstone Unit No. 3 Nuclear Review Board has reviewed and approved the proposed changes and has concurred with the above determinations.

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

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

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
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E. J. Mroczka  
Senior Vice President

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

Mr. Kevin McCarthy  
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