

Northeast
Utilities System

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(203) 665-5000

September 9, 1994

Docket No. 50-423
B14972

Re: 10CFR50.90
10CFR50.91

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

Millstone Nuclear Power Station, Unit No. 3
Proposed Revision to Technical Specifications
Main Steam Line Isolation Valve Closure Time

Introduction

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend its Operating License, NPF-49, by incorporating the changes identified in Attachments 1 and 2 into the Millstone Unit No. 3 Technical Specifications. This proposed change will increase the acceptance criterion of Surveillance Requirement 4.7.1.5.1 for closure of a main steam line isolation valve (MSIV) from 5 seconds to 10 seconds.

On September 8, 1994, with the plant in Mode 1, the "C" MSIV was tested, and it was determined to have a closure time greater than permitted by Surveillance Requirement 4.7.1.5.1 of the Millstone Unit No. 3 Technical Specifications. While performing an additional monthly MSIV partial stroke test, the "C" MSIV unexpectedly went closed. When this occurred, the plant was manually tripped.

NNECO is making every effort to repair the "C" MSIV. However, if the closure time of the "C" MSIV cannot meet the requirement of Surveillance Requirement 4.7.1.5.1, then NNECO believes that expedited treatment is warranted in this case to avoid an unnecessary delay in plant startup. As a preemptive measure, NNECO is requesting that the NRC Staff process this license amendment request on an emergency basis pursuant to 10CFR50.91(a)(5), since failure to act in a timely way could prevent Millstone Unit No. 3 from resuming operation. However, if the "C" MSIV closure time can be restored to within 5 seconds, this request may be processed on a routine schedule. NNECO will keep the NRC Staff informed of our progress regarding the maintenance performed on the "C" MSIV.

Alternatively, NNECO is requesting that the NRC Staff exercise enforcement discretion associated with the Action Statement of Limiting Condition for Operation (LCO) 3.7.1.5 to be effective until the license amendment is issued. The enforcement discretion

Acc
11

would permit NNECO to operate Millstone Unit No. 3 in Modes 1, 2, or 3 while the proposed license amendment is being processed.

This request involves no significant safety impact and the operational risk associated with the request has no undue risk on public health and safety.

Background

The MSIVs serve to isolate the nonsafety-related portions of the main steam system under design basis accident conditions. The MSIVs also prevent the uncontrolled blowdown of more than one steam generator in the event of a main steam line break accident.

To ensure that the MSIVs are capable of fulfilling their safety functions, the Millstone Unit No. 3 Technical Specifications require that their operability be demonstrated. Specifically, Surveillance Requirement 4.7.1.5.1 of the Millstone Unit No. 3 Technical Specifications requires that each MSIV be determined operable by verifying full closure within 5 seconds during inservice testing. The MSIVs are equipped with provisions for inservice testing by partial valve stroking. The partial stroking is accomplished by opening a solenoid valve to admit steam pressure into the lower piston chamber to preclude an inadvertent closure of the MSIV. After a time delay, the solenoid valve for the upper piston chamber opens and the valve begins to close. After 10 percent travel, the position indicating device vents both piston chambers and the valve fully opens to the back seat due to process steam pressure acting on the valve plug.

On September 8, 1994, with the plant in Mode 1, the "C" MSIV was tested, and determined to have a closure time slightly greater than 5 seconds. This value is greater than the time permitted by Surveillance Requirement 4.7.1.5.1 of the Millstone Unit No. 3 Technical Specifications (5 seconds). At this time, the MSIV was determined to be inoperable and the Action Statements for LCOs 3.7.1.5 and 3.6.3 were entered. The Action Statement for LCO 3.7.1.5 permits power operation to continue provided the inoperable valve is restored to an operable status within four hours. If the MSIV cannot be restored to an operable condition, the plant must be in hot standby within the next six hours and in cold shutdown within the following 30 hours.

While performing an additional monthly MSIV partial stroke test, the "C" MSIV unexpectedly went closed. When this occurred, the plant was manually tripped. This resulted in the plant going from Mode 1 to Mode 3. After this occurred, the plant entered the LCO 3.7.1.5 Action Statement for Modes 2, 3, and 4. This Action Statement permits the plant to continue to operate in Mode 2, 3, or

4 provided the isolation valve is maintained closed. The MSIV is being maintained in a closed position. Currently, the plant is in Mode 4 (Hot Shutdown) to repair the "C" MSIV.

In parallel with the repair effort, NNECO is submitting this proposal to increase the acceptance criterion of Surveillance Requirement 4.7.1.5.1 to 10 seconds. Engineering evaluations to justify the 10-second closure time were substantially completed just prior to the "C" MSIV closure event. Incorporating the increased closure time for the MSIVs into the Millstone Unit No. 3 Technical Specifications was planned to be part of the Cycle 6 Technical Specification changes.

Additionally, a request for enforcement discretion from the requirements of Surveillance Requirement 4.7.1.5.1 is being submitted which, if granted, would permit the plant to resume power operations while the proposed technical specification change is being reviewed and approved by the NRC Staff.

Description of Proposed Changes

NNECO is proposing to modify Surveillance Requirement 4.7.1.5.1 of the Millstone Unit No. 3 Technical Specifications by increasing the acceptance criterion for the closure of the MSIVs from 5 seconds to 10 seconds.

The marked-up technical specification page is provided in Attachment 1, and the retyped technical specification page is provided in Attachment 2.

Safety Assessment

The proposed change does not pose a condition adverse to safety, and there are no adverse safety consequences created by the proposed change to Surveillance Requirement 4.7.1.5.1. The rationale for this conclusion is provided below.

Accident Analyses

Increasing the MSIV stroke time from 5 seconds to 10 seconds affects only the accident analyses associated with the postulated feedwater line break (Section 15.2.8 of the Millstone Unit No. 3 Final Safety Analysis Report (FSAR)), the main steam line break (Section 15.1.5 of the FSAR), and the containment analysis (discussed below). No other design basis accident analyses are affected by the proposed increase in the MSIV closure time. NNECO evaluated the feedwater line break and the main steam line break events assuming a total steam line isolation time of 11.8 seconds (1.8 seconds for instrument response, plus 10 seconds for the valve

stroke time). NNECO has determined that the applicable acceptance criteria (e.g., departure from nuclear boiling ratio (DNBR) and pressure) continue to be met with the increase in the MSIV closure time from 5 to 10 seconds. Therefore, operation of Millstone Unit No. 3 with an MSIV closure time of 10 seconds is acceptable.

Feedwater Line Break

The revised feedwater line break evaluation, incorporating the increased MSIV closure time, demonstrated that the increase in MSIV stroke time has no impact on the predicted peak reactor coolant system pressure. Since the three loop operation case is limiting, it was reanalyzed and the predicted peak reactor coolant system pressure was unchanged from the current FSAR analysis.

Main Steam Line Break

For the main steam line break, both four loop operation and three loop operation were reanalyzed. The results indicate no significant impact on DNBR. More than 30% margin to DNB was predicted for both the three loop and four loop cases. It should be noted that the DNBR evaluation was performed using the W-3 correlation. As such, this evaluation is unaffected by the recent issues associated with intermediate flow mixers and the WRB-2 DNB correlation.

Mass and Energy Release Consequences and Environmental Qualification

The impact of an increased MSIV closure time, together with a number of other changes to incorporate more bounding initial conditions were evaluated for impact on the main steam line break mass and energy releases. Evaluation of the impact on the feedwater line break mass and energy releases is not necessary since the main steam line break bounds the feedwater line break. The changes in mass and energy releases were evaluated for impact on the peak pressure prediction and the environmental profiles for the main steam valve building and the containment.

The impact of an increased MSIV closure time on the environmental qualification of the equipment located in the main steam valve building was evaluated, and it was concluded that the equipment is qualified for the revised main steam line break profile for the main steam valve building. This information was included in a

license amendment request dated March 23, 1994.⁽¹⁾ The NRC subsequently approved the license amendment on June 29, 1994.

For the containment, even with the increase in MSIV stroke time, the loss of coolant accident remains bounding in terms of peak containment pressure. In addition, the current environmental profiles used in the environmental qualification program remain bounding.

Fluid Transient Evaluation

Fluid transient loadings (steam hammer) due to MSIV closure were evaluated for an increase in MSIV closure time from 5 seconds to 10 seconds. A slower valve closing time tends to reduce fluid transient effects on the piping system. Therefore, an increase in the MSIV closure time from 5 to 10 seconds is acceptable.

Auxiliary Feedwater System

The auxiliary feedwater system turbine driven pump steam supply would not be significantly impacted by the increase in MSIV closure time. A slight delay in the auxiliary feedwater system flow due to the slower MSIV closure time and reduction of steam generator inventory for certain scenarios will have a negligible impact on pump start or the long term cooling capacity of the steam generators.

Pipe Rupture Mechanistic Effects

Pipe rupture mechanistic effects are not changed by the increase in MSIV closure time, because the MSIV closure time is not considered in mitigating the effects of a main steam line break or a feedwater line break.

Radiological Consequences

Increasing the closure time for the MSIVs from 5 seconds to 10 seconds does not have any adverse impact on the design basis accident radiation dose calculations, because the MSIV closure time is not an assumption in any of these dose calculations.

(1) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 3, Proposed Revision to Technical Specifications, Area Temperature Monitoring," dated March 23, 1994.

Justification for Emergency License Amendment

Pursuant to 10CFR50.91(a)(5), NNECO hereby requests NRC Staff "emergency" approval of the proposed amendment to Operating License NPF-49. Currently, Millstone Unit No. 3 is in Mode 4. The Action Statement for LCO 3.7.1.5 prevents Millstone Unit No. 3 from entering power operations if an MSIV is inoperable. Based on the current schedule, emergency authorization is required by September 13, 1994.

A discussion of the circumstances surrounding this situation and determination of the need for prompt action is provided in the "Background" Section of this letter and below. Monthly partial stroke testing of the MSIVs is conducted to verify the valve closure time. On September 8, 1994, during the monthly testing of the "C" MSIV, it was determined that the MSIV was inoperable because its closure time was determined to be greater than 5 seconds. Currently, Millstone Unit No. 3 is in Mode 4 so that the "C" MSIV can be repaired in order to meet its closure time of 5 seconds and to take corrective measures for its unexpected closure on September 8, 1994.

To resume operation, Millstone Unit No. 3 must meet the operability requirements of each of the applicable technical specifications, including those pertaining to the closure time for the MSIVs. NNECO has kept and will continue to keep the NRC Staff informed of significant developments in addressing these issues.

The requested emergency license amendment is appropriate because the proposed change does not involve an undue risk to public health and safety and does not involve a significant hazards consideration (SHC). NNECO has determined that the proposed change is technically acceptable and does not significantly reduce any margin of safety.

Significant Hazards Consideration

NNECO has reviewed the proposed change in accordance with 10CFR50.92 and concluded that the change does not involve an SHC. The basis for this conclusion is that the three criteria of 10CFR50.92(c) are satisfied. The proposed change does not involve an SHC because the change would not:

1. Involve a significant increase in the probability or consequences of an accident previously analyzed.

NNECO's proposal to modify Surveillance Requirement 4.7.1.5.1 of the Millstone Unit No. 3 Technical Specifications does not

involve a significant increase in the probability or consequences of an accident previously analyzed.

The increase in the MSIV stroke time from 5 seconds to 10 seconds has no adverse impact on the FSAR analyses for the feedwater line break and the main steam line break. The applicable acceptance criteria (e.g., DNBR and pressure) for both 3-loop and 4-loop operation continue to be met with an increase in the MSIV closure time from 5 to 10 seconds. No other accident analyses discussed in Chapter 15 of the FSAR are affected by the proposed increase in the MSIV closure time.

Additionally, evaluations have determined that the proposal does not affect the environmental qualification program for either the main steam valve building or the containment, does not impact the design basis accident radiological consequence calculations, does not negatively impact fluid transient evaluations, has a negligible impact on the long term cooling capacity of the steam generators, and does not change pipe rupture mechanistic effects.

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

The proposed change does not introduce any new failure modes. It simply modifies an acceptance criterion for a surveillance requirement. As such, increasing the MSIV stroke time from 5 seconds to 10 seconds affects only the FSAR analyses for the feedwater line break and the main steam line break. No other accident analyses discussed in Chapter 15 of the FSAR are affected by the proposed increase in the MSIV closure time. The applicable acceptance criteria (e.g., DNBR and pressure) for both 3-loop and 4-loop operation continue to be met with an increase in the MSIV closure time from 5 to 10 seconds.

Additionally, evaluations have determined that the proposal does not affect the environmental qualification program for either the main steam valve building or the containment, does not impact the design basis accident radiological consequence calculations, does not negatively impact fluid transient evaluations, has a negligible impact on the long term cooling capacity of the steam generators, and does not change pipe rupture mechanistic effects.

Thus, the proposed change does not create the possibility of a new or different kind of accident from any previously analyzed.

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

The increase in the MSIV stroke time from 5 seconds to 10 seconds has no adverse impact on the FSAR analyses for the feedwater line break and the main steam line break. The applicable acceptance criteria (e.g., DNBR and pressure) for both 3-loop and 4-loop operation continue to be met with an increase in the MSIV closure time from 5 to 10 seconds. No other accident analyses discussed in Chapter 15 of the FSAR are affected by the proposed increase in the MSIV closure time. Additionally, the proposed change does not impact the consequences of an accident previously analyzed.

Based on the above, there is no significant reduction in the margin of safety.

The Commission has provided guidance concerning the application of the standards of 10CFR50.92 by providing certain examples (51 FR 7751, March 6, 1986) of amendments that are not considered likely to involve a SHC. While the proposed change to Surveillance Requirement 4.7.1.5.1 is not enveloped by any of the examples, NNECO has demonstrated that the change does not involve a significant hazards consideration.

Request for Enforcement Discretion

NNECO hereby requests the NRC Staff exercise discretion not to enforce compliance with the required actions for Millstone Unit No. 3 LCO 3.7.5.1 should the processing of the proposed license amendment not be completed by September 13, 1994. NNECO hereby provides justification for enforcement discretion associated with the above LCO.

1. The Technical Specification Condition that Will Be Violated

Millstone Unit No. 3 LCO 3.7.5.1 requires the operability of each MSIV. In this case, the "C" MSIV has been declared inoperable, because its closure time is greater than the acceptance criterion of Surveillance Requirement 4.7.1.5.1 (i.e., 5 seconds).

At present, the plant is in Mode 4 to perform maintenance on the "C" MSIV. In the event our efforts to reestablish the operability of the "C" MSIV are unsuccessful, this discretion would permit NNECO to startup and operate Millstone Unit No. 3 while the proposed license amendment is being processed. The discretion is requested to be effective until the amendment is issued and implemented.

2. The Circumstances Surrounding the Situation Including the Need for Prompt Action

In the "Background" Section of this submittal, NNECO discusses the problems associated with the "C" MSIV. Currently, Millstone Unit No. 3 is in Mode 4 to perform maintenance on the "C" MSIV. In the event that the "C" MSIV closure time cannot be reduced to below 5 seconds, an Action Statement for LCO 3.7.5.1 would prevent the resumption of operation with the "C" MSIV closure time greater than the acceptance criterion of Surveillance Requirement 4.7.1.5.1. NNECO is making every effort to reestablish the operability of the "C" MSIV.

This situation could not be avoided, because the problem was identified during routine inservice testing of the "C" MSIV. On September 8, 1994, the "C" MSIV was determined to be inoperable because its closure time was determined to be greater than 5 seconds.

To avoid an unnecessary delay in plant startup, enforcement discretion is required by September 13, 1994. The requested enforcement discretion is appropriate because the proposed changes do not involve an SHC.

3. Safety Basis for the Request

As discussed in the "Safety Assessment" Section of this submittal, the proposed change does not pose a condition adverse to safety, and there can be no adverse safety consequences created by the proposed change to Surveillance Requirement 4.7.1.5.1.

Increasing the MSIV stroke time from 5 seconds to 10 seconds only affects the FSAR analyses for the feedwater line break and the main steam line break. No other accident analyses discussed in Chapter 15 of the FSAR are affected by the proposed increase in the MSIV closure time. The applicable acceptance criteria (e.g., DNBR and pressure) for both 3-loop and 4-loop operation continue to be met, even with an increase in the MSIV closure time from 5 to 10 seconds.

Additionally, evaluations have determined that the proposal does not affect the environmental qualification program for either the main steam valve building or the containment, does not impact the design basis accident radiological consequence calculations, does not negatively impact fluid transient evaluations, has a negligible impact on the long term cooling capacity of the steam generators, and does not change pipe rupture mechanistic effects.

4. Compensatory Measures

No other compensatory measures are required to be taken. During the time that the enforcement discretion applies, the MSIVs will be capable of performing their intended function with the increased stroke time.

5. Duration of Requested Waiver

The enforcement discretion is being requested for the period of time until the license amendment is issued by the NRC. This will permit Millstone Unit No. 3 to startup and resume power operation.

6. Basis for No Significant Hazards Consideration

The basis for this enforcement discretion not involving an SHC is the same as previously discussed for the proposed license amendment.

7. Basis for No Irreversible Environmental Consequences

The requested enforcement discretion involves no irreversible environmental consequences. The proposed change does not result in a reduction in a margin of safety, does not affect the calculated doses, and does not impact the capability of systems to perform their intended safety function to control the release of radiological effluents. Also, the proposed change does not affect the associated non-radiological effluents. Thus, the proposed change does not negatively impact the public health and safety.

8. Safety Review

The Millstone Unit No. 3 Plant Operations Review Committee (PORC) and Nuclear Review Board (NRB) have reviewed and concurred with this request for enforcement discretion.

9. Additional Information

Additional information has been supplied throughout the text of this submittal.

In summary, the proposed enforcement discretion would permit Millstone Unit No. 3 to startup and operate at 100% power until the proposed license amendment is issued. This request is safe, and does not constitute an SHC.

Environmental Considerations

NNECO has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed change does not increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, NNECO concludes that the proposed change meets the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement.

Nuclear Review Board

The Millstone Unit No. 3 NRB has reviewed and concurred with the above determinations.

State of Connecticut

In accordance with 10CFR50.91(b), we are providing the State of Connecticut with a copy of this proposed amendment via facsimile to ensure their awareness of this request.

Schedule Required for NRC Approval

As discussed previously, authorization of these proposed changes is necessary to permit Millstone Unit No. 3 to resume operations. Therefore, NNECO is requesting emergency approval. This request is needed by September 13, 1994, to avoid an unnecessary delay in plant startup.

Alternatively, NNECO is requesting that the NRC Staff exercise enforcement discretion associated with LCO 3.7.5.1 to be effective until the amendment is issued. By exercising enforcement discretion, the NRC Staff would permit Millstone Unit No. 3 to resume operations while awaiting issuance of the proposed revision to the Millstone Unit No. 3 Technical Specifications.

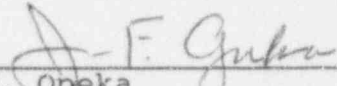
NNECO wishes to emphasize our conclusion that this proposed license amendment does not involve any undue safety risk or irreversible environmental consequences. We are, therefore, requesting this action to allow operation of Millstone Unit No. 3. This action is in the interest of the health and safety of the public, our customers, and our shareholders.

U.S. Nuclear Regulatory Commission
B14972/Page 12
September 9, 1994

If the NRC Staff should have any questions or comments regarding this submittal, please contact Mr. R. G. Joshi at (203) 440-2080. We will promptly provide any additional information the NRC Staff may need to respond to this request, and we appreciate your efforts in support of this request.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



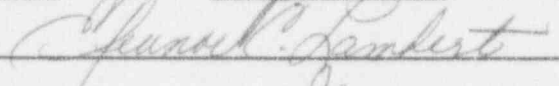
J. F. Opeka
Executive Vice President

cc: T. T. Martin, Region I Administrator
V. L. Rooney, NRC Project Manager, Millstone Unit No. 3
P. D. Swetland, Senior Resident Inspector, Millstone Unit
Nos. 1, 2, and 3

Mr. Kevin T.A. McCarthy, Director
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
P.O. Box 5066
Hartford, CT 06102-5066

Subscribed and sworn to before me

this 9th day of September, 1994



Date Commission Expires: January 31, 1998