



June 1, 1994

Docket No. 50-336
B14866

Re: 10CFR50.90
10CFR50.91

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

Millstone Nuclear Power Station, Unit No. 2
Request for Additional Information Regarding
Proposed Revision to Technical Specifications
Automatic Initiation of the Auxiliary Feedwater System

Purpose

The purpose of this letter is to respond to requests made by the NRC Staff in teleconferences conducted on May 31, 1994, between the NRC Staff and Northeast Nuclear Energy Company (NNECO). The teleconferences concerned a NNECO submittal dated May 27, 1994,⁽¹⁾ which requested that the NRC Staff process a Millstone Unit No. 2 license amendment request on an emergency basis, and alternatively requested that the NRC Staff exercise enforcement discretion while the license amendment request is processed.

Summary

On May 31, 1994, the NRC Staff:

- Granted enforcement discretion associated with Millstone Unit No. 2 Limiting Condition for Operation (LCO) 3.3.2.1;
- Requested that NNECO revise the proposed changes to Tables 3.3-3 (page 3/4 3-15) and 3.3-4 (page 3/4 3-20) of the Millstone Unit No. 2 Technical Specifications by relocating the reference to footnote (1) on each of these pages;
- Requested that NNECO verify the frequency that the operating crews have practiced manual initiation of the auxiliary feedwater (AFW) system on the simulator, and identify the most recent time that the practice occurred.

(1) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2, Proposed Revision to Technical Specifications, Automatic Initiation of the Auxiliary Feedwater System," dated May 27, 1994.

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- Requested that NNECO provide the date and the results of the last surveillance performed to verify operability of the AFW System. Additionally, the NRC Staff wanted to know if NNECO had plans to repeat the surveillance prior to startup;
- Requested that NNECO commit to redesign the automatic initiation logic for the AFW system to meet the single failure criterion; and
- Requested that NNECO provide additional information concerning the sequence of events that transpired prior to the establishment of the need for an emergency license amendment request. Specifically, the NRC Staff wanted NNECO to identify when the equipment was determined to be inoperable, define why an emergency request was deemed necessary, and discuss what occurred between the date of the reportability determination (May 19, 1994) and the date of the submittal of the request (May 27, 1994).

This submittal provides responses to the NRC requests and recommendations. It includes revisions to the changes proposed to the Millstone Unit No. 2 Technical Specifications in a submittal dated May 27, 1994. These revisions are considered to be editorial in nature. Thus, they do not alter the conclusions of the submittal dated May 27, 1994. The proposed changes do not pose a condition adverse to safety, do not involve a significant hazards consideration (SHC), and do not involve any irreversible environmental consequences.

Discussion

NRC Request (1) - Revise the Proposed Changes to Millstone Unit No. 2 Technical Specifications Submitted on May 27, 1994

The NRC Staff has requested that the references to footnote (1) on Table 3.3-3 (page 3/4 3-15) and Table 3.3-4 (page 3/4 3-20) be relocated. NNECO has incorporated these comments. The proposed changes are editorial in nature. They do not alter the intent of the proposed changes submitted on May 27, 1994. Therefore, NNECO is submitting revisions to the proposed changes that incorporates the NRC Staff's comments.

These editorial changes do not affect the safety assessment, SHC, or environmental consideration forwarded in the submittal dated May 27, 1994.

To ensure continuity, NNECO has resubmitted each of the affected pages of the Millstone Unit No. 2 Technical Specifications. Attachments 1 and 2 contain the marked-up and retyped pages of the

Millstone Unit No. 2 Technical Specifications, respectively.

NRC Request (2) - Verify How Often Operating Crews Have Practiced Manual Initiation of the AFW System on the Simulator and Identify the Most Recent Practice

NNECO has written an Operations Department night order which informs the plant operators on the increased reliance on manual initiation of the AFW system. Emergency Operating Procedure (EOP) 2525, "Standard Post Trip Actions," requires verification of proper feedwater system response post trip, and provides contingency actions to manually initiate the AFW system, if required. Training or evaluation on EOP 2525 is covered on the simulator during each training cycle. Verification of proper feedwater system response is an integral part of each EOP 2525 simulator session. The operators are frequently exposed to simulator scenarios in which verification of proper initiation of the AFW system is required.

Manual manipulation of the AFW system, including manual initiation, was performed during the following simulator sessions.

<u>Lesson Plan</u>	<u>Lesson Title</u>	<u>Dates Taught</u>
RQ2-537-9	Loss of Feedwater/Once Through Cooling	1/14/93 through 2/25/93
RQ2-537-8	Loss of Feedwater/Use of Condensate Pump	1/14/93 through 2/25/93
RQ2-10(PT)	AFW Controls (part task evolution which teaches manipulation of AFW)	4/12/93 through 5/28/93
RQ2-537-10	Loss of All Feedwater	4/12/93 through 5/28/93
RQ2-537-11	Loss of Feedwater	9/9/93 through 11/17/93
S94103	Steam Generator Tube Rupture/Loss of Feedwater	12/28/93 through 2/1/94

NRC Request (3) - Provide the Date and Results of the Last Surveillance Performed to Verify Operability of the AFW System and Identify Any Plans to Repeat the Surveillance Prior to Startup

One of the objectives of Surveillance Procedure (SP) 2610A, "Motor Driven Auxiliary Feedwater Pumps and Regulating Valves Operability Test," is to demonstrate the operability of the AFW system manual start control switches to satisfy Millstone Unit No. 2 Technical Specification Surveillance Requirement 4.3.2.1.1, Table 4.3-2, Item 9.a. This surveillance is required to be performed every refueling outage. It was last performed on January 4, 1993, with acceptable results. There are no current plans to perform this surveillance prior to startup from the current maintenance outage.

SP 2402M, "Functional Test of Auto-Aux. Feedwater Initiation Logic," functionally tests the automatic initiation logic for the AFW system. The surveillance was performed on May 25, 1994, with acceptable results. Additionally, the surveillance was performed on May 31, 1994, to confirm the functionality of the logic following the replacement of two relays. Once again, the surveillance was completed successfully. No additional tests are planned during the current maintenance outage. Millstone Unit No. 2 Technical Specification Surveillance Requirement 4.3.2.1.1, Table 4.3-2, Item 9.b requires that the channel functional test of the automatic actuation logic for the AFW system be conducted monthly.

NRC Request (4) - Commit to a Redesign of the Automatic Initiation Circuit for the AFW System that Includes a Redundant Circuit

As stated previously, NNECO has been evaluating options to resolve this issue. However, due to the complexity of this issue, NNECO has concluded that there are no apparent design changes which could provide short-term resolution of this condition. Instead, NNECO concluded that it would be prudent to more thoroughly evaluate the options and design, engineer, install, and test a modification to resolve these issues during the next refueling outage. Additionally, in each of the proposed footnotes, NNECO stated that modifications to the automatic initiation logic for the AFW system would be implemented, prior to startup for Cycle 13, to eliminate the reliance on operator action. These modifications will be designed to ensure that the automatic initiation logic meets the single failure criterion.

NRC Request (5) - Provide Additional Information Concerning Events that Transpired Prior to the Establishment of the Need for an Emergency License Amendment Request

In May 1994, NNECO was reevaluating the loss of a direct current (DC) bus failure mode effect on the SPEC 200 cabinets. Previously, it was believed that there were two AFW automatic initiation logic circuits. Thus a single failure, such as a short, would not disable both trains of the automatic initiation logic. However, one of the circuits was actually a pressurizer pressure signal associated with the anticipated transient without scram (ATWS) circuits. At this point, NNECO questioned whether the automatic initiation logic for the AFW system met the single failure criterion. Further discussions among NNECO personnel and a review of the design basis documents (the Millstone Unit No. 2 Final Safety Analysis Report (FSAR) and Design Basis Document Packages) confirmed the existence of a potential single failure vulnerability which could defeat the automatic initiation logic for the AFW system. Further, while automatic initiation is not credited to mitigate a loss of feedwater analysis, it is credited to demonstrate compliance with reliability requirements for the AFW system and to comply with the Three Mile Island action plan.

On May 19, 1994, a plant information report was initiated describing a single failure which could defeat the automatic initiation logic for the AFW system. As a result, an operability evaluation was initiated and the condition was reported promptly to the NRC Staff on May 19, 1994. A search of the docketed material was conducted, to determine if there had been any discussion regarding this single failure vulnerability. No specific discussions regarding this particular single failure were identified in the docketed material. Also, to determine the credibility of the occurrence of the single failure, probabilistic arguments were developed using the guidance of Institute of Electrical and Electronics Engineers (IEEE) Standard - 379, and a review was conducted to determine if a history of hot shorts in mild environments existed. The probability of the condition occurring was determined to be very low, and no history of hot shorts in mild environments was discovered. From Monday, May 23, 1994, to Friday, May 27, 1994, discussions were held among the Millstone Unit No. 2 personnel regarding whether the identified concern was indeed a credible failure. On May 27, 1994, it was concluded that the single failure vulnerability, although of very low probability, was credible (as defined in IEEE-279) and that the automatic initiation logic for the AFW system was inoperable due to the failure to meet the single failure criterion.

During this time (May 23, 1994, to May 27, 1994), various options were considered to rectify this condition. They included: 1) modifying the automatic initiation logic to eliminate the single failure vulnerability, 2) concluding that the condition was not a credible single failure utilizing probabilistic arguments, and 3) requesting an emergency license amendment to permit Millstone Unit No. 2 to resume operations following the maintenance outage to

repair a reactor coolant pump seal. The first option was not considered practical given the low probability of occurrence, the time (approximately one month) required to design, procure, and install a system that complies with the Three Mile Island action plan, and the current schedule to resume operation of Millstone Unit No.2 following a maintenance outage. Although discussed at length, NNECO concluded that the second option (declaring the single failure vulnerability as a non-credible condition) was not conservative.

Therefore, NNECO believed that a request for an emergency license amendment was the appropriate choice to avoid an unnecessary delay in plant startup. This decision was based on: 1) the lack of any Millstone Unit No. 2 accident analyses crediting automatic initiation of the AFW system. The limiting FSAR Chapter 14 transient associated with minimum AFW flow requirements is the loss of main feedwater event. It assumes that AFW is started manually 10 minutes after the initiation of the event; 2) the ability to manually initiate AFW within a very short time, given the existing action statements of the EOPs and existing routine operator training regarding verification of appropriate feedwater flow and manual manipulation of AFW; 3) the low probability of a hot short occurring that would defeat the automatic initiation logic of the AFW system; 4) the current schedule to resume operation of Millstone Unit No. 2 (June 1, 1994) following the maintenance outage to repair a reactor coolant pump seal; and 5) the time to design, procure, and install an automatic initiation system which complies with the single failure criterion.

Conclusion

This submittal responds to the NRC Staff's request of May 31, 1994 teleconferences. Additionally, NNECO proposes to revise the proposed changes to Tables 3.3-3 and 3.3-4 of the Millstone Unit No. 2 Technical Specifications by relocating the references to the footnotes.

This proposal does not alter the conclusions of the submittal dated May 27, 1994. The proposed changes do not pose a condition adverse to safety, do not involve an SHC, and do not involve any irreversible environmental consequences. NNECO's proposal to revise Tables 3.3-3 and 3.3-4 of the Millstone Unit No. 2 Technical Specifications incorporates the NRC Staff's comments.

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

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If the NRC Staff should have any questions or comments regarding this submittal, please contact Mr. R. H. Young at (203) 665-3717.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

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Subscribed and sworn to before me

this 1st day of June, 1994

Robert J. Dittbich

Date Commission Expires: 3/31/95