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June 1, 1994

Docket No. 50-245
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U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit No. 1
Low Pressure Coolant Injection/Core Spray Systems

In a letter dated May 17, 1994,(1) Northeast Nuclear Energy Company (NNECO) provided additional information regarding our plans to resolve the Low Pressure Coolant Injection (LPCI) and Core Spray (CS) system pipe support and anchorage issues at Millstone Unit No. 1. We committed to provide the NRC Staff with the details of our plan by June 1, 1994. Accordingly, this letter provides our plan for resolution of the pipe support and anchorage issues.

Summary

The results of our analytical investigation have concluded that we will be able to meet the Mark I program guidelines for combined dynamic and thermal loadings. The modifications needed to achieve this configuration can be completed without impacting system operability while the plant is operating. Additionally, we have confirmed that the modifications will be completed by July 28, 1994.

Discussion

The evaluation conducted prior to Millstone Unit No. 1 startup involved two elements. The first element was the recognition of significant time separation between the dynamic loads, which were the primary focus of the Mark I program and the long-term plant response to design basis events. The second element of our

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(1) J. F. Opeka letter to U.S. Nuclear Regulatory Commission, "Feedwater Coolant Injection System and Low Pressure Coolant Injection/Core Spray System," dated May 17, 1994.

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technical position was the consideration of the long-term event as a Level D event (as defined in ASME III) while meeting the Mark I program guidelines for the combined loss-of-coolant accident (LOCA) loads.

The evaluation of the piping for the conservative long-term accident temperature of 209°F has continued after the evaluations made to support startup. We investigated the potential for reducing the anchor stiffness to provide added flexibility to relieve thermal loads and resulting piping stresses. Our investigation has concluded that it is feasible to reduce the stiffness of the anchor through modifications which will not negatively impact the anchor function during the course of the modification. The anchor and piping will meet Level B load requirements (as defined in ASME III) for the combination of dynamic and thermal loads at the completion of the modifications. The modifications will be fully supported by design calculations which not only address the anchor structure but will address the anchors' function in the system as a dynamic load boundary. The modifications will be completed by July 28, 1994, as previously committed.

Analysis Results

Piping analysis has been conducted with reduced anchor stiffness to confirm the load reductions in the piping and to develop reduced reaction loads on the remaining supports. The analysis results have demonstrated piping stresses which meet the ASME III, Subsection NC requirements for thermal stresses. This analysis supports the original Mark I program guidelines for piping stresses as defined in NUREG-0661 and the plant-specific documents which were submitted on behalf of Millstone Unit No. 1. The evaluation of supports is continuing with the reduced loads, and the engineering judgments addressed in our pre-startup correspondence are being confirmed.

Load Separation

The issue of load separation was extensively discussed in telephone conversations with the Staff. We committed to provide information to substantiate the validity of the load separation alternative. In order to confirm our assessment of the timing issues as it pertains to this analysis, we sought the input of an industry specialist who has extensive background in the Mark I program. We have reviewed the load separation issue and conclude that it is appropriate to deal with the loads as separate events. Nonetheless, the evaluations conducted do not rely on this load separation to demonstrate compliance with the Mark I program acceptance criteria.

The separation of load cases into those short-term events associated with the dynamic response of the torus, to the LOCA conditions from those long-term loads, is supported by a review of the temperature data utilized in the Mark I program (Mark I Containment Program Plant Unique Load Definition [PULD], Millstone Nuclear Power Station Unit No. 1, NEDO-23575, June 1981). The data used in the original analysis was based on the timing of the design basis events which conclude within approximately 15 minutes. The original analysis philosophy for Mark I loads was based on the load timing, thus utilizing load separation would not be a change to the philosophy used in the Mark I program. The analysis conducted by General Electric in 1992 shows that the expected peak temperature of 207°F is not reached for approximately 10 hours, well after the dynamic loads would have ceased.

The final evaluation of the elevated temperature for the LPCI/CS piping and supports does not credit this load separation. However, we believe that the application of load separation is consistent with the Mark I program's original intent and criteria and is technically sound.

Conclusion

NNECO is pursuing appropriate modifications to resolve the LPCI/CS pipe support and anchorage issues for those configurations not meeting Service Level B allowables. While we believe that the application of load separation is acceptable, we have not credited it in resolution of this issue. If you have any questions, please contact Mr. Peter J. Miner at (203) 665-3296.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

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Executive Vice President

BY: E. A. DeBarba
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