



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 123 TO DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

DOCKET NO. 50-336

1.0 INTRODUCTION

By application for license amendment dated December 22, 1986, Northeast Nuclear Energy Company, et al. (the licensee), requested a change to the Millstone Unit 2 Facility Operating License, DPR-65, to change the expiration date of the license from December 11, 2010 to July 31, 2015.

2.0 DISCUSSION

Section 103.c of the Atomic Energy Act of 1954 states that a license is to be issued for a specified period not to exceed 40 years. Title 10 CFR 50.51 specifies that each license will be issued for a fixed period of time not to exceed 40 years from the date of issuance. The currently licensed term for Millstone Unit 2 is 40 years commencing with the issuance of the construction permit which was on December 11, 1970. Accounting for the time that was required for plant construction, this represents an effective operating license term of approximately 35 years. Consistent with Section 103.c of the Atomic Energy Act and Section 50.51 of the Commission's regulations, the licensee, by the December 22, 1986 application, seeks an extension of the operating license term for Millstone Unit 2 so the fixed period of the license would be from the date of the operating license issuance.

3.0 EVALUATION

The NRC staff has evaluated the safety issues associated with issuance of the proposed license amendment which would allow approximately five additional years of operation. The issues addressed consist of additional radiation exposure to the licensee's operating staff, impacts on the off-site population, and the general aging of the plant structures and equipment. The impact of additional radiation exposure to the facility operating staff and the impact on the general population in the vicinity of Millstone Unit 2 are addressed in the NRC staff's Environmental Assessment dated

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3.1 Plant Structures and Systems

The licensee's request for extension of the operating license is based in part, on the determination that a 40-year service life was considered during the design and construction of the plant. This does not mean that some components will not wear out during the plant lifetime. Rather, design features were incorporated which provide for inspectability of structures, systems and equipment. In addition structures, systems and components are required by the Technical Specifications to undergo routine surveillance to assure that there is a high degree of confidence that they will perform their safety functions when required.

Millstone Unit 2 Technical Specification (TS) 4.0.5 requires the licensee to maintain an inservice inspection (ISI) program for ASME Code Class 1, 2 and 3 components and an inservice test (IST) program for ASME Code Class 1, 2, and 3 pumps and valves. These programs are necessary to assure the continued operability and integrity of systems important to plant safety. The TS 4.0.5 requirements further specify that the above programs comply with the applicable Code and addenda as required by 10 CFR 50, Section 50.55a(g) except where the NRC staff provides written relief per 10 CFR 50.55a(g)(6)(i). By letters dated November 4, 1982, May 4, 1983, September 10, 1984 and November 3, 1986, the NRC staff granted relief from certain of the ISI and IST requirements. On December 26, 1985, Millstone Unit 2 commenced its second 10-year inspection period. At the present time, the NRC staff is reviewing the licensee's program for the second 10-year inspection period submitted by letter dated June 27, 1985 as amended by letter dated August 29, 1986. This review is progressing in a satisfactory manner. Considering that the ISI and IST programs will continue to be reviewed throughout the lifetime of the facility, there is no need to complete the current review prior to issuance of the license amendment under consideration.

With regard to the steam generators, extensive steam generator tube damage was incurred early in the operating life of Millstone Unit 2. The tube damage has been primarily of the "denting" type observed in many PWRs. The results of eddy current testing over the past several operating cycles, however, has shown a decrease in the rate of tube denting that is partly attributable to improved secondary water chemistry. The licensee, as a precautionary measure, has been procuring "long lead time" components for replacement steam generators, should the condition of the existing steam generators deteriorate markedly. Should the licensee decide to replace the Millstone Unit 2 steam generators, industry experience indicates that such replacement is a viable option.

Aging analyses have been performed for all safety-related electrical equipment in accordance with 10 CFR 50.49, "Environmental qualification of electrical equipment important to safety for nuclear power plants," identifying qualified lifetimes for this equipment. These lifetimes are incorporated into plant equipment maintenance and replacement practices to ensure that all safety-related electrical equipment remain qualified and available to perform their safety functions regardless of the overall age of the plant. Our letter and Safety Evaluation dated March 20, 1985 provides our approval concerning the licensee's program for environmental qualifications of electrical equipment.

3.2 Reactor Pressure Vessel

The reactor pressure vessel (RPV) was designed for 40 years of operation at full power (2700 MW thermal) with a plant capacity factor of 80%, which is equivalent to 32 Effective Full Power Years (EFPY). The RPV contains a number of in-vessel radiation capsules that are periodically withdrawn, and their contents tested, to assure that the RPV materials will continue to behave in a ductile fashion under expected operating conditions. The capsule withdrawal schedule is given in TS Table 4.4-3 and assures compliance with 10 CFR Part 50, Appendix H, over 32 EFPY. Thus far, a single capsule (W-97) has been withdrawn and tested. License Amendment No. 94 contains the NRC staff's evaluation of the licensee's analysis of capsule W-97.

Technical Specification 3/4.4.9 contains temperature/pressure limits for the reactor coolant system in accordance with 10 CFR 50, Appendix G. The original limits in the TS were revised in License Amendments 94 and 113 which were issued on April 10, 1984 and December 8, 1986, respectively. We expect that the licensee will continue to update the limits of TS 3/4.4.9 over the lifetime of the facility.

Finally, the NRC staff has evaluated the licensee's submittals concerning the pressurized thermal shock (PTS) requirements of 10 CFR 50.61. In our letter and Safety Evaluation dated August 24, 1987, we concluded that the Millstone Unit 2 RPV satisfies the fracture toughness requirements of 10 CFR 50.61 for protection against pressurized thermal shock for 32 EFPY.

3.3 Summary of Findings

Based upon the above, we find that extension of the operating license for Millstone Unit 2 to allow a 40-year service life is consistent with the safety analyses for Millstone Unit 2 and that the Commission's previous safety findings are not changed. All issues associated with plant systems and equipment, including aging and changes in RPV fracture toughness properties have been addressed and are acceptable for 40 years of operation.

4.0 ENVIRONMENTAL CONSIDERATION

A Notice of Environmental Assessment and Finding of No Significant Impact relating to the proposed extension of the Facility Operating License termination date for Millstone Unit 2 was published in the Federal Register on January 12, 1988 (52 FR 765).

5.0 CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: January 12, 1988

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