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THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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March 15, 1993

Docket No. 50-423
B14378

Re: 10CFR50.90
GL 90-02

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

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3
Proposed Revision to Technical Specifications
Design Features - Fuel Assemblies

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend its Operating License, NPF-49, by incorporating the attached proposed changes into the Technical Specifications of Millstone Unit No. 3.

Description of the Proposed Changes

The Millstone Unit No. 3 Cycle 5 reload will consist of new fuel assemblies with ZIRLO cladding. ZIRLO is similar to the Zircaloy-4 cladding currently in use.

The proposed changes will revise the facilities "Design Features" section which describes the fuel assemblies (i.e., Section 5.3.1). The proposed changes are being initiated to allow the use of ZIRLO cladding in the fuel assemblies at Millstone Unit No. 3. The current Section 5.3.1 in the Millstone Unit No. 3 Technical Specifications is not consistent with the NRC recommended wording in Generic Letter 90-02, Supplement 1, "Alternate Requirements for Fuel Assemblies in the Design Features Section of Technical Specifications." The proposed changes will make the Millstone Unit No. 3 Technical Specification Section 5.3.1 consistent with GL 90-02, Supplement 1. The changes from the current wording to the proposed changes are as follows:

- The proposed changes allow the use of ZIRLO for cladding and filler rods in addition to Zircaloy-4.
- The proposed changes do not allow NNECO to leave vacancies in the fuel assemblies. This is consistent with GL 90-02, Supplement 1.
- The proposed changes require that filler rods be used in accordance with NRC approved applications of fuel rod configurations. The current specifications do not require that the application have prior approval.

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- The current specification requires that the fuel be similar in physical design to the original one. The requirement is not included in the proposed changes. The deletion of this requirement is consistent with GL 90-02, Supplement 1. In addition, the physical constraints on the fuel assembly resulting from the core envelope dimensions, preclude any significant changes in the physical design.

- The proposed changes require that the fuel assembly configurations be limited to those fuel designs that have been analyzed with applicable NRC Staff-approved codes and methods. These changes have no impact since approved methods are already required for changes such as this which affect the core operating limits report (COLR).

- The words in the current specification about the enrichment of the initial core are no longer relevant and deleted from the proposed changes. This is consistent with the recommendations of GL 90-02, Supplement 1.

- The proposed changes require that the fuel be uranium dioxide. The current specification only requires that it be enriched U-235. This change has no impact since there are no plans to use anything but uranium dioxide in the fuel.

- The proposed changes allow use of lead test assemblies in limited numbers and in nonlimiting core locations. The current specifications do not have any such allowance. Licensees have traditionally been allowed this ability, since lead test assemblies are an important part of product development and improvement. This change is also consistent with GL 90-02, Supplement 1.

In addition to the above changes, the Millstone Unit No. 3 Technical Specification Section 6.9.1.6.b is also being revised to include three analytical methods. The proposed Item 11 (the VANTAGE + Fuel Assembly Report) describes the methodology used for the evaluation of the ZIRLO cladding. Proposed Items 9 and 10 (the NOTRUMP methodology reports) are methodologies referenced in Item 11 and, therefore, must also be included. Attachment 1 provides a markup of proposed changes, whereas Attachment 2 provides retyped pages of the Millstone Unit No. 3 Technical Specifications.

Safety Assessment

The proposed changes will allow the use of ZIRLO cladding in the fuel assemblies at Millstone Unit No. 3. ZIRLO is similar to the Zircaloy-4 cladding currently in use; however, it provides significant additional protection against corrosion compared to the traditional Zircaloy-4 cladding. It is anticipated that ZIRLO will be used in Westinghouse supplied fuel in increasing quantity throughout the industry over the next several years.

Fuel inspections during the last refueling outage have shown the corrosion rate to be higher than anticipated. This has resulted in less operational flexibility, most notably in reactor coolant system chemistry conditions. The improved corrosion properties of ZIRLO should allow us to regain operational flexibility while still retaining the current core chemistry conditions.

The ZIRLO technical information has been submitted to the NRC[1] and has been approved for use by the NRC.[2][3] In addition, the NRC has recently taken action which revised the acceptance criteria in 10CFR50.44 and 50.46, relating to evaluations of emergency core cooling systems and combustible gas control applicable to zircaloy clad fuel to include ZIRLO clad fuel (57FR39355, August 31, 1992). In the Federal Register Notice, the NRC also stated that this revision to include ZIRLO as an acceptable zirconium-based cladding material, along with zircaloy will reduce the licensee burden, but will not reduce the protection of the public health or safety.

Significant Hazards Consideration

In accordance with 10CFR50.92, NNECO has reviewed the proposed changes and concluded that they do not involve a significant hazards consideration (SHC). The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve an SHC because the changes would not:

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

   The fuel cladding design criteria are the same with the ZIRLO clad fuel as with the zircaloy clad. All design and performance criteria will continue to be met and no new single failure mechanisms will be created. The use of the ZIRLO cladding does not involve any alterations to plant equipment or procedures which would affect any operational modes or accident precursors. Therefore, the change in material has no effect on the probability of occurrence of previously evaluated accidents, and has

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(1) WCAP-12610, "VANTAGE + Fuel Assembly Reference Report, Main Body and Appendices A through D, June 1990; Appendix E, August 1990; Appendices F and G, December 1990; Addendum 1, February 1991; Addendum 2, April 1991; Addendum 3, May 1991; Addendum 4, May 1991."

(2) A. C. Thadani (NRC) letter to S. R. Tritch (Westinghouse), "Acceptance for Referencing of Topical Report WCAP-12610, 'Vantage + Fuel Assembly Reference Core Report' (TAC No. 77258)," dated July 1, 1991.

(3) A. C. Thadani (NRC) to S. R. Tritch (Westinghouse), "Acceptance for Referencing of Licensing Topical Reports WCAP-12610, Appendices F, 'LOCA NOTRUMP Evaluation Model: ZIRLO Modifications' and G, 'LOCA Plant Specific Accident Evaluations' (TAC No. 77258)," dated October 9, 1991.

no effect on the consequences of previously evaluated accidents. The changes proposed to Section 6.9.1.6.b have no impact on the probability of occurrence or consequences of any design basis accident.

2. Create the possibility of a new or different kind of accident than any previously evaluated.

   The fuel cladding design criteria are the same with the ZIRLO clad fuel as with the zircaloy clad. All design and performance criteria will continue to be met and no new single-failure mechanisms will be created. The use of the ZIRLO cladding does not involve any alterations to plant equipment or procedures which would introduce any new or unique operational modes or accident precursors. Therefore, the possibility of a new or different type of accident from any accident previously evaluated is not created. The associated technical specification changes with the fuel cladding changes are the addition of three references to Specification 6.9.1.6.b. These changes will not create the possibility of a new or different type of accident from any accident previously evaluated.

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

   The change to the use of ZIRLO does not change the proposed reload design or safety analysis limits for each cycle reload core. These fuel assemblies will be specifically evaluated using approved reload design methods and approved fuel rod design model and methods. In addition, 10CFR50.46 criteria will be applied to each cycle of the ZIRLO clad fuel rods. Since the safety analysis limits are unaffected, and cycle-specific analyses will show that the analysis limits are met; the change to ZIRLO cladding will have no impact on the margin of safety.

Moreover, the Commission has provided guidance concerning the application of standards set forth in 10CFR50.92 by providing certain examples (March 6, 1986, 51FR7751) of amendments that are considered not likely to involve a SHC. The proposed changes to Section 5.3.1 and Section 6.9.1.6.b are enveloped by example (ii); a change that constitutes an additional limitation, restriction, or control not presently included in the technical specifications. Also, the proposed changes require that the fuel assembly configuration be limited to those fuel designs that have been analyzed with applicable NRC-approved codes and methods. In addition to the above changes, Section 6.9.1.6.b is also being revised to include three analytical methods. These NRC-approved methods will be used to determine the core operating limits for future cycles. Therefore, the proposed changes related to ZIRLO cladding will not involve a significant increase in the probability or consequences of an accident previously analyzed.

Environmental Consideration

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 off site, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, NNECO concludes that the proposed changes meet the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement.

The Millstone Unit No. 3 Nuclear Review Board and the Millstone Site Nuclear Review Board have reviewed and approved the proposed change and have concurred with the above determination.

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

The next refueling outage is currently scheduled to begin on July 31, 1993, and as stated earlier, the Millstone Unit No. 3 Cycle 5 reload will consist of new fuel assemblies with ZIRLO cladding. Therefore, we respectfully request NRC Staff approval of the proposed amendment by July 31, 1993.

Should the Staff require any additional information to process this request, NNECO remains available to promptly provide such information.

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 McCarthy, Director
Radiation Control Unit
Department of Environmental Protection
Hartford, CT 06116

Subscribed and sworn to before me

this 15 day of March, 1993

Lorraine J. D'Amico
Notary Public

Date Commission Expires: 3/31/93