

# Maine Yankee

RELIABLE ELECTRICITY SINCE 1972

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President and  
Chief Executive Officer

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March 15, 1994  
MN-94-23

CDF-94-33  
Proposed Change 182

UNITED STATES NUCLEAR REGULATORY COMMISSION  
Attention: Document Control Desk  
Washington, DC 20555

References: (a) License No. DPR-36 (Docket No. 50-309)

Subject: Technical Specification Proposed Change 182: Integral Fuel Burnable  
Absorber

Gentlemen:

Maine Yankee Atomic Power Company requests, with this submittal, to amend its Technical Specification pertaining to control of excess reactivity of the reactor core. Specifically, we request to amend Technical Specification 1.3, "Reactor", to include the use of integral fuel burnable absorbers as a method of controlling core excess reactivity. Integral fuel burnable absorbers will also be used to maintain the core power distribution within acceptable power peaking limitations.

Implementation of this Proposed Change does not impact the results of the current plant safety analysis. The proposed Technical Specification 1.3 will, however, allow the use of integral fuel burnable absorbers in future reload cores. As with current practices, Maine Yankee intends to evaluate the cycle-specific reload fuel design, including integral fuel burnable absorber designs, if applicable, to demonstrate that the applicable safety analysis acceptance criteria have been met.

The future mechanical design of fuel rods and assemblies containing integral fuel burnable absorbers will continue to be performed for Maine Yankee by the fuel vendors. The design will utilize the fuel vendors' methodology, as approved by the NRC at the time of implementation of the integral fuel burnable absorber.

Future reload cores containing integral fuel burnable absorbers will also continue to be designed and analyzed using the Yankee Atomic Electric Company's methodologies, as have been reviewed and approved by the NRC for application to Maine Yankee. The approved methodologies and the associated acceptance criteria are referenced in the Maine Yankee Technical Specification 5.14, "Core Operation Limits Report".

The application of the approved methodologies to the specific reload core containing integral fuel burnable absorbers will be assessed under the provision of 10 CFR 50.59. The 50.59 evaluation addresses both the applicability of the approved methodologies and the specific use of integral fuel burnable absorbers. As is performed currently, the results of the reload design process will be summarized in the Maine Yankee Core Performance Analysis Report. This report is provided to the NRC prior to startup of each reload core.

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# Maine Yankee

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A description of the proposed change and a summary of Maine Yankee's significant hazards evaluation is presented in Attachment A. A revised Technical Specification page 1.3-1 is included as Attachment B.

The proposed change has been reviewed by the Plant Operations Review Committee and the Nuclear Safety Audit and Review Committee.

A state of Maine representative is being notified of this proposed change by copy of this letter.

Upon your review and approval of this amendment request, we request that the amendment be effective immediately.

Very truly yours,




Charles D. Frizzle  
President

RPJ

c: Mr. Thomas T. Martin  
Mr. J.T. Yerokum  
Mr. E.H. Trottier  
Mr. P.J. Dostie

STATE OF MAINE

Then personally appeared before me, Charles D. Frizzle, who being duly sworn did state that he is President and Chief Executive Officer of Maine Yankee Atomic Power Company, that he is duly authorized to execute and file the foregoing request in the name and on behalf of Maine Yankee Atomic Power Company, and that the statements therein are true to the best of his knowledge and belief.

  
Notary Public

BARBARA J. PADAVANA  
NOTARY PUBLIC, MAINE  
MY COMMISSION EXPIRES JUNE 20, 1996

ATTACHMENT A

Description of Proposed Changes  
and  
Significant Hazards Evaluation

DESCRIPTION OF PROPOSED CHANGES  
and  
SIGNIFICANT HAZARDS EVALUATION

Description of Proposed Change

Maine Yankee proposes to change Technical Specification 1.3, "Reactor", to include the application of integral fuel burnable absorbers as a method of controlling core excess reactivity. The integral fuel burnable absorbers also assist in maintaining the core power distribution within acceptable peaking limitations.

The inclusion of integral burnable absorbers into the future Maine Yankee fuel design will be assessed with both (a) the fuel vendor's approved design methodology and acceptance criteria for the individual fuel rods and assemblies, and (b) Yankee Atomic's approved methodologies and acceptance criteria associated with the safety assessment of the operating fuel.

The mechanical design of fuel rods and assemblies for future reload cores containing integral fuel burnable absorbers will continue to be performed for Maine Yankee by the fuel vendors. The design process uses the fuel vendor's methodology which has been approved by the NRC.

The safety analyses for future reload cores containing integral fuel burnable absorbers will continue to be performed using Yankee Atomic Electric Company's methodologies which have been reviewed and approved by the NRC for application to Maine Yankee. The approved methodologies and the associated acceptance criteria are referenced in Technical Specification 5.14, "Core Operation Limits Report".

The application of the approved methodology to the specific reload core containing integral fuel burnable absorbers will be assessed under the provision of 10 CFR 50.59. The 50.59 evaluation ensures that the reload core design, including the specific use of integral fuel burnable absorbers, is performed with the applicable approved methodologies, remains within the bounds of the existing acceptance criteria and that there are no unresolved safety questions resulting from the implementation of the specific reload fuel design. The results of the reload design process will continue to be summarized in Maine Yankee's Core Performance Analysis Report which is provided to the NRC prior to startup of each reload core.

Additionally, the implementation of the reload core design, including the use of integral fuel burnable absorbers, is verified by:

- a. Demonstration of conformance to Technical Specification requirements and the safety analysis operating limits during Low Power Physics Tests and Power Escalation Testing, and
- b. Monitoring of core reactivity and core power distribution during operation per Technical Specifications 3.10, "CEA Group, Power Distribution, Moderator Temperature Coefficient Limits and Coolant Conditions", and 3.15, "Reactivity Anomalies".

### Significant Hazards Evaluation

Operation of the Maine Yankee plant in accordance with this proposed change has been evaluated using the standards in 10 CFR 50.92 regarding no significant hazards considerations. This proposed change does not involve a significant hazards consideration for the following reasons:

- A. This change will not involve a significant increase in the probability or consequences of an accident or malfunction of equipment important to safety previously evaluated.

The proposed change, which allows the use of integral fuel burnable absorbers, does not affect the probability of the accidents previously evaluated. Reload cores containing integral fuel burnable absorbers will be analyzed using NRC approved methods and acceptance criteria. Verification that adequate shutdown margin exists for all modes of operation to accommodate anticipated transients and accidents described in Maine Yankee's Final Safety Analysis Report (FSAR) is provided in both the initial Low Power Physics Testing and the core monitoring required in Technical Specifications 3.10, "CEA Group, Power Distribution, Moderator Temperature Coefficient Limits and Coolant Conditions", and 3.15, "Reactivity Anomalies", during the operating cycle.

The proposed change also does not increase the consequences of accidents previously analyzed. The compliance with the approved analysis acceptance criteria for a given core design must be determined for each core prior to core reloading. The specific use of integral fuel burnable absorbers is only one of the factors that must be considered in this determination. Hence, with the same safety analysis acceptance criteria as have been approved by the NRC, the consequences of accidents previously considered remain the same.

The implementation of the proposed change in the Maine Yankee fuel design does not increase the probability or consequences of a malfunction of equipment important to safety. The use of these types of absorbers is governed by the limitations and conditions of the acceptance criteria of the approved safety analysis and design methodologies. Compliance with these approved criteria ensure that the proposed change will not adversely impact or cause the malfunction of equipment important to safety.

Conformance to Technical Specifications requirements and the safety analysis restrictions are demonstrated during initial Low Power Physics Tests and Power Escalation Testing. In addition, the reactivity and core power distribution are required to be monitored during the operating cycle per Technical Specifications 3.15, "Reactivity Anomalies", and 3.10, "CEA Group, Power Distribution, Moderator Temperature Coefficient Limits and Coolant Conditions". Monitoring of the parameters described in these Technical Specifications assure that the conditions of the safety analysis will remain bounding to plant operations.

Therefore, Maine Yankee concludes that the implementation of the proposed change will not result in a significant increase in the probability or consequences of an accident or malfunction of equipment important to safety previously considered .

- B. This change will not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any accident previously evaluated.

The determination of compliance with the approved safety evaluation acceptance criteria for any given core reload design is performed for each core prior to reloading. The specific use of integral fuel burnable absorbers is only one of the factors that must be considered in these assessments. The use of the approved methodologies and acceptance criteria ensure that new or different accidents will not be created by the use of integral fuel burnable absorbers in the fuel design. The proposed change does not involve, or require secondary involvement of, any equipment important to safety.

Therefore, Maine Yankee concludes that the implementation of the proposed change will not create any new or different kinds of accidents from those previously evaluated.

- C. This change will not involve a significant reduction in a margin of safety.

The safety evaluations performed for each reload core assure that the core design meets appropriate safety assessment acceptance criteria. Since these safety criteria are not changing from those approved by the NRC, the margin of safety remains the same.

Therefore, Maine Yankee concludes that the implementation of the proposed change does not involve a reduction in the margin of safety.

Based on the above evaluation, this proposed change does not constitute a significant hazards consideration.