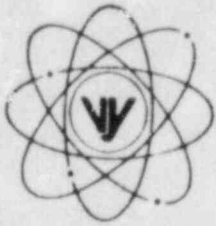


VERMONT YANKEE NUCLEAR POWER CORPORATION

PROPOSED CHANGE NO. 113



RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

February 22, 1983

2.C.15.1
FVY 83-10

REPLY TO:

ENGINEERING OFFICE

1671 WORCESTER ROAD
FRAMINGHAM, MASSACHUSETTS 01701
TELEPHONE 617-872-8100

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) Letter, USNRC to VYNPC, Amendment No. 59 to License No. DPR-28, dated November 10, 1980
(c) Letter, USNRC to Duane Arnold, Amendment No. 57 to License No. DPR-49, dated February 15, 1980

Subject: Proposed Change to Enhance Spiral Unloading and Reload of the Reactor Core

Dear Sir:

Pursuant to Section 50.59 of the Commissions Rules and Regulations, Vermont Yankee Nuclear Power Corporation hereby proposes the following modifications to Appendix A of the Operating License.

PROPOSED CHANGE

Modify pages 183, 185, 185a, and 185b to; 1) delete requirements to perform shutdown margin testing prior to spiral unload; 2) delete requirements to leave bundles next to the SRMs during spiral unload; and 3) delete requirements to reload the core only to the core configuration which existed prior to unloading the core.

Modify bases pages 186, 186a, 187, and 187a to reflect the changes to pages 183, 185, 185a, and 185b.

REASON FOR CHANGE

The proposed change as described above and on the enclosed Technical Specification pages, would delete the requirements to both verify shutdown margin prior to spiral unload and leave bundles next to SRMs during spiral unload. This change would also allow Vermont Yankee to spiral reload the core to a new configuration, thereby reducing the total number of fuel moves required when implementing the spiral unload/reload method. An earlier Technical Specification Amendment No. 59, Reference (b), added conditions defining SRM operability prior to and during spiral unloading and reloading. Included in these conditions were requirements to: 1) verify shutdown margin prior to spiral unloading; 2) leave bundles next to the SRMs during spiral unload; and 3) spiral reload the core only to its original core configuration. These conditions are highly restrictive and in the case of Item 3 require the performance of many additional fuel moves to reload the core to its new configuration.

*Adol
Rec'd w/out
check*

This proposed Technical Specification change would still allow spiral unloading and reloading of the core. In such a program, only cells on the edge of the array are unloaded or reloaded. No major imbedded cavities or major peripheral concavities would be permitted. In such a case, the neutron multiplication factor of the intermediate arrays must be less than or equal to that of the fully loaded core. Since the shutdown margin of the fully loaded core is well assured by Section 3.3.A., this proposed change is acceptable from the point of view of shutdown margin.

The purpose of the SRMs is to monitor the neutron flux in the core during reactor shutdowns and core alterations for the reasons discussed below:

A multiplying medium with no neutrons present forms the basis for an accident scenario in which reactivity is gradually but inadvertently added until the medium is highly supercritical. No neutron flux will be evident since there are no neutrons present to be multiplied. The introduction of some neutrons at this point would cause the core to undergo a sudden power burst, rather than a gradual startup, with no warning from the nuclear instrumentation. This scenario is of great concern when loading fresh fuel, but is of lesser concern for exposed fuel. Exposed fuel continuously produces neutrons by spontaneous fission of certain plutonium isotopes, photofission, and photodisintegration of deuterium in the moderator. This neutron production in exposed fuel is normally great enough to meet the 3 cps minimum for a full core after a refueling outage with the lumped neutron sources removed.

There is assurance that a sufficient flux level will be present as long as some exposed fuel is present. The Technical Specification Section 3.12.B.4 requires that two diagonally adjacent fuel assemblies, which have previously accumulated exposure in the reactor, be loaded into their designated core positions next to each of the SRMs to provide a minimum of 3 cps prior to loading any other fuel. Additionally, at least 50% of the fuel assemblies to be loaded into the core will have previously accumulated a minimum exposure of 1000 Mwd/T. Therefore, this proposed change is acceptable from the point of view of minimum flux.

An amendment similar to Vermont Yankee Technical Specification Amendment No. 59 was approved by the NRC for the Duane Arnold Center in Reference (c). However, Duane Arnold Center's Technical Specification Amendment did not include the above restrictive conditions which this proposal intends to delete. Due to the similarity between the Duane Arnold and Vermont Yankee reactors, the same reasons, bases, and safety evaluation apply to this change.

SAFETY CONSIDERATIONS

Based on the above discussions, it is concluded that this proposed change does not present significant hazards not described or implicit in the safety analysis report, and does not involve an unreviewed safety question as described in 10CFR50.59.

To the contrary, it is concluded that the reduction of total fuel moves reduces potential hazards resulting from the present spiral reload method required by the Vermont Yankee Technical Specifications.

FEE DETERMINATION

SCHEDULE OF CHANGES

Very truly yours,

J. H. Heider

LHH/dd

Then personally appeared before me, L. H. Heider, who, being duly sworn, did state that he is a Vice President of Vermont Yankee Nuclear Power Corporation, that he is duly authorized to execute and file the foregoing request in the name and on the behalf of Vermont Yankee Nuclear Power Corporation and that the statements therein are true to the best of his knowledge and belief.

JB Sinclair
J. B. Sinclair

G. T. Sinclair
My Commission Expires

Notary Public
June 1, 1984

