August 21, 1987

Docket No.: 50-271

Mr. R. W. Capstick
Licensing Engineer
Vermont Yankee Nuclear Power
Corporation
1671 Worcester Road
Framingham, Massachusetts 01701

Dear Mr. Capstick:

SUBJECT: CHANGES TO BASES OF VERMONT YANKEE TECHNICAL SPECIFICATIONS 3.3.A.1 AND 4.3.A.1 (TAC NO. 65583)

By letter dated May 29,1983, the Vermont Yankee Nuclear Power Corporation (VYNPC) submitted a change to the Bases section of the Vermont Yankee Nuclear Power Station Technical Specifications 3.3.A.1 and 4.3.A.1. This change substitutes a broader discussion of reactivity Shutdown Margin (SDM) demonstration for the existing discussion which describes only one SDM demonstration method, the adjacent rod method. An alternate method of SDM demonstration used by many operating BWR's, and considered acceptable by the NRC staff is the in-sequence critical method.

Section 36(a) of 10CFR, Part 50 states in part that "A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the Technical Specifications." However, in the interest of clarity, we have reviewed your request and we agree that it would be appropriate to substitute the expanded discussion of SDM margin you have submitted to the Bases. We have accordingly revised page 75 of the Vermont Yankee Technical Specifications. A copy of this revised page is enclosed.

Sincerely,

/S/

Vernon L. Rooney, Project Manager
Project Directorate I-3
Division of Reactor Projects I/II

Enclosure:
As stated

cc: See next page

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3.3 & 4.3 CONTROL ROD SYSTEM

A. Reactivity Limitations

1. Reactivity margin - core loading

The core reactivity limitations is a restriction to be applied principally to the design of new fuel which may be loaded in the core or into a particular refueling pattern. Satisfaction of the limitation can only be demonstrated at the time of loading and must be such that it will apply to the entire subsequent fuel cycle. At each refueling the reactivity of the core loading will be limited so the core can be made subcritical by at least R + 0.25% Δk with the highest worth control rod fully withdrawn and all others inserted. The value of R in % Δk is the amount by which the calculated core reactivity, at any time in the operating cycle, exceeds the reactivity at the time of the demonstration. R must be a positive quantity or zero. The value or R shall include the potential shutdown margin loss assuming full B_4C settling in all inverted poison tubes present in the core. The 0.25% Δk is provided as a finite, demonstrable, subcriticality margin.

2. Reacitivty margin - inoperable control rods

Specification 3.3.A.2 requires that a rod be taken out of service if it cannot be moved with drive pressure. If a rod is disarmed electrically, its position shall be consistent with the shutdown reactivity limitiation stated in Specification 3.3.A.1. This assures that the core can be shutdown at all times with the remaining control rods, assuming the highest worth, operable control rod does rod insert. An allowable pattern for control rods avlved out of service will be available to the reactor operator. The number or rods permitted to be inoperable could be many more than the six allowed by the Specification, particularly late in the operation cycle; however, the occurrence of more than six could be indicative of a generic control rod drive problem and the reaftor will be shutdown. Also if damage within the control rod drive mechanism and in particular, cracks in drive internal housing, cannot be ruled out, then a generic problem affecting a number of drives cannot be ruled out. Circumferential cracks resulting from stress assisted intergranular corrosion have occurred in the colleg housing of drives at several BWR's. This type of cracking could occur in a number of drives and if the cracks propagated until severance of the collet housing occurred, scram could be prevented in the affected rods. Limiting the period of operation with a potentially severed collet housing and requiring increased surveillance after detecting one stuck rod will assure that the reactor will not be operated with a large number of rods with failed collet housings.

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