50-271

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 17, 1997

Mr. Donald A. Reid
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
Ferry Road
Brattleboro, VT 05301

SUBJECT: ADDITIONAL COMMENTS REGARDING OFFSITE POWER SYSTEM DESIGN - VERMONT YANKEE NUCLEAR POWER STATION (TAC NO. M97960)

Dear Mr. Reid:

By letter dated February 25, 1997, the NRC staff requested information from you to assist in our review of offsite power system designs for older operating plants as a result of lessons learned from the Maine Yankee Independent Safety Assessment. You responded to that request by letter dated March 26, 1997. On April 10, 1997, we had a telephone discussion with you in which we clarified our understanding of your response and sought to more clearly communicate our initial concern regarding your letter.

Our understanding of the issue is as follows:

1. Vermont Yankee was licensed with one immediately available offsite power circuit and two delayed offsite power circuits. The immediately available offsite circuit is the 115-kV bus which can be powered from either the Keene line or the 345-kV switchyard through the 345/115-kV autotransformer. The delayed offsite power circuits are (1) the 345-kV switchyard through the main and unit auxiliary transformers once a backfeed is established by removing the main generator links; and (2) the Vernon Hydroelectric Station power line, which connects directly to one of the safety buses through a 13.2/4.16-kV transformer.

2. The Vernon Hydroelectric Station, however, was used as an alternate ac (AAC) power source during the Vermont Yankee 10 CFR 50.63, "Station Blackout," review. In lieu of demonstrating that Vermont Yankee could cope with a Station Blackout (SBO), you chose to rely on the Vernon Hydroelectric Power Station as an AAC source, and the staff accepted the Vernon Hydroelectric Station as an AAC source. Two of the most important requirements for an AAC power source are (1) it must be connectable but not normally connected to the preferred (offsite) or onsite emergency power systems; and (2) it must have minimal potential for common cause failure with the offsite or the onsite ac power sources.

Our concern is that since the Vernon Hydroelectric Station is credited as an AAC power source to satisfy the requirements of 10 CFR 50.63, how does Vermont Yankee meet its design requirement for offsite power. It appears that Vermont Yankee needs to rely on the backfeed source of offsite power as one of the two required offsite power circuits. The FSAR, however, does not discuss the

the adequacy of this delayed power source. In accordance with GDC-17, for a delayed offsite power circuit to be considered an acceptable source of offsite power, it must be shown that power can be reestablished in sufficient time to prevent fuel design limits and design conditions of the reactor coolant pressure boundary from being exceeded.

In your March 26, 1997, response to the staff, you stated that no analysis has been performed to demonstrate that the backfeed power source can be established in sufficient time to prevent fuel design limits and design conditions of the reactor coolant pressure boundary from being exceeded. You further stated that the Vernon Hydroelectric Tie is acceptable for complying with both GDC-17 and 10 CFR 50.63 because it performs a dual function.

An AAC power source can not serve as one of the two GDC-17 offsite power sources. It is inconsistent to claim that an offsite power circuit can double as an AAC power source to satisfy the requirements of 10 CFR 50.63, which assumes a loss of offsite power. Therefore, it appears necessary to either (1) demonstrate the adequacy of the backfeed power source as a delayed offsite power source, or (2) consider the Vernon Hydroelectric Station as the delayed offsite power source, in which case you would need to perform a coping analysis to satisfy the requirements of 10 CFR 50.63.

Your response to the concerns expressed in this letter is requested as soon as possible, but no later than 30 days from the date of receipt of this letter.

Sincerely,

ORIGINAL SIGNED BY:

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

Docket No. 50-271

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