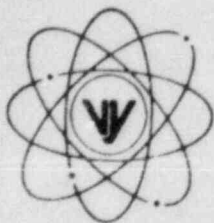


# VERMONT YANKEE NUCLEAR POWER CORPORATION



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REPLY TO:  
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FVY 84-104

August 24, 1984

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

Attention: Office of Nuclear Reactor Regulation  
Mr. Domenic B. Vassallo, Chief  
Operating Reactors Branch No. 2  
Division of Licensing

References: (a) License No. DPR-28 (Docket No. 50-271)  
(b) Letter, USNRC to All Licensees, Generic Letter 84-09,  
dated May 8, 1984  
(c) Letter, VYNPC to USNRC, FVY 82-81, dated July 6, 1982

Subject: Recombiner Capability Requirements of 10CFR50.44(c)(3)(ii)

Dear Sir:

By letter, dated May 8, 1984 [Reference (b)], you requested that we review the applicability of generic studies submitted to you by the Mark I Owners Group regarding the technical basis for not needing recombiner capability, as presently required by 10CFR50.44(c)(3)(ii). Your letter provided three criteria which need to be satisfied in order to take credit for the Owners Group studies.

The purpose of this letter is to inform you that we have reviewed the three criteria and believe that we meet the conditions necessary to take credit for the Owners Group studies as follows:

1. Our Technical Specifications specify the plant conditions which require the containment atmosphere to be less than four (4) percent oxygen.
2. Our preliminary engineering evaluation indicates that only nitrogen or recycled containment atmosphere is used in pneumatic control systems within the containment during power operation.
3. Our preliminary engineering evaluation indicates that there are no significant potential sources of oxygen in containment other than that resulting from radiolysis of the reactor coolant.

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Generic Letter 84-09 also states that if a licensee has installed a safety-grade purge/repressurization system in accordance with the requirements of 10CFR50.44(f) or (g), such a system must be retained, "even though it may be determined with respect to 50.44(c)(3) that the plant does not rely on that system as the primary means for hydrogen control".

Vermont Yankee installed an air Containment Atmosphere Dilution (CAD) System in 1976 as a means of controlling hydrogen generation resulting from the metal-water reaction associated with a postulated Loss Of Coolant Accident (LOCA). This system was installed and intended for use in a non-inerted containment.

On December 2, 1981, the NRC promulgated a rule change to 10CFR50.44 which required Vermont Yankee to inert the primary containment with nitrogen while operating. This rule change also required plants that rely on purge/repressurization as a primary means of hydrogen control to install internal recombiners or have the capability for external recombiner capability. We requested an exemption from the need for hydrogen recombiner capability by letter dated July 6, 1982 [Reference (c)]. The Exemption Request stated that our basis for not needing recombiner capability was the results of a study conducted by General Electric Company on behalf of the Boiling Water Reactor Owners Group (BWROG) which indicated that with an inerted containment, the amount of oxygen generated under conservatively postulated accident conditions will not be sufficient to result in a combustible hydrogen/oxygen mixture (See NEDO-22155, entitled "Generation and Mitigation of Combustible Gas Mixtures in Inerted BWR Mark I Containments"). Further, our Exemption Request stated and the study concluded, that BWRs covered by the General Electric study need not rely on the use of purge/repressurization as the primary means of controlling combustible mixtures. Based on the results of the BWROG effort, we expected the NRC to promulgate a revision to 10CFR50.44 to reflect the results of the General Electric study, alleviating BWRs from the need for hydrogen recombiners as well as the need for a purge/repressurization system.

Since we concurred with the findings of the General Electric study, we concluded that we no longer needed a purge/repressurization capability, in accordance with the provisions of 10CFR50.44(g). However, we maintained our air CAD System pending the promulgation of a rule change. Following the issuance of Generic Letter 84-09, it became evident that the NRC has no plans to promulgate a revision to 10CFR50.44 but rather chooses to require plants that have a safety grade purge and repressurization system to retain it. We subsequently reviewed the operational viability of our air CAD System and have determined that its operation is not required for any design basis accident scenarios and is a potential source of oxygen to the containment (post-accident), contrary to Criterion 3 of Generic Letter 84-09.

In order to eliminate this contradiction in criteria, Vermont Yankee plans to convert the existing air CAD system to a system which provides for a nitrogen purge and repressurization capability. Our intentions are to complete the design and installation before start-up of the next refueling outage which is scheduled to begin in September 1985.

United States Nuclear Regulatory Commission  
Attention: Mr. Domenic B. Vassallo, Chief

August 24, 1984  
Page 3

We are presently conducting a detailed engineering evaluation to ensure that we satisfy Criteria 2 and 3. This evaluation is scheduled to be complete in October 1984. At that time, we will inform you of our determination as to whether we satisfy the Generic Letter criteria and provide you with the summary results of our engineering review.

We trust that this schedule is deemed acceptable; however, should you have any questions regarding this matter, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

*Andrew C. Kadak*

A. C. Kadak  
Project Manager

JBS/clr