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REPLY TO: WY 80-150
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October 22, 1980

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

Attention: Office of Nuclear Reactor Regulation
Mr. Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Operating Reactors

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) USNRC Letter to WYNPC dated April 25, 1980

Subject: Effect of a DC Power Supply Failure on ECCS Performance

Dear Sir:

As requested in Reference (b), Vermont Yankee has reviewed the General Electric Company generic reference analysis of the effects of a dc power supply failure on ECCS equipment availability. This review was conducted to ensure that the plant design information used in the generic report was appropriate for the Vermont Yankee ECCS design. Based on our review, we have concluded that the generic analysis is conservative for Vermont Yankee in that a loss of a dc power supply does not result in an unacceptable combination of operable ECCS equipment and therefore, is not a limiting single failure condition.

Vermont Yankee is classified as a "LPCI mod" plant since the LPCI loop selection logic is no longer utilized. A dc bus failure to this modified ECCS system leaves the following equipment available for large and small recirculation line breaks.

Suction Break: 1 cs + 2 LPCI (1 each loop) + ADS
Discharge Break: 1 cs + 2 LPCI (1 in the intact loop) + ADS
(1 in the broken loop)

The dc power sources for these systems are the 125 volt dc station batteries A-1 and B-1. Both batteries supply power to the appropriate logic panels and relays such that dc power is supplied regardless of which battery (or dc bus) has failed. Also, the HPCI and RCIC systems and their logic panels are powered from the A-1 and B-1 batteries respectively. This separation ensures that either one of these systems will be available and operable subsequent to a single dc power failure.

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During normal operation, the A and B trains of the LPCI injection valves and recirculation discharge valves are powered from their respective 480 volt emergency buses through Uninterruptible Power Supplies 1A and 1B respectively. Both UPS's utilize batteries as their ultimate power source. On a failure of one UPS battery, one LPCI valve train would become inoperable. The redundant LPCI train would remain operable along with other ECCS equipment. This condition is acceptable.

With the exception of certain DC solenoid valves and cabling, the ECCS equipment discussed above is located outside the primary containment and, therefore, is not effected by water spillage. The DC solenoids and cables which are located inside containment are presently being evaluated for environmental qualification as part of the effort associated with Bulletin 79-01.

We trust this information is acceptable to you; however, should you have any questions please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION



R. L. Smith
Licensing Engineer

RTT/smw