

VERMONT YANKEE NUCLEAR POWER CORPORATION

SEVENTY SEVEN GROVE STREET

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2.C.15.1

FVY 81-144

REPLY TO:

ENGINEERING OFFICE

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FRAMINGHAM, MASSACHUSETTS 01701

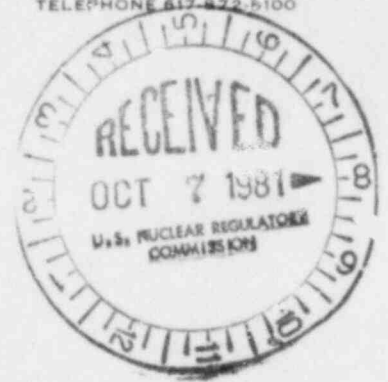
TELEPHONE 617-872-6100

October 5, 1981

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) NUREG-0737
 - (c) NUREG-0626
 - (d) Letter, D. G. Eisenhower to All Operating BWR's, dated July 7, 1980
 - (e) Letter, VYNPC to USNRC, WVY 80-146, dated October 14, 1980
 - (f) Letter, VYNPC to USNRC, WVY 80-170, dated December 15, 1980



Subject: Modifications to Break Detection Logic to Prevent Spurious Isolation of RCIC System and Scram Discharge Vent and Drain Valve Surveillance Requirements.

Dear Sir:

Pursuant to Section 50.59 of the Commission's Rules and Regulations, Vermont Yankee Nuclear Power Corporation hereby proposes the following modification to Appendix A of the Operating License.

PROPOSED CHANGE

Changes to the Technical Specifications are being proposed to reflect the installation of a time delay in the break detection closure circuitry for the steam supply valves to the RCIC system. This time delay would only affect the excess flow break detection function and prevent isolation of the RCIC system should a spurious/false signal be generated.

In addition, changes are being proposed to incorporate surveillance requirements for the Scram Discharge Volume (SDV) vent and drain valves and a correction is being proposed to the notes associated with Table 3.2.2.

The proposed Technical Specification changes and a technical description of the RCIC modification are enclosed.

REASON FOR CHANGE

There have been cases within the industry where pipe break detection circuitry has resulted in spurious isolation of the RCIC system due to the pressure

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Approved 5/11 w/check \$4,000

spike which accompanies system startup. Introduction of a time delay would prevent the circuitry from responding to pressure spikes that might cause undesirable isolation on startup of the system.

The addition of new surveillance requirements for SDV vent and drain valves fulfills a Vermont Yankee commitment made in Reference (e) in response to Reference (d).

The change to Note 10 of Table 3.2.2 is required to correct the conditions when the low vacuum trip function may be bypassed.

BASIS FOR CHANGE

The intent of the change is to improve the availability of the RCIC system by preventing the system from inadvertently isolating on startup because of pressure spikes. This time delay will not adversely affect the reactor building environment caused from a RCIC steam supply line break.

The change regarding SDV vent and drain valve surveillance will provide increased assurance that the SDV is properly vented and drained during normal operation and therefore capable of accepting the water displaced from the control rod drives in the event of a scram.

The change to Note 10, Table 3.2.2 corrects the condition when the bypass of the condenser vacuum trip is used to greater than 12 inches Hg absolute during plant startup and shutdown operations in lieu of less than 12 inches Hg absolute.

SAFETY CONSIDERATIONS

The objective of the RCIC isolation system is to limit the radiological, temperature and humidity consequences of a steam supply line rupture. The consequences of such an accident are determined by the total quantity of steam released to the environment at the steam flow design conditions as specified in the FSAR. The total mass release is determined by the size of the break and the time required to isolate the break. An evaluation of the proposed addition of a time delay to the RCIC isolation logic has shown that the addition of a three to seven second delay will not result in any change in the total quantity of steam to be released in accordance with the design basis. The key point considered in reaching this conclusion is the thirteen second valve closure delay period currently assumed during the design basis evaluation of a RCIC steam supply line break. This extended delay results from the assumption that the DC isolation valve fails and that no offsite AC power is immediately available to the AC valve. The diesel-generator start and emergency bus loading sequence is assumed to require 13 seconds and will preclude any movement of the AC valve prior to this time. Because of this power supply delay assumption, the incorporation of a time delay of three to seven seconds in the control logic will not extend the reactor blowdown period and consequently will not influence the total fluid mass and radioactivity released from the reactor that is assumed in the accident analysis.

This change also incorporates surveillance requirements for the SDV vent and drain valves. As stated under the bases for change, these requirements will

provide increased assurance that the SDV is properly vented and drained during normal operation.

Finally, the change to Note 10, Table 3.2.2, merely corrects the conditions allowed when the condenser vacuum trip bypasses. There are no additional safety considerations resulting from this change.

Based on the above, the probability of previously evaluated accidents is not increased by these changes. The possibility of a different type of accident is not created nor are the margins of safety as defined in the basis of the Technical Specification reduced by this proposed change. Therefore, this change does not constitute an unreviewed safety question as defined in 10CFR50.59(a)(2).

This submittal has been reviewed by the Vermont Yankee Nuclear Safety Audit and Review Committee.

FEE DETERMINATION

This proposed change requires an approval that involves a single safety issue and is deemed not to involve a significant hazards consideration. For these reasons, Vermont Yankee Nuclear Power Corporation proposes this as a Class III Amendment. A payment of \$4,000.00 is enclosed.

SCHEDULE OF CHANGE

As stated in Reference (f), installation of this modification will take place during the first scheduled outage of sufficient duration following receipt of equipment and NRC approval.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

L. H. Heider
Vice President

COMMONWEALTH OF MASSACHUSETTS))ss
MIDDLESEX COUNTY)

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.



Robert H. Groce Notary Public
My Commission Expires September 14, 1984

MODIFICATION TO RCIC
BREAK DETECTION LOGIC TO
PREVENT SPURIOUS ISOLATION

DESCRIPTION

In the existing system, differential pressure switches are used to measure steam flow to the RCIC turbine. Their setpoint is selected to provide an indication of excess flow which would be indicative of a steam line break. If the switches operate, they cause a relay to be energized. Contacts from the relay in turn are used to initiate closure of steam line isolation valves. We propose to replace the existing relays with time delay relays. The result of this change would be that any transients in the system that last for less than the time delay would not actuate the isolation logic.

A total of two relays would have to be replaced in the RCIC system. The relays are located in relay logic cabinets in the main control room.

The time delay relays will be mounted in the same cabinet as the existing relays that they are replacing.

The only alteration being made is the substitution of two time delay relays for two instantaneous relays. There are no changes to the design basis, protective function, redundancy, or trip point settings.

ADMINISTRATIVE CONTROLS

Administrative controls are established through the use of plant procedures to control access to equipment adjustments and calibration.

CODES AND STANDARDS

The new equipment installed by this modification affects safety class systems and has been designed to meet the intent of, but is not limited to, the following:

IEEE 323-1974 Standard for Qualifying Class 1E Electrical Equipment for Nuclear Power Generating Stations.

IEEE 344-1973 Recommended practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations.

IEEE 279-1971 Criteria for Protection Systems for Nuclear Power Generating Stations.

QUALITY ASSURANCE

Quality Assurance and control will be applied to this change as detailed in Yankee Atomic Electric Company's Operational Quality Assurance Program.