VERMONT YANKEE NUCLEAR POWER CORPORATION



RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

FVY 86-83 REPLY TO: ENGINEERING OFFICE 1671 WORCESTER ROAD FRAMINGHAM, MASSACHUSETTS 01701 TELEPHONE 617-872 < 100

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September 16, 1986

U.S. Nuclear Regulatory Commission Office of Inspection & Enforcement Region I 631 Park Avenue King of Prussia, PA 19406

Attn: Dr. Thomas E. Murley Regional Administrator

Reference: a) License No. DPR-28 (Docket No. 50-271)

Dear Sir:

Subject: Notification of Potential Existence of a Defect in Accordance with 10 CFR 21.21

In accordance with the provisions of 10CFR21, Section 21, we are hereby notifying you that we have obtained information indicating that a defect may exist with respect to solenoid valve rebuild kits supplied by General Electric Company.

Enclosure I to this letter documents the details of this notification. Should you have any questions regarding this matter, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

omuph Warren P/ Murphy

Vice President and U Manager of Operations

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DR ADOCK 05000271

ENCLOSURE I

COMPANY INFORMING THE COMMISSION	Vermont Yankee Nuclear Power Corporation RD 5, Box 169 Ferry Road Brattleboro, Vermont 05301
FACILITY	Vermont Yankee Nuclear Power Corporation PO Box 157 Governor Hunt Road Vernon, Vermont 05354
FIRM SUPPLYING COMPONENT	General Electric Company 175 Curtner Avenue San Jose, California 95125

NATURE OF DEFECT

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During the 1985-86 refueling outage, all Hydaulic Control Unit (HCU) scram solenoids were rebuilt based on a General Electric recommendation and with rebuild kits supplied by General Electric. It should be noted that the replacement parts kits are supplied by ASCO to GE as non-safety commercial grade parts. Following completion the the solenoid rebuilding, all control rods were single rod scram tested, which revealed that one control rod failed to insert following inspection of the failed HCU and subsequent testing. It was determined that the failure was attributed to a detached core assembly from the solenoid core spring. On additional detached spring was found during additional testing.

There are two solenoids on each HCU arranged in a two-out-of-two logic. In this arrangement, both solenoids must be de-energized to allow the associated control rod to scram. Since the solenoids are a de-energized to scram valve, they are designed such that, when energized, the core assembly is being pulled into the solenoid coil and the core spring is in compression. When deenergized, the solenoid coil loses its attraction to the core assembly which allows the core spring to push the core away from the solenoid coil. This action seals off the supply air and exhausts the valve air which scrams the control rod. However, if the core assembly has become detached from the core spring, no movement of the core assembly will occur when the solenoid is deenergized, which prevents rod movement. Additionally, since the HCU solenoids are arranged in a two-out-of-two logic, if either one of the solenoids fail, rod insertion is prevented.

DATE ON WHICH DEFECT WAS DETECTED

The failure to scram event occurred on June 13-28, 1986. A potential Part 21 Report Evaluation was initiated on July 23, 1986.

NUMBER OF COMPONENTS AT FACILITY

Vermont Yankee has 180 of this type of solenoid in use.

CORRECTIVE ACTIONS

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 Vermont Yankee replaced all 178 HCU scram solenoid internals, plus 2 scram discharge volume solenoid valve internals, with new replacement kits which were 100% inspected to tolerances specified on manufacturing drawings. This inspection was performed by the Automatic Switch Company (ASCO), the manufacturer, and witnessed by Vermont Yankee and General Electric.

This inspection found 127 of the 200 kits inspected to be out of manufacturer's tolerance. However, it was concluded that the out-of-spec components would not contribute to the problem nor were they of any consequence. It should be noted that Vermont Yankee did not accept any components that were out of tolerance.

- A pre-operational functional test consisting of a full scram air only time testing was performed.
- 3) All 89 controls rods were successfully single rod scram tested at temperature and pressure (between 20% and 30% power levels) during startup.

RELATED ADVICE

Vermont Yankee recommends other BWR operators review in detail RICSIL No. 008 - "Control Rod Drive Scram Anomaly". Utilities should also initiate inspection and testing GE replacement Pilot Head Kits No. FV 204-139 for proper spring to core attachment.

During the review and inspection of the above mentioned discrepancies, another problem with the same batch of replacement kits was found. This problem, however, was not considered to be a safety concern as the problem would be discovered during scram time testing and as such was not reportable under 10CFR21.21. The problem as identified by Vermont Yankee dealt with a parts mixup with the core assembly and the Zytel needle which protrudes out the end. The problem was found to be the size of the hole (a standard core assembly for another type valve) in the core assembly was larger than it should be for this valve, thus allowing the Zytel needle to protrude further than it should.

This additional protrusion would not allow the valve to exhaust its air, upon a scram signal, as rapidly as designed. The valves did work, however, not within the time allowed by Technical Specifications.

It is recommended that utilities inspect for this problem, as well as the spring attachment, in an effort to preclude problems during startup activities.

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