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John C. Brons
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June 14, 1985
JPN-85-49

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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

Subject: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Appendix R to 10 CFR 50, Section III.L
Request for Exemption Regarding Alternate
and Dedicated Shutdown Capability

Reference: 1. PASNY letter, J. P. Bayne to H. R. Denton, dated November 22, 1982 (JPN-82-87) regarding Reassessment of Fire Protection Features for Conformance to Appendix R to 10 CFR 50.

Dear Sir:

Section III.L.1 of Appendix R to 10 CFR 50 requires that an alternate shutdown capability be provided to maintain reactor coolant system process variables within those predicted for a loss of normal a.c. power during postfire shutdown. This section also requires that the fission product boundary shall not be affected; i.e. fuel cladding shall not be damaged. Section III.L.2.b of Appendix R further requires that the makeup coolant function be capable of maintaining reactor coolant level above the top of the core for BWRs.

In Attachment No. 1 to Reference No. 1, the Authority described how the FitzPatrick alternate shutdown capability would not result in core uncovery. By using both the Automatic Depressurization System (ADS) and Low Pressure Coolant Injection (LPCI) System, reactor vessel level is maintained above the top of active fuel (TAF). In the analysis used to support these conclusions, the incredible loss of all high pressure makeup, (coincident with reactor scram and isolation) was assumed. Using these very conservative assumptions, the core will not be uncovered if ADS is actuated within 10 minutes of the scram.

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Since the Authority submitted Reference 1, we have completed additional analyses to determine the amount of time available for operator actions before ADS initiation is necessary. Attachment No. 1 summarizes the basis and findings of this new analyses.

The results of this analysis justify an increase in operator response time from ten to thirty minutes. This analysis used the same assumptions as our previous analysis (Reference No. 1).

Based on this new analysis and in accordance with the provisions of 10 CFR 50.12, the Authority hereby requests an exemption from the requirements of Sections III.L.1 and III.L.2.b of Appendix R to 10 CFR 50 to the extent that reactor coolant must remain above the top of the core during use of the alternate shutdown capability.

In accordance with 10 CFR 170, a check in the amount of $150.00 is enclosed as the application fee. The Authority pays the fee under protest pending final determination of the legality of the fee schedule.

If you have any questions regarding this exemption request or the associated analyses, please contact Mr. J. A. Gray, Jr. of my staff.

Very truly yours,

John C. Brons

John C. Brons
Senior Vice President
Nuclear Generation

cc: Office of the Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 136
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Attachment No. 1 to JPN-85-49
NEW YORK POWER AUTHORITY
James A. FitzPatrick Nuclear Power Plant

SUMMARY OF OPERATOR ACTION TIME FOR ALTERNATE SHUTDOWN

Additional analyses to justify an extension of the operator action time necessary to regain control of the reactor shutdown functions at the alternate shutdown panels for a control room fire event have been performed. The basis for this additional analysis is that "no fuel damage" is an acceptable basis for the BWR alternate shutdown systems. These new analyses investigated the potential consequences of the alternate shutdown scenario on fuel integrity, suppression pool integrity, and SRV operability with two phase flow. The analyses to investigate the above mentioned potential consequences utilized a 30 minute operator action time, and the same assumptions as those used in the previous analysis.

The significant findings of the analysis are presented below:

1) Fuel integrity was investigated using the combination of the General Electric (GE) long term blowdown code (SAFE03) and the core heatup analysis code (CHASTE05). This analysis indicated that the top portion of the core remained uncovered for approximately 150 seconds resulting in a peak cladding temperature of less than 1100°F.

2) Maximum suppression pool temperature was determined by performing an energy balance on the suppression pool utilizing the plant response from the SAFE03 analysis. The peak suppression pool temperature was found to be 193°F with a corresponding pressure of approximately 27 psia.

3) SRV operability with two phase flow was investigated utilizing two different scenarios. The first assumes that once LPCI is initiated it remains on, at full capacity, until the water level in the vessel reaches the steamlines. The second scenario represents a more realistic mode of operation in that after the core is recovered the LPCI flow is throttled back to approximately 10% of its capacity. Both scenarios were simulated with the SAFE code to determine the fluid conditions at the time when the ADS valves begin discharging liquid. From these conditions the loads on the SRVs and associated piping were computed and compared with the loads caused by normal high pressure steam discharge. This comparison revealed that the loads due to liquid discharge from both scenarios were much less than those corresponding to normal opening loads for SRV actuation in a steam environment. Additionally, previous studies have indicated that SRV operability is not impacted by liquid discharge.

Based upon the results presented above, a 30 minute operator action time is sufficient to prevent any potential damage to the fuel integrity, suppression pool integrity, and SRV operability.