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Chief Nuclear Officer

November 27, 1996
JPN-96-049

U.S. Nuclear Regulatory Commission
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SUBJECT: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
**Response to Request for Additional
Information Regarding Power Uprate**

- References:
1. NRC Letter, C. E. Carpenter, Jr. to Mr. Cahill, "Safety Evaluation of Safe Shutdown Capability Reassessment for James A. FitzPatrick Nuclear Power Plant (TAC No. M84780)," dated September 5, 1995.
 2. NYPA Letter, W. J. Cahill, Jr. to NRC (JPN-96-001), "Request for Exemption From 10 CFR 50, Appendix R Regarding Use of Low Pressure Injection Systems to Achieve Safe Shutdown," dated January 12, 1996.
 3. NYPA Letter, AE-96-056, "Fire Protection/Appendix R Compliance Checklist," dated November 25, 1996

Dear Sir:

Attachment 1 is the Authority's response to a recent request for additional information regarding power uprate at the James A. FitzPatrick Nuclear Power plant. This question was recently telecopied to the Authority by the NRC. The NRC issued a Safety Evaluation Report (SER) (Reference 1) approving the safe shutdown capability reassessment pursuant to 10 CFR 50 Appendix R for the James A. FitzPatrick plant. The NRC requested confirmation that the SER remains valid, and that Appendix R safe shutdown capability with the requested exemption (Reference 2) will not be adversely affected, at the uprated power level proposed for the FitzPatrick plant.

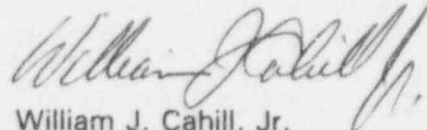
The Authority has verified (Reference 3) that the safe shutdown capability with the proposed exemption will not be adversely affected at the uprated power level and the safe shutdown analysis is still valid.

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If you have any questions regarding this matter, please contact Ms. C. Faison.

Very truly yours,



William J. Cahill, Jr.
Chief Nuclear Officer

cc: Regional Administrator
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Attachment I to JPN-96-049

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

New York Power Authority

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

Docket No. 50-333

DPR-59

REQUESTED INFORMATION

The SE regarding the FitzPatrick post-fire safe shutdown capability was issued after FitzPatrick submitted its power uprate application. You need to re-verify on the docket that the safe shutdown capability with the new exemptions (if approved) will not be adversely affected at the uprated power level and that the safe shutdown analysis is still valid.

RESPONSE TO REQUEST FOR INFORMATION

James A. Fitzpatrick utilizes low pressure Emergency Core Cooling Systems (ECCS) in conjunction with the Safety Relief Valves (SRVs), for reactor inventory control in the following fire areas:

- Fire Area ID (North Cable Tunnel)
- Fire Areas VII (Control Room, Relay Room and Cable Spreading Room)
- Fire Area IX (Reactor Building East Side - El. 272'; Southeast Quadrant-El.300'; and entire floor - El.326', 344' and 369' and Standby Gas Filter Room - El. 272')
- Fire Area X (Reactor Building West Side - El. 272' and Southwest quadrant - El. 300')
- Fire Area XI (South Cable Tunnel)
- Fire Area XV (Torus Room)
- Fire Area XVI (Battery Room Corridor)
- Fire Area XVII (East Crescent)
- Fire Area XVIII (West Crescent)

All of the above areas relied on low pressure ECCS pumps for reactor inventory control in the 1992 Appendix R Safe Shutdown Capabilities Assessment in conjunction with the SRVs to depressurize the Reactor Coolant System (RCS). Power uprate did not change the basic shutdown methodology. For added conservatism, the Authority increased the number of SRVs actuated to further decrease Peak Clad Temperature (PCT) for those areas relying on only a single RHR pump. For areas where a Core Spray pump is relied upon, this added conservatism was judged to be unnecessary due to the minimal core heating. The following is an evaluation of these areas.

Fire Areas VII, ID and XVI - Alternate Shutdown Areas

Fire Areas VII, ID and XVI are alternate shutdown areas which utilize a single Residual Heat Removal (RHR) pump for reactor inventory control.

The alternate shutdown methodology can result in limited core uncover. 10 CFR 50 Appendix R Section III.L establishes no core uncover as a performance requirement for alternate shutdown areas. Consequently, the Authority requested exemption to this provision of Appendix R in a December 17, 1985 exemption request. The NRC granted the exemption, in part, based on the calculated PCT being far below 1500 degrees F (the lower limit of clad perforations).

For the alternate shutdown event, the core would be uncovered to greater extent and for a longer period of time under power uprate conditions (2536 MWt) versus pre-uprate conditions (2436 MWt). It was necessary to evaluate the impact of power uprate on the

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alternate shutdown strategy because the increase in power could result in a higher PCT.

To compensate for the affect of power uprate, additional SRVs could be opened. This will allow for a more rapid depressurization and reactor reflood, resulting in a shorter core uncover. General Electric Report GE-NE-187-57-1191 Rev.1 re-analyzed the alternate shutdown event assuming 8 SRVs are actuated, set at both staggered setpoints and single setpoints. This analysis demonstrated that the PCT would be no more than 863 degrees F for the staggered setpoint case. GE also concluded that the results for the single SRV setpoint case would be similar. There have been changes in the fuel design since Report GE-NE-187-57-1191 Rev.1 was prepared. Based on this, GE determined that with the current core design, and the single SRV setpoint now in place, the PCT would be no more than 963 degrees F which is below the 1013 degrees F previously analyzed for 2436 MWt. In addition, these results also satisfy the basis of NRC acceptance of the Authority's 10 CFR 50.12 exemption pertaining to core uncover in that PCT is maintained far below the temperature at which cladding perforations could be expected (1500 degrees F), as documented in a September 15, 1986 SER.

The plant design supports the use of 8 SRVs during an alternate shutdown event. Appendix R analysis assures that 11 SRVs will be available to support safe shutdown from Panel 02-SRV-71 for any event for which alternate shutdown is the assured shutdown strategy. Allowing for two valves to be out of service as permitted by the Technical Specifications, no less than 9 SRVs would be available to support Safe Shutdown activities. This exceeds the 8 SRVs assumed available. Therefore, Appendix R requirements are met.

A change to Abnormal Operating Procedure AOP-43 will be required to support this change.

Fire Area IX, X and XI - Non-Alternate Shutdown Areas Utilizing Core Spray

The no core uncover criteria of Appendix R Section III.L was interpreted by the NRC as applying to non alternate shutdown areas which utilize low head ECCS systems for inventory control as documented in a September 15, 1995 SER. Based on this SER, the Authority has also requested exemption to the "no core uncover criteria" of 10 CFR 50 Appendix R, Section III.L for Fire Areas IX, X, XI, XV, XVII and XVIII in letter JPN-96-001, dated January 12, 1996. In part, the basis of this exemption is that the analysis for core uncover during the alternate shutdown event (PCT 1013 degrees F) bounds the results expected for a fire in Fire Area IX, X and XI.

For Fire Areas IX, X, and XI, a single Core Spray pump has been assured available. An RHR pump is also available for LPCI injection throughout these areas except for the drywell access areas (Fire Areas IX and X). Redundant LPCI injection valves are located in the drywell access area. Based on the physical separation of the valves and the configuration of the combustibles in the area, a fire is not expected to result in the loss of redundant LPCI injection valves. However, it is not necessary to credit their use as core spray is available. In order, to support the above exemption request basis for these areas, General Electric Report DRF#B13-01805 modeled reactor response assuming a single Core Spray Pump available for reactor inventory control, with 7 SRVs available for RCS depressurization under power uprate conditions. This analysis utilized similar assumptions as those utilized for the analysis supporting the Alternate Shutdown Exemption request as

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accepted by the NRC in a September 15, 1986 SER except for the use of a Core Spray pump (instead of an RHR pump), 7 SRVs (instead of 6 SRVs assumed in the analysis supporting the Alternate Shutdown strategy), 2536 MWt (instead of 2436 MWt), power uprate SRV setpoints and RCS blowdown being initiated at 0" Top of Active Fuel (TAF) instead of below TAF). The results of this analysis show no significant fuel clad heating and demonstrate that the fuel clad temperature remains below 1013 degrees F, thereby satisfying the basis of the January 12, 1996 exemption request.

The plant design supports the use of 7 SRVs during a fire in Fire Areas IX, X, and XI, in that the Appendix R analysis assures that 11 SRVs will be available to support safe shutdown. This remains unchanged from pre-uprate conditions. Allowing for two valves to be out of service as permitted by the Technical Specifications, no less than 9 SRVs could be relied upon to support safe shutdown activities. This exceeds the 7 SRVs assumed available. Therefore Appendix R requirements are met.

A change to the current revision of Abnormal Operating Procedure AOP-28 for fires in Fire Areas IX, X, and XI will not be required.

Fire Area XV, XVII and XVIII - Non-Alternate Shutdown Utilizing RHR

For fires in Fire Area XV, XVII and XVIII a single RHR pump is assured available for Safe Shutdown (10P-3A on the East side and 10P-3B on the West side of Fire Area XV). As Control Room evacuation is not required for a fire in these areas, SRV actuation can be assumed to occur at 0" TAF. Similar to the alternate shutdown case, 8 SRVs will be assumed to be operated. As more water will be in the vessel at the time of RCS depressurization as compared to the alternate shutdown case and the same number of SRVs utilized, reactor response in this event will be bounded by the alternate shutdown case.

The physical plant design supports the use of 8 SRVs during a fire in Fire Areas XV, XVII and XVIII. Appendix R analysis assures that 11 SRVs will be available to support safe shutdown from the Control Room. Allowing for two SRVs to be out of service as permitted by the Technical Specifications, no less than 9 SRVs could be relied upon to support safe shutdown activities. This exceeds the 8 SRVs assumed available. Therefore, Appendix R requirements are met.

Changes to Abnormal Operating Procedure AOP-28 are being evaluated. Prior to startup from the current refueling outage, required changes to AOP-28 will be implemented, or an updated analysis supporting the use of 7 SRVs in these fire areas will be completed.