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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 21, 1981

Docket No. 50-333

Mr. George T. Berry
President and Chief
Operating Officer
Power Authority of the State
of New York
10 Columbus Circle
New York, New York 10019

Dear Mr. Berry:

SUBJECT: REQUEST FOR AN EXEMPTION FROM THE SCHEDULAR REQUIREMENTS OF 10 CFR 50, APPENDIX R

We have received your letter of March 19, 1981 whereby you requested an exemption from the schedular requirements of Sections III.G and III.J of 10 CFR 50 Appendix R. Your request is presently under staff and Commissioner review. Our findings may be expected in the near future.

By your letters of September 1979 and October 1980 you provided additional information regarding alternate shutdown capability (SER item 3.1.15). At this time we have concluded that the Fitzpatrick plant does not satisfy our criteria as discussed in the enclosed interim report. Safe shutdown capability shall meet the technical requirements of Sections III.G and L of 10 CFR 50 Appendix R.

If we can be of further assistance, please advise.

Sincerely,

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

cc: See next page

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Mr. George T. Berry

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INTERIM REPORT

POST FIRE CAPABILITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT

Section 3.1 of the SER on Fire Protection dated August 1, 1979 states that the licensee will provide alternative shutdown capability independent of cabling and equipment in both the relay room and the cable spreading room. Section 4.1(4) of the SER states that the licensee will conduct an analysis to demonstrate that the capability to shut the plant down safely exists taking into consideration the consequences of postulated fires in each area of the plant.

In a report dated September 1979 revised October 1980, the licensee addressed these concerns in a document entitled "Safe Shutdown Analysis - James A. FitzPatrick Nuclear Power Plant." Additional information was exchanged in a telephone conversation between NRC, FitzPatrick and BNL representatives on January 21, 1981.

The licensee has defined safe shutdown to include both hot and cold shutdown and has used many systems to achieve safe shutdown without differentiating between hot and cold shutdown for equipment. The reactor core isolation cooling and high pressure coolant injection systems are used for initial cooling with the residual heat removal system used to cool the torus. For depressurization, the automatic depressurization system is used with either the core spray or the low pressure injection cooling system; the residual heat removal system in the steam condensing mode is another means of depressurizing. For extended cooling, the residual heat removal system is used in various modes as well as the low pressure injection cooling system.

The licensee has undertaken to show that at least one method of achieving safe shutdown will survive any fire in any area. In doing so he has evaluated what equipment and cables in the area will be rendered useless for the shutdown function. He has also attempted to demonstrate that by rerouting about 100 cables on a permanent basis ahead of time or manually operating valves and circuit breakers, no fire will preclude a safe shutdown.

We have evaluated the post fire shutdown capability using NRC guidelines in "Staff Position Safe Shutdown Capability" dated June 19, 1979 and NRC requirements in Section III.L of Appendix R to 10 CFR Part 50. We have found that:

1. The post fire shutdown capability has not been shown to be isolated from associated circuits so that fire damage to the associated circuits in a fire area may not prevent the operation of shutdown equipment.

2. Process monitoring has not been adequately addressed. Table 2-1 provides a list of safety related equipment which includes some needed process monitoring instruments. However, these are not addressed in the body of the report and it has not been shown which instruments will be available for safe shutdown after postulated fires in various areas.

3. All cold shutdown procedures have not been prepared.

4. All hot shutdown procedures have not been prepared.

5. Flow control valve 10 MOV 16 could remain open in the event of a fire. By telecon of January 21, 1981 the licensee stated that the flow through these valves to the torus would not affect safe shutdown but could not provide technical basis.

6. The post fire shutdown capability depends on fire protection measures for the following areas: RB-13C, RB-14C, RB-14D, RB-15A, and RB-15B, as well as the barriers proposed to protect the motor control centers C-151 and C-161 at the south end of the reactor on elevation 272 to prevent water spray damage.

We conclude that the proposed alternate shutdown capability for the FitzPatrick Nuclear Power Station does not conform with NRC guidelines and requirements and, therefore, is unacceptable.

We recommend the following:

A. The alternative shutdown capability should be modified to meet the requirements of Section III L of Appendix R to 10 CFR Part 50, taking into consideration the above findings.

B. The process monitoring should be shown to be capable of providing direct readings of the process variables necessary to control reactivity, reactor coolant makeup, and reactor heat removal. Permanently installed instruments should be used to provide capability for reading reactor water level, pressure and temperature, suppression pool temperature and level, applicable flow rates, and rediation levels.

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D. All repair procedures should be fully developed and it should be verified that the materials for the repairs are maintained on site.

E. The manpower for these procedures should be shown to be available on site and the work to be performed should be reasonable in light of the manpower available.

F. The licensee should provide sufficient information as to the flow through valve 10 MOV 16 in case of fire, so that its affect on safe shutdown can be evaluated. This includes flow rates, effects on reactor coolant level, water level in torus, etc.

G. Section III.G of Appendix R to CFR Part 50 requires cabling for or associated with redundant safe shutdown systems necessary to achieve and maintain hot shutdown conditions be separated by fire barriers having a three hour fire rating or equivalent protection (see Section III.G.2 of Appendix R). Therefore, if option III.G.3 is chosen for the protection of shutdown capability cabling required for or associated with the alternative method of hot shutdown for each fire area, must be physically separated by the equivalent of a three-hour rated fire barrier from the fire area.

In evaluating an alternative shutdown method, associated circuits are circuits that could prevent operation or cause malfunction of the alternative train which is used to achieve and maintain hot shutdown conditions due to fire induced hot shorts, open circuits, or shorts the ground.

Safety related and nonsafety related cables that are associated with the equipment and cables of the alternative or dedicated method of shutdown are those that have a separation from the fire area less than that required by Section III.G.2 of Appendix R to 10 CFR 50 and have either (1) a common power source with the alternative shutdown equipment and the power source is not electrically protected from the post fire shutdown circuit of concern by coordinated circuit breakers, fuses, or similar devices, (2) a connection to circuits of equipment whose spurious operation will adversely effect the shutdown capability, e.g., RHR/RCS isolation valves or (3) a common enclosure, e.g., raceway, panel, junction box with alternative shutdown cables and are not electrically protected from the post fire shutdown circuits of concern by circuit breakers, fuses, or similar devices.

For each fire area where an alternative or dedicated shutdown method, in accordance with Section III.G.3 of Appendix R 10 CFR Part 50 is provided by proposed modification the following information is required to demonstrate that associated circuits will not prevent operation or cause malfunction of the alternative or dedicated shutdown method.

(1) Provide a table that lists all equipment including instrmentation and support system equipment that are required by the alternative or dedicated method of achieving and maintaining hot shutdown.

(2) For each alternative shutdown equipment listed in (1) above, provide a table that lists the essential cable (instrumentation, control and power) that are located in the fire area.

(3) Provide a table that lists safety related and nonsafety related cables associated with the equipment in cables constituting the alternative or dedicated method of shutdown that are located in the fire area.

(4) Show that fire induced failures of the cables listed in (2) and (3) above will not present operation or cause malfunction of the alternative or dedicated shutdown method.

(5) For each cable listed in (2) above provide a detailed electrical schematic drawing that show how each cable is isolated from the fire area.

H. The residual heat removal system is generally a low pressure system that interfaces with the high pressure primary coolant system. To preclude a LOCA through this interface, we require compliance with the recommendations of Banch Technical Position RSB 5-1. Thus, this interface most likely consists of two redundant and independent motor operated valves. These two motor operated valves and their associated cable may may be subject to a single fire hazard. It is our concern that this single fire could cause the two valves to open resulting in a fire-initiated LOCA through the subject high-low pressure system interface. To assure that this interface and other high-low pressure interfaces are adequately protected from the effects of a single fire, we require the following information:

Identify each high-low pressure interface that uses redundant electrically controlled devices (such as two series motor operated valves) to isolate or preclude rupture of any primary coolant boundary.

Identify the device's essential cabling (power and control) and describe the cable routing (by fire area) from source to termination.

Identify each location where the identified cables are separated by less than a wall having a three-hour fire rating from cables for the redundant device.

For the areas identified in the above paragraph, provide the bases and justification as to the acceptability of the existing design or any proposed modifications.