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Chief Nuclear Officer

April 26, 1996
JPN-96-018

United States Nuclear Regulatory Commission
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Washington, DC 20555

Subject: **James A. FitzPatrick Nuclear Power Plant**
Docket No. 50-333
Response to NRC Request For Additional Information Regarding
Proposed Technical Specification Change (JPTS-95-007)

- References:
1. NYPA letter, W. J. Cahill, Jr. to USNRC Document Control Desk, (JPN-96-004) dated January 25, 1996
 2. USNRC letter, Karen Cotton to W. J. Cahill, Jr. dated April 18, 1996
 3. NYPA letter, R. Beedle to USNRC Document Control Desk, (JPN-91-049) dated July 13, 1991
 4. USNRC Generic Letter 93-05 "Line-item Technical Specification Improvements to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993

Dear Sir:

In Reference 1, the Authority submitted a proposed Technical Specification Change Request (JPTS-95-007) for James A. FitzPatrick Nuclear Power Plant. This technical specification proposes to revise allowed out-of-service times for single inoperable Emergency Diesel Generators (EDGs) to accommodate on-line maintenance of the EDGs.

In Reference 2, the NRC provided a request for additional information (RAI) dated April 18, 1996. In the enclosure to this letter each question is restated followed by our response. These responses were discussed preliminarily during a conference call with the NRC staff on April 18, 1996.

We have reviewed Reference 1 and the enclosure to this letter and have concluded that this response does not change the proposed amendment or modify any of the conclusions stated in the Significant Hazards Consideration Evaluation previously submitted in Reference 1.

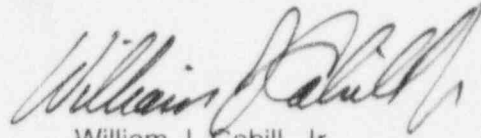
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The Authority requests approval of the proposed amendment by May 24, 1996 in anticipation of planned EDG maintenance scheduled during June 1996. Should you have any questions regarding this response, please contact Mr. Art Zaremba.

Very truly yours,



William J. Cahill, Jr.
Chief Nuclear Officer

cc: JPTS-95-007 File

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Attachment to JPN-96-018
Response to Request for Additional Information Related to Emergency Diesel Generator
Technical Specification Change (TAC No. M94611)

Question 1

Detail what type of maintenance will be performed during the extended emergency diesel generator (EDG) allowed outage time (AOT) and how often the maintenance is required to be performed.

Response 1

Maintenance during the extended AOT will include the following major items:

1. Turbocharger replacement is performed on a 12 year frequency. We will be replacing a turbocharger every 2 years on one of our four engines for the next eight years.
2. An engine overhaul is performed on each engine every eight years. One of the four engines will be overhauled every 2 years. We are planning an overhaul and turbocharger change out on EDG A during its AOT.
3. A mechanical PM is performed every 2 years.
4. Lube oil cooler maintenance is performed on a 12 year frequency. Lube oil cooler maintenance will be on 2 of 4 engines in the upcoming AOTs.
5. Electrical PMs are performed on a 2 year frequency.
6. The hot tune up, and post maintenance testing are done following the mechanical PM.
7. A change out of the EDG jacket water is planned as a result of chemistry analysis.
8. A change out of the diesel fuel stored in 2 of the 4 underground fuel oil storage tanks (36,000 gal per tank) is planned based on analysis.
9. Other activities such as I&C calibrations and air start system maintenance will also be performed during the AOTs.

There is a finite amount of space in each EDG room and a finite number of mechanics, electricians, and I&C technicians available, meaning all jobs cannot be worked simultaneously. Each individual EDG AOT is planned to take between 7 and 10 days to perform all the maintenance activities, perform post work testing, and address any emergent issues which may arise. FitzPatrick work control has planned on-line EDG maintenance in June 1996 to allow completion of necessary corrective and preventive maintenance tasks which are due.

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Response to Request for Additional Information Related to Emergency Diesel Generator
Technical Specification Change (TAC No. M94611)

Question 2

Table 8.6-2 of the FitzPatrick Final Safety Analysis Report (FSAR) lists the electrical loads required for shutdown during a loss of offsite power (LOOP) and it includes two residual heat removal (RHRs) and two residual heat removal service water (RHRSW) pumps. However, in your response to the NRC's request for additional information regarding station blackout, you stated that during a LOOP the second RHR and RHRSW pump are not required. Clarify what loads are required to achieve shutdown during a LOOP and whether this loading is within the capacity of a single EDG.

Response 2

The Authority previously responded to a similar question in response to an RAI for station blackout dated September 13, 1991, Reference 3. The Authority's response stated, in part that during a LOOP the second pair of RHR and RHRSW pumps are not required and no operator action is required to prevent the loading (or to shed) these electric loads. Table 1 to Reference 3 lists the emergency loads for a total LOOP EDG load of 2,581 kW. This is less than the continuous 2600 kW rating of one EDG.

The configuration of the Emergency AC Power System at FitzPatrick provides a high degree of redundancy compared to typical BWRs in that there are two emergency AC power systems, each being composed of two EDGs connected to an AC emergency bus. The significance of this is that long term suppression pool cooling and reactor shutdown can be provided during a LOOP event with any one of four EDGs.

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Question 3

Evaluate the loss of an EDG on each division/EDG system (i.e., EDG A and EDG B, EDG A and EDG D, etc.). Can this configuration achieve shutdown of the unit during a LOOP condition? What accident scenarios cannot be mitigated in these configurations? (Your current submittal does not address these scenarios. Explain.)

Response 3

As stated in the response to Question 2 above, the total LOOP EDG load of 2,581 kW is less than the 2600 kW rating of one EDG. In the case where one EDG is available on each emergency bus (i.e. EDG A and EDG B, or EDG A and EDG D, or EDG C and EDG D, or EDG B and EDG C) either EDG in those scenarios is capable of achieving unit shutdown during a LOOP condition.

In the case where only one EDG is available on each emergency bus during a design basis LOCA with LOOP a minimum of two CS pumps and one LPCI pump will be available (with either A or B recirculation line break). The Reference 1 Safety evaluation section III.a.1 states in part that Appendix K Regulatory requirements are met with one core spray pump and one RHR pump in LPCI mode or two core spray system and no LPCI pumps. For clarification, Table 1 summarizes the systems available for unit shutdown.

Table 1

One EDG Out of Service for Maintenance and an Additional EDG Assumed Failed with a LOOP	Systems Available for Unit Shutdown	
	Recirc. Discharge Line A Break	Recirc. Discharge Line B Break
Both EDGs in System A (Bus 10500) Assumed Out of Service	LPCI-D CS B	LPCI-C CS B
Both EDGs in System B (Bus 10600) Assumed Out of Service	LPCI-B CS A	LPCI-A CS A
EDG A or EDG C and EDG B or EDG D Assumed Out of Service	LPCI-D CS A CS B	LPCI-A CS A CS B

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Question 4

As stated in the amendment request, the purpose of the request for an EDG AOT extension is to allow an increased outage time during power operation for performing preventive maintenance, which includes disassembly of the EDG. The staff is concerned that disassembly of an EDG would subsequently require testing of the EDG (i.e., full load rejection test) to demonstrate operability.

- a. What type of surveillance testing will be performed on the EDG during the extended AOT?
- b. If a load full-load rejection is going to be performed, what would be the worse-case voltage transients on the 4160-V safety buses as a result of a full-load rejection?
- c. If a full-load rejection test is used to test the EDG governor after maintenance, what assurance would there be that an unsafe transient condition on the safety bus (i.e., load swing or voltage transient) due to improperly performed maintenance or repair or a governor would not occur?

Response 4

- 4a. ST-9B, "EDG Full Load and ESW Pump Operability Test." This test is performed monthly for EDG operability and when necessary for post maintenance testing. The test demonstrates proper EDG starting, force paralleling, and the ability to carry full rated load for one hour. FitzPatrick Technical Specification do not require periodic full load reject testing and full load reject testing is not performed at the facility. During preoperational testing, load reject tests were performed at 25% load, 50%, 75%, 100%, and 110% load. FitzPatrick will evaluate load reject testing as part of the standard technical specification conversion.
- 4b. The Authority will evaluate the plant impact of full load rejection testing if this testing is determined to be applicable during standard technical specification conversion.
- 4c. As stated in 4.a. above, full load rejection testing is not required for post maintenance testing for the existing planned maintenance on the EDGs.

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Question 5

Before an EDG is removed from service for preplanned maintenance, the operability of the remaining EDGs should be verified. This demonstration of operability is necessary to provide assurance that the remaining EDGs are operable because of their increased importance due to the inoperability of one EDG over an extended period. How will this be addressed at FitzPatrick?

Response 5

Operability of the remaining EDGs before an EDG is removed from service for preplanned maintenance is addressed by the proposed change to EDG surveillance at power operation Technical Specification Section 4.9.B.5. The proposed change would eliminate the requirement to perform tests of the remaining EDGs if an EDG is being taken out of service to conduct preplanned preventive maintenance. This proposed change is consistent with NRC guidance based on the NRC comprehensive review of EDG surveillance testing referenced in Generic Letter 93-05, Reference 4.

The Authority will have administrative controls in place to support on-line EDG maintenance described in section III.a.3 of the safety evaluation enclosed with Reference 1. These controls ensure that the three remaining EDGs will be operable and available to mitigate the consequences of a LOOP condition and that the monthly operability test on the EDGs (ST-9B) will have been performed within the previous two week period to support the on-line EDG maintenance.

References

1. NYPA letter, W. J. Cahill, Jr. to USNRC Document Control Desk, (JPN 96-004) dated January 25, 1996
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