

February 28, 1990

Docket No. 50-333

Mr. John C. Brons
Executive Vice President - Nuclear Generation
Power Authority of the State of New York
123 Main Street
White Plains, New York 10601

Dear Mr. Brons:

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. 75933)

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The Commission has issued the enclosed Amendment No.153 to Facility Operating License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated February 8, 1990, which was modified by your letter of February 21, 1990.

The amendment extends the allowable out-of-service time for one Low Pressure Coolant Injection Subsystem and the corresponding Containment Cooling Subsystem from the present seven days to fourteen days and reduces the Residual Heat Removal (RHR) pump flow rate surveillance acceptance criteria from the present 9900 gpm to 8910 gpm. The changes are applicable to the A and C RHR Pumps only and expire when the 1990 Refueling Outage starts.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

David E. LaBarge, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.153 to DPR-59
2. Safety Evaluation

cc: w/enclosures
See next page

PDI-1
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RFOL

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Power Authority of the State of New York

James A. FitzPatrick Nuclear
Power Plant

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

POWER AUTHORITY OF THE STATE OF NEW YORK

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 153
License No. DPR-59

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Power Authority of the State of New York (the licensee) dated February 8, 1990, as modified February 21, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-59 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 153, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance, to be implemented immediately upon receipt, and ends upon start of the 1990 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION

(for) *Walter R. Butler*
Bruce A. Boger, Assistant Director
for Region I Reactors
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 28, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 153

FACILITY OPERATING LICENSE NO. DPR-59

DOCKET NO. 50-333

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
114	114
116	116

JAFNPP

3.5 (cont'd)

2. From and after the date that one of the Core Spray Systems is made or found inoperable for any reason, continued reactor operation is permissible during the succeeding 7 days unless the system is made operable earlier, provided that during the 7 days all active components of the other Core Spray System and the LPCI System shall be operable.
3. Both LPCI subsystems of the RHR System shall be operable whenever irradiated fuel is in the reactor and prior to reactor startup from a cold condition, except as specified below.
 - a. From the time that one of the LPCI subsystems is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding 7 days unless that subsystem is made operable earlier provided that during these 7 days the operable LPCI subsystem and both Core Spray Systems shall be operable.*

*LPCI subsystem "A" may be inoperable for a 14 day period. This temporary LCO exists until the end of Cycle 9.

4.5 (cont'd)

2. When it is determined that one Core Spray System is inoperable, the operable Core Spray System, and both LPCI subsystems, shall be verified to be operable immediately. The remaining Core Spray System shall be verified to be operable daily thereafter.
3. LPCI System testing shall be as specified in 4.5.A.1a, b, c, d, f and g except that each RHR pump shall deliver at least 9,900 gpm against a system head corresponding to a reactor vessel to primary containment differential pressure of greater than or equal to 20 psid.†
 - a. When it is determined that one LPCI subsystem is inoperable, the operable LPCI subsystem and both Core Spray Systems shall be verified to be operable immediately and daily thereafter.

†For the remainder of Cycle 9, RHR pumps "A" and "C" shall each deliver at least 8,910 gpm against a system head corresponding to a reactor vessel to primary containment differential pressure of greater than or equal to 20 psid.

JAFNPP

3.5 (cont'd)

3. Should one RHR pump and/or one RHRSW pump of the components required in 3.5.B.1 above be made or found inoperable, continued reactor operation is permissible only during the succeeding 30 days provided that during such 30 days all remaining active components of the containment cooling mode are operable.
4. Should one of the containment cooling subsystems become inoperable, continued reactor operation is permissible for a period not to exceed 7 days, unless such subsystem is sooner made operable provided that during such 7 days all active components of the other containment cooling subsystem are operable. *
5. If the requirements of 3.5.B cannot be met, the reactor shall be placed in a cold condition within 24 hr.
6. Low power physics testing and reactor operator training shall be permitted with reactor coolant temperature <212°F with an inoperable component(s) as specified in 3.5.B above.

* Containment Cooling subsystem "A" may be inoperable for a 14 day period. This temporary LCO condition exists until the end of Cycle 9.

4.5 (cont'd)

3. When one containment cooling subsystem loop becomes inoperable, the operable loop shall be verified to be operable immediately and daily thereafter.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 153 TO FACILITY OPERATING LICENSE NO. DPR-59
POWER AUTHORITY OF THE STATE OF NEW YORK
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333

INTRODUCTION

By letter dated February 8, 1990, the Power Authority of the State of New York (PASNY), licensee for the James A. FitzPatrick Nuclear Power Plant, requested temporary changes under exigent circumstances to the Technical Specifications (TS). These changes would extend the Limiting Condition for Operation (LCO) for one Low Pressure Coolant Injection (LPCI) subsystem and its corresponding Containment Cooling subsystem from the present seven days to fourteen days and change the surveillance test flow acceptance value for each Residual Heat Removal (RHR) pump from 9900 gpm to 8910 gpm (a decrease of approximately ten percent). The proposed changes would be applicable to the A and C RHR Pumps only and would expire when the 1990 Refuel Outage starts on March 31, 1990. Because insufficient time to process the amendment request on an exigent basis exists, the licensee requested, by letter dated February 21, 1990, that the amendment be processed on an emergency basis rather than on an exigent basis.

DISCUSSION

The Emergency Core Cooling System (ECCS) for the James A. FitzPatrick Nuclear Power Plant consists of the following systems:

- (a) High Pressure Coolant Injection (HPCI) System.
- (b) Automatic Depressurization System (ADS).
- (c) Core Spray System (consisting of two loops, one pump per loop, each pump powered from separate diesel generators).

- (d) Low Pressure Coolant Injection (LPCI) mode of the RHR system (consisting of two loops, two pumps per loop, with each pump in a loop powered from a different diesel generator).

Each of the two LPCI subsystems consists of two RHR pumps, with A and C in one subsystem and B and D in the other. They are tested in accordance with TS Section 4.5.A.3 to ensure that adequate emergency core cooling capacity is available. The current criterion is that flow for each pump must be at least 9900 gpm against a system head corresponding to a reactor vessel to primary containment differential pressure of at least 20 psid. For LPCI to be considered operable, all four RHR pumps must meet the flow and differential pressure criteria. If one pump is inoperable, its LPCI subsystem is considered to be inoperable. With one LPCI subsystem inoperable, continued plant operation is allowed by the TS for no longer than seven days before the reactor must be shutdown. Since Containment Cooling is a subsystem of the LPCI System and consists of the same equipment, the same LCO conditions apply.

Based on analysis of the results of recently performed surveillance tests, and analysis of a number of possible causes, the licensee has determined that the differential pressure of the A and C RHR Pumps has degraded to the point where repair/maintenance of the pumps should be performed. Since each test has resulted in a slightly lower discharge pressure at the specified flow rate, the work is planned to start as soon as engineering work and procurement of replacement parts are complete.

Engineering work and procurement of replacement parts are being expedited, so that the repair/maintenance may begin on March 17, 1990 at the earliest. Since these pumps are needed for the refueling outage, when the motors for RHR Pumps B and D are scheduled to be overhauled, the licensee desires to make the repairs prior to the outage, while the plant is operating. The refueling outage is scheduled to start on March 31, 1990. Since the repairs are expected to require more than the seven days allowed by the present TS, a one-time extension to fourteen days has been proposed. The licensee has committed to perform the work so that out-of-service time for each pump would be minimized.

The next surveillance test is scheduled for the week of February 25, 1990. Assuming that the unfavorable trend continues, the result would be the need to declare the pumps inoperable at that time, which would be before the repair work could be started. By decreasing the flow presently required by the TS by ten percent, the licensee considers that the pumps will continue to be operable and the repairs can be started as soon as possible without requiring a forced plant shutdown.

EVALUATION

The licensee has proposed a one-time TS change to reduce the allowable RHR pump flow rate from its present allowable value of 9900 gpm to 8910 gpm, a ten percent reduction. To justify this change, the licensee used a LOCA analysis (JAFNPP SAFER/GESTR - LOCA Analysis," General Electric Company, NEDC-31317P, October 1986) and a safety evaluation performed by GE ("Nuclear Safety Evaluation For a 10% Decrease in LPCI Flow," JAF-SE-90-024, February 5, 1990) in its submittal.

The LOCA analysis performed by GE using SAFER/GESTR models per Appendix K to 10 CFR Part 50, demonstrates that, for a ten percent decrease in LPCI flow, the fuel peak centerline temperature (PCT) will increase by 88°F. Since the current licensing PCT is more than 600°F below the allowable limit of 2200°F., the plant would continue to meet the requirements of Appendix K to 10 CFR Part 50.46 with over 500°F margin. Therefore, the proposed reduced LPCI flow rate to 8910 gpm is acceptable based on LOCA considerations.

The LPCI system is also relied on to supply makeup water to the reactor during postulated fire events in accordance with Appendix R of 10 CFR Part 50. These are not pipe break events but are postulated fire events which can threaten the ability of the plant to maintain reactor vessel water inventory depleted by decay heat and sensible heat boiloff. The GE analysis shows that for the worse case Appendix R fire, the PCT is estimated to increase no more than 60°F assuming a ten percent decrease in LPCI flow rate, which indicates that the LPCI System's ability to perform this function is not compromised by the flow reduction.

Analysis of the suppression pool cooling mode of operation, the shutdown cooling mode of operation, and the containment cooling mode of operation by GE shows that the flow rates assumed in the design of these modes are less than the ten percent reduction of this amendment request. In addition, the flow rates assumed in the design of these modes are less than the flow rates used in the design of the LPCI mode. Therefore, the analysis concludes that there is no safety impact associated with this change to the flow criteria.

In addition, the licensee will continue to test the A and C RHR Pumps in accordance with the the existing Inservice Testing program.

Based on the above evaluation, the proposed change to the RHR pump flow acceptance criteria is acceptable.

The licensee has also proposed a one-time extension of the RHR LCO from seven days to fourteen days. In the NEDC-31317P SAFER/GESTR-LOCA Analysis referenced above, GE analyzed the consequences of a break in the recirculation pump discharge line with no LPCI injection flow available, which corresponds to a condition resulting from failure of the LPCI injection valve to the unbroken recirculation loop. Only the ADS, HPCI, and two Core Spray pumps were assumed to be operable. The GE analysis demonstrated that the PCT is 803°F, much below the maximum limit of 2200°F PCT.

GE also analyzed the recirculation suction line break with LPCI injection valve failure in the unbroken loop. ADS, HPCI, Core Spray and two RHR pumps were assumed to be operable. The RHR pumps would be injecting into the broken loop in the LPCI mode with the recirculation valves closed. The calculated PCT is 781°F, which is below the maximum limit of 2200°F.

Since these analyses do not assume single failure of all possible combinations of RHR system failures, all ECCS (except for the declared inoperable RHR pumps) and the diesel generators must be operable, except as allowed by certain LCO statements. Because the single failure criteria is not satisfied when an LCO is in effect, the TS do not allow any other core injection system (other than the system which was declared to be inoperable), the ADS or the diesel generators to be inoperable during the period specified. If any of these systems become inoperable, plant shutdown is required to start immediately and the plant must be in the cold shutdown condition within twenty-four hours. These requirements will continue to be in effect during the proposed LCO extension time.

The proposed TS amendment would also affect the Containment Cooling capability of the RHR system by changing the LCO which allows the A Containment Cooling subsystem to be inoperable from seven days to fourteen days. During this time, the B and the D RHR pumps will be available to perform the containment cooling function if needed and the flow from one RHR system is sufficient to satisfy the containment cooling requirements. If containment cooling is needed during a LOCA event, LPCI system operation would remain the same even with the A LPCI loop inoperable since both LPCI and containment cooling cannot be initiated simultaneously. In addition, containment cooling can be supplied from the RHR Service Water system cross-tie to the RHR system.

The proposed one-time extension of the LPCI LCO from seven days to fourteen days is necessitated by the planned work on RHR Pumps B and D to be performed during the refueling outage scheduled to start on March 31, 1990. Maintenance on RHR Pumps A and C is required prior to the outage so that they may be used during the outage for shutdown cooling. The additional seven days requested by the licensee is acceptable since it is a short time period, a random single failure in conjunction with a LOCA occurring during the LCO period of fourteen days is relatively small, the HPCI, ADS, RHR Pumps B and D, and both Core Spray pumps will be available to mitigate the LOCA, the Containment Cooling function remains available, and the estimated risk during the LCO period of fourteen days is small.

Based on the above analysis, the staff finds the proposed amendment to change the LPCI LCO and the Containment Cooling LCO for the A RHR subsystem from seven to fourteen days acceptable.

STATEMENT OF EMERGENCY CIRCUMSTANCES

The emergency situation developed as a result of recent performance trends which indicated that degradation of the A and the C RHR Pumps was occurring. The trends indicated the need to examine the extent of the degradation and its root cause so that other potential causes (such as system leakage or leakage through valves) of the unsatisfactory trend could be eliminated. This process was not completed until January 1990 when it was concluded that the pumps themselves were causing the decrease in observed flow.

Neither of the RHR pumps have failed to meet the TS requirements, but the trend indicates that this will occur for the C Pump during the surveillance test required to be performed during the week of February 25, 1990, unless the acceptable flow rate is reduced to 8910 gpm. Since the A and C RHR Pumps must be available during the 1990 Refueling Outage (scheduled to start March 31, 1990) for shutdown cooling requirements when the B and D RHR Pumps are inoperable for maintenance, repair of the A and C Pumps is necessary prior to the outage. Since the engineering work and procurement of replacement parts will not be completed until March 17, 1990, the repairs cannot start until then. Failure of the Commission to act on the licensee's request to extend the allowed outage time from seven to fourteen and to reduce the RHR flow rate acceptance criteria from 9900 gpm to 8910 gpm would require shutdown of the plant prior to the planned start of the refueling outage.

The amendment provisions are needed to reduce both the surveillance test acceptance criteria for two RHR pumps and to extend the LPCI LCO, in order to prevent a required plant shutdown seven days following the date of the surveillance test. Since this schedule allows insufficient time for publication of the thirty-day comment period prior to expiration of the expected LCO, the staff is satisfied that the scheduled repair plans incorporate a good faith effort to address operability of the RHR system, and to effect these plans according to a reasonable schedule once all aspects of the problem were evaluated. Accordingly, the staff concludes that the amendment may be granted on an emergency basis pursuant to 10 CFR 50.91(a)(5).

STAFF CONCLUSION

The staff has concluded that the licensee has made a timely amendment application once the problem was analyzed and defined, that the licensee has justified the need for emergency action, and that the proposed LCO and surveillance test criteria changes are necessary and proper. The proposed changes to the TS are, therefore, acceptable.

FINAL DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

The foregoing evaluation demonstrates that the actions planned by the licensee will not significantly degrade the operability of the RHR system or the Emergency Core Cooling System (LPCI) during the period of time that the proposed amendment is in effect, prior to the refueling outage. We, therefore, conclude that operation of the facility in accordance with the proposed amendment would not:

- a. Involve a significant increase in the probability or consequences of an accident previously evaluated. The LPCI system is designed to mitigate the consequences of analyzed accidents and is normally in the standby mode. This system cannot initiate accidents and the proposed changes have no effect on the probability of occurrence of previously evaluated accidents.

The one-time extension of the LPCI and Containment Cooling LCOs reduces the level of redundancy in the number of low pressure core cooling systems available to mitigate the consequences of an accident. During the time that one subsystem is out of service, the redundant subsystem, as well as both Core Spray subsystems, HPCI, ADS and the diesel generators will be available to mitigate an accident.

The effect of a reduction of the RHR pump flow rates has been fully analyzed. These analyses demonstrate that the consequences of postulated accidents remains well within the acceptable limits established in the FSAR and applicable NRC regulations.

- b. Create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed changes do not involve hardware changes and the results of the changes described in this safety evaluation have been fully analyzed. In addition, the decrease in flow and the increase in the allowable out of service time are not accident precursors.
- c. Involve a significant reduction in a margin of safety. TS currently allow for one LPCI and one Containment Cooling subsystem to be out of service for up to seven days. During this time, redundant systems (two Core Spray subsystems and the other LPCI and Containment Cooling subsystems, as well as ADS and HPCI) are required to be available to mitigate the consequences of an accident. The proposed one-time extension to fourteen days does not significantly affect the level of safety afforded by the ECCS design.

The effect of the ten percent reduction in the RHR pump flow rate has been fully analyzed, with the result that the effect on all design considerations has been shown to be acceptable.

Based on the foregoing, the Commission has concluded that the standards of 10 CFR 50.92 are satisfied. Therefore, the Commission has made a final determination that the proposed amendment does not involve a significant hazards consideration.

STAFF CONSULTATION

The appropriate representative of the State of New York was notified of this amendment. The State of New York had no comments.

ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and a change to a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has made a final no significant hazards consideration finding with respect to this amendment. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: February 28, 1990

PRINCIPAL CONTRIBUTORS:

D. LaBarge

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