UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 30, 1995

Mr. William J. Cahill, Jr.
Executive Vice President - Nuclear Generation
Power Authority of the State of New York
123 Main Street
White Plains, NY 10601

SUBJECT: ISSUANCE OF AMENDMENT FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT (TAC NO. M88088)

Dear Mr. Cahill:

The Commission has issued the enclosed Amendment No. 223 to Facility Operating License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant. The amendment consists of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated September 28, 1993.

The amendment revises TS Section 4.11.D to change the surveillance requirements for the Emergency Service Water System pumps. The change adds pump flow rate requirements and tests the pumps in accordance with your Inservice Testing Program. To add operational flexibility, the pump flow rate requirements are based on changes to the system alignment, revised heat load calculations, and revised component flow calculations. In addition, the respective TS Bases have been revised.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Nicola F. Conicella, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-333

Enclosures: 1. Amendment No. 223 to DPR-59
2. Safety Evaluation

cc w/encls: See next page

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Power Authority of the State of New York

James A. FitzPatrick Nuclear
Power Plant

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DATED: January 30, 1995

AMENDMENT NO. 223 TO FACILITY OPERATING LICENSE NO. DPR-59-FITZPATRICK

Docket File
PUBLIC
PDI-1 Reading
S. Varga, 14/E/4
J. Zwolinski, 14/H/3
M. J. Case
C. Vogan
N. Conicella
OGC
D. Hagan, T-4 A43
G. Hill (2), T-5 C3
C. Grimes, 11/E/22
ACRS (4)
OPA
OC/LFDCB
PD plant-specific file
C. Cowgill, Region I
C. McCracken
C. Bajwa

cc: Plant Service list

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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. 223
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 September 28, 1993, 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. 223, 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 within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Ledyard B. Marsh, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 30, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 223

FACILITY OPERATING LICENSE NO. DPR-59

DOCKET NO. 50-333

Revise Appendix A as follows:

Remove Pages	Insert Pages
240	240
243	243
244	244

3.11 (cont'd)

D. Emergency Service Water System

1. To ensure adequate equipment and area cooling, both ESW systems shall be operable when the requirements of specification 3.5.A and 3.5.B must be satisfied, except as specified below in specification 3.11.D.2.

4.11 (cont'd)

D. Emergency Service Water System

1. Surveillance of the ESW system shall be performed as follows:

	Item	Frequency
a.	Simulated Automatic Actuation Test	Each operating cycle
b.	Flow Rate Test - Each ESW pump shall deliver at least 1500 gpm to its respective loop. The pump total developed head shall be greater than or equal to the corresponding point on the pump curve, reduced by a maximum of 7%, for the measured flow.	Once/3 months
c.	Pump Operability	Once/month
d.	Motor Operated Valves	Once/month

3.11 & 4.11 BASES

A. Main Control Room Ventilation System

One main control room emergency ventilation air supply fan provides adequate ventilation flow under accident conditions. Should one emergency ventilation air supply fan and/or fresh air filter train be out of service during reactor operation, a repair time of 14 days is allowed because during that time, a redundant 100% capacity train is required to be operable.

The 3 month test interval for the main control room emergency ventilation air supply fan and dampers is sufficient since two redundant trains are provided and neither is normally in operation.

A pressure drop test across each filter and across the filter system is a measure of filter system condition. DOP injection measures particulate removal efficiency of the high efficiency particulate filters. A Freon-112 test of charcoal filters is essentially a leakage test. Since the filters have charcoal of known efficiency and holding capacity for elemental iodine and/or methyl iodine, the test also gives an indication of the relative efficiency of the installed system. Laboratory analysis of a sample of the charcoal filters positively demonstrates halogen removal efficiency. These tests are conducted in accordance with manufacturers' recommendations.

The purpose of the emergency ventilation air supply system capacity test is to assure that sufficient air is supplied to the main control room so that a slight positive pressure can be maintained, thereby minimizing in-leakage.

B. Crescent Area Ventilation

Engineering analyses indicate that the temperature rise in safeguards compartments without adequate ventilation flow or cooling is such that continued operation of the safeguards equipment or associated auxiliary equipment cannot be assured.

C. Battery Room Ventilation

Engineering analyses indicate that the temperature rise and hydrogen buildup in the battery, and battery charger compartments without adequate ventilation is such that continuous operation of equipment in these compartments cannot be assured.

D. Emergency Service Water System

The ESWS has two 100 percent cooling capacity pumps, each powered from a separate standby power supply. The ESW system supplies lake water to cool equipment required to function following an accident. This equipment consists of: emergency diesel generators, electric bay unit coolers, cable tunnel/emergency switchgear room coolers, crescent area coolers, control room air handling units and relay room air handling units. Emergency service water is initially supplied to the control room chillers and chiller room air handling units unless ESW is manually realigned to supply the control room and relay room air handling units. ESW will also supply water to the control rod drive pump coolers which are not automatically isolated following an accident. The surveillance requirement compares pump performance with the pump curve to determine pump operability. It also specifies testing at a

3.11 and 4.11 BASES (cont'd)

flow rate greater than the minimum flow necessary to cool the equipment listed above. The minimum flow requirement was determined from calculations and testing to validate flow and/or heat removal capability at a maximum design lake water temperature.

E. Intake Deicing Heaters

The general objective of this specification is to ensure adequate water (30,000 gpm Ref FSAR Q.2.1 is available to the ESW and RHRSW systems to fulfill the cooling requirements of the associated ECCS loads. Since it is required that an opening large enough to satisfy the demand (10% of the total area) be preserved, it is justifiable to assume that no more than 20% of the heaters be available at anytime.

The weekly check of 6 heater feeder ammeters shall be made to prove that the system is supplying adequate heat to the bar racks. If a major deviation from rated current is detected, heater breakers can be checked to see if they have tripped or the individual heaters can be tested for open circuits.

The semiannual check of each heater will verify that the weekly tests have been adequate. The annual check of circuit meggar readings will check against long term degradation of circuit insulations.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 223 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

1.0 INTRODUCTION

By letter dated September 28, 1993, the Power Authority of the State of New York (the licensee) submitted a request for changes to the James A. FitzPatrick Nuclear Power Plant Technical Specifications (TS). The requested changes would revise TS Section 4.11.D to change the surveillance requirements for the Emergency Service Water System (ESWS) pumps. Specifically, the change would add pump flow rate requirements and would test the pumps in accordance with the licensee's Inservice Testing (IST) Program. To add operational flexibility, the pump flow rate requirements would be based on changes to the system alignment, revised heat load calculations, and revised component flow calculations. In addition, the respective TS Bases would be revised.

2.0 EVALUATION

2.1 Background

In NRC Inspection Report No. 50-333/90-04, dated August 6, 1990, inspectors identified several weaknesses with the licensee's ESWS. One of the concerns expressed in Unresolved Item 90-02-06 of the report dealt with periodic surveillance testing of emergency service water (ESW) pumps.

On August 21, 1990, an enforcement conference was held regarding violations cited in the aforementioned report. The licensee identified certain limitations with the "shut off head" ESW pump surveillance test that was required by the current plant TSs. The licensee committed to submit a TS change requiring an improved ESW pump test.

In a letter to the NRC, dated April 15, 1991, the licensee clarified its commitment and stated that the test requirements would reflect the appropriate sections of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) and the FitzPatrick IST Program based on revised ESWS flow requirements.

In NRC Inspection Report No. 50-333/92-81, dated June 11, 1992, inspectors identified two errors in a safety evaluation submitted by the licensee in

support of a TS change, dated November 11, 1991, to revise ASME Code Section XI and ESW pump surveillance testing. The resolution of these errors and results of actual system testing were used to support the currently proposed amendment.

2.2 Assessment

The ESW system consists of two independent supply loops each with an ESW pump to provide cooling for a safe reactor shutdown.

The present Surveillance Requirement (SR) for testing of the ESW pumps specifies a minimum pump total developed head at zero flow for each ESW pump. This is also known as a shut off head test. The proposed SR will alleviate the shortcomings of the current test by demonstrating the capability of the pumps to provide flow to the system and minimize the wear caused by shut off head testing.

The proposed SR would also decrease the minimum required flow to provide operational flexibility to deal with microbiologically induced corrosion (MIC) which restricts flow to the crescent area coolers. To allow for reduced flow, the licensee has revised the system line-up, taken credit for the margin in the original cooler designs and revised calculated heat loads to remove excess conservatism.

The proposed SR will demonstrate that the ESW pump continues to remain operable. The acceptability of the proposed test to demonstrate pump operability was determined by the licensee, based on three factors: 1) a determination of minimum ESW system flow requirements; 2) an evaluation of the system hydraulic characteristics; and 3) the licensee's IST program procedures. The results of the licensee's review of the above three areas are presented below.

2.2.1 System Flow Requirements

The proposed SR specifies that each pump is to be tested by delivery of flow of "at least 1500 gpm to its respective loop." The proposed SR is written so that the pump test flow requirements are above the minimum flow of the ESWS. This assures that pump operability testing is done with flow above the minimum flow required by the system.

The minimum flow requirement to all components in the normally aligned configuration, which includes components required for design basis events, is 1400 gpm and 1438 gpm for trains A and B, respectively. The current SR calls for a 3250 gpm total flow, or approximately 1625 gpm per loop. The proposed SR calls for a reduction in flow of approximately 125 gpm per loop. This reduction in flow also reduces the heat removal capability of the system; however, according to the licensee, the system will continue to provide adequate heat removal capacity.

The flow calculations, completed by the licensee, identify heat loads for design basis conditions, identify equipment required to function and the required valve line-up to limit flow, assume degraded conditions in the unit coolers, and assume that the lake water for the ESW system intake is at 82 °F. The equipment required to function and the minimum flow requirements and system alignment are presented in the table below.

Cooling Unit	Numerical Designation	Train	Flow Required (gpm)
One train of the following equipment must remain operational and the ESWS must provide the indicated minimum flow to remove heat loads.			
emergency diesel generator cooling jacket	93WE	A,B C,D	1000 1000
electric bay coolers	67UC - 16	A B	35 45
crescent area coolers	66UC - 22	A, C, E, G, J B, D, F, H, K	120 120
cable tunnel/switchgear room coolers	67E	11 14	12 12
control room air handling units (AHUs) (normally isolated)	70AHU - 3	A B	110 110
relay room air handling units (normally isolated)	70AHU - 12	A B	90 90
The following equipment is non-safety related, but will remain aligned to and be supplied by ESWS following an accident.			
control room chillers	70RWC - 2	A B	226 226
chiller room air handling units [1]	70RWC - 19	A B	14 14

1. Both AHUs are supplied by Train B

Cooling Unit	Numerical Designation	Train	Flow Required (gpm)
control rod drive (CRD) pump coolers	3P - 16	A B	7 7
The following equipment is non-safety related and ESW will normally be isolated from these systems to assure flow to required components			
RHR pump seal water coolers	10E - 3	A, C B, D	No flow
recirculation pump motor and seal	02 - 2P - 1	A B	No flow
equipment sump cooler	20E - 9	A	No flow
drywell coolers	68E - 1 68E - 3	A, B, C, D A, B, C, D	No flow
The following equipment is normally isolated but will be opened for intermittent use during the post accident period			
post accident sampling system cooler	SSC - LSC	1	10

The minimum flow requirement for the normally aligned configuration discussed above is 1400 gpm and 1438 gpm for trains A and B, respectively. This flow is higher than the minimum flow required to remove heat in the worst-case accident (i.e., 1367 gpm and 1377 gpm for trains A and B, respectively) because the safety related control room and relay room air handling units are normally isolated from the ESWS.

As long as the nonsafety control room chillers and chiller room AHUs remain functional, they are relied upon to provide cooled glycol to the control room and relay room AHUs. If functional capability is lost, the nonsafety control room chillers and chiller room AHUs would be manually isolated and ESW flow would be manually realigned to the control room and relay room AHUs. The proposed manual realignments would be executed during a post-accident scenario. This realignment is documented in the revised Bases Sections 3.11 and 4.11.D of the TSs.

Based on the above, even though the ESW system flow rate has been reduced, it will provide sufficient cooling to the required components. The revision of

the system line-up, which would occur in response to a failure of the nonsafety related control room chillers and chiller room AHUs, is sufficient to insure continued cooling to the control room and relay rooms. Therefore, the NRC staff finds that the proposed changes in system flow rate and post-accident system line-up to be acceptable.

2.2.2 System Hydraulics

The proposed SR specifies that "The pump total developed head shall be greater than or equal to the corresponding point on the pump curve, reduced by a maximum of 7%, for the measured flow." The licensee determined by analysis using a computer model of the ESWS that 7 percent degradation of the ESW pumps will retain sufficient ESW flow to meet cooling requirements at a minimum lake water level should the strainers become 75 percent fouled. Based on the above, the NRC staff believes that ESW pump operability will be sufficiently established with a comparison to the pump performance curve, with the 7 percent margin for degradation.

2.2.3 Testing Procedures

In addition to Surveillance Test (ST) 8D currently performed to meet TS SR 4.11.D.1.b, the licensee also conducts other ESW testing. ST 8Q is performed to determine and set ESW flow rates to individual safety-related components while providing flow to all of the equipment aligned during normal operation except the CRD pump coolers (this omission has a negligible effect on the test due to the small rate of flow to the CRD pump coolers). Also, STs 19C, 19G, 19H, and 19I are performed to monitor the heat removal capability of various area coolers. Finally, ST 8N is currently performed quarterly to meet IST requirements.

ST 8N will also be used to demonstrate operability of the ESW pumps under the proposed SR. This test is performed with a pump flow supplying equipment aligned to the respective pump loop during normal operation of at least 1500 gpm, which exceeds the calculated minimum flow for that alignment. The licensee established by analysis that an ESW pump is operable when the total developed head measured for the pump under test exceeds 93 percent of the reference pump curve value for total developed head at the test flow rate. ST 8D, the shut-off head test, will be discontinued upon the approval of this proposed TS change.

Based on the above, the NRC staff finds that the ST 8N will be sufficient for determining ESW pump operability, and therefore will meet the purpose of the proposed SR.

2.3 Summary

The NRC staff concludes, based on the considerations discussed above, that the proposed SR will sufficiently determine the operability of ESW system pumps. In addition, the calculations presented to support the reduction of ESW system

flow indicate that there will be sufficient cooling of the required components supplied by ESW under accident conditions. Therefore, the NRC staff finds that the proposed change is acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC 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 previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (58 FR 62156). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 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 the amendment.

5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: C. Bajwa

Date: January 30, 1995

January 30, 1995

Mr. William J. Cahill, Jr.
Executive Vice President - Nuclear Generation
Power Authority of the State of New York
123 Main Street
White Plains, NY 10601

SUBJECT: ISSUANCE OF AMENDMENT FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT (TAC NO. M88088)

Dear Mr. Cahill:

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A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Original signed by

Nicola F. Conicella, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-333

Enclosures: 1. Amendment No. 223 to DPR-59
2. Safety Evaluation

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