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

February 23, 1993

Docket No. 50-333

Mr. Ralph E. Beedle
Executive Vice President - Nuclear Generation
Power Authority of the State of New York
123 Main Street
White Plains, New York 10601

Dear Mr. Beedle:

SUBJECT: ISSUANCE OF AMENDMENT FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT (TAC NO. M84376)

The Commission has issued the enclosed Amendment No. 187 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 August 10, 1992.

The amendment to the James A. FitzPatrick Radiological Effluent Technical Specifications changes the offgas system steam dilution flow isolation setpoints. The changes increase the offgas dilution steam low flow and high flow isolation setpoints to 6300 pounds per hour and 7900 pounds per hour, respectively. The steam dilution low setpoint is designed to ensure adequate steam flow through the recombiner during normal plant operation to prevent overheating or ignition of the catalyst. The steam dilution high setpoint is designed to provide recombiner isolation in the event of a break as described in the Final Safety Analysis Report (FSAR). The associated Bases are also revised to describe more accurately the offgas steam dilution function.

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,

Brian C. McCabe, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 187to DPR-59
2. Safety Evaluation

cc w/enclosures:
See next page

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DATED: February 23, 1993

AMENDMENT NO. 187 TO FACILITY OPERATING LICENSE NO. DPR-59-FITZPATRICK

Docket File
NRC & Local PDRs
PDI-1 Reading
S. Varga, 14/E/4
J. Calvo, 14/A/4
R. Capra
C. Vogan
B. McCabe
OGC-WF
D. Hagan, 3302 MNBB
G. Hill (2), P1-22
Wanda Jones, P-370
C. Grimes, 11/F/23
CMcCracken, 8/D/1
ACRS (10)
OPA
OC/LFMB
PD plant-specific file
C. Cowgill, Region I

cc: Plant Service list

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. 187
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 August 10, 1992, 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. 187 , 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

Robert A. Capra

Robert A. Capra, 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: February 23, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 187

FACILITY OPERATING LICENSE NO. DPR-59

DOCKET NO. 50-333

Revise Appendix B as follows:

Remove Pages	Insert Pages
33	33
41	41
42	42

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
treatment system under the following conditions: 1. The offgas dilution steam flow instrumentation shall alarm and automatically isolate the offgas recombiner system at low flow less than or equal to 6300 pounds per hour or high flow greater than or equal to 7900 pounds per hour. 2. The offgas recombiner inlet temperature sensor shall alarm and automatically isolate the offgas recombiner system at a temperature of not less than 125°C. 3. The offgas recombiner outlet temperature shall alarm and automatically isolate the offgas treatment system at a temperature of not less than 150°C.	1. An instrument check shall be performed daily when the offgas treatment system is in operation. 2. An instrument channel functional test shall be performed once per operating cycle. 3. An instrument channel calibration shall be performed once per operating cycle.
c. In lieu of continuous hydrogen or oxygen monitoring, the condenser offgas treatment system recombiner effluent shall be analyzed to verify that it contains less than or equal to 4% hydrogen by volume.	c. With condenser offgas treatment system recombiner in service, in lieu of continuous hydrogen or oxygen monitoring, the hydrogen content shall be verified weekly to be less than or equal to 4 % by volume. In the event that the hydrogen content cannot be verified, operation of this system may continue for up to 14 days.
d. With the requirements of the above specifications not satisfied, restore the recombiner system to within operating specifications or suspend use of the charcoal treatment system within 48 hours.	

IV.A, to assure that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable."

3.5 MAIN CONDENSER STEAM JET AIR EJECTOR (SJAE)

This specification is provided to assure that remedial action is taken to limit the noble gas release rate at the SJAE. The requirement provides reasonable assurance that the amount of noble gas that must be treated and/or released is controlled to a level that prevents exceeding the limits specified in 10 CFR 20, Appendix B, Table II.

Two air ejector offgas monitors are provided and when their trip point is reached, cause an isolation of the air ejector offgas line. Isolation is initiated when both instruments reach their high trip point or one has an upscale trip and the other a downscale trip. There is a 15 minute delay before the air ejector offgas isolation valve is closed. This delay is accounted for by the 30 minute holdup time of the offgas before it is released to the stack. Both instruments are required for trip but the instruments are so designed that any instrument failure gives a downscale trip.

3.6 OFFGAS TREATMENT SYSTEM

This specification is provided to ensure that the system will be available for use when required to reduce projected doses due to gaseous releases. This specification assures that the requirements of 10 CFR 50.36a, 10 CFR 50, Appendix A, General Design Criterion 60, and design objective in 10 CFR 50, Appendix I, Section II.D are met. The specified limits governing the use of appropriate portions of the systems are specified as a suitable fraction of the guide values set forth in 10 CFR 50, Appendix I, Sections II.B and II.C, for gaseous effluents.

The requirement for offgas treatment system operability provides assurance that the release of radioactive materials in gaseous waste will be kept "as low as is reasonably achievable." Operability of the system is based upon start-up of the second turbine driven feedwater pump. This is due to the fact that excess air in-leakages in the main condenser as a result of operating only one turbine driven feedwater pump will exceed offgas treatment system limitations and consequently render the system inoperable. Start-up of the second turbine driven feedwater pump will decrease air in-leakages and assure offgas treatment system availability.

3.7 OFFGAS TREATMENT SYSTEM EXPLOSIVE GAS MIXTURE INSTRUMENTATION

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in portions of the offgas treatment system not designed to withstand a hydrogen explosion is maintained below the lower explosive limit of hydrogen. Operation of the offgas recombiner system ensures that the concentration of hydrogen in the offgas charcoal filters remains below combustible levels.

Thus it provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of 10 CFR 50, Appendix A, General Design Criterion 60. The low steam flow trip point is based on 92% of design steam flow and reroutes the offgas to prevent overheating or ignition of the recombiner catalyst. The high steam flow trip point isolates the recombiner on excess steam flow that may be associated with a pipe break downstream of the recombiner.

3.8 STANDBY GAS TREATMENT SYSTEM (SBGTS)

Four radiation monitors are provided which initiate isolation of the reactor building and operating of the SBGTS. The monitors are located as follows: two in the reactor building ventilation exhaust duct and two in refuel floor ventilation exhaust duct. Each pair is considered a separate system. The trip logic consists of any upscale trip on a single monitor or a downscale trip on both monitors in a pair to cause the desired action.

Trip settings for the monitors in the refueling area ventilation exhaust ducts are based upon initiating normal ventilation isolation and SBGTS operation so that most of the activity released during the refueling accident is processed by the SBGTS.

The radiation monitors in the refueling area ventilation duct which initiate building isolation and standby gas treatment operation are arranged in a one out of two logic system. The bases given in Appendix A Bases 4.2 for the rod blocks apply here also and were used to arrive at the functional testing frequency. The air ejector offgas monitors are connected in a two out of two logic arrangement. Based on experience with instruments of similar design, a testing interval of once every three months has been found adequate.

3.9 MECHANICAL VACUUM PUMP ISOLATION

3.10 MAIN CONTROL ROOM VENTILATION RADIATION MONITOR

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 187 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 August 10, 1992, 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 increase the offgas system steam dilution flow isolation setpoints. The changes would increase the offgas dilution steam low flow and high flow isolation setpoints to 6300 pounds per hour and 7900 pounds per hour, respectively. The proposed steam dilution low setpoint is designed to ensure adequate steam flow through the recombiner during normal plant operation to prevent overheating or ignition of the catalyst. The proposed steam dilution high setpoint is designed to provide recombiner isolation in the event of a break as described in the Final Safety Analysis Report (FSAR). The associated Bases will also be revised to describe more accurately the offgas steam dilution function.

2.0 EVALUATION

Through radiolysis of the reactor coolant, Boiling Water Reactors produce a stoichiometric mixture of hydrogen and oxygen in the reactor core. Subsequently, when these gases are stripped from the coolant in the main condenser and steam jet air ejector system, the concentration of hydrogen is increased. When the concentration exceeds about 4% by volume, the mixture becomes flammable. Above about 20% hydrogen by volume, the mixture is detonable. If these flammable or detonable mixtures are exposed to an ignition source, and if proper design precautions have not been followed, ignition of the offgas mixture can potentially result in injury to plant personnel or in loss of power plant availability.

The condenser offgas system consists of a recombiner, a holdup line, high efficiency filters, activated charcoal beds, isolation valves, and the main stack. This system receives offgas (mainly noncondensibles) from the main condenser and recombines the hydrogen and oxygen continuously to form steam. Before recombination, the gas mixture is diluted with steam to reduce the hydrogen concentration to less than 4% by volume. This dilution steam will ensure that the gas mixture is maintained below the flammable concentration for hydrogen.

The primary method to ensure that the hydrogen concentration is within acceptable limits in the recombiner is direct monitoring of this parameter. If the continuous hydrogen monitor is not available, the current Radiological Effluent Technical Specifications require, in part, that the following instrumentation be operational and capable of providing automatic isolation of the offgas treatment system under the following conditions:

> The offgas dilution steam flow instrumentation shall alarm and automatically isolate the offgas recombiner system at low flow less than 6000 pounds per hour or high flow greater than 7200 pounds per hour.

The low flow setpoint is designed to ensure sufficient steam to prevent overheating or ignition of the recombiner catalyst. The high flow setpoint is designed to ensure isolation of a postulated pipe break downstream of the recombiner.

During a recent review of setpoint calculations, the licensee identified that operation of the plant within the stated existing setpoints cannot be assured when instrument loop uncertainty is considered. To ensure operation within the technical specification limits while accounting for loop uncertainty, the licensee has proposed a revision to these limits to provide a wider window for operation using the currently installed instrumentation. Specifically, the licensee proposed to change the low flow setpoint from the present 6000 pounds per hour (lbs/hr) to 6300 pounds per hour and change the high flow setpoint from 7200 pounds per hour to 7900 pounds per hour.

The proposed low flow setpoint of 6300 lbs/hr was established in accordance with the guidance provided in General Electric Service Information Letter 150 (GE SIL 150), Revision 2, which recommends that the low flow setpoint be set at a value no lower than 92% of the design steam flow required to keep the gas mixture below the hydrogen flammability limit. The basis for the minimum value of 92% of the design steam flow, as recommended in GE SIL 150, is to prevent overheating or ignition of the catalyst. The current FitzPatrick design steam flow is 6508 lbs/hr. Ninety-two percent of this design steam flow results in a minimum setpoint of 5987 lbs/hr. When the planned reactor power uprate of approximately 4% is accounted for, the design steam flow becomes 6770 lbs/hr. Ninety-two percent of the power uprated design steam flow results in a minimum setpoint of 6228 lbs/hr. Therefore, the licensee's proposed setpoint of 6300 lbs/hr is conservative for both the current licensed power level and for the planned power uprate.

The proposed high flow setpoint of 7900 lbs/hr was established to provide an adequate operational band for normal plant operations considering loop uncertainty while still ensuring isolation of a postulated pipe break downstream of the recombiner. An engineering evaluation was performed by the licensee to verify that the recombiner will continue to isolate automatically within 5 seconds of a pipe break downstream of the recombiner, as described in Section 11.4.4.2 of the FSAR. This evaluation concluded that the pipe break

detection and isolation function will still be accomplished within 5 seconds and the increase in the amount of steam released in the event that a pipe break occurs with this new higher setpoint will be insignificant.

The NRC staff has concluded that increasing the offgas dilution steam low flow isolation setpoint to 6300 lbs/hr will ensure adequate steam flow through the recombiner during normal plant operation to prevent overheating or ignition of the catalyst. Furthermore, the NRC staff has concluded that increasing the offgas dilution steam high flow isolation setpoint to 7900 lbs/hr will continue to provide acceptable recombiner isolation of a postulated pipe break downstream of the recombiner. The new setpoints will also ensure that an adequate operational band exists when instrument uncertainty is considered. Therefore, the staff finds that the stated changes to the FitzPatrick Radiological Effluent Technical Specifications are 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. 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 (57 FR 42779). 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: Brian C. McCabe

Date: February 23, 1993

Docket No. 50-333 February 23, 1993

Mr. Ralph E. Beedle
Executive Vice President - Nuclear Generation
Power Authority of the State of New York
123 Main Street
White Plains, New York 10601

Dear Mr. Beedle:

SUBJECT: ISSUANCE OF AMENDMENT FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT (TAC NO. M84376)

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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:
Brian C. McCabe, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 187to DPR-59
2. Safety Evaluation

cc w/enclosures:
See next page

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