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JAN 19 1976

Docket No. 50-333

Power Authority of the State of New York
 ATTN: Mr. George T. Berry
 General Manager and
 Chief Engineer
 10 Columbus Circle
 New York, New York 10019

Gentlemen:

The Commission has requested the Federal Register to publish the enclosed Notice of Proposed Issuance of Amendment to Facility License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant. The proposed amendment includes a change to the Technical Specifications based on our letter to you dated September 19, 1975.

This amendment would revise the Technical Specifications to add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod drive mechanism collet housing failures.

A copy of our Safety Evaluation relating to this proposed action was forwarded to you with our letter dated September 19, 1975.

Sincerely,

Original signed by

Robert W. Reid, Chief
 Operating Reactors Branch 4
 Division of Reactor Licensing

Enclosures:

1. Federal Register Notice
2. Proposed Amendment w/Proposed Technical Specification changes

cc: see next page

OFFICE	ORB 4	ORB 4	OELD	ORB 4	RL-AD
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DATE	12/9/75	1-9-76	12/9/75	12/19/75	12/19/75

Power Authority of the State
of New York

cc w/enclosures:

Scott B. Lilly, General Counsel
Power Authority of the
State of New York
10 Columbus Circle
New York, New York 10019

Mr. Alvin L. Krakau
Chairman, County Legislature
County Office Building
46 East Bridge Street
Oswego, New York 13126

Arvin E. Upton, Esquire
LeBoeuf, Lamb, Leiby and MacRae
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Washington, D. C. 20036

Lauman Marin, Esquire
Senior Vice President
and General Counsel
Niagara Mohawk Corporation
300 Erie Boulevard West
Syracuse, New York 13202

cc w/enclosures & incoming:

Dr. William E. Seymour
Staff Coordinator
New York State Atomic
Energy Council
New York State Department
of Commerce
112 State Street
Albany, New York 12207

Charles V. Mangay
Manager Production Plant Engineering
Niagara Mohawk Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Mr. Z. Chilazi
Power Authority of the
State of New York
10 Columbus Circle
New York, New York 10019

Oswego City Library
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Oswego, New York 13126

Mr. Robert P. Jones, Supervisor
Town of Scriba
R. D. #4
Oswego, New York 13126

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

POWER AUTHORITY OF THE STATE OF NEW YORK

NIAGARA MOHAWK POWER CORPORATION

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

PROPOSED AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.
License No. DPR-59

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. 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; and
 - B. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility 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, are hereby incorporated in the License. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. ."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing

Attachment:
Change No. to the
Technical Specifications
Date of Issuance:

ATTACHMENT TO PROPOSED LICENSE AMENDMENT

PROPOSED CHANGE TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-59

DOCKET NO. 50-333

Delete existing pages 89, 89a, 90, 99, 99a, and 100 of the Technical Specifications and insert the attached revised pages. The changed areas on the revised pages are shown by marginal lines.

- a. Control rods which cannot be moved with control rod drive pressure shall be considered inoperable. If a partially or fully withdrawn control rod drive cannot be moved with drive or scram pressure, the reactor shall be brought to the Cold Shutdown condition within 24 hours and shall not be started unless (1) investigation has demonstrated that the cause of the failure is not a failed control rod drive mechanism collet housing, and (2) adequate shutdown margin has been demonstrated as required by Specification 4.3.A.

If investigation demonstrates that the cause of control rod failure is a cracked collet housing, or if this possibility cannot be ruled out, the reactor shall not be started until the affected control rod drive has been replaced or repaired.

- a. Each partially or fully withdrawn operable control rod shall be exercised one notch at least once each week when operating above 30 percent power. In the event power operation is continuing with three or more inoperable control rods, this test shall be performed at least once each day, when operating above 30 percent power.
- b. A second licensed operator shall verify the conformance to Specification 3.3.A.2.d before a rod may be bypassed in the Rod Sequence Control System.
- c. Once per week check status of pressure and level alarms for each accumulator.

b. The control rod directional control valves for inoperable control rods shall be disarmed electrically.

c. Control rods with scram times greater than those permitted by Specification 3.3.C.3 are inoperable, but if they can be inserted with control rod drive pressure they need not be disarmed electrically.

d. Control rods with a failed "Full-in" or "Full-out" position switch may be bypassed in the Rod Sequence Control System and considered operable if the actual rod position is known. These rods must be moved in

d. When it is initially determined that a control rod is incapable of normal insertion, an attempt to fully insert the control rod shall be made. If the a control rod cannot be fully inserted

shutdown margin test shall be made to demonstrate under this condition that the core can be made subcritical for any reactivity condition during the remainder of the operating cycle with the analytically determined, highest worth control rod capable of withdrawal, fully withdrawn, and all other control rods capable of insertion fully inserted. If Specification 3.3.A.1 and 4.3.A.1 are met, reactor startup may proceed.

- sequence to their correct positions (full in on insertion and full out on withdrawal).
- e. Control rods with inoperable accumulators or those whose position cannot be positively determined shall be considered inoperable.
- f. Inoperable control rods shall be positioned such that Specification 3.3.A.1 is met. In addition, during reactor power operation, no more than one control rod in any 5 x 5 array may be inoperable (at least 4 operable control rods must separate any 2 inoperable ones). If this specification cannot be met the reactor shall not be started, or if at power, the reactor shall be brought to a cold condition within 24 hr.

the control cell geometry and local k_{eff} . Therefore, an additional margin is included in the shutdown margin test to account for the fact that the rod used for the demonstration (the analytically strongest) is not necessarily the strongest rod in the core. Studies have been made which compare experimental criticals with calculated criticals. These studies have shown that actual criticals can be predicted within a given tolerance band. For gadolinia cores the additional margin required due to control cell material manufacturing tolerances and calculational uncertainties has experimentally been determined to be 0.38% Δk . When this additional margin is demonstrated, it assures that the reactivity control requirement is met.

2. Reactivity Margin - Inoperable Control Rods

Specification 3.3.A.2 requires that a rod be taken out of service if it cannot be moved with drive pressure. If the rod is fully inserted, it is in a safe position of

maximum contribution to shutdown reactivity. If it is in a non-fully inserted position, that position shall be consistent with the shutdown reactivity limitation stated in Specification 3.3.A.1. This assures that the core can be shut down at all times with the remaining control rods assuming the strongest operable control rod does not insert.

Inoperable bypassed rods will be limited within any group to not more than one control rod of a (5x5) twenty-five control rod array. The use of the individual rod bypass switches in the Rod Sequence Control System (RSCS) to substitute for a failed full in or full out position switch will not be limited as long as the actual position of the control rod is known.

Also if damage within the control rod drive mechanism and in particular, cracks in drive internal housings, cannot be ruled out, then a generic problem affecting a number of drives cannot be ruled out. Circumferential cracks resulting from stress assisted intergranular corrosion have occurred in the collet housing of drives at several BWRs. This type of cracking could occur in a number of drives and if the cracks propagated until severance of the collet housing occurred, scram could be prevented in the affected rods. Limiting the period of operation with a potentially severed collet housing will assure that the reactor will not be operated with a large number of rods with failed collet housings.

E. Control Rods

1. Control rod drop accidents as discussed in the FSAR can lead to significant core damage. If coupling integrity is maintained, the possibility of a rod drop accident is eliminated. The overtravel

position feature provides a positive check as only uncoupled drives may reach this position. Neutron instrumentation response to rod movement provides a verification that the rod is following its drive. Absence of such response to drive movement could indicate an uncoupled condition. Rod position indication is required for proper function of the RSCS and the Rod Worth Minimizer (RWM).

2. The control rod housing support restricts the outward movement of a control rod to less than 3 in. in the extremely remote event of a housing failure. The amount of reactivity which could be added by this small amount of rod withdrawal, which is less than a normal single withdrawal increment, will not contribute to any damage to the Primary Coolant System. The design basis is given in subsection 3.8.2 of the FSAR, and the safety evaluation is given in subsection 3.8.4. This support is not required if the Reactor Coolant System is at atmospheric pressure since there would then be no

driving force to rapidly eject a drive housing. Additionally, the support is not required if all control rods are fully inserted and if an adequate shutdown margin with one control rod withdrawn has been demonstrated, since the reactor would remain subcritical even in the event of complete ejection of the strongest control rod.

3. The RSCS and the RWM System restrict withdrawals and insertions of control rods to those listed prespecified control rod sequences which are established to assure that the maximum individual control rod worth prior to withdrawal shall be less than $1.25\% \Delta k$. These sequences are developed prior to initial operation of the unit to limit the reactivity worths of control rods in the core, and together with the integral rod velocity limiters, limit potential reactivity insertion such that the results of a control rod drop accident will not exceed a maximum fuel energy content of 280 cal/gm, reference Sections 3.6.6, 7.17, and 14.6.2 of the FSAR and NEDO-10527 and Supplement 1 to

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-333

POWER AUTHORITY OF THE STATE OF NEW YORK

NIAGARA MOHAWK POWER CORPORATION

NOTICE OF PROPOSED ISSUANCE OF AMENDMENT
TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. DPR-59 issued to Power Authority of the State of New York and Niagara Mohawk Power Corporation (the licensee) for operation of the James A. FitzPatrick Nuclear Power Plant (the facility) located in Oswego County, New York.

The amendment would revise the Technical Specifications to add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod mechanism collet housing failures.

Prior to issuance of the proposed license amendment, the Commission will have made the findings required by the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations.

By February 26, 1976, the licensee may file a request for a hearing and any person whose interest may be affected by this proceeding may file a request for a hearing in the form of a petition for leave to intervene with respect to the issuance of the amendment to the subject facility operating license. Petitions for leave to intervene must be

filed under oath or affirmation in accordance with the provisions of Section 2.714 of 10 CFR Part 2 of the Commission's regulations. A petition for leave to intervene must set forth the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, and the petitioner's contentions with respect to the proposed licensing action. Such petitions must be filed in accordance with the provisions of this FEDERAL REGISTER notice and Section 2.714, and must be filed with the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Docketing and Service Section, by the above date. A copy of the petition and/or request for a hearing should be sent to the Executive Legal Director, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555 and to Arvin E. Upton, Esquire, LeBoeuf, Lamb, Leiby & MacRae, 1757 N Street, N. W., Washington, D. C., the attorney for the licensee.

A petition for leave to intervene must be accompanied by a supporting affidavit which identifies the specific aspect or aspects of the proceeding as to which intervention is desired and specifies with particularity the facts on which the petitioner relies as to both his interest and his contentions with regard to each aspect on which intervention is requested. Petitions stating contentions relating only to matters outside the Commission's jurisdiction will be denied.

All petitions will be acted upon by the Commission or licensing board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel. Timely petitions will be considered to

determine whether a hearing should be noticed or another appropriate order issued regarding the disposition of the petitions.

In the event that a hearing is held and a person is permitted to intervene, he becomes a party to the proceeding and has a right to participate fully in the conduct of the hearing. For example, he may present evidence and examine and cross-examine witnesses.

For further details with respect to this action, see the Commission's letter to the Power Authority of the State of New York dated September 19, 1975 and the attached proposed Technical Specifications and the Safety Evaluation by the Commission's staff dated September 19, 1975, which are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Oswego City Library, 120 E. Second Street, Oswego, New York. The license amendment and Safety Evaluation may be inspected at the above locations and a copy may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland, this 19th day of January, 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Reactor Licensing