April 17,1990

Docket No. 50-286

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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. 71585)

The Commission has issued the enclosed Amendment No. 96 to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated December 2, 1988.

The amendment revises the Technical Specifications to modify the applicability of action requirements for Limiting Conditions for Operation (LCO) associated with missed Surveillance Requirements. Time limits of LCO action requirements will be applied at the time a missed surveillance is identified.

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

Sincerely,

ORIGINAL SIGNED BY:

Joseph D. Neighbors, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 96 to DPR-64
2. Safety Evaluation

cc: w/enclosures
See next page

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

April 17, 1990

Docket No. 50-286

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

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Joseph D. Neighbors

Joseph D. Neighbors, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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See next page

Mr. John C. Brons
Power Authority of the State
of New York

Indian Point 3 Nuclear Power Plant

cc:

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

POWER AUTHORITY OF THE STATE OF NEW YORK

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 96
License No. DPR-64

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 December 2, 1988, 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-64 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 96 , 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 and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Joseph R. Neighbors
for 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: April 17, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 96

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

Remove Pages	Insert Pages
4.1-1	4.1-1
4.1-2	4.1-2
4.1-3	4.1-3
4.1-4	4.1-4

4 SURVEILLANCE REQUIREMENTS

4.1 OPERATIONAL SAFETY REVIEW

Applicability

Applies to items directly related to safety limits and limiting conditions for operation. Performance of any surveillance test outlined in these specifications is not required if the plant condition is the same as the condition into which the plant would be placed by an unsatisfactory result of that test. Failure to perform a surveillance requirement within the allowed surveillance interval (including extensions specified in definition 1.12), shall constitute noncompliance with the operability requirements of the limiting conditions for operation (LCOs). The time limits for associated action requirements are applicable at the time it is identified that a surveillance requirement has not been performed. Action requirements may be delayed for up to 24 hours to permit completion of the missed surveillance when the allowable outage time limits of the action requirements are less than 24 hours (i.e. for LCOs of less than 24 hours, a 24 hour delay period is permitted before entering the LCO; for LCOs greater than 24 hours, no delay period is permitted).

Objective

To specify the minimum frequency and type of surveillance to be applied to plant equipment and conditions.

Specification

A. Calibration, testing, and checking of analog channel and testing of logic channel shall be performed as specified in Table 4.1-1.

B. Sampling and equipment tests shall be conducted as specified in Table 4.1-2 and 4.1-3, respectively.

Basis

A surveillance test is intended to identify conditions in a plant that would lead to a degradation of reactor safety. Should a test reveal such a condition, then the Technical Specifications require that, either immediately or after a specified period of time, the plant be placed in a condition which mitigates or eliminates the consequences of additional related casualties or accidents. If the plant is already in a condition which would satisfy the failure criteria of the

test, then plant safety is assured and performance of the test yields either meaningless information or information that is not necessary to determine safety limits or limiting conditions for operation of the plant.

Likewise, systems and components are assumed to be operable as defined in paragraph 1.5, and satisfying safety limits or LCOs for a given plant operating condition, when surveillance requirements have been satisfactorily performed within the allowed surveillance interval and extensions as specified in definition 1.12. However, nothing in this provision shall be construed as implying that systems or components are operable when they are found or known to be inoperable although still meeting the surveillance requirements. LCO action requirements associated with operation in a degraded mode are applicable when surveillance requirements have not been completed within the allowed surveillance interval. The time limits of such LCOs apply from the point in time it is identified that a surveillance has not been performed and not at the time the allowed surveillance interval was exceeded.

For a missed surveillance, if the allowable outage time limits of the applicable LCO action requirements are less than 24 hours or a shutdown is required, then a 24-hour delay is permitted in implementing the action requirements. The purpose of the delay is to permit the completion of a missed surveillance before a shutdown or some other remedial measure precludes completion of the surveillance. This allowance of a delay includes consideration of the plant conditions, adequate planning, availability of personnel, the time required to perform the surveillance, and the safety significance of the delay in completing the required surveillance. If a surveillance is not completed within the 24-hour delay, then the time limits of the associated action requirements are applicable at that time. When a surveillance is performed within the 24-hour delay and the Surveillance Requirements are not met (e.g. the system or component is declared inoperable), the time limits of the LCO action requirements are applicable at that time.

Failure to perform the surveillance within the allowed surveillance interval and extension as specified in definition 1.12 is still a violation of the LCO operability requirement subject to enforcement and reportability requirements as may be applicable.

Based on experience in operation of both conventional and nuclear plant systems, when the plant is in operation, the minimum checking frequency of once per shift is deemed adequate for reactor and steam system instrumentation.

Calibration

Calibrations are performed to ensure the presentation and acquisition of accurate information.

The nuclear flux (linear level) channels are calibrated daily against a heat balance standard to account for errors induced by changing rod patterns and core physics parameters.

Other channels are subject only to the "drift" errors induced within the instrumentation itself and, consequently, can tolerate longer intervals between calibration. Process system instrumentation errors induced by drift can be expected to remain within acceptable tolerances if recalibration is performed at intervals of each refueling shutdown.

Substantial calibration shifts within a channel (essentially a channel failure) will be revealed during routine checking and testing procedures.

Thus, minimum calibration frequencies of once-per-day for the nuclear flux (linear level) channels, and once each refueling shutdown for the process system channels is considered acceptable.

Testing

The minimum testing frequency for those instrument channels connected to the safety system is based on an average unsafe failure rate of 2.5×10^{-6} failure/hrs. per channel. This is based on operating experience at conventional and nuclear plants. An unsafe failure is defined as one which negates channel operability and which, due to its nature, is revealed only when the channel is tested or attempts to respond to a bona fide signal.

For a specified test interval W and an M out of N redundant system with identical and independent channels having a constant failure rate λ, the average availability A is given by:

$$A = \frac{W - Q\left(\frac{W}{N-M+2}\right)}{W} = 1 - \frac{N!}{(N-M+2)!\,(N-1)!}(\lambda W)^{N-M+1}$$

where A is defined as the fraction of time during which the system is functional, and Q is the probability of failure of such a system during a time interval W.

For a 2-out-of-3 system A = 0.9999968, assuming a channel failure rate, λ, equal to 2.5×10^{-6} hr^{-1} and a test interval, W, equal to 720 hrs.

This average availability of the 2-out-of-3 system is high, hence the test interval of one month is acceptable.

Because of their greater degree of redundancy, the 1/3 and 2/4 logic arrays provide an even greater measure of protection and are thereby acceptable for the same testing interval. Those items specified for monthly testing are associated with process components where other means of verification provide additional assurance that the channel is operable, thereby requiring less frequent testing.

The Turbine Steam Stop and Control Valves shall be tested at a frequency determined by the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency", and in accordance with established NRC acceptance criteria for the probability of a missile ejection incident at IP-3. In no case shall the test interval for these valves exceed one year.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 96 TO FACILITY OPERATING LICENSE NO. DPR-64

POWER AUTHORITY OF THE STATE OF NEW YORK

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NO. 50-286

INTRODUCTION

By letter dated December 2, 1988, the Power Authority of the State of New York (the licensee) requested an amendment to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3. The amendment would change the Technical Specifications to add a delay of 24 hours to allow performance of a missed surveillance to satisfy operability requirements before implementing action requirements applicable to operating in a degraded mode.

DISCUSSION AND EVALUATION

Generic Letter (GL) 87-09 was issued by the NRC on June 4, 1987 as part of an effort to implement short-term improvements to the Technical Specifications. It encouraged licensees to propose changes to resolve problems encountered in applying general requirements of LCOs and surveillance requirements in the Standard Technical Specifications. The portion of GL 87-09 related to missed surveillance requirements is addressed in this Safety Evaluation.

The phrase, "verified by testing and tested at the frequency required by the Technical Specifications" is part of the definition of "Operable" for plant systems and components. To avoid any potential for oversight or misinterpretation, the licensee added to the description of surveillance applicability the fact that failure to perform a surveillance requirement within the allowed surveillance interval, constitutes a violation of LCO operability requirements. For further clarification the statement that time limits of LCO action requirements begin at the time a missed surveillance is identified was also added to the surveillance section of the Technical Specifications.

Failure to perform a surveillance is primarily a question of not having verified operability and not one of assumed inoperability. In the large majority of cases, performance of a surveillance demonstrates continued operability rather than lack of operability. The satisfactory completion of a missed surveillance before allowable outage time is exceeded is sufficient to relieve compliance with LCO action requirements for inoperability, since operability is demonstrated to be maintained before and after the LCO in question could be applied.

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Performance of a missed surveillance as soon as possible is the primary concern where a surveillance interval has been exceeded, since the system or component in question is now outside the basis for operability assumed in the Technical Specification analysis. Where allowable outage time for an action requirement is not of sufficient duration to permit the completion of the missed surveillance in a safe and reliable manner, then a delay should be allowed before applying shutdown requirements. This is desirable since it would prevent placing the plant in a transient condition, increasing the potential for a demand on the system or component being tested. It avoids the situation of testing in parallel with plant shutdown, in order to satisfy surveillance requirements and allow return to power. From a standpoint of overall plant safety, if the surveillance showed the system or component to be inoperable, it would be better to attempt restoration of the affected system to an operable status before changing plant condition.

Based on considerations of plant conditions, adequate planning, availability of personnel, the time required to perform the surveillance, as well as the safety significance of the delay in completion of the surveillance, 24 hours would be an acceptable delay before applying action requirements whose time limits are less than 24 hours. Twenty-four hours is sufficient to allow for special circumstances that might require this much time to ensure the surveillance is completed in a safe and adequate manner without undue regard from pressure to comply with LCO action requirements. The 24-hour time limit is an acceptable balance between the risks of delay in LCO compliance to allow test completion against the risks of a plant upset and challenge to safety systems while shutting down to comply with action requirements before a surveillance is completed.

Additional guidance is provided in the basis section of the surveillance requirements to prevent any misconception that the 24-hour delay might be used to extend the required surveillance interval of the Technical Specifications. It ensures that even if a missed surveillance is completed satisfactorily within this delay period, a violation of the Technical Specifications is still recognized.

Based on our review, we conclude that the proposed Technical Specifications are consistent with those of GL 87-09 and are acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in 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 changes in the surveillance requirements. 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 previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. 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: April 17, 1990

PRINCIPAL CONTRIBUTOR:

Joseph D. Neighbors, PDI-1