April 26, 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. 76002)

The Commission has issued the enclosed Amendment No. 97 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 February 12, 1990.

The amendment revises the Technical Specifications to remove the statement which limits the allowable extension for three consecutive surveillance intervals to 3.25 times the specified surveillance interval. The change also removes the statement which excludes shift and daily surveillances from the 25-percent allowance to extend surveillance intervals.

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 Donald S. Brinkman for

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. 97 to DPR-64
2. Safety Evaluation

cc: w/enclosures
See next page

PDI-1:LA	PDI-1:PM	OGC	PDI-1:D
CVogan	DNeighbors:rsc		RACapra
4/12/90	4/12/90	4/3/90	4/26/90

DOCUMENT NAME: ISSUANCE OF AMENDMENT 76002

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

Indian Point 3 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. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 97
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 February 12, 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-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.97 , 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.

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: April 26, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 97

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

Remove Pages	Insert Pages
1-5	1-5
4.1-1	4.1-1
4.1-2	4.1-2
4.1-3	4.1-3

1.11 QUADRANT POWER TILT RATIO

The quadrant power tilt ratio shall be the ratio of the maximum upper excore dector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one excore detector inoperable, the remaining three detectors shall be used for computing the average.

1.12 SURVEILLANCE INTERVAL

Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25% of the specified surveillance interval.

1.13 OPERATION IN A DEGRADED MODE

The plant is said to be operating in a degraded mode when it is operating with one or more systems listed herein inoperable as permitted by the Technical Specifications. If inoperable components or systems are subsequently made operable, the action statements requiring plant shutdown no longer apply.

1.14 $\bar{E}$-AVERAGE DISINTEGRATION ENERGY

Noble gas $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes with half lives greater than 10 minutes, making up at least 95% of the total activity in the coolant.

1.15 DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcurie/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites."

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, than the time limits of the associated action requirements are applicable at the 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.

Definition 1.12 establishes the limit for which the specified time interval for Surveillance Requirements may be extended.

It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g. transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillances that are performed at each refueling outage and are specified with an 18-month surveillance interval. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. The limitation of Definition 1.12 is based on engineering judgement and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

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:

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

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. 97 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 February 12, 1990, the Power Authority of the State of New York (the licensee) proposed changes to the Technical Specifications (TS) for Indian Point Nuclear Generating Unit No. 3. The proposed change removes the provision of Definition 1.12 that limits the combined time interval for three consecutive surveillances to less than 3.25 times the specified interval. The proposed change also removes the statement which excludes shift and daily surveillances from the 25-percent allowance to extend surveillance intervals. Guidance on this proposed change to the TS was provided to all power reactor licensees and applicants by Generic Letter 89-14, dated August 21, 1989.

EVALUATION

Definition 1.12 includes the provision that allows a surveillance interval to be extended by 25 percent of the specified time interval. This extension provides flexibility for scheduling the performance of surveillance and to permit consideration of plant operating conditions that may not be suitable for conducting a surveillance at the specified time interval. Such operating conditions include transient plant operation or ongoing surveillance or maintenance activities. Definition 1.12 further limits the allowance for extending surveillance intervals by requiring that the combined time interval for any three consecutive surveillances not exceed 3.25 times the specific time interval. The purpose of this provision is to assure that surveillances are not extended repeatedly as an operational convenience to provide an overall increase in the surveillance interval.

Experience has shown that the 18-month surveillance interval, with the provision to extend it by 25 percent, is usually sufficient to accommodate normal variation in the length of a fuel cycle. However, the NRC staff has routinely granted requests for one-time exceptions to the 3.25 limit on extending refueling surveillances because the risk to safety is low in contrast to the alternative of a forced shutdown to perform these surveillances. Therefore, the 3.25 limitation on extending surveillances has not been a practical limit on the use of the 25-percent allowance for extending surveillances that are performed on a refueling outage basis.

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Extending surveillance intervals during plant operation can also result in a benefit to safety when a scheduled surveillance is due at a time that is not suitable for conducting the surveillance. This may occur when transient plant operating conditions exist or when safety system are out-of-service for maintenance or other surveillance activities. In such cases, the benefit to safety of extending a surveillance interval would exceed any safety benefit derived by limiting the use of the 25-percent allowance to extend a surveillance. Furthermore, there is the administrative burden associated with tracking the use of the 25-percent allowance to ensure compliance with the 3.25 limit.

In view of these findings, the staff concluded that Specifications 4.0.2 of the Westinghouse Standard Technical Specifications (W STS) should be changed to remove the 3.25 limit for all surveillances because its removal will have an overall positive effect on safety. The guidance provided in Generic Letter 89-14 included the following change to this specification and removes the 3.25 limit on three consecutive surveillances with the following statement.

> "Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval."

In addition, the Bases of this specification was updated to reflect this change and noted that it is not the intent of the allowance for extending surveillance intervals that it be used repeatedly merely as an operational convenience to extend surveillance intervals beyond that specified.

Since the 25-percent allowance can result in a benefit to safety when plant conditions are not conducive to the safe conduct of surveillance requirements, the licensee proposed to remove the statement which excludes shift and daily surveillances from the 25-percent allowance to extend surveillance intervals. The IP3 Technical Specification Bases do not provide the basis of the original exclusion of these surveillances from extension allowances. Removal of this statement will make Definition 1.12 of the IP3 Technical Specifications consistent with Specification 4.0.2 of the W STS and will allow flexibility to permit consideration of plant conditions that may be suitable for conducting shift or daily surveillances at their specified time interval.

The licensee has proposed changes to Definition 1.12 that are consistent with the guidance provided in Generic Letter 89-14, as noted above. On the basis of its review of this matter, the staff finds that the above changes to the TS 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. 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 26, 1990

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