

November 13, 1986

Docket No. 50-247

Mr. Murray Selman  
Vice President, Nuclear Power  
Consolidated Edison Company  
of New York, Inc.  
Broadway and Bleakley Avenue  
Buchanan, New York 10511

Dear Mr. Selman:

Distribution

Docket file	B. Grimes
NRC PDR	J. Partlow
Local PDR	N. Thompson
PD#3 Rdg.	M. Slosson
T. Novak	C. Vogan
OELD	ACRS (10)
E. Jordan	C. Berlinger
L. Harmon	T. Barnhart (4)
W. Jones	E. Butcher
V. Benaroya	LFMB
OPA	Gray File

The Commission has issued the enclosed Amendment No. 117 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated June 3, 1986, as supplemented August 12, 1986.

The amendment revises the Technical Specifications to allow the plant to reduce power to 50% when a quadrant power tilt ratio of greater than 1.09 exists instead of going to Hot Shutdown. A change from 2 to 3 percent reduction in rated thermal power for every percent of indicated power tilt ratio exceeding 1.00 is also made.

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,

*MS*  
Marylee M. Slosson, Project Manager  
PWR Project Directorate #3  
Division of PWR Licensing-A, NRR

Enclosures:

1. Amendment No. 117 to DPR-26
2. Safety Evaluation

cc: w/enclosures  
See next page

\*SEE PREVIOUS CONCURRENCE

PD#3	PD#3	OELD	PD#3
CVogan*	MSlosson*	*	Svarga
10/3/86	10/10/86	10/7/86	10/19/86

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The amendment revises the Technical Specifications to allow the plant to reduce power to 50% when a quadrant power tilt ratio of greater than 1.09 exists instead of going to Hot Shutdown a change from 2 to 3 percent rated thermal power tilt ratio exceeding 1.00 for all tilt ratios exceeding 1.02 is also made.

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,

Marylee M. Slosson, Project Manager  
PWR Project Directorate #3  
Division of PWR Licensing-A, NRR

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2. Safety Evaluation

cc: w/enclosures  
See next page

PD#3  
CVogan *CV*  
10/13/86

PD#3 *MS*  
MSlosson  
10/16/86

*OGC*  
OELD  
M. Selman  
10/7/86

PD#3  
SVarga  
10/ /86

Mr. Murray Selman  
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Indian Point Nuclear Generating  
Station 1/2

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

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 117  
License No. DPR-26

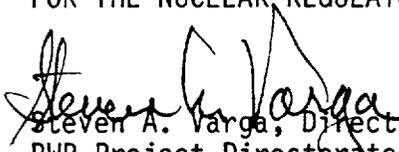
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Consolidated Edison Company of New York, Inc. (the licensee) dated June 3, 1986, as supplemented August 12, 1986, complies with the standards and requirements of the Atomic Energy Act of 1954, 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-26 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.117 , 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

  
Steven A. Varga, Director  
PWR Project Directorate #3  
Division of PWR Licensing-A, NRR

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance:  
November 13, 1986

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Revise Appendix A as follows:

Remove Pages

3.10-4  
3.10-5  
3.10-14

Insert Pages

3.10-4  
3.10-5  
3.10-14

- 3.10.2.6 Alarms are provided to indicate non-conformance with the flux difference requirements of 3.10.2.5 1 and the flux difference-time requirements of 3.10.2.6.1. If the alarms are temporarily out of service, conformance with the applicable limit shall be demonstrated by logging the flux difference at hourly intervals for the first 24 hours and half-hourly thereafter.
- 3.10.2.9 If the core is operating above 75% power with one excore nuclear channel out of service, then core quadrant power balance shall be determined once a day using movable incore detectors (at least two thimbles per quadrant).
- 3.10.3 Quadrant Power Tilt Limits
- 3.10.3.1 Except for physics tests, when the core is operating above 50% of rated thermal power and the indicated quadrant power tilt ratio exceeds 1.02 but is less than or equal to 1.09, within two hours reduce the quadrant power tilt ratio to within its limit or the following actions shall be taken:
- a) Restrict core power level and reset the power range high flux trip setpoint three percent of rated values for every percent of indicated power tilt exceeding 1.0, and
  - b) Verify that the quadrant power tilt ratio is within its limit within 24 hours after exceeding the limit or restrict core power level to less than 50% of rated thermal power within the next 2 hours and reduce the power range high flux trip setpoint to less than or equal to 55% of rated thermal power within the next 4 hours.
- 3.10.3.2 Except for physics tests, if the indicated quadrant power tilt ratio exceeds 1.09 with the core operating above 50% of rated thermal power and
- a) there is a simultaneous indication of a misaligned control rod, restrict core power level three percent of rated value for every percent of indicated power tilt ratio exceeding 1.0 or until core power level is less than 50% of rated thermal power. If the quadrant power tilt ratio is not within its limit within 2 hours after exceeding the limit, restrict core power level to less than 50% of rated thermal power within the next 2 hours and reduce the power range high flux trip setpoint to less than or equal to 55% of rated thermal power within the next 4 hours.

-or-

- b) there is no simultaneous indication of a misaligned control rod, reduce thermal power to less than 50% of rated thermal power within 2 hours and reduce the power range high flux trip setpoint to less than or equal to 55% of rated thermal power within the next 4 hours.
- 3.10.3.3 The rod position indicators shall be monitored and logged once each shift to verify rod position within each bank assignment.
- 3.10.3.4 The tilt deviation alarm shall be set to annunciate whenever the excure tilt ratio exceeds 1.02 except as modified in specification 3.10.10.
- 3.10.4 Rod Insertion Limits
- 3.10.4.1 The shutdown rods shall be fully withdrawn when the reactor is critical or approaching criticality (i.e., the reactor is no longer subcritical by an amount equal to or greater than the shutdown margin in Figure 3.10-1).
- 3.10.4.2 When the reactor is critical, the control banks shall be limited in physical insertion to the insertion limits shown in Figure 3.10-3 or Figure 3.10-4.
- 3.10.4.3 Control bank insertion shall be further restricted if:
- a. The measured control rod worth of all rods, less the worth of the most reactive rod (worst case stuck rod), is less than the reactivity required to provide the design value of available shutdown,
  - b. A rod is inoperable (Specification 3.10.7).
- 3.10.4.4 Insertion limits do not apply during physics tests or during periodic exercise of individual rods. However, the shutdown margin indicated in Figure 3.10-1 must be maintained except for the low power physics test to measure control rod worth and shutdown margin. For this test the reactor may be critical with all but one control rod inserted.

The two hour time interval in this specification is considered ample to identify a dropped or misaligned rod and complete realignment procedures to eliminate the tilt condition. In the event that this tilt condition cannot be eliminated within the two hour time allowance, additional time would be needed to investigate the cause of the tilt condition. The measurements would include a full core physics map utilizing the moveable detector system. For a tilt condition  $\leq 1.09$ , an additional 22 hours time interval is authorized to accomplish these measurements. However, to assure that the peak core power is maintained below limiting values, a reduction of reactor power of three percent for each one percent of indicated tilt is required. Physics measurements have indicated that the core radial power peaking would not exceed a two to one relationship with the indicated tilt from the excore nuclear detector system for the worst rod misalignment.

In the event a tilt condition of  $\leq 1.09$  cannot be eliminated after 24 hours, the reactor power level will be reduced to less than 50% of rated power. To avoid reset of a large number of protection setpoints, the power range nuclear instrumentation would be reset to cause an automatic reactor trip at 55% of allowed power. A reactor trip at this power has been selected to prevent, with margin, exceeding core safety limits even with a nine percent tilt condition.

If a tilt ratio greater than 1.09 occurs, which is not due to a misaligned rod, the reactor power level will be reduced to less than 50% of rated power for investigation. However, if the tilt condition can be identified as due to rod misalignment, operation can continue at a reduced power (3% for each one-percent the tilt ratio exceeds 1.0) for two hours to correct the rod misalignment.

Trip shutdown reactivity is provided consistent with plant safety analysis assumptions. One percent shutdown is adequate except for steam break analysis, which requires more shutdown if the boron concentration is low Figure 3.10-1 is drawn accordingly.

Rod insertion limits are used to assure adequate trip reactivity, to assure meeting power distribution limits, and to limit the consequence of a hypothetical rod ejection accident. The available control rod reactivity, or excess beyond needs, decreases with decreasing boron concentration because the negative reactivity required to reduce the power level from full power to zero power is largest when the boron concentration is low.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. DPR-26  
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2  
DOCKET NO. 50-247

INTRODUCTION

By letter dated June 3, 1986, as supplemented August 12, 1986, Consolidated Edison (the licensee) requested an amendment to Facility Operating License No. DPR-26 which would revise the Indian Point Nuclear Generating Unit No. 2 Technical Specifications. This change applies to the Quadrant Power Tilt Technical Specifications.

DISCUSSION AND EVALUATION:

The licensee requested that the actions required in Technical Specification 3.10.3, when a tilt ratio of greater than 1.09 exists, be changed. The present Technical Specification requires placing the unit in Hot Shutdown with subsequent operation up to 50% of rated power for testing. The change would require that the power be reduced to 50% rated power, with the power range high flux trip reset at 55% rated power. Also it was requested that the required reduction be changed from 2 to 3 percent of rated thermal power for every percent of indicated power tilt ratio exceeding 1.00.

The change to allow the plant to reduce power to 50% instead of Hot Shutdown will:

- (a) reduce radiological waste generation due to less dilution water required,
- (b) increase overall life of plant components due to reduced thermal cycling of plant equipment due to plant shutdown and subsequent restart, and
- (c) reduce the likelihood of a reactor protection system actuation.

We have reviewed this change and conclude that, in addition to the benefits described above, the Technical Specification provides an acceptable level of safety. Also, this proposed change is in agreement with the Westinghouse Standard Technical Specifications.

The change from 2 to 3 percent of rated thermal power for every percent of indicated power tilt ratio exceeding 1.00 is more conservative than the present Technical Specifications and agrees with present limits for Westinghouse plants. We find this change to be acceptable.

#### ENVIRONMENTAL CONSIDERATION

This amendment involves a change to 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 to 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 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of this amendment.

#### CONCLUSION

The staff 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; 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: November 13, 1986

#### PRINCIPAL CONTRIBUTOR

M. Chatterton