

Docket No.: 50-247

JAN. 14 1976

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Consolidated Edison Company  
of New York, Inc.  
ATTN: Mr. William J. Cahill, Jr.  
Vice President  
4 Irving Place  
New York, New York 10003

Gentlemen:

The Commission has issued the enclosed Amendment No. 17 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. This amendment consists of changes to the Technical Specifications in response to your request dated January 9, 1976.

The amendment revises the provisions of the Technical Specifications to allow the next scheduled measurements of power distribution with the movable incore instrumentation system to be delayed until February 6, 1976.

Copies of the related Safety Evaluation and the Federal Register Notice also are enclosed.

Sincerely,

Original Signed By

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

Enclosures:

1. Amendment No. 17
2. Safety Evaluation
3. Federal Register Notice

cc w/enclosures: See next page

*gms*

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|         |            |           |         |             |
|---------|------------|-----------|---------|-------------|
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Consolidated Edison Company

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State of New York  
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Richard M. Hall, Esquire  
15 West 44th Street  
New York, New York 10036

Honorable George Segnit  
Mayor, Village of Buchanan  
188 Westchester Avenue  
Buchanan, New York 10511

cc w/enclosures & copy of  
ConEd's filing dtd. 1/9/76

Dr. William E. Seymour  
Staff Coordinator  
New York State Atomic Energy Council  
New York State Department of Commerce  
99 Washington Street  
Albany, New York 12210

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

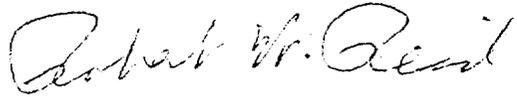
Amendment No. 17  
License No. DPR-26

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 January 9, 1976, 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. An environmental statement or negative declaration need not be prepared in connection with the issuance of this amendment.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment.

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

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:  
Changes to the  
Technical Specifications

Date of Issuance: JAN. 14 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 17.

FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Replace the existing pages of the Technical Specifications listed below with the attached revised pages bearing the same numbers. Changes on these pages are shown by marginal lines.

Pages

3.10-2

3.11-1

3.11-2 (no change)

4.1-3 (no change)

Table 4.1-1 (First page)

3.10.2.1 The movable detector system shall be used to confirm power distribution, such that design limits are not exceeded, after initial fuel loading and after each fuel reloading, prior to operation of the plant above 75% of rated power.

If the core is operating above 75% power with one excore nuclear channel out of service, then the core quadrant power balance shall be determined once a day by at least one of the following means:

- a. Movable detectors (at least 2 thimbles per quadrant)
- b. Core-exit thermocouples (at least 4 thermocouples per quadrant)

In addition, when operating above 50% power, the movable detector system shall be used to confirm power distribution monthly.<sup>1/</sup>

3.10.2.2 At all times, except for physics tests at 90% of rated power or less, the hot channel factors must meet the following limits:

$$F_Q^N \leq 2.62 [1 + 0.2 (1-P)] \text{ in the indicated flux difference range of } +7 \text{ to } -12 \text{ percent.}$$

$$F_{\Delta H}^N \leq 1.65 [1 + 0.2(1-P)]$$

Where P is the fraction of full power at which the core is operating.

The measured values, with due allowance for measurement error must be corrected by including a penalty as shown on Figure 3.10-4 (at the approximate core location) to account for fuel densification effects before comparison with the limiting values above.

If the hot channel factors exceed these limits, the reactor power and high neutron flux trip setpoints shall be reduced by 1 percent for every excess over  $F_Q^N$  or  $F_{\Delta H}^N$ , whichever is limiting. If the hot channel factors cannot be corrected within one day, the

<sup>1/</sup> The January 1976 scheduled measurements with the movable incore instrumentation system may be delayed until February 6, 1976. During the period of this extension, the incore thermocouples will be used to determine  $F_{\Delta H}^N$  for the core. Temperature maps of the core, obtained using these incore thermocouples, will be made every seven effective full power days while the extension is in effect.

### 3.11 MOVABLE IN-CORE INSTRUMENTATION

#### Applicability

Applies to the operability of the movable detector instrumentation system.

#### Objective

To specify functional requirements on the use of the in-core instrumentation system, for the recalibration of the excore axial off-set detection system.

#### Specification

- A. A minimum of 2 thimbles per quadrant and sufficient movable in-core detectors shall be operable during re-calibration of the excore axial off-set detection system.<sup>1/</sup>
- B. Power shall be limited to 90% of rated power for 4 loop or 65% of rated power for 3 loop operation if re-calibration requirements for excore axial off-set detection system, identified in Table 4.1-1, are not met.<sup>1/</sup>

#### Basis

The Movable In-core Instrumentation System<sup>(1)</sup> has six drives, six detectors, and 50 thimbles in the core. Each detector can be routed to sixteen or more thimbles. Consequently, the full system has a great deal more capability than would be needed for the calibration of the ex-core detectors.

To calibrate the excore detectors system, it is only necessary that the Movable In-core System be used to determine the gross power distribution in the core as indicated by the power balance between the top and bottom halves of the core.

<sup>1/</sup> The January 1976 scheduled measurements with the movable incore instrumentation system may be delayed until February 6, 1976.

After the excore system is calibrated initially, recalibration is needed only infrequently to compensate for changes in the core, due for example to fuel depletion, and for changes in the detectors.

If the recalibration is not performed, the mandated power reduction assures safe operation of the reactor since it will compensate for an error of 10% in the excore protection system. Experience at Beznau No. 1 and R. E. Ginna plants has shown that drift due to changes in the core or instrument channels is very slight. Thus the 10% reduction is considered to be very conservative.

Reference

- (1) FSAR - Section 7.4

$2.5 \times 10^{-6}$  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  $\lambda$ , 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,  $\lambda$ , equal to  $2.5 \times 10^{-6} \text{ hr}^{-1}$  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.

TABLE 4.1-1

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND  
TESTS OF INSTRUMENT CHANNELS

| Channel<br>Description                | Check | Calibrate       | Test         | Remarks   |
|---------------------------------------|-------|-----------------|--------------|---|
| 1. Nuclear Power Range                | S     | D (1)<br>M* (3) | M (2)        | 1) Heat balance calibration<br>2) Signal to $\Delta T$ ; bistable action (permissive, rod stop, trips)<br>3) Upper and lower chambers for axial off-set |
| 2. Nuclear Intermediate Range         | S (1) | N.A.            | P (2)        | 1) Once/shift when in service<br>2) Log level; bistable action (permissive, rod stop, trip)   |
| 3. Nuclear Source Range               | S (1) | N.A.            | P (2)        | 1) Once/shift when in service<br>2) Bistable action (alarm, trip)   |
| 4. Reactor Coolant Temperature        | S     | R               | M (1)<br>(2) | 1) Overtemperature- $\Delta T$<br>2) Overpower- $\Delta T$  |
| 5. Reactor Coolant Flow               | S     | R               | M            |   |
| 6. Pressurizer Water Level            | S     | R               | M            |   |
| 7. Pressurizer Pressure(High and Low) | S     | R               | M            |   |
| 8. 6.9 Kv Voltage & Frequency         | N.A.  | R               | M            | Reactor protection circuits only  |
| 9. Analog Rod Position                | S     | R               | M            |   |

\* By means of the moveable incore detector system. The January 1976 scheduled measurements with the movable incore detector system may be delayed until February 6, 1976.

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

SAFETY EVALUATION BY THE OFFICE OF

NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 17 TO FACILITY LICENSE NO. DPR-26

CONSOLIDATED EDISON COMPANY

OF NEW YORK, INCORPORATED

INDIAN POINT NUCLEAR GENERATING

UNIT NO. 2

DOCKET NO. 50-247

Introduction

By letter dated January 9, 1976, Consolidated Edison Company of New York, Inc. (Con Ed) proposed a change to the Technical Specifications appended to Facility Operating License No. DPR-26 for Indian Point Nuclear Generating Unit No. 2. The proposed change would revise the schedule for flux measurements with the movable incore instrumentation system.

Discussion

Con Ed has requested a schedule delay for the January 1976 incore flux measurements because the movable incore instrumentation system must be maintained prior to further use. Con Ed intends to do this maintenance on a scheduled shutdown on February 6, 1976. The incore measurements are required on a monthly basis with a + 25% time differential allowed. Con Ed is requesting that an additional 15 effective full power days of time be allowed in addition to the 25% variance presently allowed. The previous incore measurements were done on December 9, 1975. Con Ed proposes that the January 1976 scheduled measurements be delayed to no later than February 6, 1976.

Indian Point, Unit 2, is a Westinghouse four loop plant equipped with an incore neutron detector system consisting of four movable fission chambers that can be positioned in guide thimbles located at the center of ~50 selected fuel assemblies. The Technical Specifications require that this system be utilized to (1) calibrate the excore axial offset detection system monthly and (2) perform power distribution maps "at regular effective full power monthly intervals." The latter requirement is intended to confirm power distributions and to ensure that hot channel factors are within acceptable limits.

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### Evaluation

Power distribution measurements were last performed with the movable incore system on December 9, 1975. The licensee proposes to eliminate the January 1976 maps presently required by the technical specifications and operate Indian Point Unit 2 to February 6, 1976, without further use of the incore system.

The licensee would perform power maps at 7 day intervals utilizing the core exit thermocouple system in lieu of the incore instrumentation system. This system has been calibrated to produce an  $F_{\Delta H}^N$  for each of the 65 assemblies containing a core exit thermocouple.

We have reviewed the licensee's proposal and find it acceptable. The unit 2 burnup is currently greater than 13,000 Mwd/MTU. The power maps made since startup of this core indicate that the power distribution has changed as expected. The total peaking factor under steady state conditions has continuously decreased and is currently more than 33% below the design limit. Additional burnup will result in greater margin to this limit. Therefore, this change does not involve a decrease in a safety margin. Power distribution monitoring using the thermocouple system will ensure detection of gross power distribution anomalies in the unlikely event they occur. We concur that this approach is acceptable.

Also, only two recalibrations of the excore axial offset detection system have been required since startup, over two years ago. These recalibrations were necessitated because of the failure of a cable to an excore detector and because of the failure of one segment of an excore detector. Failures of this type are easily detected and are not expected to occur while the Technical Specification change is in effect. Drift in the excore detector signals, which can often be detected through the use of the incore system, has not been observed at Indian Point Unit 2. Thus, extending the time (one time) at which a recalibration must be performed will have no adverse effect on safety.

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Date: JAN. 14 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-247

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 17 to Facility Operating License No. DPR-26 issued to Consolidated Edison Company of New York, Inc. which revised Technical Specifications for operation of Indian Point Nuclear Generating Unit No. 2, located in Buchanan, Westchester County, New York. The amendment becomes effective as of its date of issuance.

This amendment revises the schedule for measurements with the movable incore instrumentation system for Indian Point Nuclear Generating Unit No. 2.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.

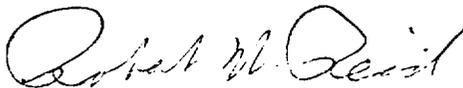
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For further details with respect to this action, see (1) the application for amendment dated January 9, 1976, (2) Amendment No. 17 to License No. DPR-26, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Hendrick Hudson Free Library, 31 Albany Post Road, Montrose, New York 10548.

A copy of items (2) and (3) 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 14th day of January 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



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

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

Docket No.: 50-247

JAN 14 1976

Consolidated Edison Company  
of New York, Inc.  
ATTN: Mr. William J. Cahill, Jr.  
Vice President  
4 Irving Place  
New York, New York 10003

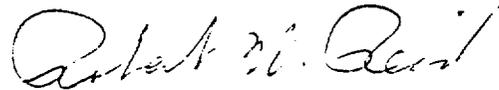
Gentlemen:

The Commission has issued the enclosed Amendment No. 17 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. This amendment consists of changes to the Technical Specifications in response to your request dated January 9, 1976.

The amendment revises the provisions of the Technical Specifications to allow the next scheduled measurements of power distribution with the movable incore instrumentation system to be delayed until February 6, 1976.

Copies of the related Safety Evaluation and the Federal Register Notice also are enclosed.

Sincerely,



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

Enclosures:

1. Amendment No. 17
2. Safety Evaluation
3. Federal Register Notice

cc w/enclosures: See next page

Consolidated Edison Company

cc w/ enclosures:

Mrs. Kay Winter, Librarian  
Hendrick Hudson Free Library  
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Assistant Attorney General  
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Honorable George Segnit  
Mayor, Village of Buchanan  
188 Westchester Avenue  
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cc w/enclosures & copy of  
ConEd's filing dtd. 1/9/76

Dr. William E. Seymour  
Staff Coordinator  
New York State Atomic Energy Council  
New York State Department of Commerce  
99 Washington Street  
Albany, New York 12210

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

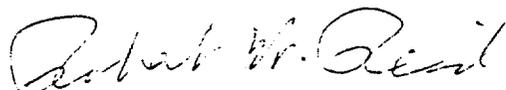
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 17  
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 January 9, 1976, 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. An environmental statement or negative declaration need not be prepared in connection with the issuance of this amendment.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment.

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

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:  
Changes to the  
Technical Specifications

Date of Issuance: <sup>JAN. 14</sup> 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 17.

FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Replace the existing pages of the Technical Specifications listed below with the attached revised pages bearing the same numbers. Changes on these pages are shown by marginal lines.

Pages

3.10-2

3.11-1

3.11-2 (no change)

4.1-3 (no change)

Table 4.1-1 (First page)

3.10.2 Power-Distribution Limits and Misaligned Control Rod

3.10.2.1 The movable detector system shall be used to confirm power distribution, such that design limits are not exceeded, after initial fuel loading and after each fuel reloading, prior to operation of the plant above 75% of rated power.

If the core is operating above 75% power with one excore nuclear channel out of service, then the core quadrant power balance shall be determined once a day by at least one of the following means:

- a. Movable detectors (at least 2 thimbles per quadrant)
- b. Core-exit thermocouples (at least 4 thermocouples per quadrant)

In addition, when operating above 50% power, the movable detector system shall be used to confirm power distribution monthly.<sup>1/</sup>

3.10.2.2 At all times, except for physics tests at 90% of rated power or less, the hot channel factors must meet the following limits:

$$F_Q^N \leq 2.62 [1 + 0.2 (1-P)] \text{ in the indicated flux difference range of } +7 \text{ to } -12 \text{ percent.}$$

$$F_{\Delta H}^N \leq 1.65 [1 + 0.2(1-P)]$$

Where P is the fraction of full power at which the core is operating.

The measured values, with due allowance for measurement error must be corrected by including a penalty as shown on Figure 3.10-4 (at the approximate core location) to account for fuel densification effects before comparison with the limiting values above.

If the hot channel factors exceed these limits, the reactor power and high neutron flux trip setpoints shall be reduced by 1 percent for every excess over  $F_Q^N$  or  $F_{\Delta H}^N$ , whichever is limiting. If the hot channel factors cannot be corrected within one day, the

<sup>1/</sup> The January 1976 scheduled measurements with the movable incore instrumentation system may be delayed until February 6, 1976. During the period of this extension, the incore thermocouples will be used to determine  $F_{\Delta H}^N$  for the core. Temperature maps of the core, obtained using these incore thermocouples, will be made every seven effective full power days while the extension is in effect.

### 3.11 MOVABLE IN-CORE INSTRUMENTATION

#### Applicability

Applies to the operability of the movable detector instrumentation system.

#### Objective

To specify functional requirements on the use of the in-core instrumentation system, for the recalibration of the excore axial off-set detection system.

#### Specification

- A. A minimum of 2 thimbles per quadrant and sufficient movable in-core detectors shall be operable during re-calibration of the excore axial off-set detection system.<sup>1/</sup>
- B. Power shall be limited to 90% of rated power for 4 loop or 65% of rated power for 3 loop operation if re-calibration requirements for excore axial off-set detection system, identified in Table 4.1-1, are not met.<sup>1/</sup>

#### Basis

The Movable In-core Instrumentation System<sup>(1)</sup> has six drives, six detectors, and 50 thimbles in the core. Each detector can be routed to sixteen or more thimbles. Consequently, the full system has a great deal more capability than would be needed for the calibration of the ex-core detectors.

To calibrate the excore detectors system, it is only necessary that the Movable In-core System be used to determine the gross power distribution in the core as indicated by the power balance between the top and bottom halves of the core.

<sup>1/</sup> The January 1976 scheduled measurements with the movable incore instrumentation system may be delayed until February 6, 1976.

After the excore system is calibrated initially, recalibration is needed only infrequently to compensate for changes in the core, due for example to fuel depletion, and for changes in the detectors.

If the recalibration is not performed, the mandated power reduction assures safe operation of the reactor since it will compensate for an error of 10% in the excore protection system. Experience at Beznau No. 1 and R. E. Ginna plants has shown that drift due to changes in the core or instrument channels is very slight. Thus the 10% reduction is considered to be very conservative.

Reference

- (1) FSAR - Section 7.4

$2.5 \times 10^{-6}$  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  $\lambda$ , the average availability  $A$  is given by:

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

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,  $\lambda$ , equal to  $2.5 \times 10^{-6} \text{ hr}^{-1}$  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.

TABLE 4.1-1

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND  
TESTS OF INSTRUMENT CHANNELS

| <u>Channel Description</u>            | <u>Check</u> | <u>Calibrate</u> | <u>Test</u>  | <u>Remarks</u>  |
|---------------------------------------|--------------|------------------|--------------|---|
| 1. Nuclear Power Range                | S            | D (1)<br>M* (3)  | M (2)        | 1) Heat balance calibration<br>2) Signal to $\Delta T$ ; bistable action (permissive, rod stop, trips)<br>3) Upper and lower chambers for axial off-set |
| 2. Nuclear Intermediate Range         | S (1)        | N.A.             | P (2)        | 1) Once/shift when in service<br>2) Log level; bistable action (permissive, rod stop, trip)   |
| 3. Nuclear Source Range               | S (1)        | N.A.             | P (2)        | 1) Once/shift when in service<br>2) Bistable action (alarm, trip)   |
| 4. Reactor Coolant Temperature        | S            | R                | M (1)<br>(2) | 1) Overtemperature- $\Delta T$<br>2) Overpower- $\Delta T$  |
| 5. Reactor Coolant Flow               | S            | R                | M            |   |
| 6. Pressurizer Water Level            | S            | R                | M            |   |
| 7. Pressurizer Pressure(High and Low) | S            | R                | M            |   |
| 8. 6.9 Kv Voltage & Frequency         | N.A.         | R                | M            | Reactor protection circuits only  |
| 9. Analog Rod Position                | S            | R                | M            |   |

\* By means of the moveable incore detector system. The January 1976 scheduled measurements with the movable incore detector system may be delayed until February 6, 1976.

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

SAFETY EVALUATION BY THE OFFICE OF

NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 17 TO FACILITY LICENSE NO. DPR-26

CONSOLIDATED EDISON COMPANY

OF NEW YORK, INCORPORATED

INDIAN POINT NUCLEAR GENERATING

UNIT NO. 2

DOCKET NO. 50-247

Introduction

By letter dated January 9, 1976, Consolidated Edison Company of New York, Inc. (Con Ed) proposed a change to the Technical Specifications appended to Facility Operating License No. DPR-26 for Indian Point Nuclear Generating Unit No. 2. The proposed change would revise the schedule for flux measurements with the movable incore instrumentation system.

Discussion

Con Ed has requested a schedule delay for the January 1976 incore flux measurements because the movable incore instrumentation system must be maintained prior to further use. Con Ed intends to do this maintenance on a scheduled shutdown on February 6, 1976. The incore measurements are required on a monthly basis with a  $\pm 25\%$  time differential allowed. Con Ed is requesting that an additional 15 effective full power days of time be allowed in addition to the 25% variance presently allowed. The previous incore measurements were done on December 9, 1975. Con Ed proposes that the January 1976 scheduled measurements be delayed to no later than February 6, 1976.

Indian Point, Unit 2, is a Westinghouse four loop plant equipped with an incore neutron detector system consisting of four movable fission chambers that can be positioned in guide thimbles located at the center of ~50 selected fuel assemblies. The Technical Specifications require that this system be utilized to (1) calibrate the excore axial offset detection system monthly and (2) perform power distribution maps "at regular effective full power monthly intervals." The latter requirement is intended to confirm power distributions and to ensure that hot channel factors are within acceptable limits.

### Evaluation

Power distribution measurements were last performed with the movable incore system on December 9, 1975. The licensee proposes to eliminate the January 1976 maps presently required by the technical specifications and operate Indian Point Unit 2 to February 6, 1976, without further use of the incore system.

The licensee would perform power maps at 7 day intervals utilizing the core exit thermocouple system in lieu of the incore instrumentation system. This system has been calibrated to produce an  $F_{\Delta H}^N$  for each of the 65 assemblies containing a core exit thermocouple.

We have reviewed the licensee's proposal and find it acceptable. The unit 2 burnup is currently greater than 13,000 Mwd/MTU. The power maps made since startup of this core indicate that the power distribution has changed as expected. The total peaking factor under steady state conditions has continuously decreased and is currently more than 33% below the design limit. Additional burnup will result in greater margin to this limit. Therefore, this change does not involve a decrease in a safety margin. Power distribution monitoring using the thermocouple system will ensure detection of gross power distribution anomalies in the unlikely event they occur. We concur that this approach is acceptable.

Also, only two recalibrations of the excore axial offset detection system have been required since startup, over two years ago. These recalibrations were necessitated because of the failure of a cable to an excore detector and because of the failure of one segment of an excore detector. Failures of this type are easily detected and are not expected to occur while the Technical Specification change is in effect. Drift in the excore detector signals, which can often be detected through the use of the incore system, has not been observed at Indian Point Unit 2. Thus, extending the time (one time) at which a recalibration must be performed will have no adverse effect on safety.

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Date: JAN. 14 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-247

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 17 to Facility Operating License No. DPR-26 issued to Consolidated Edison Company of New York, Inc. which revised Technical Specifications for operation of Indian Point Nuclear Generating Unit No. 2, located in Buchanan, Westchester County, New York. The amendment becomes effective as of its date of issuance.

This amendment revises the schedule for measurements with the movable incore instrumentation system for Indian Point Nuclear Generating Unit No. 2.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

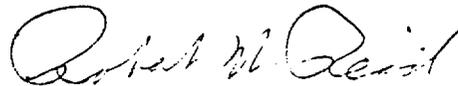
The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated January 9, 1976, (2) Amendment No. 17 to License No. DPR-26, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Hendrick Hudson Free Library, 31 Albany Post Road, Montrose, New York 10548.

A copy of items (2) and (3) 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 14th day of January 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



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