

December 8, 1976

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Docket No.: 50-247

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. 23 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment responds to your application dated November 18, 1976, and provides additional requirements for inspection of the steam generators as discussed with your staff.

You are requested to submit the details of the steam generator inspection program which you plan for Indian Point Unit No. 2. These details should be submitted no later than 30 days prior to the date you expect the next inspection to commence.

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

Sincerely,

Original Signed by

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

Enclosures:

1. Amendment No. 23
2. Safety Evaluation
3. Federal Register Notice

cc w/enclosures: See next page

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*SEE PREVIOUS YELLOW FOR CONCURRENCES

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SURNAME →	RIngram*	PERickson*	Karman*	DEisenhut*	RReid	KRGoller
DATE →	12/ /76	12/8/76	12/ /76	12/9/76	12/8/76	12/8/76

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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. to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment responds to your application dated November 18, 1976, and provides additional requirements for inspection of the steam generators as discussed with your staff.

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

Sincerely,

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

Enclosures:

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

cc w/enclosures: See next page

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 JMcGough
 DEisenhut
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*I concur although
 evaluation of steam
 generator tube problem
 should be expanded
 done
 steam
 generator
 on P.I.
 on S.F.*

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SURNAME >	RIngram	PERickson	KARMAN	RReid	DEisenhut
DATE >	11/30/76	11/17/76	12/3/76	11/1/76	12/01/76

**Consolidated Edison Company
of New York, Inc.**

**cc w/enclosure(s):
Mrs. Kay Winter, Librarian
Hendrick Hudson Free Library
31 Albany Post Road
Montrose, New York 10548**

**Leonard M. Trosten, Esquire
LeBoeuf, Lamb, Leiby & MacRae
1757 N Street, N. W.
Washington, D. C. 20036**

**Anthony Z. Roisman, Esquire
Berlin, Roisman & Kessler
1025 15th Street, N.W., 5th Floor
Washington, D. C. 20005**

**Honorable Paul S. Shemin
Assistant Attorney General
State of New York
80 Centre Street
New York, New York 10013**

**Angus Macbeth, Esquire
Richard M. Hall, Esquire
15 West 44th Street
New York, New York 10036**

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

**New York State Department of Commerce
ATTN: Staff Coordinator, New York
State Atomic Energy Council
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. 23
License No. DPR-26

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The facility will operate in conformity with the provisions of the Act, and the rules and regulations of the Commission;
 - B. 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;
 - C. 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
 - D. 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 adding a new Paragraph 2.D. as follows:

"D. Steam Generator Inspections

In order to perform an inspection of the steam generators, the plant shall be brought to the cold shutdown condition within six equivalent

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months of operation from December 8, 1976. For the purpose of this requirement, equivalent operation is defined as operation with a primary coolant temperature greater than 350°F. Nuclear Regulatory Commission approval shall be obtained before resuming power operation following this inspection."

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

FOR THE NUCLEAR REGULATORY COMMISSION



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

Date of issuance: December 8, 1976.



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

SAFETY EVALUATION BY THE OFFICE OF

NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 23 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 October 26, 1976, the Consolidated Edison Company of New York, Inc. (Con Ed), provided the Commission with their program to investigate the potential for a failure of steam generator tubes at Indian Point Unit No. 2 similar to the tube failure that occurred at Surry Unit No. 2¹. Con Ed removed Indian Point Unit No. 2 from service on Friday, October 29, 1976, for inspection of the steam generators. Con Ed also committed to maintain the reactor in a shutdown condition pending concurrence by the NRC to return to power operation. By letter dated November 18, 1976, Con Ed informed the NRC of the results of their inspection of steam generator tubes and requested NRC concurrence to return the reactor to power operation.

The NRC had requested this inspection because Indian Point Unit No. 2 has experienced a moderate level of steam generator tube "denting." Tube denting has been identified as one of the initial conditions that led to tube failure at the U-bend apex in row 1 of the Surry Unit No. 2 steam generator "A". The denting phenomenon caused significant inward closure (hourglassing) of the tube support plate flow slots, in turn forcing an inward displacement of the U-bend legs. This inward movement of the U-bend legs caused an increase in the dynamic strain at the U-bend apex to initiate and enhance the susceptibility of stress corrosion cracking of Inconel 600 Alloy tubing exposed to PWR primary coolant.

¹ Letter, Goller to Cahill October 29, 1976

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Discussion

Con Ed performed eddy current examinations of rows 2 through 5 around U-bends in steam generators #23 and #24 and measurement of the flow slot openings in the uppermost tube support plate of steam generator #22. Eddy current probing of row 1 tubes was not performed because all row 1 tubes have been plugged in each steam generator due to previous fabrication difficulties. The eddy current results indicate no defects at the U-bends in rows 2 through 5 in each steam generator examined. Flow slot measurements of the top support plate in steam generator #22 indicate no "hourglassing". Con Ed concluded that the inspections demonstrate that the Indian Point Unit No. 2 steam generators show no evidence of conditions that could lead to excessive straining at the U-bend apex of tubes in rows 2 through 5 or beyond during normal operation or postulated accidents, regardless of the existence of tube denting.

Consequently, Con Ed has determined that there is no need to initiate an immediate program of corrective action to prevent the occurrence of stress corrosion cracking at the U-bend apex of the small radius steam generator tubes even though moderate tube denting exists. Therefore, Con Ed has proposed to resume operation of Indian Point Unit No. 2.

Evaluation

We have reviewed the Con Ed inspection report, dated November 18, 1976, and concur that there is no evidence of conditions that could lead to excessive straining at the U-bend apex of tubes in rows 2 through 5 in the Indian Point Unit No. 2 steam generators during normal operation or postulated accidents, regardless of the existence of tube denting. The fact that row 1 is plugged alleviates the generic concern about the tightest U-bend tubes.

Indian Point Unit No. 2 long term operation will be determined by our evaluation of Westinghouse's analysis on other facilities with denting and stress corrosion cracking at small U-bend radii of steam generator tubes and by our evaluation of additional tube inspections at Indian Point Unit No. 2. To assure early detection and assessment of the magnitude of "hourglassing" of the upper tube support plate flow slots, we have amended the Indian Point Unit No. 2 license to require an inspection within 6 equivalent months of power operation.

The examinations of the Indian Point Unit No. 2 steam generators supports the conclusion the reactor can be returned to power for six equivalent months of power operation because:

- 1) No evidence of hourglassing is apparent in the upper support plate slots in 301 effective full power days of operation following conversion of secondary water chemistry from phosphate to all volatile treatment. Indian Point Unit No. 2 secondary water chemistry was changed from phosphate to all volatile treatment during shutdown of February to April 1975.
- 2) All the tubes that may be most effected by the "hourglassing" problem (Row #1) have been previously plugged;
- 3) Tubes in rows 2 through 5 and outward in all the steam generators of Indian Point Unit No. 2 will retain sufficient integrity to withstand normal operating and postulated accident conditions;
- 4) There is reasonable assurance of tube integrity to provide adequate protection to the public health and safety;

Environmental Consideration

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 impact statement, or negative declaration and 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 amendment 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 amendment 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.

Dated: December 8, 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

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 23 to Facility Operating License No. DPR-26, issued to the Consolidated Edison Company of New York, Inc. (the licensee), for operation of the Indian Point Nuclear Generating Unit No. 2 (the facility), located in Buchanan, Westchester County, New York. The amendment is effective as of its date of issuance.

The amendment requires that the plant be brought to a cold shutdown condition to perform an inspection of steam generators within six equivalent months of operation from the effective date of issuance of the amendment.

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 was 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 impact statement, or negative declaration and 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 licensee's submittal dated November 18, 1976, (2) Amendment No. 23 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. 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 Operating Reactors.

Dated at Bethesda, Maryland, this 8th day of December 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



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