April 2, 2002

Mr. Michael R. Kansler
Senior Vice President and
Chief Operating Officer
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 - AMENDMENT RE: TECHNICAL SPECIFICATION CHANGES TO SECONDARY LEAKAGE LIMITS AND STEAM GENERATOR TUBE INSERVICE SURVEILLANCE REQUIREMENTS (TAC NO. MB0770)

Dear Mr. Kansler:

The Commission has issued the enclosed Amendment No. 226 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2 (IP2). The amendment consists of changes to the Technical Specifications (TSs) in response to an application dated December 11, 2000, from Consolidated Edison Company of New York, Inc. (Con Edison), the former IP2 licensee. On September 6, 2001, Con Edison's operating authority under the license was transferred to Entergy Nuclear Operations, Inc. (ENO). On September 20, 2001, ENO requested that the U.S. Nuclear Regulatory Commission (NRC) continue to review and act on all requests before the Commission which had been submitted before the transfer. Accordingly, the NRC staff has acted upon the request. The request for an amendment was supplemented by ENO in letters dated November 5, 2001, and December 7, 2001.

The amendment revises TS 3.1.F.2.a, "Primary to Secondary Leakage," and TS 4.13.A.3.f, "Steam Generator Tube Inservice Surveillance," based on the prior replacement of the steam generators. Specifically, the changes (1) revise the primary to secondary leakage limits and (2) delete the requirements associated with tube sleeve repair, steam generator tube denting, and F* repair classification and criteria. The associated TS Bases have been modified consistent with the TS changes. In addition, the amendment includes several related administrative changes.

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

Sincerely,

/RA/

Patrick D. Milano, Sr. Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-247

Enclosures: 1. Amendment No. 226 to DPR-26
2. Safety Evaluation

cc w/encls: See next page

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* See previous concurrence
cc w/encls: See next page
Accession Number: ML020590148 Package: ML020980043 TSs: ML020940014

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DATE	3/28/02	3/28/02	03/08/02	4-01-02	4/1/02

Official Record Copy

DATED: April 2, 2002

AMENDMENT NO. 226 TO FACILITY OPERATING LICENSE NO. DPR-26 INDIAN POINT UNIT 2

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ENTERGY NUCLEAR INDIAN POINT 2, LLC

ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 226
License No. DPR-26

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the Consolidated Edison Company of New York, Inc. (Con Edison), the former licensee, dated December 11, 2000, as supplemented by Entergy Nuclear Operations, the current licensee, on November 5, 2001, and December 7, 2001, 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. 226, 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 31 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Joel T. Munday, Acting Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 2, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 226

FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
3.1.F-3	3.1.F-3
3.1.F-7	3.1.F-7
3.1.F-8	3.1.F-8
3.1.F-9	3.1.F-9
4.13-1	4.13-1
4.13-2	4.13-2
4.13-3	4.13-3
4.13-4	4.13-4
4.13-5	4.13-5
4.13-6	4.13-6
4.13-7	4.13-7

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 226 TO FACILITY OPERATING LICENSE NO. DPR-26

ENTERGY NUCLEAR OPERATIONS, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

1.0 INTRODUCTION

By letter dated December 11, 2000, Consolidated Edison Company of New York, Inc. (Con Edison) submitted a request for changes to the Indian Point Nuclear Generating Unit No. 2 (IP2) Technical Specifications (TSs). On September 6, 2001, Con Edison transferred its operating authority under the IP2 license to Entergy Nuclear Operations, Inc. (ENO). By letter dated September 20, 2001, ENO requested that the U.S. Nuclear Regulatory Commission (NRC) continue to review and act on all requests before the Commission which had been submitted before the transfer. Accordingly, the NRC staff has acted upon the request. The request for an amendment was supplemented by ENO in letters dated November 5 and December 7, 2001. The requested changes would facilitate the operation of the steam generators (SGs) that were replaced in December 2000. Specifically, the amendment would decrease the primary to secondary leakage limit and remove the provisions that no longer apply to the replacement SGs such as tube sleeving, the F* alternate repair criteria (ARC) and SG tube denting. The November 5 and December 7, 2001, letters provided clarifying information that did not expand the application beyond the scope of the *Federal Register* notice or change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

2.1 Original Steam Generators

In December 2000, Con Edison replaced the Westinghouse Model 44 SGs with Westinghouse Model 44F SGs. The original SGs experienced tube degradation including denting. Denting is the mechanical deformation of a tube that can be caused by corrosion accumulation, tube fabrication or maintenance. As degradation occurred, the licensee requested amendments to their TSs to provide tube sleeving repair criteria, the use of the F* ARC, and the inspection and acceptance criteria of dented SG tubes.

2.2 Replacement Steam Generators

The replacement SGs incorporate a number of design and material changes that other licensees report contribute to the reduction of degradation mechanisms previously experienced. The replacement SGs contain thermally treated Alloy 600 tubes and Alloy 405 stainless steel

tube support plates (flat-contacted broached quatrefoil tube hole plates). Because the stainless steel support plates are more resistant to corrosive buildup than the original carbon steel plates, the denting phenomenon should be reduced.

2.3 Proposed Technical Specification Changes

Because the licensee replaced the original SGs, the licensee requested approval to remove from the TSs surveillance requirements and inspection criteria related to tube sleeving repair, the F* ARC and tube denting. In addition, the licensee requested modifications to the SG operational leakage limits and the formatting in the TSs and TS Bases.

2.4 First Inservice Inspection (ISI) Requirements

At present, the licensee has not performed an analysis to determine the plugging criteria for the replacement SGs. The licensee has proposed to perform an analysis to determine the plugging criteria for the replacement SGs, using Regulatory Guide 1.121, "Bases for Plugging Degraded PWR Steam Generator Tubes" prior to the first ISI. In addition, the licensee has elected to keep the requirement to use a 0.700 inch diameter probe as the standard probe size during eddy current testing (TS 4.A.3.f). The licensee has also chosen to continue to use the passage of a 0.610 inch diameter probe as one of the criterion for leaving a tube in service (TS 4.B.1.a).

3.0 EVALUATION

3.1 Primary to Secondary Leakage Limit

The current TS 3.1.F.2.a.1, "Primary to Secondary Leakage," provides separate primary to secondary leakage limits for SGs with and without sleeved tubes. The proposed TS change would remove the leakage limit for SGs with sleeved tubes and set a single leakage limit to 150 gallons per day (gpd) in any SG. The current leakage limit for SGs not containing sleeves is 0.3 gallons per minute (432 gpd). The associated Bases are modified to reflect this change.

Since the NRC has not approved any sleeving repair criteria for the replacement SGs, there is no need for a separate primary to secondary leakage limit for SGs containing sleeved tubes. In addition, the adoption of the 150 gpd limit in any SG is more conservative than the previous limit of 432 gpd.

On the basis of the discussion above, the NRC staff finds the proposed change acceptable.

3.2 SG Tube Sleeving Repair Method, F* ARC and Tube Denting

The current TS 4.13, "Steam Generator Tube Inservice Surveillance," establishes the definitions and the surveillance requirements associated with SG tubes, including references to sleeved tubes, the F* ARC, and tube denting. The proposed TS changes would delete all references to inspection and repair requirements related to the sleeving repair method, the F* ARC, and tube denting. Because the NRC has not approved the licensee to use any sleeving repair method or the F* ARC in the replacement SGs, the references to these requirements in the TSs are not necessary. The inspection requirements related to denting were part of the TSs for the original SGs because the licensee identified denting as a dominant SG tube degradation mechanism. The replacement SGs, in conjunction with modified SG water chemistry, provide an

environment that reduces the potential for tube denting. Because the denting phenomenon has not been identified as a dominant tube degradation mechanism in the replacement SGs, the references to denting in the TSs are no longer necessary. Therefore, on the basis of the discussion above, the staff finds the proposed TS changes acceptable.

3.3 First Inservice Inspection (ISI) Requirements

The licensee has scheduled the first ISI of the replacement generators during the fall 2002 refueling outage. The licensee stated that, prior to the first ISI, it will perform a degradation assessment that implements the industry guidelines as described in Nuclear Energy Institute (NEI) guideline 97-06, "Steam Generator Program Guidelines." In addition, during the outage, the licensee will examine the full length of every tube in each steam generator using the Electric Power Research Institute Steam Generator Examination Guidelines.

Probe Diameter Size

Generic Letter 97-05, "Steam Generator Tube Inspection Techniques" emphasizes the importance of using qualified inspection techniques and equipment capable of reliably detecting SG tube degradation. In addition, Information Notice 2001-16, "Recent Foreign and Domestic Experience with Degradation of Steam Generator Tubes and Internals," emphasizes the importance of performing comprehensive inspections of SG tubes throughout the lifetime of the SG. Because probe size is a significant factor in reliably detecting tube degradation, size selection should be appropriately considered for the replacement SGs.

According to the current TSs, the standard eddy current probe size diameter is 0.700 inch and the minimum probe size is 0.610 inch. These probe sizes applied to the original SGs; however, the licensee has elected to use these requirements for the replacement SGs.

The probe diameter relative to the tube diameter affects the efficiency of the electromagnetic coupling between the probe coil and the tube surface. This efficiency can be quantified by the fill factor. A larger diameter probe results in a larger fill factor which improves the probe's sensitivity to tube degradation and stabilizes the probe during testing. Furthermore, a larger fill factor improves the signal-to-noise ratio. The 0.700 inch diameter probe has a smaller fill factor than other probe sizes typically used for 7/8" diameter tubing. This smaller fill factor could result in reduced electromagnetic coupling, reduced sensitivity to defects, and increased noise. Although this probe size is not optimal for detecting tube degradation, the staff finds that it will provide adequate examination performance.

If denting occurs in the tubes, the Basis section for TS 4.B.1.a states that the passage of a 0.610 inch diameter probe is a criterion for leaving tubes in service. This probe size is the minimum probe diameter, which is based on analyses of the original SGs. However, the original SGs and the replacement SGs have different designs. Because their designs are different, it is not evident that passage of the 0.610 inch diameter probe will ensure tube integrity in the new SGs. But, keeping this criterion in the TSs does not prevent the licensee from repairing tubes because of integrity concerns. Therefore, although the original basis for the criterion may no longer be valid, the size requirement would not prevent appropriate actions.

Plugging Criteria Analysis

As previously mentioned, the licensee has not performed an analysis to determine the plugging criteria for the replacement SGs. Both the original and replacement SGs have similar dimensions and materials with similar strength properties. On the basis of these similarities and a vendor structural analysis of the replacement SGs, the licensee does not anticipate a change in the plugging criteria of 40% throughwall degradation when the analysis is performed. The licensee has committed to providing a summary of this analysis at least 60 days prior to the first ISI, including the loads considered, the tube support plate conditions (locked or unlocked), a list of guidelines used to support the plugging criteria, and a summary of any departure from the guidelines.

On the basis of the discussion above, the NRC staff finds the licensee's plans acceptable.

3.4 Administrative Changes

The licensee proposes to make formatting changes to the TS Bases and delete a footnote related to a one-time extension in 1999. These changes are minor and do not affect the technical meaning of the TSs or their Bases. Therefore, the staff finds these changes acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (66 FR 7673). Accordingly, the 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: A. Smith

Date: April 2, 2002