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March 17, 1998

Re: Indian Point Unit No. 2  
Docket No. 50-247

Document Control Desk  
US Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555-0001

SUBJECT: 10 CFR 50.54 (f) Response to NRC Generic Letter 97-05: "Steam  
Generator Tube Inspection Techniques"

Pursuant to 10 CFR 50.54 (f), this letter and attachment constitute Consolidated Edison Company of New York, Inc.'s (Con Edison's) 90-day written response to the subject generic letter.

Generic Letter 97-05, "Steam Generator Tube Inspection Techniques," dated December 17, 1997, requested that nuclear utilities submit a written response regarding their techniques for conducting inservice inspections of steam generator tubing. The information was requested by the NRC staff to determine whether licensees, given their steam generator tube inspection practices, comply with the current licensing basis for their respective facilities.

Should you or your staff have any questions regarding this matter, please contact Mr. Charles W. Jackson, Manager, Nuclear Safety & Licensing.

Very truly yours,

*Paul H. Kinke*

Attachment

Subscribed and sworn to  
before me 17<sup>th</sup> day  
of March 1998.

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ADD 1/1

*Karen L. Lancaster*

Notary Public

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ATTACHMENT

Response to Generic Letter 97-05

Steam Generator Tube Inspection Techniques

Consolidated Edison Company of New York, Inc.  
Indian Point Unit No. 2  
Docket No. 50-247  
March 1998

Item(1) of GL 97-05 reads:

- (1) whether it is their practice to leave steam generator tubes with indications in service based on sizing.

Response to Item(1):

It is the practice at Indian Point Unit No. 2 to leave steam generator tubes with pitting and wear at anti-vibration bar indications, in service based on sizing.

Indian Point Unit No. 2 leaves steam generator tube indications in service which can be sized at less than the Technical Specification value of 40%. The plant steam generators are Westinghouse Model 44.

Item(2) of GL 97-05 reads:

- (1) if the response to item (1) is affirmative, those licensees should submit a written report that includes, for each type of indication, a description of the associated nondestructive examination method being used and the technical basis for the acceptability of the technique used.

Response to Item(2):

Introduction:

The nuclear power industry recently voted to adopt an initiative requiring each utility to implement the guidance provided in NEI 97-06, *Steam Generator Program Guidelines*, no later than the first refueling outage starting after January 1, 1999. As specified in NEI 97-06, each utility is required to follow the inspection guidelines contained in the latest revision of the EPRI *PWR Steam Generator Examination Guidelines*.

Appendix H, "Performance Demonstration for Eddy Current Examination," of the *PWR Steam Generator Examination Guidelines*, Revisions 3 through 5, provides guidance on the qualification of steam generator tubing examination techniques and equipment used to detect and size flaws. Damage mechanisms are divided into the following categories: thinning, pitting, wear, outside diameter intergranular attack/stress-corrosion cracking (IGA/SCC), primary-side SCC, and impingement damage for qualification.

For qualification purposes, test samples are used to evaluate detection and sizing capabilities. While pulled tube samples are preferred, fabricated samples may be used. If fabricated test samples are used, the samples are verified to produce signals similar to those being observed in the field in terms of signal characteristics, signal amplitude, and signal-to-noise ratio. Samples are examined to determine the actual through-wall defect measurements as part of the Appendix

## H qualification process.

The procedures developed in accordance with Appendix H specify the essential variables for each procedure. These essential variables are associated with an individual instrument, probe, cable, or particular on-site equipment configurations. Additionally, certain techniques have undergone testing and review to quantify sizing performance. The sizing data set includes the detection data set for the technique with additional requirements for number and composition of the grading units.

### Sizing Techniques

At Indian Point Unit No. 2 the following sizing techniques are used during steam generator inspections to leave flaws in service. The basis for application of these sizing techniques is the conduct of the examinations under the Indian Point Unit No. 2 Quality Assurance Program following the requirements of Sections XI and V of the ASME Code, 1989 Edition and Regulatory Guide 1.83. Additional support for sizing degradation-specific mechanisms is provided by the EPRI Appendix H qualification data sets.

### Wear

For wear at anti-vibration bars, sizing is accomplished using the 400/100 kHz differential mix of the bobbin probe. A calibration curve for amplitude vertical maximum is determined based on the applicable standards replicating the damage mechanism type and quantity. The calibration curve must represent the full range of expected depths.

This sizing qualification is based on 64 sample data points. The samples ranged in depth from 4% to 78% through wall depth.

### Pitting

For pitting, the 400/100 kHz mix of the bobbin probe is used to size the depth of the pit. A calibration curve is established using the 20%, 60% and 100% holes of the ASME calibration standard. Pit depth is called off the maximum rate of change from the appropriate mix.

The sizing procedure is based on the analysis of 65 sample data points. The sample pits ranged in depth from 19% to 81%.