November 28, 2000

Mr. A. Alan Blind
Vice President, Nuclear Power
Consolidated Edison Company
of New York, Inc.
Broadway and Bleakley Avenue
Buchanan, NY 10511

SUBJECT: RELIEF REQUEST NO. 57 FROM AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE SECTION XI, INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 (TAC NO. MB0032)

Dear Mr. Blind:

In a letter dated September 20, 2000, Consolidated Edison Company of New York, Inc. (Con Edison), submitted Relief Request No. 57 from the requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for the third 10-year inservice inspection (ISI) interval. Specifically, the request for relief is associated with the use of wire-type image quality indicators for radiography examinations as provided for in ASME Section III, 1992 Edition with 1993 Addenda.

The NRC staff reviewed the proposed alternative in Relief Request No. 57. The results are provided in the enclosed safety evaluation.

The NRC staff has concluded that the proposed alternative to the ASME Code requirements in Relief Request No. 57 provides an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative is authorized for the third 10-year ISI interval.

If you should have any questions, please contact Patrick Milano at 301-415-1457. This completes the NRC staff's action on TAC No. MB0032.

Sincerely,

/RA/ A.Dromerick for

Marsha Gamberoni, Chief, Section 1
Project Directorate 1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-247

Enclosure: Safety Evaluation

cc w/encl: See next page

Mr. A. Alan Blind
Vice President, Nuclear Power
Consolidated Edison Company
of New York, Inc.
Broadway and Bleakley Avenue
Buchanan, NY 10511

November 28, 2000

SUBJECT: RELIEF REQUEST NO. 57 FROM AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE SECTION XI, INDIAN POINT NUCLEAR GENERATING UNIT NO. 2 (TAC NO. MB0032)

Dear Mr. Blind:

In a letter dated September 20, 2000, Consolidated Edison Company of New York, Inc. (Con Edison), submitted Relief Request No. 57 from the requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for the third 10-year inservice inspection (ISI) interval. Specifically, the request for relief is associated with the use of wire-type image quality indicators for radiography examinations as provided for in ASME Section III, 1992 Edition with 1993 Addenda.

The NRC staff reviewed the proposed alternative in Relief Request No. 57. The results are provided in the enclosed safety evaluation.

The NRC staff has concluded that the proposed alternative to the ASME Code requirements in Relief Request No. 57 provides an acceptable level of quality and safety. Pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative is authorized for the third 10-year ISI interval.

If you should have any questions, please contact Patrick Milano at 301-415-1457. This completes the NRC staff's action on TAC No. MB0032.

Sincerely,
/RA/ A. Dromerick for

Marsha Gamberoni, Chief, Section 1
Project Directorate 1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-247

Enclosure: Safety Evaluation

cc w/encl: See next page

ACCESSION Number: ML003767629 *See previous concurrences

OFFICE	PDI-1:PM	PDI-1:LA	EMCB:SC*	OGC*	PDI-1:SC
NAME	PMilano	Slittle (changes only)	ESullivan	MYoung	Alex Dromerick for MGamberoni
DATE	11/28/00	11/28/00	11/16/00	11/28/00	11/ 28/00

OFFICIAL RECORD COPY

DISTRIBUTION:

PUBLIC
PDI-1 Reading
E. Adensam
M. Gamberoni
E. Sullivan
P. Milano
T. McLellan
M. Oprendek, R-I
S. Little
G. Hill (2)
OGC
J. Shea, EDO
ACRS

Indian Point Nuclear Generating Station
Unit 2

Mayor, Village of Buchanan
236 Tate Avenue
Buchanan, NY 10511

Mr. F. William Valentino, President
New York State Energy, Research,
and Development Authority
Corporate Plaza West
286 Washington Ave. Extension
Albany, NY 12203-6399

Mr. John McCann
Manager of Nuclear Safety and
Licensing
Consolidated Edison Company
of New York, Inc.
Broadway and Bleakley Avenue
Buchanan, NY 10511

Senior Resident Inspector
U. S. Nuclear Regulatory Commission
P.O. Box 38
Buchanan, NY 10511

Mr. Brent L. Brandenburg
Assistant General Counsel
Consolidated Edison Company
of New York, Inc.
4 Irving Place - 1822
New York, NY 10003

David Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists
1707 H Street, NW., Suite 600
Washington, DC 20006

Edward Smeloff
Pace University School of Law
The Energy Project
78 North Broadway
White Plains, NY 10603

Charles Donaldson, Esquire
Assistant Attorney General
New York Department of Law
120 Broadway
New York, NY 10271

Ms. Charlene D. Faison, Director
Nuclear Licensing
Power Authority of the State
of New York
123 Main Street
White Plains, NY 10601

Mr. Thomas Rose
Secretary - NFSC
Consolidated Edison Company
of New York, Inc.
Broadway and Bleakley Avenue
Buchanan, NY 10511

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Paul Eddy
New York State Department of
Public Service
3 Empire State Plaza, 10th Floor
Albany, NY 12223

Jim Riccio
Public Citizen's Critical Mass Energy Project
215 Pennsylvania Ave., SE
Washington, DC 20003

Michael Mariotte
Nuclear Information & Resources Service
1424 16th Street, NW, Suite 404
Washington, DC 20036

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN

REQUEST FOR RELIEF NO. 57

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

1.0 INTRODUCTION

Inservice inspection of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (ASME Code) and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 10-year interval, subject to the limitations and modifications listed therein. The Code of record for Indian Point, Unit 2, third 10-year ISI interval is the1989 Edition of the ASME Boiler and Pressure Vessel Code.

2.0 EVALUATION

In a letter dated September 20, 2000, Consolidated Edison Company of New York, Inc. (Con Edison) requested that the U.S. Nuclear Regulatory Commission (NRC) authorize the use of an alternative as stated in its Request for Relief No. 57 to certain ISI requirements for the third 10-year ISI interval.

2.1 Code Requirement

ASME Section III, Articles NB-5111 and NC-5111, require that "... Radiographic examination shall be in accordance with Section V, Article 2, except that ... the penetrameters of Table NB-5111-1 (NC-5111 - 1) shall be used in lieu of those shown in Table T-276" (of ASME Section V).

2.2 Licensee's Proposed Alternative (as stated)

Consolidated Edison proposes to use wire type Image Quality Indicators (IQIs) for radiography examinations as provided for in ASME Section III, 1992 Edition with 1993 Addenda."

2.3 Licensee's Basis for Proposed Alternative (as stated)

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative provides an acceptable level of quality and safety.

Regulatory Guide 1.147, Revision 12, dated May 1999, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," endorsed use of Code Case N-416-1, "Alternate Pressure Test Requirement for Welded Repairs or Installation or Replacement Items by Welding, Class 1, 2, and 3, Section XI, Division 1." By letter dated August 16, 1999, Consolidated Edison notified the NRC of our intent to use ASME Code Case N-416-1. ASME Code Case N-416-1 invokes the 1992 Edition, no Addenda, of the ASME Code, Section III in the performance of nondestructive examination of welded repairs or installation of replacement components by welding.

ASME Section III, Articles NB-5111 and NC-5111, require that " . . . Radiographic examination shall be in accordance with Section V, Article 2, except that . . . the penetrameters of Table NB-5111-1 (NC-5111-1) shall be used in lieu of those shown in Table T-276" (of ASME Section V). Tables NB-5111-1 and NC-5111-1 specify only plaque type penetrameters. They do not specifically address the equivalency or use of wire type Image Quality Indicators (IQIs). However, equivalent wire type IQIs were incorporated into these tables in the 1993 Addenda of the 1992 Edition of the ASME Section III Code.

The use of wire type IQIs are superior to plaque type IQIs for some nuclear piping component applications. Wire IQIs can be placed directly across the area of interest, thus encompassing the objects range of density and geometry. The one-inch minimum length of the essential IQI wire eliminates the problem or indicator loss due to distortion, anomalies, and part geometry. The wire type IQIs provide the same function as the plaque type penetrameters by indicating a change in thickness and spatial resolution of the image without the use or shim blocks and pipe standards.

. . .

Plaque type penetrameters are difficult to use due to their physical placement and radiograph characteristics. The placement of flat plaques on curved surfaces of pipe components usually requires shimming. After positioning the plaque on test material

and performing a radiographic examination, the recorded radiographic characteristics of the essential T-hole are often obscured or distorted due to specimen anomalies, part geometry, or film artifacts outside the area of interest. These difficulties create re-shoot conditions. The re-shoots have a negative ALARA [As Low As is Reasonably Achievable] impact due to the additional radiation exposure to the radiography crew.

2.4 Evaluation

Volume 17 of the Ninth Edition of the Metals Handbook, published in 1989, states that wire-type penetrameters are widely used in Europe, and a standard design is used in the United Kingdom, Germany, the Netherlands, and Scandinavia and by the International Organization for Standardization and the International Institute of Welding. The handbook goes on to state that wire penetrameters specified in American Society for Testing and Materials (ASTM) Standard E 747-87 are widely used in the United States. ASTM developed this specification using a public forum with approval by public consensus. The ASTM Standard E 747-87 referenced in the Metals Handbook is identical to the 1989 Edition of ASME's Standard SE-747-87.

Wire penetrameters were not included in Section III of the ASME Code until the 1992 Edition with 1993 Addenda. The 1992 Edition with 1993 Addenda of the Code has been endorsed by NRC in 10 CFR 50.55a.

The NRC staff compared the results obtained using the previously allowed plaque-type penetrameters with the proposed alternative of wire-type penetrameters. The comparison showed that the reliability of the wire diameters were essentially the same. Of the 18 wire diameters compared, two wire diameters were more conservative (smaller diameters), two wire diameters interpolated from two known values were less conservative (larger diameters), and 14 wire diameters were identical to the wire diameters in Table NB-5111-1 (NC-5111-1) to the 1992 Edition with 1993 Addenda of the Code. Based on the above comparison of commonly used industry references and the widespread use of wire penetrameters in industry, the staff believes that the wire penetrameters listed in Table NB-5111-1 (NC-5111-1) to the 1992 Edition with 1993 Addenda of the Code will provide comparable density measurement as the plaque-type penetrameters for the examination of welded repairs or installation of welded components. Therefore, the licensee’s proposed alternative is adequate to detect weld defects and provides an acceptable level of quality and safety.

3.0 CONCLUSION

Based on the above evaluation, the staff concludes that the proposed alternative to use wire-type lQIs for radiography examinations as provided for in ASME Section III, 1992 Edition with 1993 Addenda, provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative is authorized for the third 10-year ISI interval.

Principal Contributor: T. McLellan

Date: November 28, 2000