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October 6, 1999

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: Request for Approval of Alternate to ASME Code Requirements

Reference: Visual Inspection Acceptance Criteria for ISI of IP-2 Concrete Containment Structure (Enclosed)

Pursuant to 10 CFR 50.55a(a)(3), Consolidated Edison Company of New York, Inc. (Con Edison) hereby submits a request for approval of three (3) alternatives to the ASME Boiler & Pressure Vessel Code Section XI, Subsections IWE/IWL, 1992 Edition with 1992 Addenda, requirements for performing containment examinations. The proposed alternatives are contained in the Attachment, summarized as follows:

1. Relief Request No. 44 proposes an alternative to the qualifications required for nondestructive examination personnel, as required by the reference to Subarticle IWA-2300 in Subsections IWE/IWL. The proposed alternative is to utilize the existing personnel qualification and certification requirements specified in the 1984 Edition of ASNT SNT-TC-1A.

2. Relief Request No. 45 proposes an alternative to the visual examination requirements specified in IWL-2310 which reference the IWA-2210 requirements for specific minimum illumination and maximum direct examination distance, specified in Table IWA-2210-1. The proposed alternative is to perform visual examination activities under the illumination and distance requirements as defined in ACI-201.1.

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3. Relief Request No. 49 proposes an alternative to the Examination Category E-G requirements for pressure retaining bolting which specify that a bolt torque or tension test be performed for bolted connections which have not been disassembled or reassembled during the inspection interval. The proposed alternative is to perform local leakage rate testing in accordance with Table IWE-2500-1, Examination Category E-P, All Pressure Retaining Components, Item E9.40.

The basic methodology for relief requests 44 and 49 were developed by EPRI and were submitted to the NRC for use at Davis-Besse. NRC approval was documented in a NRC letter to Davis-Besse dated June 30, 1998, TAC # MA0414. Relief request 45 is based upon site-specific visual inspection criteria developed by Raytheon Engineers and Constructors.

These proposed alternatives if approved, would be utilized while conducting containment inspections during the 2000 refueling outage, currently scheduled to commence in April 2000. NRC authorization of the proposed ASME Code alternatives is therefore requested by December 31, 1999. No new regulatory commitments are being made by Con Edison in this correspondence.

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

Very truly yours,

Attachments

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50-247 CEC INDIAN POINT 2

REQUEST FOR APPROVAL OF ALTERNATE TO
ASME CODE REQUIREMENTS

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ATTACHMENT

Relief Request Nos. 44, 45, and 49

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
October 1999

# RELIEF REQUEST NUMBER 44



## COMPONENT IDENTIFICATION

| | |
|---|---|
| Code Class: | Class MC & CC |
| References: | IWA-2300 |
| Description: | Alternate Qualification of Nondestructive Examination Personnel |

## CODE REQUIREMENT

Subarticle IWA-2300 requires qualification of nondestructive examination personnel to CP-189, as amended by the ASME Section XI, 1992 Edition including the 1992 Addenda.

## BASIS FOR RELIEF

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(ii). Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

10 CFR 50.55a was amended in the Federal Register (61FR41303) to require the use of Section XI, 1992 Edition, including the 1992 Addenda, (hereafter referred to as the 92 Code) when performing containment examinations. Subsection IWE also imposes the requirements of Subsection IWA of the 92 Code. Subarticle IWA-2300 requires qualification of nondestructive examination personnel to CP-189.

A written practice for qualification and certification of NDE personnel based on the requirements of CP-189, as required by Subarticle IWA-2300 of the 92 Code, to implement Subsection IWE would duplicate similar procedures already in place for Subsections IWB, IWC & IWD. The Indian Point Station Third Ten Year Inservice Inspection Program is written to meet the requirements of Section XI, 1989 Edition, no addenda, (hereafter referred to as the 89 Code). Subarticle IWA-2300 of the 89 Code requires a written practice based on SNT-TC-1A, 1984 Edition. The Third Ten Year Interval, for Quality Group A, B & C components, extends to May 18, 2005 at which time it will be updated to the edition of the Code in effect one year prior. Further, Subarticle IWA-2300 of the 92 Code states, "Certifications based on SNT-TC-1A are valid until recertification is required."

Visual examination is the primary nondestructive examination method required by Subsection IWE. Neither CP-189 nor SNT-TC-1A specifically includes visual examination. Therefore, the Code requires qualification and certification to comparable levels as defined in CP-189 or SNT-TC-1A, as applicable, and the Employer's written practice. Ultrasonic thickness examinations may also be required as indicated by Table IWE-2500-1.

**RELIEF REQUEST NUMBER 44**


**BASIS FOR RELIEF cont'd**

These particular examinations are relatively simple and do not require an extensive training and qualification program. Therefore, use of CP-189 in place of SNT-TC-1A would not improve the capability of examination personnel to perform the visual and ultrasonic thickness examinations required by IWE.

Development and administration of a second program would not enhance safety or quality, but would instead serve as a burden, particularly in developing a second written practice, tracking of certifications, and duplication of paperwork. This duplication would also apply to NDE vendor programs. Updating to the 92 Code for Subsections IWB, IWC & IWD would require a similar request for relief.

The requirement to comply with IWA-2300 has been removed in the 1998 Edition of Section XI, IWE and IWL.

EPRI proposed alternate No. 2 was approved by the NRC for use at Davis-Besse (Reference NRC Letter to Davis-Besse dated June 30, 1998 TAC # MA0414) as RR-E2.

**PROPOSED ALTERNATIVE PROVISIONS**

Examinations required by Subsections IWE shall be conducted by personnel qualified and certified to a written practice based on SNT-TC-1A, 1984 Edition as required by Section XI for Quality Groups A, B & C. Visual examination personnel will receive specific training in conducting concrete containment examinations.

**PERIOD FOR WHICH RELIEF IS REQUESTED**

Relief is requested for the Third Inspection Interval, July 1, 1994 through June 30, 2004. This interval has been extended to May 18, 2005 as set forth in Con Edison's letter to USNRC dated April 9, 1999.

**JUSTIFICATION FOR RELIEF**

The requirement for examination of Quality Group A, B & C components, from Section XI 1989 Edition, is to establish a program of qualification and certification for NDE personnel to ASNT SNT-TC-1A, 1984 Edition. This is appropriate until May 18, 2005 for the Third Interval ISI Program. The requirement for examination of containment from Section XI 1992 Edition including the 1992 Addenda, is to establish a program to the requirements of ASNT CP-189, 1991 Edition. There is no benefit in having two separate certification programs when they both address the same topics.

EPRI proposed alternate #2 was previously approved by the NRC for use at Davis-Besse (Reference NRC Letter to Davis-Besse dated June 30, 1998 TAC # MA0414) RR-E2.

# RELIEF REQUEST NUMBER 45



## COMPONENT IDENTIFICATION

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|---|---|
| Code Class: | CC |
| References: | IWL-2310, IWA-2210 |
| Examination Category: | L-A, Concrete |
| Item Number: | L1.11 |
| Description: | VT Illumination & Distance |

## CODE REQUIREMENT

Subarticle IWL-2310, Visual Examination, Personnel Qualifications and Responsible Engineer, includes requirements for minimum illumination and maximum direct examination distance (of Class CC components) under paragraph IWA-2210.

## BASIS FOR RELIEF

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(ii). Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Approximately 15% of the concrete containment surface is accessible for direct visual examination. The remainder must either be examined from scaffold or through remote examination. The amendment to 10 CFR 50.55a, for remote examination of the containment liner, permits the maximum direct examination distance specified in Table IWA-2210-1 be extended and the minimum illumination requirements specified in Table IWA-2210-1 decreased provided that the conditions or indications for which the visual examination is performed can be detected at the chosen distance and illumination. These same criteria will be used for direct visual examinations of the concrete containment. As allowed by the Code, remote visual techniques may be substituted where warranted.

A site-specific visual acceptance criterion has been developed. See Reference enclosed, "Visual Inspection Acceptance Criteria for In-service Inspection (ISI) of IP2 Concrete Containment Structure." The Indian Point Unit #2 containment is a reinforced concrete containment with a metal liner. The evaluation identified threshold values that the Indian Point containment structure can tolerate without compromising its structural integrity. The evaluation divided the containment into three areas based on stresses to the reinforcement bars.

For two areas, the dome and shell, the reinforcement bars are designed with sufficient margin to allow for corrosion. The primary degradation mechanism is corrosion with corrosion products being the indicator of degradation and not cracks. The Structural Integrity Test (SIT) documented cracking when the internal pressure was raised to 54 psi and they closed to hairline following depressurization.

**RELIEF REQUEST NUMBER 45**



The third area is the hatch and penetration area with nominal or no design margin. This area will require that any crack that would pose potential passage of moisture be recorded.

The requirement to comply with IWA-2210 has been removed from sub-section IWL in the 1998 Section XI of the Code. Currently for IP-2, ASME Section XI, 1989 Edition with no addenda, is mandated for the Inservice Inspection Program for Quality Group A, B & C. The visual criteria for illumination is determined to be sufficient if a 1/32" black line can be resolved at 24". This is a requirement of the current ISI Program, for Quality Group A, B & C, until the end of the third interval on May 18, 2005.

This request for relief is based on EPRI proposed alternate #3.

## PROPOSED ALTERNATIVE PROVISIONS

VT-3 visual examinations will be performed under distance and illumination requirements necessary to detect areas of deterioration and distress as defined in ACI-201.1. In addition indication of corrosion products will be evaluated to determine the source and the effect on containment structural integrity. The procedure will be demonstrated capable of detecting these conditions.

## PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the Inspection Interval ending September 9, 2001 as indicated in the Federal Register 41303 (August 8, 1996).

## JUSTIFICATION FOR RELIEF

Indian Point Unit 2 containment has been tested per Appendix J as required by the plant Technical Specifications. The Integrated Leak Rate Test (ILRT) has not identified any unacceptable conditions associated with the containment. Completion of the required visual inspections and evaluation of the results for compliance with the site specific acceptance criteria will adequately verify the continued acceptability of the concrete containment.

The ASME has previously recognized the difficulty in performing the containment examinations, as written in the 1992 Edition of Section XI. It has rewritten the Code to allow for a General and Detailed visual examination in sufficient detail to identify areas of concrete deterioration and distress, such as defined in ACI 201.1.

# RELIEF REQUEST NUMBER 49



## COMPONENT IDENTIFICATION

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|---|---|
| Code Class: | MC |
| References: | Table IWE-2500-1 |
| Examination Category: | E-G |
| Item Number: | E8.20 |
| Description: | Alternate Torque/Tension Testing of Pressure Retaining Bolting |

## CODE REQUIREMENT

ASME Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item 8.20, requires that a bolt torque or tension test be performed where the connection has not been disassembled or reassembled during the inspection interval.

## BASIS FOR RELIEF

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(ii). Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

10 CFR 50.55a was amended in the Federal Register (61 FR 41303) to require the use of the 1992 Edition, 1992 Addenda, of Section XI when performing containment examinations. Bolt torque or tension testing is required on bolted connections that have not been disassembled and reassembled during the inspection interval. Determination of the torque or tension value would require that the bolting be loosened, re-lubricated and then re-torqued or re-tensioned.

At IP-2 the Weld Channel Penetration Pressurization System (WCPPS) provides pressurized air or nitrogen to each of the containment penetrations. In the event of penetration failure, a release would not occur since each penetration is pressurized by the WCPPS to a pressure that is higher than the anticipated containment accident pressure. This system is continuously monitored while above cold shutdown in order to identify leakage.

In addition, each penetration is subject to 10 CFR 50.55 Appendix J Type B testing in accordance with the testing frequencies specified for Appendix J. As noted in 10 CFR 50 Appendix J, the purpose of Type B testing is to measure leakage of containment penetrations whose design incorporates resilient seals, gaskets, sealant compounds, and electrical penetrations fitted with flexible metal seal assemblies. The performance of Type B testing itself demonstrates that bolt torque or tension remains adequate to allow leakage rate which are within acceptable limits. The torque or tension value of bolting only becomes an issue if the leak rate is excessive. Once a bolt is torqued or tensioned, it is not subject to dynamic loading that could cause it to experience significant change. Appendix J testing and visual inspection is adequate to

**RELIEF REQUEST NUMBER 49**



**BASIS FOR RELIEF** (Cont'd)

demonstrate that the design function is met. Torque or tension testing is not required on any other ASME Section XI, Class 1, 2, or 3 bolted connections or their supports as part of the Inservice Inspection Program.

The requirement to perform bolt torque or tension tests has been removed in the 1997 Addenda of ASME Section XI. This addenda has been approved by the ASME Main Committee.

EPRI proposed alternate No. 8 was approved by the NRC for use at Davis-Besse (Reference NRC Letter to Davis-Besse dated June 30, 1998 TAC # MA0414) as RR #E7.

**PROPOSED ALTERNATIVE PROVISIONS**

The following examinations and tests required by Subsection IWE ensure the structural integrity and the leak-tightness of Class MC pressure retaining bolting, and, therefore, no additional alternative examinations are proposed:

(1) Exposed surfaces of bolted connections shall be visually examined in accordance with requirements of Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item No. E8.10, and

(2) Bolted connections shall meet the pressure test requirements of Table IWE-2500-1, Examination Category E-P, All Pressure Retaining Components, Item E9.40.

**PERIOD FOR WHICH RELIEF IS REQUESTED**

Relief is requested for the remainder of the third inspection interval, July 1, 1999 thru June 30, 2004. This interval has been extended to May 18, 2005 as set forth in Con Edison's letter to USNRC April 9, 1999.

**JUSTIFICATION FOR RELIEF**

1. The Weld Channel Pressurization System is within the scope of the Maintenance Rule and monitors system leakage on a continual basis while in operation.

2. The functionality of the containment, penetration seals and gaskets, (including those of electrical penetrations) is verified during the Type B testing as required by 10 CFR 50, Appendix J.

3. The requirement to perform bolt torque or tension tests has been removed in the 1997

**RELIEF REQUEST NUMBER 49**


**JUSTIFICATION FOR RELIEF** (Cont'd)

Addenda of ASME Section XI. This addenda has been approved by the ASME Main Committee.

4. EPRI proposed alternate No. 8 was approved by the NRC for use at Davis-Besse (Reference NRC Letter to Davis-Besse dated June 30, 1998 TAC # MA0414) as RR #E7.