

VERMONT YANKEE NUCLEAR POWER CORPORATION

185 Old Ferry Road, Brattleboro, VT 05301-7002
(802) 257-5271

April 12, 2000
BVY 00-16

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
Request for Relief from ASME Section XI Requirements
for the Containment Inservice Inspection (ISI) Program**

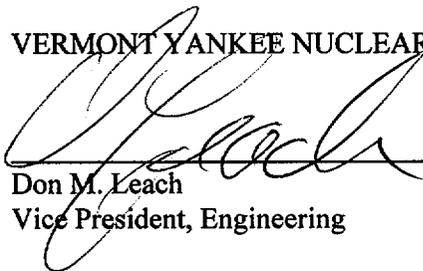
Pursuant to 10CFR55a(a)(3)(ii), Vermont Yankee (VY) hereby requests approval to perform alternative inspection and/or testing to that specified by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI. Attached is the justification for the proposed alternative inspection and/or testing measures.

Approval for use of the alternative inspection and/or testing measures is requested by August 31, 2000 in order to support preparation for scheduled ISI activities during the 2001 refueling outage. Upon approval, these alternative measures will be incorporated into our ISI Program.

If you have any questions on this transmittal, please contact Mr. Wayne M. Limberger at (802) 258-4237.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION



Don M. Leach
Vice President, Engineering

Attachment

cc: USNRC Region 1 Administrator
USNRC Resident Inspector - VYNPS
USNRC Project Manager - VYNPS
Vermont Department of Public Service

A047

ATTACHMENT

Vermont Yankee Nuclear Power Station

Request for Relief from ASME Section XI Requirements

For the Containment Inservice Inspection (ISI) Program

CONTAINMENT INSERVICE INSPECTION RELIEF REQUEST

RELIEF REQUEST No. E-1

CONTAINMENT INSPECTION SEALS & GASKETS

RELIEF REQUEST SUMMARY:

ASME Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1, Examination Category E-D. requires visual examination (VT-3) of containment seals and gaskets. Examination of most seals and gaskets requires the joints, which are proven adequate through Appendix J testing, to be disassembled. The 1995 Edition of Section XI recognizes that disassembly of joints to perform these examinations is not warranted. Note 1 in Examination Category E-D was modified in the 1995 Edition of Section XI to state that sealed or gasketed connections need not be disassembled solely for performance of examinations; however, without disassembly, most of the surface of the seals and gaskets would be inaccessible. Therefore, the examination would be meaningless.

Seals and gaskets are not part of the containment pressure boundary under current Code rules of Paragraph NE-1220 (b) of ASME Section III. When the airlocks and hatches containing these materials are tested in accordance with 10CFR50, Appendix J, degradation of the seal or gasket material would be revealed by an increase in the leakage rate. Corrective measures would be applied and the component would be retested. Repair or replacement of seals and gaskets is not subject to Code rules in accordance with Paragraph IWA-4111(b)(5) of ASME Section XI.

The visual examination of seals and gaskets in accordance with IWE-2500, Table IWE-2500-1 is a burden without any compensating increase in safety or quality. This requirement is not included in the 1997 Addenda of ASME Section XI.

SYSTEM/COMPONENT(S) FOR WHICH RELIEF IS REQUESTED:

Seals and gaskets of Class MC pressure retaining components, Examination Category E-D, Item Numbers E5.10 and E5.20 of IWE-2500, Table IWE-2500-1, ASME Section XI, 1992 Edition, 1992 Addenda.

CODE REQUIREMENT(S):

IWE-2500, Table IWE-2500-1 requires seals and gaskets on airlocks, hatches, and other devices to be visually examined, VT-3, once each interval to assure containment leak-tight integrity.

CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED:

Relief is requested from performing the Code-required visual examination, VT-3, on the above identified containment seals and gaskets.

BASIS FOR RELIEF:

10CFR50.55a was amended in the Federal Register (61FR41303) to require the use of the 1992 Edition, 1992 Addenda, of Section XI when performing containment examinations. Seals and gaskets receive a leak-rate test as described in 10CFR50 Appendix J; the purpose is to measure leakage of containment or penetrations whose design incorporates resilient seals, gaskets, sealant compounds, and electrical penetrations with epoxy seals. Although not required by the Code, practical considerations for examination of seals and gaskets require the joints, which are proven adequate through Appendix J leak-rate testing, to be disassembled. The Vermont Yankee electrical penetrations have a double seal, one at each end of the penetration. The insulated electrical conductors pass through the header plates at both ends of the penetrations. The conductors are sealed in cast epoxy with most of the epoxy on the inner side of the header plates. Weld rings are provided at both ends of each penetration. The work effort to disassemble and inspect the electrical penetrations at Vermont Yankee would be destructive to the sealed penetration. The work required for the containment hatches (Personnel Access Hatch, Equipment Access Hatch and CRD Access Hatch) would involve a pre-maintenance Appendix J test, disassembly of the joint, removal and examination of the seals and gaskets, re-assembly of the joint, and a post-maintenance Appendix J test of the penetration. This imposes the risk that equipment could be damaged. The 1992 Edition, 1993 Addenda, of Section XI recognizes that disassembly of joints to perform these examinations is not warranted. Note 1 in Examination Category E-D was modified in the 1995 Edition of Section XI to state that sealed or gasketed connections need not be disassembled solely for performance of examinations. However, without disassembly, most of the surface of the seals and gaskets would be inaccessible.

For those penetrations that are routinely disassembled, a Type B leak-rate test is required upon final assembly and prior to start-up. Leak-rate testing is also performed periodically on penetrations that are not routinely disassembled, as required by the ASME Code and Appendix J. Since the periodic Appendix J leak-rate testing will by itself assure the leak-tight integrity of the tested primary containment penetration, the performance of the visual examination would not increase the level of safety or quality.

Seals and gaskets are not part of the containment pressure boundary under current Code rules [NE-1220(b)]. When the airlocks and hatches containing these materials are tested in accordance with 10CFR50, Appendix J, degradation of the seal or gasket material would be revealed by an increase in the leakage rate. Corrective measures would be applied and the component re-tested. Repair or replacement of seals and gaskets is not subject to Code (1992 Edition, 1992 Addenda) rules in accordance with Paragraph IWA-4111(b)(5) of ASME Section XI.

The visual examination of seals and gaskets in accordance with IWE-2500, Table IWE-2500-1 is a burden without any compensating increase in the level of safety or quality. This requirement is not included in the 1997 Addenda of ASME Section XI.

Relief is requested in accordance with 10CFR50.55a(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. Testing the seals and gaskets in accordance with 10CFR50, Appendix J will provide adequate assurance of the leak-tight integrity of the seals and gaskets.

ALTERNATIVE EXAMINATION(S):

The leak-tightness of seals and gaskets will be tested in accordance with 10CFR50, Appendix J. No additional alternatives to the visual examination, VT-3, of the seals and gaskets will be performed.

IMPLEMENTATION SCHEDULE:

First inspection interval for IWE.

CONTAINMENT INSERVICE INSPECTION RELIEF REQUEST

RELIEF REQUEST NO. E-2

**CONTAINMENT INSPECTION
SUCCESSIVE EXAMINATIONS AFTER REPAIR**

RELIEF REQUEST SUMMARY:

Paragraphs IWE-2420(b) and IWE-2420(c) of the 1992 Edition, 1992 Addenda of ASME Section XI require that when component examination results require evaluation of flaws, evaluation of areas of degradation, or repairs in accordance with Article IWE-3000, and the component is found to be acceptable for continued service, the areas containing such flaws, degradation, or repairs shall be re-examined during the next inspection period listed in the schedule of the inspection program under Paragraph IWE-2411 or Paragraph IWE-2412, in accordance with Table IWE-2500-1, Examination Category E-C.

The purpose of a repair is to restore the component to an acceptable condition for continued service. Furthermore, if the repaired area is subject to accelerated degradation, it would still require augmented examination in accordance with Table IWE-2500-1, Examination Category E-C. The successive examination of repairs in accordance with Paragraphs IWE-2420(b) and IWE-2420(c) constitutes a burden without a compensating increase in quality or safety.

Paragraphs IWB-2420(b), IWC-2420(b), and IWD2420(b) do not require that a repair be subjected to successive examination requirements. Additionally, "repair" is not included in Paragraphs IWE-2420(b) and IWE-2420(c) in the 1997 Addenda of the Section XI Code.

SYSTEM/COMPONENT(S) FOR WHICH RELIEF IS REQUESTED:

All Class MC, Paragraphs IWE-2420(b) and IWE-2420(c) successive examination requirements for components found acceptable for continued service following repair.

CODE REQUIREMENT(S):

Paragraphs IWE-2420(b) and IWE-2420(c) of the 1992 Edition, 1992 Addenda of ASME Section XI require that when component examination results require evaluation of flaws, evaluation of areas of degradation, or repairs in accordance with Article IWE-3000, and the component is found to be acceptable for continued service, the areas containing such flaws, degradation, or repairs shall be re-examined during the next inspection period listed in the schedule of the inspection program of Paragraph IWE-2411 or Paragraph IWE-2412, in accordance with Table IWE-2500-1, Examination Category E-C.

CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED:

Relief is requested from the requirement of Paragraphs IWE-2420(b) and IWE-2420(c) to perform successive examination of repairs.

BASIS FOR RELIEF:

10CFR50.55a was amended in the Federal Register (61FR41303) to require the use of the 1992 Edition, 1992 Addenda, of Section XI when performing containment examinations. The purpose of a repair is to restore the component to an acceptable condition for continued service in accordance with the acceptance standards of Article IWE-3000. Paragraph IWA-4150 requires the owner to conduct an evaluation of the suitability of the repair including consideration of the cause of failure.

If the repair has restored the component to an acceptable condition, successive examinations are not warranted. If the repair was not suitable, then the repair does not meet code requirements and the component is not acceptable for continued service. Paragraphs IWB-2420(b), IWC-2420(b), and IWD-2420(b) do not require a repair to be subjected to successive examination requirements. Furthermore, if the repaired area is subject to accelerated degradation, it would still require augmented examination in accordance with Table IWE-2500-1, Examination Category E-C. The successive examination of repairs in accordance with Paragraphs IWE-2420(b) and IWE-2420(c) constitutes a burden without a compensating increase in quality or safety. Furthermore, repair is not included in Paragraphs IWE-2420(b) and IWE-2420(c) in the 1997 Addenda of the Section XI Code.

Relief is requested in accordance with 10CFR50.55a(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.

ALTERNATE EXAMINATION(S):

None. Successive examinations in accordance with Paragraphs IWE-2420(b) and IWE-2420(c) are not required for repairs made in accordance with Article IWA-4000.

IMPLEMENTATION SCHEDULE:

First inspection interval for IWE.

CONTAINMENT INSERVICE INSPECTION RELIEF REQUEST

RELIEF REQUEST NO. E-3

CONTAINMENT INSPECTION
BOLT TORQUE OR TENSION TESTING

RELIEF REQUEST SUMMARY:

Table IWE-2500-1, Examination Category E-G, of the 1992 Edition, 1992 Addenda of ASME Section XI requires torque or tension testing on bolted connections that have not been disassembled and reassembled during the inspection interval. Determination of the torque or tension value requires that the bolting be un-torqued and then re-torqued or re-tensioned. This activity is considered maintenance and therefore would require a 10CFR50 Appendix J, Type B leak-rate test. Type A, Type B and/or Type C leak testing is also performed periodically as required by the ASME Code and Appendix J. Performance of the periodic Appendix J testing by itself proves that the bolt torque or tension remains adequate to provide a leak rate that is within acceptable limits. Verification of torque or tension values on bolted joints that are proven acceptable through Appendix J testing and visual inspection is adequate to demonstrate that the design function is met. Experience has shown that penetrations, containment personnel hatches, and escape hatches have not exhibited excessive leakage due to inadequate bolt torque or tension. Bolt 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.

Relief is requested from ASME Section XI, 1992 Edition with the 1992 Addendum, Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item 8.20.

SYSTEMS/COMPONENTS FOR WHICH RELIEF IS REQUESTED:

Class MC pressure retaining bolting subject to Appendix J testing.

CODE REQUIREMENT(S):

ASME Section XI, 1992 Edition with the 1992 Addenda, Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item 8.20.

CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED:

Relief is requested from ASME Section XI 1992 Edition with the 1992 Addenda Table IWE-2500-1 Examination Category E-G, Pressure Retaining Bolting, Item 8.20. Bolt torque or tension testing is required on bolted connections that have not been disassembled and reassembled during the inspection interval.

BASIS FOR RELIEF:

10CFR50.55a was amended in the Federal Register (61FR41303) 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 un-torqued and then re-torqued or re-tensioned. Performance of the periodic Appendix J leak-rate testing by itself proves that the bolt torque or tension remains adequate to provide a leakage rate that is within acceptable limits. The torque or tension value of bolting only becomes an issue if the leakage 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. Verification of torque or tension values on bolted joints that are proven acceptable through Appendix J testing and visual inspection is adequate to 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.

Relief is requested in accordance with 10CFR50.55a(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.

ALTERNATE EXAMINATION(S):

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, and
3. A general visual examination of the entire containment once each inspection period shall be conducted in accordance with 10CFR50.55a(b)(2)(x)(E).

IMPLEMENTATION SCHEDULE:

First inspection interval for IWE.

CONTAINMENT INSERVICE INSPECTION RELIEF REQUEST

RELIEF REQUEST NO. E-4

CONTAINMENT INSPECTION
NDE PERSONNEL QUALIFICATION & CERTIFICATION

RELIEF REQUEST SUMMARY:

ASME Section XI, 1992 Edition, 1992 Addenda, IWA-2300, requires qualification and certification of nondestructive examination personnel in accordance with ANSI/ASNT CP-189, 1991 (hereinafter CP-189). Preparing a written practice based on CP-189 requirements to implement Subsections IWE would duplicate efforts already in place for all other Subsections. Current Vermont Yankee NDE procedures are written in accordance with the 1986 Edition of Section XI to meet ISI requirements for the 3rd Interval Class 1,2, 3, etc. examinations. This requires a written practice based on SNT-TC-1A. Further, the 1992 Edition, 1992 Addenda, states, "Certifications based on SNT-TC-1A are valid until recertification is required." Visual examination is the primary nondestructive examination method required by Subsections IWE. Neither CP-189 nor SNT-TC-1A specifically includes visual examination, thus, visual certification is based on the employer's written practice to comparable levels as defined in CP-189 or SNT-TC-1A, as applicable. Development and administration of a second qualification program would not enhance safety or quality and would represent a burden. This duplication would also apply to NDE vendor programs.

SYSTEM/COMPONENT(S) FOR WHICH RELIEF IS REQUESTED:

Class MC pressure retaining components and associated seals, gaskets, and moisture barriers subject to examination in accordance with Subsections IWE of the 1992 Edition, 1992 Addenda of ASME Section XI.

CODE REQUIREMENTS:

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

CODE REQUIREMENTS FROM WHICH RELIEF IS REQUESTED:

Relief is requested from the provisions of Subarticle IWA-2300, "Qualification of Nondestructive Examination Personnel." This requires NDE personnel to be qualified and certified using a written practice in accordance with CP-189, Standard for Qualification and Certification of Nondestructive Testing Personnel, as amended by the requirements of this Division.

BASIS FOR RELIEF:

10CFR50.55a was amended in the Federal Register (61FR41303) to require the use of the 1992 Edition, 1992 Addenda, of Section XI when performing containment examinations. Preparing a written practice based on the requirements of CP-189, as amended by the requirements of Subarticle IWA-2300, to implement Subsections IWE duplicates criteria already in place. Current Vermont Yankee NDE procedures are written in accordance with the 1986 Edition of Section XI to meet ISI requirements for the 3rd Interval Class 1, 2, 3, etc, examinations. Subarticle IWA-2300 of the 1986 Edition requires a written practice based on SNT-TC-1A, as amended by the requirements of Subarticle IWA-2300. Further, Subarticle IWA-2300 of the 1992 Edition, 1992 Addenda, states, "Certifications based on SNT-TC-1A are valid until recertification is required." Visual examination is the primary nondestructive examination method required by Subsections IWE. Neither CP-189 nor SNT-TC-1A specifically includes visual examination; thus, 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. Development and administration of a second program would not enhance safety or quality and would represent a burden, particularly in preparing a second written practice, tracking of certifications, and duplication of paperwork. This duplication would also apply to NDE vendor programs.

Relief is requested in accordance with 10CFR50 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.

ALTERNATIVE EXAMINATION(S):

Examinations required by Subsections IWE shall be conducted by personnel qualified and certified to a written practice based on SNT-TC-1A, to the current Section XI Code of record for Subsections IWB, IWC. etc.

IMPLEMENTATION SCHEDULE:

First inspection interval of IWE.

