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U-603352
8E.100c
May 25, 2000

Docket No. 50-461

10CFR50.55a

Document Control Desk
Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station Relief Request
Regarding the Containment Inspection Program and
Regarding Visual Examination of Bolted Connections

Dear Madam or Sir:

Attached for NRC review and approval are eleven requests for relief from requirements of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. Ten of the relief requests, CIP-6101 through CIP-6110, are for relief from containment inspection requirements of 10 CFR 50.55a(g)(6)(ii)(B)(1) as amplified in Section XI of the ASME Boiler and Pressure Vessel Code, Subsection IWE and IWL, 1992 Edition with 1992 Addenda. (10 CFR 50.55a(g)(6)(ii)(B)(1) requires the implementation of a Containment Inservice Inspection Program and completion of certain examinations by September 9, 2001.) The NRC approved similar relief requests for Peach Bottom Atomic Power Station in a letter dated September 17, 1999.

The eleventh relief request, 1202, is for relief from the visual examination requirements of Section XI of ASME Boiler and Pressure Vessel Code, 1989 Edition, Paragraph IWA-5250 for bolted connections.

AmerGen Energy Company, LLC respectfully requests NRC review and approval of the relief requests identified above by October 1, 2000, to support the examination plan for the Clinton Power Station refueling outage scheduled to begin on October 15, 2000.

Sincerely yours,

Thomas B. Elwood for

Michael A. Reandeau
Director - Licensing

RWC/blf

A047

RGN-001

Attachments

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6101 (Revision 0)

VT-3, Visual Examination of Seals and Gaskets

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

Seals and gaskets of Class MC pressure retaining components and metallic liners of Class CC 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**

IWE-2500, Table IWE-2500-1 requires seals and gaskets on airlocks, hatches, and other devices to be visually (VT-3) examined 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 (VT-3) examination on the above identified metal containment seals and gaskets.

**BASIS FOR RELIEF**

Relief is requested in accordance with 10CFR50.55a(a)(3)(ii). Compliance with the specified requirements of this section would result in unnecessary examination 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.

**ALTERNATE EXAMINATIONS**

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

**JUSTIFICATION FOR THE GRANTING OF 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 associated with the containment/containment penetrations receive a 10CFR50 Appendix J leak rate test. As noted 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 fitted with flexible metal seal assemblies. Although not required by the Code, practical examination considerations of seals and gaskets require the joints, which are proven adequate through Appendix J testing, to be disassembled. For electrical penetrations, this would involve a pre-maintenance Appendix J test, determination of cables at electrical penetrations if enough cable slack is not available , disassembly of the joint, removal and examination of the seals and gaskets, reassembly of the joint, re-termination of the cables if necessary, post maintenance testing of the cables, and a post maintenance Appendix J test of the penetration. The work required for the containment hatches would be similar except for the determination, re-termination, and testing of cables. 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 gasket 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 Type B penetrations that are routinely disassembled, an Appendix J Type B leak rate test is required prior to disassembly and upon final assembly and prior to start-up. Since the Type B test will assure the leak tight integrity of primary containment, the performance of the visual examination would not increase in 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 materials would be revealed by an increase in the leakage rate. Corrective measures would be applied and the component retested. 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 was removed in the 1997 Addenda of ASME Section XI and is not included in the 1998 Edition.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the first ten-year IWE inspection interval of the Containment Inspection Program for Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6102 (Revision 0)

NDE Personnel Qualification and Certification

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

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

**CODE REQUIREMENT**

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

**CODE REQUIREMENT 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 of Nondestructive Testing Personnel", as amended by the requirements of ASME Section XI, Division I.

**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 unnecessary or unusual difficulty without a compensating increase in the level of quality and safety.

**ALTERNATE EXAMINATIONS**

Examinations required by Subsections IWE and IWL shall be conducted by personnel qualified and certified to a written practice based on SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing" to the current Section XI Code of record for Subsections IWB, IWC, etc. The written practice will be updated to include VT-1C and VT-3C requirements, as specified in Paragraph IWL-2310(c) of the 1992 Edition, 1992 Addenda of ASME Section XI. When the written practice is updated to include VT-1C and VT-3C requirements, the requirements of Subsection IWA-2300, based on the current Section XI Code of record for Subsections IWB, IWC, etc., shall apply.

**JUSTIFICATION FOR THE GRANTING OF RELIEF**

10 CFR 50.55a was amended in the Federal Register (61FR41303) to require the use of the 1992 Edition, 1992 Addenda, Section XI when performing containment examinations. A written practice based on the requirements of CP-189, as amended by the requirements of the Subarticle IWA-2300, to implement Subsections IWE and IWL duplicates efforts already in place for all other subsections. 10 CFR 50.55a references the 1989 Edition of ASME Section XI for all other subsections. Subarticle IWA-2300 of the 1989 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 and IWL. 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 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 1992 Edition, 1992 Addenda, for Subsections IWB, IWC, etc., would require a similar request for relief.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the first ten-year inspection interval of the Containment Inspection Program for Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6103 (Revision 0)

Preservice Examination of Reapplied Paint or Coatings

| | |
|---|---|
| SYSTEM/ COMPONENT(S) FOR WHICH RELIEF IS REQUESTED | All Class MC, Subarticle IWE-2200(g), preservice examination requirements of reapplied painted or coated containments. |
| CODE REQUIREMENT | ASME Section XI, 1992 Edition, 1992 Addenda, Subsection IWE-2200(g) requires that when paint or coatings are reapplied, the condition of the new paint or coating shall be documented in the preservice examination records. |
| CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED | Relief is requested from the requirement to perform a preservice inspection of new paint or coatings. |
| BASIS FOR RELIEF | Relief is requested in accordance with 10CFR50.55a(a)(3)(i). The Clinton Power Station Coating Inspection Program currently provides an adequate level of quality and safety. |
| ALTERNATE EXAMINATIONS | The paint and coatings in the containment will be examined in accordance with the Clinton Power Station Coatings Program. If degradation of the coating is identified, additional measures will be applied to determine if the containment pressure boundary is affected. Although repairs to paint or coatings are not subject to the repair/replacement rules of ASME XI (Inquiry 97-22), repairs to the primary containment boundary, if required, would be conducted in accordance with the Clinton Power Station ASME Section XI Repair/Replacement Program. |

**JUSTIFICATION FOR THE GRANTING OF RELIEF**

Paint and coatings are not part of the containment pressure boundary under current Code rules because they are not associated with the pressure retaining function of the component (Paragraph NE-2110 (b)(5) of ASME Section III). Neither paint nor coatings contribute to the structural integrity or leak tightness of the containment. Furthermore, the paint and coatings on the containment pressure boundary were not subject to Code rules when they were originally applied and are not subject to ASME XI rules for repair or replacement in accordance with IWA-4111(b)(5). The adequacy of applied coatings is verified in accordance with Clinton Power Station Coatings Program. Recording the condition of reapplied coating in the preservice record does not substantiate the containment structural integrity. Should deterioriation of the coating in the reapplied area occur, the area will require additional evaluation regardless of the preservice record. Recording the condition of new paint or coating in the preservice records does not increase the level of quality and safety of the containment.

SECY 96-080, response to Comment 3.2 about IWE-2200(g) states, "In the NRC's opinion, this does not mean that visual examination must be performed with every application of paint or coating. A visual examination of the topcoat to determine the soundness and the condition of the topcoat should be sufficient." This is currently accomplished in accordance with Clinton Power Station Coating Program. Recording the condition of new paint or coatings in the preservice record is redundant to the requirements of the Clinton Power Station Coatings Program, and as such is an administrative burden without a compensating increase in safety.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the first ten-year IWE inspection interval of the Containment Inspection Program for Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6104 (Revision 0)

Visual Examination Prior to Paint or Coating Removal

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

All Class MC, Subarticle IWE-2500(b) visual examination per Table IWE-2500-1 of painted or coated containment components prior to removal of paint or coatings.

**CODE REQUIREMENT**

ASME Section XI, 1992 Edition, 1992 Addenda, Subarticle IWE-2500(b) requires that when paint or coatings are to be removed, the paint or coatings shall be visually examined in accordance with Table IWE-2500-1 prior to removal.

**CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED**

Subarticle IWE-2500(b) requires that when paint or coatings are to be removed, the paint or coatings shall be visually examined in accordance with Table IWE-2500-1 prior to removal.

**BASIS FOR RELIEF**

Relief is requested in accordance with 10 CFR50.55a(a)(3)(i). The Clinton Power Station Coating Inspection Program currently provides an adequate level of quality and safety.

**ALTERNATE EXAMINATIONS**

The paint and coatings in the containment will be examined using qualified personnel in accordance with existing Clinton Power Station Coating Program requirements. If degradation of the coating is identified, additional measures will be applied to determine if the containment pressure boundary is affected. Although repairs to paint or coatings are not subject to the repair/replacement rules of ASME Section XI, repairs to the primary containment boundary, if required, would be conducted in accordance the Clinton Power Station ASME Section XI Repair/Replacement Program.

**JUSTIFICATION FOR THE GRANTING OF 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. Paint and coatings are not part of the containment pressure boundary under current Code rules because they are not associated with the pressure retaining function of the component (Paragraph NE-2110 (b) of ASME Section III). The interiors of containments are painted to prevent rusting. Neither paint nor coatings contribute to the structural integrity or leak tightness of the containment. Furthermore, the paint and coatings on the containment pressure boundary were not subject to Code rules when they were originally applied and are not subject to ASME XI rules for repair or replacement in accordance with IWA-4111(b)(5).

If degradation or discoloration of the paint or coating materials on containment was identified, this would be an indicator of potential degradation of the containment pressure boundary. Additional measures would have to be employed to determine the nature and extent of any degradation, if present.

The application of ASME XI rules for removal of paint or coatings when unrelated to a Section XI repair or replacement activity, is a burden without a compensating increase in quality or safety. This requirement is not included in the published 1998 Edition of ASME Section XI.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the first-ten year IWE inspection interval of the Containment Inspection Program for the Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6105 (Revision 0)

VT-2, Visual Examination After Repair, Replacement or Modification

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

All components subject to the rules and requirements for repair, replacement or modification of Class MC, IWE-5000 System Pressure Test visual examination in accordance with the 1992 Edition, 1992 Addenda of ASME Section XI.

**CODE REQUIREMENT**

Paragraph IWE-5240 of the 1992 Edition, 1992 Addenda of ASME Section XI requires that the requirements of Paragraph IWA-5240 for visual (VT-2) examination are applicable following repair, replacement, or modification.

**CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED**

Relief is requested from performing the VT-2 visual examination in connection with system pressure testing following repair, replacement or modification under Article IWE-5000.

**BASIS FOR RELIEF**

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(i). Pressure (leak rate) testing in accordance with 10 CFR 50, Appendix J, provides an adequate level of safety and quality.

**ALTERNATE EXAMINATIONS**

Testing shall be conducted in accordance with 10CFR50, Appendix J, in lieu of Paragraph IWE-5240 of ASME Section XI. In addition, examinations following repairs or replacements on containment components will be performed in accordance with the Clinton Power Station ASME Section XI Repair/Replacement Program. Following the Repair/Replacement activity, the original construction code required NDE would be performed as well as required visual examinations to re-establish Preservice Inspection in accordance with the Containment Inspection Program.

**JUSTIFICATION FOR THE GRANTING OF RELIEF**

10 CFR 50.55a was amended in the Federal Register (61FR41303) to require the use of the 1992 Edition, 1992 Addenda, of Section XI when performing containment examinations. Paragraph IWE-5210 states that except as noted within Paragraph IWE-5240, the requirements of Article IWA-5000 are not applicable to Class MC or Class CC components. Paragraph IWE-5240 states that the requirements of Paragraph IWA-5240 (corrected from IWA-5246 to IWA-5240 in the 1993 Addenda) for visual examinations are applicable. Paragraph IWA-5240 identifies a "VT-2" visual examination. VT-2 examinations are conducted to detect evidence of leakage from pressure retaining components, with or without leakage collection systems, as required during the conduct of a system pressure test. In addition, personnel performing VT-2 examinations are required to be qualified in accordance with Subarticle IWA-2300 of ASME Section XI.

Table IWE-2500-1, Examination Category E-P, identifies the examination method of 10 CFR 50, Appendix J and does not specifically identify a VT-2 visual examination. 10 CFR 50, Appendix J provides requirements for testing as well as acceptable leakage criteria. These tests are performed by Appendix J "Test" personnel and utilize calibrated equipment to determine acceptability. Additionally, 10 CFR 50.55a(b)(2)(x)(E) requires a general visual examination of the containment each period that would identify any structural degradation that may contribute to leakage. A "VT-2" visual examination will not provide additional assurance of safety beyond that of current Appendix J practices.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the first ten-year IWE inspection interval of the Containment Inspection Program for Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6106 (Revision 0)

Successive Examination After Repairs

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

All Class MC components subject to the rules of Paragraphs IWE-2420(b) and IWE-2420(c) successive examination requirements for components found acceptable for continued service.

**CODE REQUIREMENT**

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 if the component is found to be acceptable for continued service, the areas containing such flaws, degradation, or repairs shall be reexamined 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**

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

**ALTERNATE EXAMINATIONS**

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. Therefore, no alternate or additional examination requirements are proposed.

## JUSTIFICATION FOR THE GRANTING OF RELIEF

10 CFR 50.55a 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. Neither Paragraph IWB-2420(b), Paragraph IWC-2420(b), nor Paragraph IWD-2420(b) requires a repair to be subject to successive examination requirements. Furthermore, if the repair 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.

The word "repair" was deleted in Paragraphs IWE-2420(b) and IWE-2420(c) in the 1997 Addenda of the Section XI Code and is not included in the 1998 Edition.

In their resolution to public comment #3.3, to SECY-96-080, the NRC stated, "The purpose of IWE-2420(b) is to manage components found to be acceptable for continued service (meaning no repair or replacement at this time) as an Examination Category E-C component... If the component had been repaired or replaced, then the more frequent examination would not be needed."

## IMPLEMENTATION SCHEDULE

Relief is requested for the first ten-year IWE inspection interval of the Containment Inspection Program for Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6107 (Revision 0)

Bolt Torque or Tension Test Requirements

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

Class MC pressure retaining bolting subject to examination in accordance with ASME Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1.

**CODE REQUIREMENT**

ASME Section XI, 1992 Edition, with the 1992 Addenda, Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item 8.10, Visual Examination, VT-1 and Item 8.20, Bolt torque or tension test.

**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 8.10 and Item 8.20. Per these requirements, VT-1 visual examination and bolt torque or tension testing is required on bolted connections that have not been disassembled 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 unnecessary examinations and testing or unusual difficulty without a compensating increase in the level of quality and safety.

**ALTERNATE EXAMINATIONS**

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 or 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-A, Containment Surfaces, and

(2) Bolted connections shall meet the pressure test requirements of 10CFR50, Appendix J, and

(3) A general visual examination of the entire containment once each inspection period shall be conducted in accordance with 10 CFR 50.55a(b)(2)(x)(E).

**JUSTIFICATION FOR THE GRANTING OF RELIEF**

10 CFR50.55a 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. The performance of the Appendix J Type B test itself proves that the bolt torque or tension remains adequate to provide a leak rate that is 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. Verification of torque or tension values on bolted joints that are proven adequate through Appendix J testing and visual inspection is adequate to demonstrate that 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.

A conclusion reached by ASME Section XI was that Examination Category E-G examinations on bolted connections were not warranted. In the commentary that accompanied the Subsection IWE rewrite, the following was written:

> "Pressure-retaining bolting as a separate category has been deleted, and the examination requirements for pressure-retaining bolting have been consolidated into Category E-A. Examination of pressure-retaining bolting does not require removal or disassembly, and only those exposed surfaces of bolting materials need be examined."

As a result, Examination Category E-G has been eliminated from Table IWE-2500-1 in the 1998 Edition of ASME Section XI.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the first ten-year IWE inspection interval of the Containment Inspection Program for Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6108 (Revision 0)

Alternative Requirements to Required Percentages of Examinations, Code Case N-598

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

All Class MC Components Subject to Inservice Inspection, Reference Table IWE-2412-1.

**CODE REQUIREMENT**

ASME Section XI, Table IWE-2412-1 lists the required percentages of examinations that must be performed per period in accordance with Inspection Program B. In accordance with this table, the number of examinations to be completed during the first period shall be between 16% and 34%. For the second period, the total number of examinations to be completed shall be between 50% and 67%, and by the end of the third period, 100% of the examinations for the entire ten-year interval shall be completed.

**CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED**

Relief is requested from the examination percentages listed in Table IWE-2412-1.

**BASIS FOR RELIEF**

Clinton Power Station considers that the alternative criteria of Code Case N-598 provide an acceptable, or improved, level of quality and safety.

Pursuant to 10CFR50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety.

**ALTERNATE EXAMINATIONS**

Clinton Power Station will use Code Case N-598 for the required percentages of examinations for all Class MC components for the Containment Inspection Program.

## JUSTIFICATION FOR THE GRANTING OF RELIEF

Table IWE-2412-1 was originally established such that approximately one third of the non-deferred examinations would be performed each period. The emergence of longer fuel cycles increases the likelihood that one of the periods will only have one refueling outage in it. In addition, efforts to shorten refueling outages have limited the amount of time available to perform examinations. These factors may make it difficult to complete the Code required percentages of examinations in the allotted time periods.

Code Case N-598 was developed to address this issue. It expands the range of examination completion percentages to allow examinations to be distributed more evenly between outages. This minimizes the need to schedule an excessive number of examinations during one outage just to meet the percentages required by ASME Section XI, Table IWE-2412-1. In addition, Code Case N-598 allows for a more uniform distribution between outages that is more conducive to performing quality examinations.

During the development of Code Case N-598, two additional factors were considered when evaluating the impact of the Code Case on plant safety. The first was that the existing tables allow up to 50% of the examinations to be performed in the second and third periods, but only 34% can be performed in the first period. Therefore, the Inspection Plan B schedule is biased towards delaying examinations until the end of the interval. The more flexible percentages stated in Code Case N-598 allow for more examinations to be performed earlier in the interval. This should improve safety because any problems, should they exist, would be detected earlier in the interval.

The second factor that was considered when developing Code Case N-598 was that some minimum amount of examinations should be required in each period. To address this consideration, the Code Case, including Note (1) of the Code Case, is structured such that examinations will be required during all three periods with a minimum of 16% completed during the second period.

## IMPLEMENTATION SCHEDULE

Relief is requested for the first ten year IWE inspection interval of the Containment Inspection Program for Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6109 (Revision 0)

Alternative to the Extent and Frequency of VT-3 Visual Examination
Code Case N-601

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

All Class MC components subject to examination in accordance with ASME Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1, Exam Category E-A, Items E1.12 and E1.20.

**CODE REQUIREMENT**

ASME Section XI, 1992 Edition through 1992 Addenda, requires that a 100% VT-3 visual examination be performed at the end of the interval for Items E1.12 and E1.20.

**CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED**

Relief is requested from the requirement to perform the VT-3 visual examinations entirely at the end of the interval for Items E1.12 and E1.20.

**BASIS FOR RELIEF**

Pursuant to 10CFR50.55a(a)(3)(i), relief is requested on the basis that the proposed alternative criteria of Code Case N-601 provide an acceptable level of quality and safety.

**ALTERNATE EXAMINATIONS**

Clinton Power Station will perform the VT-3 visual examinations on accessible surface areas of the containment structure in accordance with Code Case N-601. This code case provides an alternative that allows visual examinations to be performed at any time during the interval, provided the requirements for successive inspections stated in IWE-2420 are met.

## JUSTIFICATION FOR THE GRANTING OF RELIEF

Code Case N-601, "Extent and Frequency of VT-3 Visual Examination for Inservice Inspection of Metal Containments" provides an alternative to the Code requirement of performing 100% of the VT-3 examinations on Items E1.12 and E1.20 at the end of the interval. Clinton Power Station believes it is more important to perform visual examinations on the accessible surfaces of the containment structure during the course of the interval rather than at the end. This way, the integrity of the containment system can be better monitored between the 10CFR50, Appendix J testing, and the visual examinations required by Table IWE-2500-1. The successive inspection requirements of IWE-2420 will be maintained.

## IMPLEMENTATION SCHEDULE

Relief is requested for the first ten-year containment inspection interval of the Clinton Power Station Containment Inservice Inspection Program.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST CIP-6110 (Revision 0)

Alternate Ultrasonic Thickness Measurements, Code Case N-605

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

Class MC Containment Surfaces Requiring Augmented Ultrasonic Thickness Measurements for Examination Category E-C, Item E4.12.

**CODE REQUIREMENT**

ASME Section XI, 1992 Edition through 1992 Addenda, Subarticle IWE-2500(c)(3) requires one foot square grids be used when ultrasonic thickness measurements are performed on augmented examination surface areas. The number and location of the grids is determined by the Owner. Subarticle IWE-2500(c)(4) requires that the minimum wall thickness within each grid be determined.

**CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED**

Relief is requested from the requirement to use one foot square grids for augmented examination areas, and the requirement to determine the minimum wall thickness within each grid.

**BASIS FOR RELIEF**

Relief is requested in accordance with 10CFR50.55a(a)(3)(ii). Taking numerous ultrasonic thickness measurements within a grid that has not exhibited degradation results in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The alternate examination method described in Code Case N-605 will maintain an acceptable level of quality and safety.

**ALTERNATE EXAMINATIONS**

Clinton Power Station will use Code Case N-605 to determine examination requirements for ultrasonic thickness measurements on areas requiring augmented examination.

**JUSTIFICATION FOR THE GRANTING OF RELIEF**

Subarticles IWE-2500(c)(3) and IWE-2500(c)(4) of the 1992 Edition, 1992 Addenda of ASME Section XI require that the minimum thickness within each one foot square grid of surface areas requiring augmented examination be marked such that periodic reexamination of the location can be performed. Thickness readings are point readings. Numerous readings are necessary to identify the minimum thickness within each grid. This only identifies the thinnest area, and periodic examination of the minimum thickness point only monitors that point. It may not be the area that is the most susceptible to accelerated degradation.

Code Case N-605, Table-2500-2, "Ultrasonic Thickness Measurements for Augmented Examination", provides a proposed alternative to the one foot square grid area required by IWE-2500(c)(3). Table-2500-2 requires examination at the grid intersections. The grid line intersections may not exceed 12 inches, and may be as small as 2 inches.

For a sample area of 50 square feet, Code Case N-605, Table-2500-2 requires a minimum 100 locations be monitored. In this instance, utilizing Table-2500-2 monitors more locations than required by IWE-2500(c)(3).

For sample areas greater than 100 square feet, Code Case N-605, Table-2500-2 requires that sufficient points be monitored to ensure at least a 95% confidence level that the thickness of the base metal is reduced by no more than 10% of the nominal plate thickness at 95% of the grid line intersections. Table-2500-2 also requires additional examinations when any measurement reveals that the wall thickness is reduced by more than 10% of the nominal plate thickness.

For all examination areas, should the measurements at a grid line intersection reveal that the base material is reduced by more than 10% of the nominal plate thickness, Code Case N-605, Table-2500-2 requires that the minimum wall thickness within each adjoining grid be determined. This is similar to the examination requirements of IWE-2500(c)(4) except that Table-2500-2 focuses resources on areas that have exhibited degradation rather than areas that have not exhibited degradation.

The requirements of Code Case N-605 have been incorporated into the rewrite of Subsection IWE of ASME Section XI. This rewrite has been approved by ASME and is published in the 1998 Edition of Section XI.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the first ten-year containment inspection interval of the Clinton Power Station Containment Inservice Inspection Program.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST 1202 (Revision 0)

Leakage at Bolted Connections

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

All ASME Class 1, 2, and 3 systems which are subject to pressure testing in accordance with Section XI, 1989 Edition, IWA-5000.

**CODE REQUIREMENT**

ASME Section XI, 1989 Edition, Paragraph IWA-5250(a)(2) requires that "if leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100."

**CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED**

Pursuant to 10CFR50.55a(a)(3) relief is requested from removal of the bolting and performance of a VT-3 Visual Examination for corrosion and evaluation in accordance with IWA-3100 when leakage is detected.

**BASIS FOR RELIEF**

Based on the requirements of Section XI 1998 Edition, 1999 Addenda, the purpose of this requirement is to detect the degradation of bolting due to leakage from borated systems. The ASME Code Section XI, 1998 Edition, 1999 Addenda, has revised Paragraph IWA-5250(a)(2) as follows:

> "If leakage occurs at a bolted connection in a system borated for the purpose of controlling reactivity, one of the bolts shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100. The bolt selected shall be the one closest to the source of leakage. When the removed bolt has evidence of degradation, all remaining bolting in the connection shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100."

Since BWRs do not use borated water to control reactivity during normal plant operation, this requirement will result in a hardship without a compensating increase in the level of quality and safety. The proposed alternative will provide an acceptable level of quality and safety.

**ALTERNATE EXAMINATIONS**

CPS will quantify and evaluate all leakage in accordance with site procedures and provide necessary corrective action. This corrective action may involve rework of the connection and other corrective measures of IWA-5250.

**JUSTIFICATION FOR THE GRANTING OF RELIEF**

As stated in the basis for relief, CPS considers this to be a condition in Pressurized Water Reactor (PWR) systems borated for the purpose of controlling reactivity. With CPS being a Boiling Water Reactor (BWR) corrosion in these types of systems is not a consideration.

In our experience with bolted connections, CPS has not identified any failures of bolted connections directly attributable to corrosion of the bolting. The majority of leakage identified during testing is from packing leaks but a small percentage is attributed to flange connections and other pressure retaining bolted connections. Usually this leakage is arrested as the plant heats up or other corrective measures are performed to stop the leakage. In those cases where leakage is not arrested based on the above actions, an evaluation is performed and, when necessary, corrective measures taken.

Compliance with the requirement to remove bolting to perform a VT-3 inspection when corrosion is not a factor could subject CPS personnel to additional radiation exposure and added outage time. Removal and inspection of bolting can also result in a system or portions of a system being placed in an inoperable or degraded condition. This could constitute a higher level of risk, unnecessary personnel exposure, and a hardship on the plant without a compensating level of quality and safety.

**IMPLEMENTATION SCHEDULE**

Relief is requested for the second ten-year interval at Clinton Power Station.