

Mr. Mike Reandeau
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 P.O. Box 678
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November 3, 2000

SUBJECT: CLINTON POWER STATION - SAFETY EVALUATION OF RELIEF REQUESTS FOR CONTAINMENT INSPECTION REQUIREMENTS AND VISUAL EXAMINATION REQUIREMENTS FOR BOLTED CONNECTIONS (TAC NO. MA9117)

Dear Mr. Reandeau:

By letter dated May 25, 2000, as supplemented on September 21, 2000, you submitted relief requests (RRs) from the containment inspection requirements and visual examination requirements for bolted connections for the Clinton Power Station (CPS). RRs CIP-6101 through 6110 were submitted for the first ten-year containment inspection interval whereas RR 1202 was submitted for the second ten-year containment inspection interval.

Based on the information provided in the requests, the staff concludes that for RR CIP-6103, 6104, 6105, 6108 and 6109, and RR 1202, the proposed alternatives will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), RR-CIP-6103, 6104, 6105, 6108 and 6109 are authorized for the first ten-year containment inspection interval while RR 1202 is authorized for the second ten-year containment inspection interval.

Regarding RR CIP-6101, 6102, 6106, 6107 and 6110, the staff concludes that compliance with the code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and that the licensee's proposed alternatives will provide reasonable assurance of containment pressure integrity. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), RR CIP-6101, 6102, 6106, 6107 and 6110, are authorized for the first ten-year containment inspection interval.

Enclosure 1 contains a summary of the relief requests and Enclosure 2 contains the staff's safety evaluation.

Sincerely,
 /RA/
 Anthony J. Mendiola, Chief, Section 2
 Project Directorate III
 Division of Licensing Project Management
 Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosures: As stated

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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Division of Licensing Project Management
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cc w/encls: See next page

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**SUMMARY OF RELIEF REQUESTS
CLINTON POWER STATION**

Relief Request No.	10CFR 50.55a - ASME Code Section	Issue Identification	Recommended NRC Action	Remarks
CIP-6101	IWE-2500, Table IWE-2500-1 E-D	Examination of Seals and Gaskets	(a)(3)(ii)	authorized
CIP-6102	IWA-2300	Qualification and Verification of NDE Personnel	(a)(3)(ii)	authorized
CIP-6103	IWE-2200(g)	Preservice Examination of Reapplied Paint and Coating	(a)(3)(i)	authorized
CIP-6104	IWE-2500(b)	Examination of Paint or Coating Prior to Removal	(a)(3)(i)	authorized
CIP-6105	IWE-5240 & IWA-5240	VT-2 Examination after Repair, Replacement and Modification	(a)(3)(i)	authorized
CIP-6106	IWE-2420(b) & (c)	Successive Examination after Repaired Areas	(a)(3)(ii)	authorized
CIP-6107	IWE-2500, Table IWE-2500-1 E-G, E-8.10 and E-8.20	Visual Examination and Torque-Tension Test of Pressure Retaining Bolting	(a)(3)(ii)	authorized
CIP-6108	Table IWE-2412-1	Required Completion Percentages of Examinations at Each Period	(a)(3)(i)	authorized
CIP-6109	IWE-2500, Table IWE-2500-1, E-A, E-1.12 and E1.20	Extent and Frequency of VT-3 Visual Examination of Metal	(a)(3)(i)	authorized
CIP-6110	IWE-2500(c)(3) & (4), E-C, E-4.12	Augmented Examination of Surface Areas	(a)(3)(ii)	authorized
1202	IWA-5250(a)(2)	Visual examination of bolted connections	(a)(3)(i)	authorized



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

AMERGEN ENERGY COMPANY, LLC

CLINTON POWER STATION

DOCKET NO. 50-461

1.0 INTRODUCTION

In the Federal Register dated August 8, 1996 (61 FR 41303), the Nuclear Regulatory Commission (NRC) amended its regulations to incorporate by reference the 1992 edition with 1992 addenda of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code). Subsections IWE and IWL provide the requirements for inservice inspection (ISI) of Class CC (concrete containment), and Class MC (metallic containment) of light-water cooled power plants. The effective date for the amended rule was September 9, 1996, and it requires the licensees to incorporate the new requirements into their ISI plans and to complete the first containment inspection by September 9, 2001. However, a licensee may propose alternatives to or submit a request for relief from the requirements of the regulation pursuant to 10 CFR 50.55a(a)(3) and (g)(5).

By letter dated May 25, 2000, as supplemented on September 21, 2000, AmerGen Energy Company, LLC, the licensee, proposed several alternatives to the requirements of Subsection IWE of Section XI of the ASME Code for the Clinton Power Station (CPS). The NRC's findings with respect to authorizing the alternative or denying the proposed requests are discussed in this evaluation.

2.0 EVALUATION

The following reliefs (CIP-6101 through CIP-6110) are requested for the first ten-year IWE or IWL inspection interval of the containment inspection program for CPS.

2.1 Relief Request CIP-6101:

2.1.1 Code Requirements:

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.

2.1.2 Requirements from Which Relief is Requested:

Relief is requested from performing the Code-required visual (VT-3) examination on the metal containment seals and gaskets.

2.1.3 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 examination or unusual difficulty without a compensating increase in the level of quality and safety. Testing the seals and gaskets in accordance with 10 CFR Part 50, Appendix J, will provide adequate assurance of the leak-tight integrity of the seals and gaskets.

2.1.4 Alternative Examinations:

The leak-tightness of seals and gaskets will be tested in accordance with 10 CFR Part 50, Appendix J. No additional alternatives to the visual (VT-3) examination of the seals and gaskets are proposed.

2.1.5 Justification for Granting Relief:

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. Seals and gaskets associated with the containment/containment penetrations receive a 10 CFR Part 50, Appendix J leak rate test. As noted in 10 CFR Part 50, 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, de-termination 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 de-termination, 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 10 CFR Part 50, 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.

2.1.6 Staff Evaluation of CIP-6101:

The licensee proposes to use, in lieu of performing the VT-3 examinations for containment penetration seals and gaskets, the existing primary containment leakage testing program for leakage testing containment penetrations in accordance with 10 CFR Part 50, Appendix J.

In its request, the licensee stated that because the seals and gaskets associated with these penetrations are not accessible for examination when the penetration is assembled, containment penetrations seals and gaskets must be disassembled and re-assembled for the purpose of performing the VT-3 visual examination. These activities (a pre-maintenance Appendix J test, de-termination of cables at electrical penetrations if enough cable slack is not available, disassembly of the joints, removal and examination of the seals and gaskets, re-assembly of the joints, re-termination of the cables if necessary, post-maintenance testing of cables, and post-maintenance Appendix J testing of the penetration) associated with a VT-3 visual examination would introduce the possibility of component damage that would not otherwise occur. The periodical test in accordance with 10 CFR Part 50, Appendix J, will detect and measure local leakage of containment or penetrations whose design incorporates resilient seals, gaskets, sealant compounds, and electrical penetrations fitted with flexible metal seal assemblies. If unacceptable leakage is identified during the test, corrective measures would be taken and components be re-tested.

Also, the staff finds that ASME Section XI, 1992 Edition, 1993 Addenda, recognizes that disassembly of joints for the sole purpose of performing visual examination is unwarranted. Requiring the licensee to disassemble components for the sole purpose of inspecting seals and gaskets would place a significant hardship on the licensee without a compensating increase in the level of quality and safety.

On the basis discussed above, the staff concludes that the alternative proposed by the licensee will provide reasonable assurance of the functionality and integrity of the containment penetration seals and gaskets during the testing required by 10 CFR Part 50, Appendix J. The proposed alternative is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the specific requirements of the Code would result in hardship without a compensating increase in the level of quality and safety.

2.2 Relief Request CIP-6102:

2.2.1 Code Requirements:

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

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

2.2.3 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.

2.2.4 Alternative 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.

2.2.5 Justification for Granting Relief:

10 CFR 50.55a was amended in the Federal Register (61 FR 41303) 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. 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.

2.2.6 Staff Evaluation of CIP-6102:

In lieu of using the requirements of Section IWA-2300 of the 1992 Edition and Addenda of ASME Section XI that examination personnel be qualified and certified in accordance with ANSI/ASNT CP-189, "Standard for Qualification and Certification of Nondestructive Testing

Personnel," the licensee proposes to conduct examinations with personnel qualified and certified to a written practice based on SNT-TC-1A and the 1989 Edition of ASME Section XI.

The staff finds that under the current licensee's inspection program, examinations are to be conducted by personnel qualified and certified to a written practice based on SNT-TC-1A in accordance with the 1989 Edition of ASME Section XI. The staff also finds that a written practice based on the requirements of CP-189, as amended by the requirements of Section IWA-2300 to implement Sections IWE and IWL, duplicates efforts already in place for all other subsections. To develop and to administer a second program would constitute a burden, particularly in developing a second written practice, tracking of certifications, and duplication of paperwork. In addition, Section IWA-2300 of the 1992 Edition, 1992 Addenda, states that certification based on SNT-TC-1A are valid until recertification is required. Furthermore, in this request, the licensee indicated that 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.

On the basis discussed above, the staff concludes that developing and implementing two qualification programs for NDE personnel would result in a burden to the licensee. The alternative proposed by the licensee will provide adequate qualifications for personnel performing containment examinations. Therefore, the request for relief is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the specific requirements of the Code would result in hardship without a compensating increase in the level of quality and safety.

2.3 Relief Request CIP-6103:

2.3.1 Code Requirements:

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.

2.3.2 Requirements from Which Relief is Requested:

Relief is requested from the requirement to perform a preservice inspection of the new paint or coatings.

2.3.3 Basis for Relief:

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(i). The CPS Coating Inspection Program currently provides an adequate level of quality and safety.

2.3.4 Alternative Examinations:

The paint and coatings in the containment will be examined in accordance with the CPS 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 Section XI (inquiry

97-22), repairs to the primary containment boundary, if required, would be conducted in accordance with the CPS ASME Section XI Repair/Replacement-Program.

2.3.5 Justification for Granting 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 Section XI rules for repair or replacement in accordance with IWA-4111(b)(5). The adequacy of applied coatings is verified in accordance with CPS Coatings Program. Recording the condition of reapplied coating in the preservice record does not substantiate the containment structural integrity. Should deterioration 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 CPS Coating Program. Recording the condition of new paint or coatings in the preservice record is redundant to the requirements of the CPS Coatings Program, and as such, is an administrative burden without a compensating increase in safety.

2.3.6 Staff Evaluation of CIP-6103:

In lieu of meeting the ASME Section XI, 1992 Edition, 1992 Addenda, Subsection IWE-2200(g) requirements to perform a preservice inspection of new paint or coatings, the licensee proposed to examine the paint and coatings in accordance with CPS Coatings Program. If degradation of the coating is identified, additional measures will be applied to determine if the containment pressure boundary is affected. The licensee also committed that any required repairs to the primary containment boundary would be conducted in accordance with the CPS ASME Section XI Repair/Replacement-Program. The licensee further justified that 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." However, the licensee did not provide details (standards, procedures or guidelines, maintenance activities, etc.) of how the coatings program will be performed in its relief request.

In response to the staff's concerns regarding the CPS Coating Program, the licensee stated that the coatings inside the primary containment structure are considered safety-related. They are applied and inspected in accordance with the CPS Quality Assurance Program. This program, described in Section 6.1.2.1 of the CPS Updated Safety Analysis Report (USAR), identifies that CPS complies with NRC Regulatory Guide 1.54, Rev. 0 (June 1973), "Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants."

Regulatory Guide 1.54 describes a method to comply with the requirements of 10 CFR Part 50, Appendix B, and invokes several American National Standards Institute (ANSI) Standards, including:

1. ANSI N101.2, "Protective Coatings (Paints) for Light-Water Nuclear Reactor Containment Facilities," *
2. ANSI N101A "Quality Assurance for Protective Coatings Applied to Nuclear Facilities," and
3. ANSI N5.12, "Protective Coatings for the Nuclear Industry."

*Note: ANSI N5.12 replaced ANSI N5.9, referenced in ANSI N 101.2, in 1974, prior to CPS obtaining a construction permit.

In addition, the following requirements are applicable to the CPS coatings program:

- (1) The quality assurance requirements of Regulatory Guide 1.54 applicable to the coating manufacturer are imposed on the coating manufacturer through the procurement process.
- (2) Quality Assurance is responsible for auditing coating manufacturer's program and for providing Quality Control inspection services when specified.
- (3) Quality Control Coatings Inspection personnel are certified in accordance with ANSI N45.2.6-1978 to perform inspections to verify conformance to the coating application procedures. In addition, Quality Control Receipt Inspection personnel are certified in accordance with ANSI N45.2.6-1978 to perform receipt inspection of coating materials.
- (4) Coating systems and corresponding surface preparation systems are selected in accordance with requirements specified in CPS design documents and/or design drawings.
- (5) Coating application procedures are developed based on the manufacturer's recommendations for application of the selected coating systems.
- (6) Coating applicators are qualified to ANSI N101.4 and complete the requirements specified in the Facilities Training Program as administered by a designated Qualifying Agent.
- (7) A general walkdown to monitor the condition of safety-related coatings in the primary containment structure is performed by a Level III Coatings Inspector every outage, with the results reviewed by qualified structural engineers.
- (8) Any structures that are not part of the general walkdown of safety-related coatings, or areas where inspection results are inconclusive, will be walked down and documented during periodic monitoring performed in accordance with Nuclear Station Engineering Department Procedure CS-09 "Monitoring of Significant Structures," to be in compliance with 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This periodic monitoring is performed at least once every four (4) refueling outages, not to exceed every ten years, and monitors the condition of coatings on both concrete and steel surfaces in order to identify general coating failures.

- (9) Documentation demonstrating conformance to the above is maintained at CPS.

The staff finds that the alternative program proposed by the licensee, as described above, will provide an acceptable level of quality and safety for protecting the inside steel surfaces of the containment. On this basis, the staff concludes that the licensee's alternative coating program is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(i).

2.4 Relief Request CIP-6104:

2.4.1 Code Requirements:

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.

2.4.2 Requirements 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.

2.4.3 Basis for Relief:

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(i). The CPS Coating Inspection Program currently provides an adequate level of quality and safety.

2.4.4 Alternative Examinations:

The paint and coatings in the containment will be examined using qualified personnel in accordance with existing CPS 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 with the CPS ASME Section XI Repair/Replacement Program.

2.4.5 Justification for Granting Relief:

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. 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 containment 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 Section 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 Section 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.

2.4.6 Staff Evaluation of CIP-6104:

As discussed in the evaluation of Relief Request CIP-6103, the staff finds that the CPS Coating Program will provide an acceptable level of quality and safety for monitoring the proper removal of the old paint and application of new coatings. On this basis, the staff concludes that the alternative coating program proposed by the licensee is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(i).

2.5 Relief Request CIP-6105:

2.5.1 Code Requirements:

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.

2.5.2 Requirements 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.

2.5.3 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 Part 50, Appendix J, provides an adequate level of safety and quality.

2.5.4 Alternative Examinations:

Tests shall be conducted in accordance with 10 CFR Part 50, 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 CPS 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.

2.5.5 Justification for Granting Relief:

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. 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 Part 50, Appendix J, and does not specifically identify a VT-2 visual examination. 10 CFR Part 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)(ix)(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.

2.5.6 Staff Evaluation of CIP-6105:

In lieu of the requirements of Paragraph IWA-5240 of ASME Section XI for the visual examination, VT-2, to be applied following repair, replacement or modification, the licensee proposed that testing shall be conducted in accordance with 10 CFR Part 50, Appendix J. In addition to the pressure test, examinations following repairs or replacements on containment components will be performed in accordance with the CPS ASME Section XI Repair/Replacement Program.

In the "Alternative Examination" and "Justification for Granting Relief" sections, the licensee justified that Table IWE-2500-1 (examination category E-P) requires only an examination method of 10 CFR Part 50, Appendix J, for the containment vessel pressure retaining boundary following each repair, replacement, or modification and does not specifically identify a VT-2 visual examination. Also, 10 CFR Part 50, Appendix J, provides requirements for testing including acceptable leakage criteria and the tests are performed by Appendix J test personnel by utilizing calibrated equipment to determine acceptability. In addition, 10 CFR 50.55a(b)(2)(ix)(E) requires a general visual examination of the containment each period that would identify any structural degradation that may contribute to leakage. However, the licensee did not provide any description to demonstrate that the implementation of this program will meet the requirement of 10 CFR 50.55a(a)(3). In addition, the licensee provided three reasons in its "Justification for Granting Relief": (1) Table IWE-2500-1, Examination Category E-P identifies the examination method of 10 CFR Part 50, Appendix J, and does not specifically identify a VT-2 visual examination, (2) 10 CFR Part 50, Appendix J, provides requirements for testing as well as acceptable leakage criteria, and (3) 10 CFR 50.55a(b)(2)(ix)(E) requires a general visual examination. The staff considered that the first reason merely pointed out an inconsistency in the code, and the second and the third reasons identified existing regulatory requirements without explaining why these requirements provided an acceptable level of quality and safety. As an alternative, the licensee should either (1) conduct a VT-3 (or general) visual examination during or after the pressure test on areas affected by the repair/replacement activity if a pressure test is performed for the leak-tight integrity of the pressure boundary, or (2) perform a VT-1 (or detailed) visual examination on areas affected by the repair/replacement activity if a pressure test is deferred. For the second option, the requirement of IWE-5240 shall be met, when the pressure test is performed.

In response to the staff's concern, the licensee amended the request to include, in the "Alternative Examination" section of Relief Request CIP-6105, that after any repair or replacement affecting the containment pressure boundary, if a pressure test (Type A, Type B or Type C) is performed to verify the leak tight integrity of the affected pressure boundary, a general visual examination of the accessible areas shall be performed during or after the pressure test to ensure the overall integrity of the repaired/replaced component within the containment. For any repair or replacement affecting the containment pressure boundary, where a pressure test is deferred or not performed, a VT-1 or detailed visual examination shall be performed to ensure the overall integrity of the repaired/replaced component with the containment.

As discussed above, the staff finds that the alternative examination as amended proposed by the licensee will provide an acceptable level of quality and safety for protecting the containment pressure boundary integrity. On this basis, the staff concludes that the licensee's alternative coating program is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(i).

2.6 Relief Request CIP-6106:

2.6.1 Code Requirements:

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.

2.6.2 Requirements 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.

2.6.3 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.

2.6.4 Alternative 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.

2.6.5 Justification for Granting Relief:

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. 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 IWE2420(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."

2.6.6 Staff Evaluation of CIP-6106:

The staff finds that when repairs are complete, IWA-4150 requires licensees to evaluate the suitability of the repair. When a repair is required because of failure of an item, the evaluation shall consider the cause of failure to ensure that the repair is suitable. Considering that the failure mechanism is identified and corrected as required and the repair receives preservice examinations, as required, the proposed alternative will provide reasonable assurance of structural integrity. In doing this, the hardship associated with the requirements of successive examinations can be eliminated. Furthermore, IWB-2420(b), IWC-2420(b), and IWD-2420(b) do not require the successive inspection of repairs for ASME Code Class 1, 2, and 3 components as required in IWE-2420(b) for ASME Code Class MC components. On this basis, the licensee's proposed alternative is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the specific code requirements would result in hardship without a compensating increase in the level of quality and safety.

2.7 Relief Request CIP-6107:

2.7.1 Code Requirements:

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.

2.7.2 Requirements from Which Relief is Requested:

Relief is requested from ASME Section XI, 1992 Edition with the 1992 Addenda, IWE Table-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 are required on bolted connections that have not been disassembled during the inspection interval.

2.7.3 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.

2.7.4 Alternative 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 10 CFR Part 50, 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)(ix)(E).

2.7.5 Justification for Granting Relief:

10 CFR 50.55a was amended in the Federal Register (61 FR 41303) to require the use of the 1992 Edition, 1992 Addenda, of ASME 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.

2.7.6 Staff Evaluation of CIP-6107:

In this relief request, the licensee proposed three alternative examinations: (1) in lieu of performing the VT-1 visual examination of the pressure retaining bolting (in accordance with Table IWE-2500-1, examination category E-G, E-8.10), a visual inspection of bolted connections will be performed in accordance with Table IWE-2500-1, Examination Category E-A, (2) in lieu of performing the torque or tension test (in accordance with Table IWE-2500-1, examination category E-G, E-8.20), the leak-tight integrity will be verified in accordance applicable requirements of 10 CFR Part 50, 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)(ix)(E).

The staff agrees with the licensee that the performance of visual examinations on bolted connections in accordance with the 1992 Edition through 1992 Addenda of ASME Section XI represents a hardship (the reexamination of bolted connections unnecessarily increases the number of inservice examinations and the associated radiation exposure to personnel) with no compensating increase in the level of quality and safety. The staff also agrees with the licensee that the 10 CFR Part 50, Appendix J, requirements together with the visual examination (in lieu of performing the VT-1 visual examination of the pressure retaining bolting subject to examination in accordance with Table IWE-2500-1, Examination Category E-G, "Pressure Retaining Bolting") for evaluating inservice effects that could adversely impact the performance of the bolted connections will ensure the leak-tight integrity of the containment structure with bolted connections. However, the licensee did not mention what type of evaluation would be performed for determining the magnitude and extent of degradation if an area is identified to be suspect.

In response to the staff's concern, the licensee stated that as required by the ASME Code Section XI, CPS will examine exposed surfaces of bolting material for defects which may cause the bolted connection to violate either the leak tight or structural integrity. Defective components will be replaced. If general visual examination reveals areas that are suspect, a VT-1 examination shall be performed as required, and if necessary, supplemental examination shall be performed by either surface or volumetric examination. This also may include disassembly of the joint and performance of additional VT-1 examination. The bolted connection will be accepted, by examination, repair, replacement, or evaluation. Any repair/replacement and re-examination will be performed in accordance with the CPS Repair Replacement Program.

For the Code requirements related to bolt torque and tension tests, the staff finds that to perform a bolt torque or tension test on bolted connections that have not been disassembled and reassembled during the inspection interval will cause a hardship without a compensating increase in the level of quality and safety. Determination of the torque or tension value would require that the bolting be un-torqued and then re-torqued or re-tensioned. The staff also finds that the alternate approach (the Type B test required by 10 CFR 50, Appendix J, to verify the

leak-tight integrity of bolted connections for containment vessel leak-tight integrity) will verify the adequacy of the bolted connections to provide a leak rate that is within acceptable limits.

On the basis discussed above, the staff concludes that the licensee's proposed alternative as amended is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the specific code requirements would result in hardship without a compensating increase in the level of quality and safety.

2.8 Relief Request CIP-6108:

2.8.1 Code Requirements:

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 percent and 34 percent. For the second period, the total number of examinations to be completed shall be between 50 percent and 67 percent, and by the end of the third period, 100 percent of the examinations for the entire ten-year interval shall be completed.

2.8.2 Requirements from Which Relief is Requested:

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

2.8.3 Basis for Relief:

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

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

2.8.4 Alternative Examinations:

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

2.8.5 Justification for Granting 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 percent of the examinations to be performed in the second and third periods, but only 34 percent 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 percent completed during the second period.

2.8.6 Staff Evaluation of CIP-6108:

In lieu of meeting the requirements of examination percentages for each refueling outage listed in Table IWE-2412-1, the licensee proposed an alternative to use the recommendation of Code Case N-598 for the required percentages of examination for all Class MC components.

The staff finds that the range of examination completion percentages based on Code Case N-598 allows examinations to be distributed more evenly between outages. The staff also finds that the recommendation of Code Case N-598 provides a more uniform distribution between outages that is more conducive to performing examinations. On this basis, the staff concludes that the licensee's alternative criteria based on Code Case N-598 provides an acceptable level of quality and safety, and is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(i).

2.9 Relief Request CIP-6109:

2.9.1 Code Requirements:

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

2.9.2 Requirements from Which Relief is Requested:

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

2.9.3 Basis for Relief:

Pursuant to 10 CFR 50.55a(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.

2.9.4 Alternative Examinations:

CPS 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.

2.9.5 Justification for Granting Relief:

Code Case-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 percent of the VT-3 examinations on Items E1.12 and E1.20 at the end of the interval. CPS 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 10 CFR Part 50, Appendix J testing, and the visual examinations required by Table IWE-2500-1. The successive inspection requirements of IWE-2420 will be maintained.

2.9.6 Staff Evaluation of CIP-6109:

In lieu of meeting the requirements of Table IWE-2500-1 (1992 Edition), Category E-A, Items E1.12 and E1.20 that 100 percent of VT-3 visual examinations shall be performed at the end of the interval, the licensee proposed to perform the VT-3 visual examinations on accessible surface areas of the containment structure in accordance with Code Case N-601.

The staff finds that to perform visual examinations on the accessible surfaces of the containment structure during the course of inspection interval (based on the recommendation by Code Case N-601 that the VT-3 examinations in Table IWE-2500-1, Category E-A be performed at any time during the interval of inspection) will be more efficient than following the requirements Table IWE-2500-1 (1992 Edition) because in doing this, the integrity of the containment can be better monitored between the 10 CFR Part 50, Appendix J testing, and the visual examinations required by Table IWE-2500-1. On this basis, the staff concludes that the alternative proposed by the licensee based on Code Case N-601 provides an acceptable level of quality and safety, and is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(i).

2.10 Relief Request CIP-6110:

2.10.1 Code Requirements:

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.

2.10.2 Requirements 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.

2.10.3 Basis for Relief:

Relief is requested in accordance with 10 CFR 50.55a(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.

2.10.4 Alternative Examinations:

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

2.10.5 Justification for Granting 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 percent confidence level that the thickness of the base metal is reduced by no more than 10 percent of the nominal plate thickness at 95 percent 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 percent 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 percent 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.

2.10.6 Staff Evaluation of CIP-6110:

In lieu of meeting ASME Section XI, 1992 Edition through 1992 Addenda, Subarticles IWE-2500(c)(3) and (4) that require one-foot square grids be used when ultrasonic thickness measurements are performed on augmented examination surface areas, and the minimum wall thickness within each grid be determined, the licensee proposed to use Code Case N-605 to determine examination requirements for ultrasonic thickness measurements on areas requiring augmented examination.

Under the application of Code Case N-605 rules (as described in the request), Table IWE-2500-2 requires a minimum 100 locations be monitored for a sample area of 50 square feet. According to the licensee, utilizing Table IWE-2500-2 monitors more locations than that determined by the owner (required by the IWE-2500(c)(3) rule). For sample areas greater than 100 square feet, Table IWE-2500-2 requires: (a) sufficient locations be monitored to ensure at least a 95 percent confidence level that the thickness of the base material is reduced no more than 10 percent of the nominal plate thickness at 95 percent of the grid line intersections, and (b) additional examinations be taken when any measurement reveals that the wall thickness is reduced by more than 10 percent of the nominal plate thickness. For all examination areas, Table IWE-2500-2 requires that the minimum wall thickness within each adjoining grid be determined, if the measurements at a grid line intersection reveal that the base material is reduced by more than 10 percent of the nominal plate thickness.

On the basis discussed above, the staff finds that the alternative proposed by the licensee will provide reasonable assurance of the containment (plate) integrity. Therefore, the request for relief is authorized for the first ten-year containment inspection interval of the Clinton containment ISI program pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the alternative provides an acceptable level of quality and safety.

2.11 Relief Request 1202:

2.11.1 Background:

The inservice inspection of the ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (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 preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection 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 120-month interval, subject to

the limitations and modifications listed therein. The applicable ASME Code, Section XI, for the second 10-year ISI interval of CPS is the 1989 Edition.

By letter dated May 25, 2000, as supplemented September 21, 2000, the licensee submitted a request for relief (RR 1202) from certain requirements of the ASME Code, Section XI, 1989 Edition, for the second 10-year inservice inspection interval of CPS. The licensee requests relief from the requirement of the Code stated in Subsection IWA-5250(a)(2) regarding the removal of bolting and performance of a VT-3 visual examination for corrosion if leakage occurs at a bolted connection during the conduct of a system pressure test. The licensee's alternative would allow stoppage of leakage at the bolted connection, or if leakage is not stopped, the connection shall be evaluated for joint integrity in accordance with specified criteria.

The staff has evaluated the licensee's request for relief pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year inservice inspection interval of Clinton Power Station.

2.11.2 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 ASME Code, Section XI, 1989 Edition.

2.11.3 Code Requirements:

ASME Code, Section XI, 1989 Edition, Paragraph IWA-5250(a)(2) states "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."

2.11.4 Relief Requested:

Pursuant to 10 CFR 50.55a(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.

2.11.5 Basis for Relief:

Removal of pressure retaining bolting at mechanical connections for visual, VT-3 examination and subsequent evaluation in locations where leakage has been identified is not always the most prudent course of action to determine condition of the bolting and/or the root cause of the leak.

In addition, later Editions of ASME Section XI have clarified the Code intent and requirement as follows:

If leakage occurs at a bolted connection in a system borted 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.

With the Code change, it is clear that the primary concern is with bolting in borted systems used to control reactivity. Therefore the code requirement in the 1989 Edition to remove and

inspect bolting in all systems is excessively restrictive and would result in a hardship without a compensating level of quality and safety. The alternative proposed will provide an acceptable level of quality and safety.

2.11.6 Alternative Examinations:

As an alternative to IWA-5250(a)(2), CPS will perform the following actions when leakage is identified at bolted connections:

1. The leakage shall be stopped in accordance with approved maintenance procedures, or;
2. If the leakage is not stopped, the joint shall be evaluated for joint integrity. This evaluation shall consider the following criteria:
 - o Number and condition of bolting
 - o Bolting and component material
 - o Leakage location and system function
 - o Corrosiveness of process fluid
 - o Radiological conditions
 - o Previous bolting inspection results
 - o Visual evidence of corrosion at the assembled connection
 - o Leakage monitoring

If any of the above parameters indicates a need for further evaluation, the bolt closest to the source of leakage shall be removed and receive a VT-1 Examination and evaluated in accordance with IWA-3100. If the bolt has evidence of degradation, all remaining bolting shall be inspected or replaced.

2.11.7 Staff Evaluation of 1202:

In accordance with the 1989 Edition of the ASME Code, Section XI, when leakage occurs at bolted connections, all bolting is required to be removed for VT-3 visual examination. In lieu of the Code-required removal of bolting to perform a VT-3 visual examination, the licensee has proposed to perform an evaluation of the bolted connection to determine the susceptibility of the bolting to corrosion and the potential for failure. If the initial evaluation indicates the need for a more in-depth evaluation, the bolt closest to the source of leakage will be removed, VT-3 examined, and evaluated in accordance with IWA-3100. This alternative allows the licensee to utilize a systematic approach and sound engineering judgment, provided that, as a minimum, all of the eight evaluation factors listed in the licensee's proposed alternative are considered. As a result, the licensee's alternative to the Code-required removal of bolting at a joint when leakage occurs will provide an acceptable level of quality and safety, since the integrity of the joint will be maintained.

The staff concludes that the licensee's proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for CPS for the second ten-year inservice inspection interval.

3.0 CONCLUSION:

The NRC staff has reviewed RR CIP-6101 through 6110, and RR 1202. Based on the information provided in the requests, the staff concludes that for RR CIP-6103, 6104, 6105, 6108, 6109, and RR 1202, the licensee's proposed alternatives will provide an acceptable level of quality and safety. Therefore, the proposed alternatives of RR CIP-6103, 6104, 6105, 6108, 6109, are authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the first ten-year containment inspection interval at CPS, and RR 1202 is authorized for the second ten-year inservice inspection interval at CPS. Regarding RR CIP-6101, 6102, 6106, 6107 and 6110, the staff concludes that compliance with the code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and that the licensee's proposed alternatives will provide reasonable assurance of containment pressure integrity. Therefore, these proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the first ten-year containment inspection interval at CPS.

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