



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUESTS FOR CONTAINMENT INSPECTION

CONSUMERS ENERGY COMPANY

PALISADES PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

In *Federal Register* Notice No. 154, Volume 61, dated August 8, 1996, the Nuclear Regulatory Commission published an amendment to its regulations at Section 50.55a of Title 10 of the *Code of Federal Regulations* (10 CFR 50.55a, rule). The rule incorporated 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), and Class MC (metallic) containments of light-water-cooled nuclear power plants. The effective date for the amended rule was September 9, 1996, and it requires licensees to incorporate the new requirements into their ISI plans and to complete the first containment inspection by September 9, 2001. However, a licensee can submit a request for relief from one or more requirements of the regulation (or the endorsed Code requirements) with proper justification. The provision for granting relief is incorporated in the regulation.

This evaluation addresses the acceptability of the requests for relief (Reference 1) proposed by Consumers Energy Company (the licensee) for its Palisades Nuclear Plant.

2.0 RELIEF REQUEST NO. 1

The 1992 Edition of ASME Section XI with the 1992 Addenda, Table IWE-2500-1, Category E-A, Item E1.12, requires VT-3 examination of accessible areas of the containment vessel. Relief is requested from performing the above Code-required examinations since they are a duplication of examinations required by Table IWE-2500-1, Category E-A, Item E1.11 to be conducted periodically during the 10-year inspection interval.

2.1 Licensee's Basis for Requested Relief (as stated)

In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested from performing the above Code required examination since the proposed alternative would

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provide an acceptable level [of quality] and safety while eliminating unnecessary redundancy and reducing personnel dose.

The NRC Final Rule issued on August 8, 1996, revised 10 CFR 50.55a to require implementation of the containment inspection requirements of Subsection IWE of the 1992 Edition of the ASME Section XI Code with the 1992 Addenda. Table IWE-2500-1 Category E-A Item E1.11 requires General Visual examination of accessible surfaces prior to each Type A leak rate test. This requirement was expanded by 10 CFR 50.55a(b)(2)(x)(E) to require that the General Visual examination be performed each period. Performing both a VT-3 and a General Visual examination is redundant. Requiring a VT-3 examination in addition to the General Visual examination requires NDE [nondestructive examination] certified examination personnel in addition to the structural engineering inspectors without a compensating increase in quality or safety.

The Palisades containment inspection program is described in Engineering Manual Procedure EM-09-12, "Containment Inservice Inspection, Testing and Aging Management Program." The General Visual examination of containment surfaces shall be under the direction of a registered Professional Engineer or an individual knowledgeable in the requirements for design, inservice inspection, and testing of Class MC and metallic liners of Class CC components. The examiner shall have visual acuity sufficient to detect evidence of degradation that may affect either the containment structural integrity or leak tightness.

A certified VT-3 examiner shall be capable of detecting the degradation described in IWE-3510.2 and IWE-3510.3. The VT-3 examiner will operate under the direction of the Professional Engineer, and, in essence, both individuals shall be capable of detecting the same types of degradation. The VT-3 examination is redundant to the General Visual examination.

ASME Code, Section XI, Subsection IWE Commentary, IWE Personnel Qualification states, "Because VT-1 and VT-3 visual examination requirements have been deleted and replaced by the detailed and General Visual examinations in Subsection IWE, NDE personnel need not perform these examinations. The general and detailed visual examinations may be performed by engineering personnel. The conduct of these visual examinations shall be directed by the RPE [registered professional engineer] or other knowledgeable individual." This provides further justification for deletion of the VT-3 visual examination requirement and the associated burden of maintaining personnel certifications and redundant NDE program and procedures. The statement suggests that the authors of Subsection IWE did not intend to require both General Visual examination and VT-3 examinations.

Personnel dose would effectively be doubled if both a General Visual examination and VT-3 visual examination must be performed. During the containment coatings and IWE engineering walkdowns conducted during the 1998 refueling outage, Palisades personnel accrued a total dose of 384 mR.

This walkdown was used to validate engineering data necessary for the development of the Palisades IWE program. Based on this work the estimated dose for either a General Visual or VT-3 examination is 100 mR. Therefore, by deleting the redundant VT-3 visual examination, personnel dose will be reduced by approximately 100 mR each inspection period.

## 2.2 Licensee's Proposed Alternate Examination (as stated)

Palisades will perform the General Visual examination of ASME Section XI, Subsection IWE, in lieu of the VT-3 examinations.

## 2.3 Staff Evaluation

Table IWE-2500-1, Examination Category E-A (Item No. E1.12) requires a visual (VT-3) examination of the accessible containment surface areas (E1.12) during the inspection interval. The visual (VT-3) examination specified in Examination Category E-A requires that the visual examination meet the requirements of Subarticle IWA-2200. The requirements specified in Subarticle IWA-2200 were developed for detecting flaws in metal components and, as a result, require that the examination be qualified in many methods of examinations (e.g., radiography, liquid penetrant, magnetic particle, acoustic emissions) that are unnecessary for detecting the expected types of degradation in containment structures such as corrosion. The licensee is required to perform a General Visual examination of the accessible surface areas of the containment (Item No. E.12) once per inspection period pursuant to 10 CFR 50.55a(b)(2)(x)(E). Performing both a VT-3 and a general visual examination is redundant. The general visual examination will be performed by structural engineering inspectors under the direction of a registered professional engineer.

Although the staff finds that a general visual examination is generally sufficient to examine accessible surface areas of the containment vessel, the staff finds that Item E1.12 (accessible surface areas of the containment vessel pressure retaining boundary) includes wetted surfaces of submerged areas. These areas are susceptible to accelerated corrosion that could impair the leaktight integrity of the containment. It is unclear whether the general visual examination is sufficient to detect the degradation mechanisms in these highly susceptible areas of degradation. Thus, the staff is unable to conclude that an acceptable level of safety is provided in the use of a general visual examination in lieu of a VT-3 examination for these susceptible areas of the containment.

Therefore, Relief Request No.1 is denied for the wetted surfaces of submerged areas of the containment vessel pressure retaining boundary. For the remaining accessible surface areas of the containment vessel pressure retaining boundary, the staff concludes that the use of a general visual examination is sufficient to detect the type of degradation that might occur in these areas and, thus, provides an acceptable level of quality and safety.

The licensee's proposed alternative in Relief Request No.1 for the accessible surface areas of the containment vessel pressure retaining boundary except for the wetted surfaces of submerged areas is therefore authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that it provides an acceptable level of quality and safety.

### **3.0 RELIEF REQUEST NO. 2**

ASME Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1, Category E-G, requires in Item E8.20 that bolt torque or tension tests be conducted on 100 percent of bolts on containment pressure boundary, during each inspection interval. Relief is requested for ASME Section XI, 1992 Edition with 1992 Addenda, Table IWE-2500-1, Examination Category E-G, "Pressure Retaining Bolting," Item 8.20. Specifically, relief is requested from the requirement to perform bolt torque or tension testing on bolted connections that have not been disassembled and reassembled during the inspection interval.

#### **3.1 Licensee's Basis for Requested Relief (as stated)**

In accordance with 10CFR50.55a(a)(3)(i), relief is requested from performing the above Code required examination since the proposed alternatives would provide an acceptable level of quality and safety.

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 requires the bolting be detorqued or detensioned and retorqued or retensioned. This is considered a maintenance activity in accordance with Palisades Administrative Procedure 5.01, "Processing Work Requests/Work Orders."

Table IWE-2500-1, Item E8.10 requires VT-1 examination of 100% of each bolted connection during each inspection interval to detect signs of deterioration. These examinations do not require disassembly of the connection solely for the performance of surveillance activities.

Appendix J leak rate testing is also conducted during each inspection interval to assure leak tightness of the containment and penetrations. The Appendix J, ILRT [integrated leak rate testing] performed once per 10-year interval, applies pressure in a manner which increases the sealing capability of the affected bolted connections. Additionally, local leak rate testing confirms satisfactory performance of individual penetrations. These facts minimize the importance of bolt torque or tension for these connections. These activities have demonstrated their acceptability in assuring structural integrity or leak tightness and, thus, adequate torque or tension of containment bolted connections.

Torque or tension testing is not required on any other ASME Section XI, Class 1, 2 or 3 bolted connection or their supports as part of the inservice inspection program.

#### **3.2 Licensee's Proposed Alternate Examination (as stated)**

The General Visual examination required by Table IWE-2500-1 Category E-A, Item E1.11, conducted during each inspection period, shall be performed to detect signs of deterioration in bolted connections that could affect leak tightness.

This General Visual examination shall be coordinated with the Engineering Manual Procedure EM-09-10, "Palisades ILRT/LLRT [local leak-rate test] Program," Appendix J, pre-ILRT examination.

In addition, Table IWE-2500-1 Category E-G, Item E8.10 requires a VT-1 examination of each bolted connection during the interval. The above described examinations and testing provide reasonable assurance of structural integrity and leak tightness of containment bolted connections.

Appendix J, ILRT and local leak rate testing shall be conducted as required by Plant licensing commitments to assure leak tightness of the containment. These activities have demonstrated their acceptability in assuring structural integrity and leak tightness and, thus, adequate torque or tension of containment bolted connections.

Relief is requested in accordance with 10CFR50.55a(a)(3)(i) from performing the Code required examination since compliance with the proposed alternative will provide an adequate level of quality and safety. Prior NRC approval is required before implementing the proposed alternative.

### **3.3 Staff Evaluation**

The Code requires that pressure-retaining bolting that has not been disassembled and reassembled during the inspection interval be torque or tension tested. This examination is used to aid in the determination that a leak-tight seal exists and that the structural integrity of the subject bolted connections is maintained. The licensee proposed to use the 10 CFR Part 50, Appendix J, ILRT test and local leak-rate tests with general visual examination and VT-1 examination as an alternative to the Code requirement to verify the integrity of penetrations with bolted connections.

The staff agrees with the licensee's position that the Appendix J tests with the IWE examinations will provide an adequate test to ensure the leak tightness of the containment pressure boundary and, thus, will verify the adequacy of the torque or tension of containment bolted connections. Therefore, the licensee's proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that it provides an acceptable level of quality and safety.

### **4.0 RELIEF REQUEST NO. 3**

IWE-2500, Table IWE-2500-1, Category E-D, Item Numbers E5.10 and E5.20, requires seals and gaskets on airlocks, hatches, and other devices to be visually examined (VT-3) once each interval to assure containment leak-tight integrity. Relief is requested from performing the Code-required visual examination (VT-3) on the above identified metal containment seals and gaskets since compliance with specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

#### 4.1 Licensee's Basis for Requested Relief (as stated)

In accordance with Engineering Manual Procedure EM-09-10, "Palisades ILRT/LLRT Program," seals and gaskets receive a 10CFR50, Appendix J test. As noted in 10CFR50 Appendix J, the purpose is to measure leakage of containment or penetrations whose design incorporates resilient seals, gaskets or sealant compounds, and electrical penetrations fitted with seal assemblies.

Physical examination of seals and gaskets would 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, retermination of the cables, if necessary, post maintenance testing of the cables, and a post maintenance Appendix J test of the penetration. Additionally, removal of electrical penetration seals for examination would require replacement of the seals or the seals would be returned to the vendor for reassembly.

The work required for the Containment Hatches would be similar except for the determination, retermination, and testing of cables. Not only does this require the use of outage staff hours, but imposes a risk that equipment could be damaged. The 1995 Edition of Section XI recognizes that disassembly of joints to perform these examinations is not warranted. Note 1 in Examination Category E-D was modified in the 1995 Edition of Section XI to state that "Sealed or gasketed connections need not be disassembled solely for performance of examinations." However, without disassembly, most of the surface of the seals and gaskets would be inaccessible. Therefore, the examination would be meaningless.

Seals and gaskets are not part of the containment pressure boundary under current ASME Section III rules (NE-1220(b)). When the airlocks and hatches containing these materials are tested in accordance with 10CFR50 Appendix J, degradation of the seal or gasket material would be revealed by an increase in leakage rate. Corrective measures would be applied in accordance with Palisades Administrative Procedure 3.03, "Corrective Action Process," and the component retested. Repair or replacement of seals and gaskets is not subject to Code (1992 Edition, 1992 Addenda) rules (IWA-4111(b)(5)).

Relief is requested in accordance with 10CFR50.55a(a)(3)(ii), since compliance with specified requirements would result in undue hardship or unusual difficulty without a compensating increase in the level of quality or safety.

#### 4.2 Licensee's Proposed Alternate Examination (as stated)

As an alternative, seals and gaskets will be tested in accordance with 10CFR50 Appendix J as described in Engineering Manual Procedure EM-09-10, "Palisades ILRT/LLRT Program." Performance of Appendix J, Type B testing is performed

at least once per refueling cycle or when the penetration is opened for maintenance or containment access. This testing is conducted more frequently than the specified VT-3 examination. Also, Appendix J testing provides quantitative data indicating actual component performance verses the qualitative data provided by a VT-3 examination.

Seals and gaskets shall be examined, without disassembly of the joint, during the General Visual examination conducted once per inspection period.

The Palisades' Predetermined Periodic Activity Control Program described in Administrative Procedure 5.19 directs the replacement of seals and gaskets at periodic intervals. These replacements shall continue to assure the subject seals and gaskets will not remain in service beyond their useful service life.

Nitrogen gas cylinders are used to maintain an inert gas blanket on the internal connections of the containment electrical penetrations. Each electrical penetration room has its own nitrogen blanket supply system that provides low pressure nitrogen to the internals of the penetration canisters. If a penetration seal developed a leak, usage of nitrogen would increase and be detected. Corrective actions would be taken in accordance with Palisades Administrative Procedure 3.03, "Corrective Action Process."

#### 4.3 Staff Evaluation

The licensee proposes to use the existing 10 CFR Part 50, Appendix J, Type B testing as a verification of seal and gasket integrity, rather than disassembling the subject components for the sole purpose of examination.

Performing the VT-3 examination on the subject gaskets and seals would require determining cables at electrical penetrations (if adequate cable slack is not available), disassembling the joint, removing and examining the gaskets and seals, reassembling the joint, reterminating the cables, post-maintenance testing of the cables, and post-maintenance Appendix J testing. The 1993 Addenda to ASME Code, Section XI has recognized that disassembly of joints for the sole purpose of performance of the 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 quality and safety.

The staff finds that reasonable assurance of the functionality and integrity of the containment penetration seals and gaskets will be provided during the Type B testing required by 10 CFR Part 50, Appendix J. Therefore, the proposed alternative is authorized 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 or unusual difficulty without a compensating increase in the level of quality and safety.

## 5.0 RELIEF REQUEST NO. 4

Subparagraph IWL-2521(b) requires "One tendon of each type (as defined in Table IWL-2521-1) shall be selected from the first year inspection sample and designated as a common tendon. Each common tendon shall be examined during each inspection." Relief is requested from performing the above required selection, since the proposed alternative will provide an acceptable level of safety and quality.

### 5.1 Licensee's Basis for Requested Relief (as stated)

Selection of common tendons after 25 years of tendon surveillance would not result in any increase in quality or safety.

The Palisades Tendon Surveillance Program is described in Engineering Manual Procedure EM-09-12, "Containment Inservice Inspection, Testing and Aging Management," and is based on the requirements of Plant Technical Specification [TS] 4.5 through amendment 183, dated June 10, 1998.

During the 1-year and 3-year surveillances, lift-off forces for the surveillance tendons were determined using the "change in sound" approach. This procedure involved tapping the shims with a hammer while increasing the tendon tension until the ringing sound of any given shim was replaced by a dull thud, thus indicating that the struck shim was no longer in compression.

During the 3-year surveillance, a new approach known as the "all shims loose" approach was evaluated and instituted during expanded scope testing. This procedure involved tapping the shims with a hammer while increasing tendon tension until all shims (ie, both halves of a single shim) were displaced by the hammer. The "all shims loose" approach was adopted for all subsequent surveillances.

A correlation of the "change in sound" to the "all shims loose" approach was not performed, nor was it required, during the 3-year surveillance. At this point in plant life, it is not possible, nor is it prudent to perform such correlation. Palisades completed the 25-year surveillance during the summer and early fall of 1997. At most three additional surveillances will be performed during the remaining plant life. The value of selecting common tendons from the first year surveillance would not provide any useful data regarding the rate of prestress loss.

### 5.2 Licensee's Proposed Alternate Examination (as stated)

The surveillance tendons shall be randomly but representatively selected from each group to meet the requirements of IWL and the Technical Specifications as reflected in the following table:



<b>Tendon Category</b>	<b>Required Minimum (Tech Spec 4.5.4b)</b>	<b>Required Maximum (Table IWL-2521-1)</b>
Dome (165)	4	5
Vertical (178)	4	5
Hoop (502)	5	5

For each inspection, the tendons shall be selected on a random basis except that those tendons whose routing has been modified to clear penetrations shall be excluded from the sample. This plan is presently described in Palisades Plant Technical Specification 4.5.

All Technical Specification 4.5 requirements shall apply to the tendons surveillance program. After ASME Section XI, Subsection IWL is fully implemented, Palisades currently intends to submit a Technical Specification Change Request to delete Specification 4.5.

### **5.3 Staff Evaluation**

The staff does not agree with the licensee's statement that selection of common tendons after 25 years of tendon surveillance would not result in any increase in quality or safety. It is known that any decrease in the prestressing force is due to the time dependent factors (i.e., stress relaxation in the wire, temperature variation of the wire, shrinkage, creep, and temperature deformation in concrete, differential thermal expansion or contraction between the concrete and the tendon, and reduction in cross section of the wires due to corrosion). The observed data from the common tendons is one method that establishes tolerance limits for the prestressing force, and provides a correlation among the observed data. In Regulatory Guide 1.35, the staff recommends testing one tendon from each group that was previously tested (common tendon) to develop a history of tendon behavior and correlate the observed data to previous data. Additionally, it is a requirement of IWL-2521 that one tendon of each type (as defined in Table IWL-2521-1) shall be selected from the first year inspection sample and designated as a common tendon, and each common tendon shall be examined during each inspection. Based on these reasons, the staff denies the requested relief.

### **6.0 RELIEF REQUEST NO. 5**

ASME Section XI, 1992 Edition, 1992 Addenda, IWL-2310, Visual Examination and Personnel Qualification, and IWA-2210, Visual Examinations, require specific illumination and maximum direct examination distance for all concrete surfaces. Relief is requested for Table IWA-2210-1, Visual Examination Requirements, for minimum illumination and maximum direct examination distance of Class CC components under IWL-2310. Direct visual VT-3 examinations require a minimum illumination of 50-foot candles, and a maximum examination distance of 4 feet.

6.1 Licensee's Basis for Requested Relief (as stated)

Relief is requested in accordance with 10CFR50.55a(a)(3)(ii), since compliance with specified requirements would result in undue hardship or unusual difficulty without a compensating increase in the level of quality or safety.

10CFR50.55a was amended in the Federal Register (61FR41303) to require the use of the 1992 Edition, 1992 Addendum of Section XI when performing containment examinations. In addition to the requirements of Subsection IWL, the rulemaking also imposes the requirements of Subsection IWA of the 1992 Edition, 1992 Addendum, of ASME Section XI for minimum illumination and maximum direct distance of Class CC components, specifically for the examination of concrete under IWL-2510.

Accessibility to the higher portions of the containment liner plate makes it difficult to obtain the maximum direct examination distance and minimum illumination requirements. Meeting these requirements would require the installation of extensive temporary scaffold systems or a climbing scaffold system to access these portions of the containment. These scaffolds would provide limited access due to containment geometry restrictions, as well as, structural and equipment interferences. Many scaffold locations are located in higher radiation fields and worker dose would be increased. Scaffold installation and removal would be required at extremely elevated locations (>100 feet) and personnel safety risks would be significant. Relief is provided for this case by 10 CFR 50.55a(b)(2)(x)(B).

Accessibility to the higher portions of the exterior containment reinforcing concrete makes it difficult to obtain the maximum direct examination distance requirements. Meeting this requirement would require the installation of a portable man-basket system capable of rotating and elevating to access all portions of the containment exterior. Installation of such a system requires the use of special equipment to lift the system to the containment dome. Once installed, the system requires monitoring by security, operations and maintenance personnel in order to prohibit unauthorized access to secure plant areas, to assure Plant power lines and other components are not affected during changing weather conditions and to maintain electrical and mechanical service to the system.

The NRC staff received seven comments which were consolidated into Public Comment # 2.3 in Part III of Attachment 6A to SECY-96-080. The Staff response to these comments is as follows, "Comments received from ASME members on the containment committees indicate that the newer, more stringent requirements of IWA-2210 were not intended to be used for the examination of containments and were inadvertently included in Subsection IWL. The NRC agrees that remote examinations are the only practical methods for inspection of much of the containment surface area. 10CFR50.55a(b)(2)(x)(B) has been added to the final rule which contains alternative lighting and resolution requirements which may be

used in lieu of those contained in IWA-2210-1." However, as specified within 10CFR50.55a(b)(2)(x)(B) of the final rule, this alternative applies to Subsection IWE, only.

## 6.2 Licensee's Proposed Alternate Examination (as stated)

When performing remotely the visual examinations required by Subsection IWL, Section IWL-2510, the maximum direct examination distance may be extended and the minimum illumination may be decreased from those required in Table IWA-2210-1, provided that the conditions or indications for which visual examination is performed can be detected at the chosen distance and illumination.

## 6.3 Staff Evaluation

The staff finds that compliance with the requirements specified in Table IWA-2210-1 for direct visual VT-3 examinations for concrete containment would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. On this basis, the alternative proposed by the licensee is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

## 7.0 RELIEF REQUEST NO. 6

ASME Section XI, 1992 Edition, Paragraph IWE-5240, titled "Visual Examination," states that the requirements of IWA-5240 for visual examination VT-2 are applicable following repair, replacement, or modification. Relief is requested from the requirement to perform VT-2 visual examination in connection with system pressure testing following repair, replacement, or modification under Article IWE-5000.

### 7.1 Licensee's Basis for Requested Relief (as stated)

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(i), since the proposed alternative will provide an acceptable level of quality or safety.

IWE-5210 states that except as noted within IWE-5240, the requirements of IWA-5000 are not applicable to Class MC or CC components. IWE-5240 states that the requirements of IWA-5240 for visual examinations are applicable. 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 system pressure test.

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, Table IWE-2500-1 requires visual examinations of the containment

each interval 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. The presence of a VT-2 examiner in addition to Appendix J test personnel is inconsistent with ALARA [as low as reasonably achievable] good practices and duplicates effort without a compensating increase in safety or quality.

#### **7.2 Licensee's Proposed Alternate Examination (as stated)**

Testing shall be conducted in accordance with 10 CFR 50, Appendix J, in lieu of IWE-5240.

Additionally, post maintenance or modification examinations required by Table IWE-2500-1 shall be performed prior to returning affected areas to service.

#### **7.3 Staff Evaluation**

The Code requirement in IWE-5240 is related to the repair/replacement (R/R) of the containment system. As clarified in Information Notice 97-29, "Containment Inspection Rule," the IWE and IWL requirements for R/R were effective from September 9, 1996. The staff had considered relief from the R/R requirements up to September 9, 1997, as reasonable. As the licensee had not requested relief from this provision during that time, the staff assumed that the licensee was complying with Code requirement for R/R activities. The staff finds that a VT-2 examination of the pressure retaining components after major R/R activities involving these components provides assurance of the adequacy of R/R. The Appendix J test alone does not provide sufficient verification of R/R, and it is not a hardship to perform a VT-2 examination. The licensee has not made an acceptable case pursuant to either 10 CFR 50.55a (a)(3)(i) or (a)(3)(ii) to substantiate the relief request. The staff denies the requested relief.

#### **8.0 RELIEF REQUEST NO. 7**

ASME Section XI, 1992 Edition, Paragraph IWE-2420(b) requires that when component examination results require evaluation of flaws, areas of degradation, or repairs in accordance with IWE-3000, and 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 IWE-2411 or IWE-2412, in accordance with Table IWE-2500-1, Examination Category E-C.

ASME Section XI, 1992 Edition, Paragraph IWE-2420(c) requires that when reexaminations required by IWE-2420(b) reveal that flaws, areas of degradation, or repairs remain essentially unchanged for three consecutive inspection periods, the areas containing such flaws, degradation, or repairs no longer require augmented examination in accordance with Table IWE-2500-1, Examination Category E-C.

Relief is requested from the requirement to perform successive examinations for repairs as required by IWE-2420(b) and IWE-2420(c).

### 8.1 Licensee's Basis for Requested Relief (as stated)

Relief is requested in accordance with 10 CFR 50.55a(a)(3)(ii), since compliance with specified requirements would result in undue hardship or unusual difficulty without a compensating increase in the level of quality or safety.

The purpose of a repair is to restore the component to an acceptable condition for continued service in accordance with the acceptance standards of IWE-3000. 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 IWB-2420(b), IWC-2420(b), nor IWD-2420(b) requires a repair to be subjected 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.

In their resolution to public comment # 3.3, 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."

The requirement to perform successive examinations following repairs has been removed in the 1997 Addenda of ASME Section XI. This addenda was published on December 31, 1997.

### 8.2 Licensee's Proposed Alternate Examination (as stated)

Examination of repairs shall be performed in accordance with the requirements of IWA-4150, "Verification of Acceptability."

### 8.3 Staff Evaluation

IWB-2420(b) and IWD-2420(b) for ASME Code Class 1, 2, and 3 components do not require the successive inspection of repairs as required in IWE-2420(b) for metal containments. Additionally, when repairs are complete, IWA-4150 requires licensees to evaluate the suitability of the repair. When repair is required because an item fails, 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. Performance of the successive examinations presents an unnecessary burden on the licensee without a compensating increase in safety. Therefore, the licensee's proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

## 9.0 CONCLUSION

Based on the review of the information provided in the requests for relief, the staff concludes that Relief Requests 2 and a portion of Relief Request 1 are authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the alternative provides an acceptable level of quality and safety. For Relief Requests 3, 5, and 7, the staff concludes that compliance with the specified Code requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and the alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(ii). However, the staff denies Relief Requests 1, 4, and 6. Relief Request 1 is partially denied on the basis that a general visual examination, in lieu of a VT-3 examination, would not provide the same level of quality examination. Relief Request 4 is denied on the basis that it is important to keep common tendons to develop a history of tendon behavior, correlate the observed data to previous data, and meet the guidance of Regulatory Guide 1.35 and the requirements of IWL-2521. Finally, Relief Request 6 is denied on the basis that the licensee did not provide sufficient information to demonstrate the acceptability of the alternatives pursuant to either 10 CFR 50.55a(a)(3)(i) or (a)(3)(ii).

## 10.0 REFERENCE

Letter, N. L. Haskell (Consumers Energy) to NRC, "Inservice Testing Relief Requests Relating to ASME Section XI, Subsections IWE and IWL," dated October 8, 1998.

Principal Contributor: Y. Kim

Date: July 26, 1999

Mr. Nathan L. Haskell  
Director, Licensing  
Palisades Plant  
27780 Blue Star Memorial Highway  
Covert, MI 49043

July 26, 1999

SUBJECT: PALISADES PLANT - EVALUATION OF RELIEF REQUESTS FOR INSERVICE  
INSPECTION RELATING TO ASME SECTION XI, SUBSECTIONS IWE AND IWL  
(TAC NO. MA3810)

Dear Mr. Haskell:

We have completed our review of the requests for relief submitted for the Palisades Nuclear Plant in your October 8, 1998, letter.

Based on the review of the information provided in the requests for relief, the staff concludes that Relief Request 2 and a portion of Relief Request 1 are authorized pursuant to Title 10 of the *Code of Federal Regulations*, Section 50.55a(a)(3)(i) (10 CFR 50.55a(a)(3)(i)), on the basis that the alternative provides an acceptable level of quality and safety. For Relief Requests 3, 5, and 7, the staff concludes that compliance with the specified American Society of Mechanical Engineers Boiler and Pressure Vessel Code requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety, and the alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(ii). However, the staff has partially denied Relief Request 1 and has denied Relief Requests 4 and 6. Relief Request 1 is partially denied on the basis that a general visual examination, in lieu of a VT-3 examination, would not provide the same level of quality examination. Relief Request 4 is denied on the basis that it is important to keep common tendons to develop a history of tendon behavior, correlate the observed data to previous data, and meet the guidance of Regulatory Guide 1.35 and requirements of IWL-2521. Finally, Relief Request 6 is denied on the basis that sufficient information was not provided to demonstrate the acceptability of the alternatives pursuant to either 10 CFR 50.55a(a)(3)(i) or (a)(3)(ii).

If you have any questions regarding this letter or the enclosed safety evaluation, please contact Robert Schaaf at (301) 415-1312.

Sincerely,

Original signed by:  
Claudia M. Craig, Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-255

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