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DUKE POWER

OFFICE OF SECRETARY
DOCKETING & SERVICE

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April 21, 1994

Secretary of the Commission,
U S Nuclear Regulatory Commission,
Washington, DC 20555

Attention: Docketing and Service Branch

Subject: Proposed Rule to Incorporate ASME Section XI, Subsections IWE and IWL, 1992 Edition through 1992 Addenda into the Code of Federal Regulations, 10 CFR Part 50. Comments and Suggestions

Duke Power Company has reviewed the subject proposed rule and recommends that 10CFR50.55a not be amended to incorporate the proposed rule to adopt ASME Code Subsections IWE and IWL.

General visual examinations performed in accordance with the provisions of 10CFR50, Appendix J, in conjunction with our tendon inspection program, have provided a satisfactory level of assurance of containment integrity at Duke Power's nuclear stations and have enabled us to document and correct potential problems before safety has been jeopardized. Because of these inspections, Duke Power does not believe that the expedited examinations as specified in the proposed rule are warranted or cost effective. It is acknowledged, however, that supplemental guidance to promote consistent and uniform containment inspections could be beneficial.

Many of the provisions in the 1992 Edition, 1992 Addenda of Section XI, Subsections IWE and IWL are not clear and appear to be of questionable value in assuring containment integrity. Examples of the concerns and questions relative to Subsections IWE and IWL (1992 Edition with the 1992 Addenda) are attached.

Contrary to the statements in the proposed rule, imposition of Subsections IWE/IWL as presently written in the 1992 Edition, 1992 Addenda of ASME Section XI and the requirement to complete the first inspections within a 5 year time frame constitutes a backfit and should require a backfit analysis. Of primary concern are the hardships in terms of additional personnel, the limited number of outages during any five year period in which the proposed expedited inspections would be required, potential outage delays necessary to

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implement an expedited schedule and the difficulty in interpreting the intent of Subsections IWE/IWL. Specific comments regarding the proposed rule are as follows:

1. Because general visual examinations of all accessible internal and external surfaces of our containments are performed frequently (prior to each Type "A" test), these visual inspections provide a greater opportunity to identify potential containment degradation than the more stringent VT-1 and VT-3 visual examinations of containment segments as specified in Subsection IWE. VT-1 and/or VT-3 examinations of containment surfaces should be required only when evidence of potential degradation is discovered.
2. The proposed rules do not specifically address the need to identify and eliminate sources of potential containment degradation. Also, in order to prevent further degradation of containment, provisions should be made in the rule to promote repair of protective coatings on containment surfaces as soon as practical after degradation is found.
3. The proposed rules do not place enough emphasis on prevention of containment degradation in areas that are inaccessible. Additional emphasis should be placed on inspection of water tight seals between critical components in order to protect inaccessible areas. Some moisture barriers exhibit significant displacements during Type "A" tests which can cause degradation or failure of these joint sealants, and it is recommended that the proposed rule be revised to require that these areas be inspected more frequently than specified in IWE. Repair or replacement of these moisture barrier materials should be required as soon as practical after any degradation is found to prevent potential degradation of inaccessible containment areas.
4. In the proposed rule, several references are made to establishment of a baseline for condition of the containment. It is suggested that the rule clarify that baseline examinations shall be satisfied by completing the required examinations for the first inspection interval. These provisions do not require 100% examination of all items.
5. Paragraph 50.55a(b)(2)(ix)(B) requires that "An Engineering Evaluation Report must be prepared as prescribed in IWL-3300(a), (b), (c), and (d) when evaluation of consecutive surveillances of prestressing forces for the same tendon or tendons in a group indicates a trend of prestress loss such that the tendon force(s) would be less than the minimum design prestress requirements before the next inspection interval." The intent of this requirement is not clear. Duke Power recommends that paragraph 50.55(a)(b)(2)(ix)(B) be revised as follows:

An Engineering Evaluation Report must be prepared as prescribed in IWL-3300(a), (b), (c), and (d) when evaluation of 3 or more consecutive surveillances of prestressing forces for the same tendon or tendons in a group indicates a trend of prestress loss such that the tendon force(s) would be less than the minimum design prestress requirements before the

next inspection interval.

Data collected from at least 3 consecutive surveillances is needed to provide a sufficient sample for extrapolation of tendon prestress losses.

6. Paragraph 10CFR50.55a(b)(2)(ix)(D)(3) requires that the ISI Summary Report include any indications of grease leakage during general visual examination of the containment surface. Grease stains on the exterior of the containment surface are not an unusual occurrence. Our experience has shown that the stains are primarily from oils produced as a result of separation of the tendon grease. Investigation has shown that this separation does not threaten the corrosion protection of the tendons and the stains on the containment do not threaten the integrity of the concrete. Although the occurrences continue to be monitored, inclusion of each occurrence in the ISI Summary Report would not provide any meaningful information. Items (1) and (2) under paragraph 10CFR50.55a(b)(2)(ix)(D) should provide enough information concerning the status of the corrosion protection medium around the tendons.

7. Paragraph 50.55a(b)(2)(ix)(E) requires that "The licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas." These provisions should also be extended to apply to examination of Class MC and metallic liners of Class CC components. The proposed rule does not appear to require that this type of assessment be made for Class MC and liners of Class CC components.

8. Paragraph 10CFR50.55a(b)(2)(x) states the following: "Licensees that have less than 2 years remaining in their present 120 month inservice inspection interval on (effective date of the final rule) may defer completion of the Subsection IWE and Subsection IWL portions of the inspection plan for the next 120 month interval for up to 2 years from the end of the present interval". It is suggested that this paragraph be clarified to confirm that if the rule is implemented, all utilities will have 5 years from date of implementation to complete the expedited inspections. The two years of grace only applies to completion of the IWE/IWL portions of the ISI plan necessary for the forthcoming interval.

9. Paragraph 10CFR50.55a(g)(6)(ii)(B)(1) requires that licensees conduct the first containment examinations in accordance with Subsection IWE and Subsection IWL (1992 Edition with the 1992 Addenda) modified by proposed paragraph 10CFR50.55a(b)(2)(ix) within 5 years of the effective date of the final rule. It is understood that the intent of this requirement is to expeditiously ascertain the status of containments. It is suggested that alternative guidelines to those presented in IWE/IWL be generated to satisfy the need for an immediate evaluation of containment surfaces. These guidelines should emphasize inspection of areas that industry experience has identified as susceptible to degradation. As previously stated, the requirements set forth in Subsections IWE/IWL (1992 Edition with the 1992

Addenda) require refinement and evaluation to increase clarity and to ensure that the additional inspections add value. Implementation of Subsections IWE and IWL (1992 Edition with the 1992 Addenda) in such a short time frame will create a hardship. The following are expected obstacles:

- a) The additional IWE/IWL inspections would represent new costs; however, the necessary personnel resources would either be siphoned from the existing ISI workforce or contracted specifically for the IWE/IWL inspections. Based on the estimate of 4,000 hours per response for development of an initial inservice inspection plan and 10,000 hours to execute the examinations and maintain the plan, the additional cost to Duke Power would be \$800,000 per unit or a total of \$5,600,000 for all seven Duke Power nuclear units. It is expected that the actual cost will be increased by the need to work overtime hours, the need to hire contract personnel, and the real possibility of delay in outage schedule.
- b) Because of extended core cycles, the nuclear units may have a maximum of three scheduled outages within any five year period. Realistically, only two outages could be expected to be available to execute the proposed expedited IWE/IWL inspections. Although the requirement to execute a ten year inspection plan in five years may appear to only cut the normally allowed time in half, the five year time frame actually reduces the allowable time by two thirds. Essentially, a utility would be expected to complete a 100% surface inspection of the containment in one period (two outages) of a 10 year interval. Industry goals are to continue to increase core cycle time and reduce outage length. With fewer outages per period and reduced time per outage, meeting the present Section XI requirements for inservice inspection may not be possible. The inspections required by the 1992 Edition, 1992 Addenda of Section XI, Subsections IWE/IWL are labor intensive and time consuming. To complete these inspections within the expedited time frame would require extended outages and substantially increased cost with no significant enhancement to plant safety.
- c) A review of Subsections IWE and IWL (1992 Edition with the 1992 Addenda) raises numerous questions which will require interpretation by the ASME Section XI Code Subcommittee. It can also be expected that several requests for relief will be filed in order for specific plants to comply with the intent of the Code and the proposed rule. Of particular concern is the use of VT-1, VT-3, VT-1C, VT-3C inspections as the primary method for surface inspection in IWE and IWL respectively. The requirements in Section XI (1992 Edition, 1992 Addenda) for these inspections contradict the apparent intent of Subsections IWE and IWL to allow remote inspections. The lack of quantitative acceptance standards for these visual inspections is of particular concern. Without understandable acceptance standards, acceptance by examination is not a viable option. Although Subsection IWL does appear to allow the Licensee to develop acceptance standards, Subsection IWE does not address such an option.

10. Subsections IWE and IWL refer to paragraphs in other Subsections (IWA, IWB, IWC, and IWD), some of which only exist in the 1992 Edition, 1992 Addenda of ASME Section XI. It is normally understood that when any part of the code is adopted, all references in that part are to the same edition and addenda as the part adopted (reference 10CFR50.55a paragraph (g)4(iv) and Section XI paragraph IWA-2413 and associated footnote). If it is the intent of the NRC to allow the use of other editions of the code as reference (example, the code edition to which the utility is currently committed), it should be clearly stated in the rule. An example of the benefit of this flexibility is that it would allow utilities to continue using visual inspection criteria in accordance with Subsection IWA of the code edition to which they are committed versus those in the 1992 Edition.

11. Paragraph 10CFR50.55a(g)(6)(ii)(B)(2) allows the expedited examinations to be used to satisfy the requirements of routinely scheduled examinations of Subsection IWE subject to IWA-2430(c). Paragraph IWA-2430(c) only refers to Inspection Program A. It is suggested that Paragraph 10CFR50.55a(g)(6)(ii)(B)(2) be increased in scope to include Inspection Program B as referenced in IWA-2430(b). Paragraph 10CFR50.55a(g)(6)(ii)(B)(2) should also be clarified to specifically state the intent to allow inspections performed during the 5 year expedited schedule to be used to satisfy the requirements of routinely scheduled examinations of Subsection IWE for any period of a new 120 month inspection interval whenever the expedited inspections overlap. In addition, the rule should accommodate completion of inspection program requirements specified in IWA-2430(c) and (b) when the 5 year expedited inspections start at the beginning of a new interval.

12. Paragraph (g)(6)(ii)(B)(3) appears to allow the licensees to use their existing post-tensioning inspection program versus the rules in IWL to satisfy the expedited inspection requirements. The intent of this paragraph requires clarification.

13. The rule should provide more guidance concerning implementation of Subsection IWL. Suggestions are as follows.

- a) Specify that licensees with plants that have operated for more than 5 years and that have performed post-tensioning testing at 1, 3 and 5 year intervals need not repeat the 1, 3, and 5 year sequence when Subsection IWL is implemented. For those plants, inspections may begin at 5 year intervals and at the inspection period in Table IWL-2521-1 which coincide with plant history.
- b) Specify that when implementing Subsection IWL, licensees may use the reduced sample size listed in Table IWL-2521-1 for the 10th year inspection and subsequent inspections when the acceptance criteria required by their existing programs were met by each of the earlier inspections.

In summary, Duke Power strongly recommends that the proposed rule not be implemented.

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Our present inspection program is sufficient to ensure that containment integrity is maintained and an expedited inspection program is not warranted. If Subsections IWE and IWL, Section XI Code rules are to be adopted, they must first be revised to provide clear, appropriate, cost effective, and consistent requirements.

Please contact W. G. (Jerry) Goodman at (704) 382-4963 or Mark J. Ferlisi at (704) 382-3923 if there are any questions concerning our comments.



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Attachment: Comments on ASME Section XI Subsections IWE and IWL (1992 Edition with 1992 Addenda)

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**Comments on ASME Section XI, Subsections IWE and IWL
(1992 Edition With the 1992 Addenda)**

Comments on IWE

General Comments on Subsection IWE:

Although the intent of Subsection IWE appears to allow remote inspections, VT-1 and VT-3 visual examinations are the primary means of surface inspection. The criteria for these examinations as described in IWA-2200 of ASME Section XI (1992 Edition, 1992 Addenda) have become so stringent that qualifying a remote visual inspection will be difficult. As an example, a VT-3 examination must have acuity equivalent to being 4 feet from the subject and successfully reading 0.105 inches high under an illumination of 50 foot candles. VT-1 and VT-3 inspections are not appropriate for the type of inspection needed for large surfaces such as the containment. Although Subsection IWE, Article 3000 attempts to describe the standards for visual inspection, the descriptions for both VT-1 and VT-3 are identical. No quantitative acceptance standards are provided, therefore; acceptance by examination as authorized in paragraph IWE-3122.1 is essentially impossible. Subsection IWE still seems to contain remnants of a weld based inspection bias. More emphasis needs to be given to setting forth unique, specific criteria for a general inspection versus attempting to adapt the existing visual requirements now in the Section XI code. The use of VT-1 and VT-3 inspections is not warranted.

Current 10CFR50, Appendix J inspection and testing requirements could cause some practical problems with implementation of Section XI, IWE rules. The general visual inspection should not be tied to the Integrated Leak Rate Test. The frequency of these examinations is appropriate.

Article IWE-1000:

Subarticle IWE-1100:

The scope statement of Subsection IWE indicates that integral attachments are included. Although it appears to be the intent of the Code, Subsection IWE does not clearly state that the integral attachments are to be included in the visual examinations.

Subsubarticle IWE-1220:

Paragraph IWE-1220(b) exempts from examination embedded portions of containment vessels that met the requirements of their original Construction Code. Industry experience such as the degradation noted at Oyster Creek has indicated that some of these embedded areas should not be exempt from additional examination requirements. While it is extremely difficult to implement inspections of these types

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of areas, guidance is needed to specify when additional inspection of these areas is justified. It would be appropriate to include in IWE provisions that would require licensees to document and evaluate containment degradation in inaccessible areas immediately adjacent to accessible areas where significant containment degradation has been noted.

The definition of "inaccessible portions" of containment vessels, parts, and appurtenances needs clarification so that all licensees have a uniform interpretation of this criterion. The definition of inaccessible areas in paragraph IWL-2521.1 includes areas that are not accessible for examination because of safety or radiological hazards or because of structural obstructions. Subsection IWE should define inaccessible areas similarly. The Code lacks specific requirements related to assessing the risk of containment degradation in areas that are exempted from examination and the vague definition of inaccessible areas will cause inconsistent application of the Code requirements.

Paragraph IWE-1231:

Subparagraph IWE-1231(a) indicates that portions of Class MC containment vessels and Class CC metallic shell and penetration liners shall remain accessible for direct or remote visual examination from at least one side of the vessel, for the life of the plant. It is not clear whether the intent is to include 80% of the total of both interior and exterior surface areas, and whether embedded portions of containment should be included when computing the accessible quantity of surface area. It is not clear whether the intent of the Code is to require licensees to review construction records to confirm compliance with IWE-1231. If this criterion cannot be met, licensees may be required to submit a request for relief from these rules.

The intent of subparagraph IWE-1231(b) is not clear. Subparagraph IWE-1231(a) indicates that pertinent portions of Class MC containment vessels and Class CC Metallic liners shall remain accessible for either direct or remote visual examination, from at least one side of the vessel, for the life of the plant. Subparagraph IWE-1231(b) seems to contradict subparagraph IWE-1231(a) by invoking the criteria of IWE-1232 when accessibility for visual examination is not from the outside surface. Subparagraph IWE-1231(b) seems to imply that it is preferable to examine surfaces from the outside. There does not seem to be any justification for preferring examination from one particular side of containment. If accessible, all internal and external containment surfaces should be examined.

Paragraph IWE-1232:

The intent of subparagraph IWE-1232(a) is not clear. It appears that it is the intent of the Code that exemptions 1 through 4 apply only to

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vessel repairs, modifications, or replacements that result in additional areas being embedded. It would not be practical to apply inspection requirements to areas embedded during construction if they do not meet these exemptions. This comment also applies to IWE-1232(b).

Paragraph IWE-1241:

Clarification of Paragraph IWE-1241 is warranted to provide additional, specific criteria for determination of areas to be included in augmented examinations. Without specific criteria, interpretation by licensees may vary, possibly resulting in inconsistent application of these rules. It appears that it is the intent of ASME to include areas that could be subject to accelerated degradation and aging, and not just areas where previous degradation has been observed. A conservative interpretation of these requirements may designate large areas of Type MC containments with Ice Condensers as requiring extensive UT examinations.

IWE-1241(a) applies to areas with no or minimal corrosion allowance even if no previous degradation has been identified in these areas. Licensees could interpret this to exclude areas where a corrosion allowance has been specified or provided, even if these areas could be subjected to potential degradation.

Article IWE-2000:

Subarticle IWE-2200:

Subparagraph IWE-2200(g) seems to be applicable to repair of topcoating on containment plate even when there is no evidence that the primer coat has failed or that base metal has been damaged. To require every minor touch-up coatings repair to be documented in the Preservice Examination Records appears unreasonable and will provide little benefit. These provisions should be applicable to repair of coatings when the prime coat has been damaged and base metal has been exposed.

Paragraph IWE-2420:

Subparagraph IWE-2420(b) requires that areas containing indications shall be examined during the next inspection period in accordance with TABLE IWE-2500-1, Examination Category E-C. If these corroded areas have not been recoated or are in areas where recoating is not possible, a 3 year delay in subsequent examinations could prove to be excessive. A required element of the engineering evaluation of newly discovered suspect areas should be the establishment of an examination frequency necessary to determine an effective corrosion rate. Subparagraph IWE-2420(b) should also be revised to clearly

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indicate that these areas shall be reexamined during the next 3 consecutive inspection periods as specified in IWE-2420(c).

The requirements of IWE-2420(b) and (c) should not be applicable to corroded areas that meet the following criteria:

1. Corrosion is minimal and has not exceeded 10% of the nominal plate thickness.
2. Protective coatings are reapplied
3. The source or cause of the degradation has been eliminated.
4. Affected areas are reexamined during the next inspection period to verify the adequacy of the repaired coatings.

The acceptance criteria of IWE-3000 is so strict that even minor rust with no degradation will require reinspection in accordance with the augmented examination program. We believe that an exemption for coating degradation and minor corrosion as described above is justified and reasonable.

Paragraph IWE-2430:

It appears to be the intent of the Code that IWE-2430(a) apply to containment surface areas in category E-A, as well as other categories. Areas of concern found during surface area inspections are likely to be unique to a particular location with a specific environment conducive to degradation. This combination of environment and degradation is not necessarily repeated at other locations; therefore additional sampling of surface areas in the same category has little benefit. Also, this requirement should not apply to examinations performed in accordance with Table IWE-2500-1, Examination Category E-C because these inspections are performed every inspection period and are also unique.

Subarticle IWE-2500:

Subparagraph IWE-2500(b) requires that coatings be examined prior to removal. It is not clear whether this is applicable only to areas that are being prepared for additional examinations such as UT, or whether this applies to any area where coatings will be removed. This provision should not apply to areas where repair of the topcoat is proposed, provided that the containment prime coat has not been damaged and that base metal degradation has not occurred.

Subparagraph IWE-2500(b) requires that coatings be examined in accordance with Table IWE-2500-1. It is not clear whether it is the intent of the Code that IWE-2500(b) require licensees to provide a

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description of the existing conditions as required by IWE-3510.1, IWE-3510.2, and IWE-3510.3 for historical purposes, or that documentation be required only when significant degradation is found.

For areas which are accessible from both sides, it is not clear whether it is the intent of the Code to require volumetric examinations on degraded areas only when necessary to evaluate whether nominal wall thickness has been reduced by more than 10%. If an adequate visual examination can be performed on both sides, some surface corrosion can be assessed without performing UT examinations. Subsection IWE should accommodate this practice. It appears that subparagraphs IWE-2500c (3) and c (4) should be a subsubparagraph of IWE-2500c (2).

Subparagraph IWE-2500(c)(4) requires that the minimum thickness within each grid be marked for future reexamination. It is not clear whether it is the intent of the Code to require that only those marked locations be examined during future examinations and that a 100% UT examination be performed only when initially examining suspect areas.

TABLE IWE-2500-1, Examination Category E-A:

Footnote 1 which allows inspection from either the outside or inside surface and which is generically applied to the "Examination Requirements/Fig. No." column cannot apply to item number E1.11, General Visual. This inspection is the general visual required by Appendix J prior to a Type A test (See acceptance criteria in IWE-350.1). Appendix J requires inspection of both sides of the containment.

TABLE IWE-2500-1, Category E-A, E1.11 should be revised to require that general visual examinations be performed at periods coinciding with Tables IWE-2411-1 or IWE-2412-1 versus coinciding with Appendix J tests. If 10CFR50, Appendix J requirements are revised in the future to reduce the number of pressure tests required to 1 every 10 years, the number of general visual examinations required by TABLE IWE-2500-1, Category E-A will be reduced. This change may be justified for testing purposes, but the frequency of the general visual examinations should not be decreased.

Footnote 1 allows visual inspections to be performed from either side of the vessel. IWE should be revised to require inspection of both sides, if possible, during each inspection interval. The current rules would allow utilities to permanently exempt some containment surfaces from VT-3 inspections, as long as the opposite side is examined.

Footnote 4 is applicable to E1.12 or E1.20. This appears to require that removable insulation shall be removed to permit VT-3 inspections behind insulated areas, only if these areas are required to be accessible

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to satisfy the criteria of IWE-1231(a)(4). This could be a significant hardship at plants that have extensive insulation and extensive embedded portions of containment plate. It is suggested that if insulation is adequately sealed to prevent moisture intrusion or the development of condensation, these areas should also be exempted from VT-3 examinations. If these areas are accessible from one side without removing insulation, it should be acceptable to permit a random sampling of UT examinations to be conducted in lieu of the VT-3 visual examinations.

The scope of item E1.20, Vent system, needs clarification. The containment vent systems in Duke Power's plants are normally only penetrations. The code is not clear about what unique aspects of the vent system are to be inspected.

TABLE IWE-2500-1, Examination Category E-B:

Footnote 5 applies to Item E3.10 (E3.11 through E3.13). It is not clear whether it is the intent of the Code to exempt penetrations with bellows assemblies from these inspections because cyclic and thermal loads transmitted to the containment vessel through these assemblies is minimal.

It is unclear why footnote 5 is not applicable to Items E3.20 and E3.30. It would appear that these welds would not be any more susceptible to degradation than welds defined in Item E3.10, if Item E3.20 and E3.30 welds are not subject to cyclic and thermal stresses.

It is not clear whether it is the intent of the Code that footnote 5 apply only to spare or electrical penetrations with no process piping connections where the cyclic and thermal stresses are negligible.

TABLE IWE-2500-1, Examination Category E-C:

Areas that are accessible from only one side that are found to be corroding are required to be reinspected by UT examination during each subsequent inspection period until the areas remain essentially unchanged for three consecutive inspection periods. Subsequent inspections should be performed at a frequency necessary to determine an approximate corrosion rate for the area in question. After the corrosion rate is determined, the frequency of future UT examinations should be determined by the licensee. However, additional UT examinations should be performed during each of the next 2 consecutive inspection periods to confirm that degradation has stopped.

Item No. E4.12 requires that volumetric examinations be performed on all areas that require augmented inspection if both surfaces are not accessible for examination. Because the scope of areas requiring augmented inspection (IWE-1241) is not well defined, licensees could

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interpret Item E4.12 to include inaccessible areas of containment located behind ice condensers. These areas are quite extensive and would require significant resources to perform the UT examinations required for E4.12 areas. The Code should make provisions for allowing random UT examinations of large surface areas assigned to the augmented examination category.

TABLE IWE-2500-1, Examination Category E-D:

VT-3 examinations for gaskets are not justified. A general visual examination is adequate to detect conditions which could cause degradation. Also, each penetration is pressure tested in accordance with 10 CFR 50, Appendix J. Note that inspection periods for gasket inspections are approximately coincident with the overall Integrated Leak Rate Tests.

Moisture barriers are essential to protect inaccessible areas of steel containment vessels and liners. While inspections of some moisture barriers is required during successive inspection periods, these barriers often require more frequent inspection and repair. Also, sealants between the steel containment vessel and internal or external concrete structures where sizable displacements occur (especially during ILRT), may not perform well. Because of these concerns it is recommended that the frequency of inspections for moisture barriers be increased to require 100% visual examination during each inspection period.

Inspection requirements for Items E5.10 and E5.20 should be clarified to indicate that removal of gaskets and seals is not required to satisfy the visual inspection requirements, unless there is visual evidence of degradation that warrants further examination. If a seal assembly is removed for any other reason, examination of the seal should be performed at that time. Gaskets are typically replaced after being removed and should not require additional inspection after removal. This clarification appears to agree with the intent of TABLE IWE-2500-1, Category E-G, Footnote 5 which indicates that it is not required to remove bolting solely to permit inspections. For example, the gasket on a spare penetration flange should not require removal to perform a complete visual examination, especially if the spare penetration is not used.

TABLE IWE-2500-1, Examination Category E-G:

Bolt torque or tension tests required per Table IWE-2500-1, Category E-G are unnecessary because local leak rate tests of each penetration and Overall Integrated Leak Rate Tests are performed routinely in accordance with 10 CFR 50, Appendix J. A torque or tension test of bolted connections that are not disassembled for any other reason could increase the risk of a potential leak occurring through the

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penetration, and there is be no requirement to pressure test the connection after retorquing. The bolt torque or tension tests should not be performed unless there is other evidence of potential degradation of the bolting, gasket, or flange materials. It should be noted that ASME Code Section III, Appendix XII, Article XII-1100 indicates that a the test of whether a bolted joint has been sufficiently torqued is successful passage of a pressure test. Also, the ASME Code does not require bolt torque or tension test for Section XI inspections of flanged piping joints. Thus such a test applied to containment flanges would not increase assurance that the joint will not leak.

Article IWE-3000

Paragraph IWE-3122:

It is not clear whether it is the intent of the Code that IWE-3122.4(a) be applicable to areas which exhibit minor corrosion and which have sufficient material wall thickness remaining. Clarification of "degradation which is nonstructural" is warranted to specify how minor corrosion should be classified.

Subparagraphs IWE-3510, 11, and 12

These paragraphs are referenced for acceptance standards when performing VT-1 and VT-3 visual inspections. However, there are no quantitative acceptance standards described in these paragraphs. Also, IWE does not address provisions for the Licensee to develop acceptance standards. As a result, acceptance by examination is not possible and the threshold for requiring an engineering evaluation and for causing additional augmented inspections is very low. The requirements as now written will require many areas that could be acceptable by examination, under reasonable criteria, to be subjected instead to an engineering evaluation and followup augmented examination.

Subparagraph IWE-3510.1:

IWE-3510.1(b) indicates that prior to proceeding with a Type "A" test, conditions that may affect containment structural integrity or leak tightness shall be accepted by engineering evaluation or corrected by repair or replacement in accordance with IWE-3122. This requirement conflicts with 10 CFR 50, Appendix J which requires that no repairs may be made until the Type "A" test is performed on the "as found" condition. Please note that 10 CFR 50, Appendix J also contains the same conflicting statements. If unacceptable degradation is found during the general visual examination just prior to the Type "A" test, Licensees could be faced with performing 2 Type "A" tests to comply with the rules as written. This would significantly increase outage time with no apparent benefit.

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Subparagraph IWE-3512.3:

IWE-3512.3 requires that areas where material loss is projected to exceed 10% of the nominal containment wall thickness prior to the next examination shall be documented. These areas may be accepted by evaluation. Licensees may not have adequate historical data to determine an effective corrosion rate to enable the licensee to delay repair of these areas. It may not be practical to require immediate repair of these areas solely because previous thickness reading have not been made.

Article IWE-5000

Paragraph IWE-5222:

IWE-5222 allows for leakage tests after minor repairs to be deferred until the next scheduled leakage test, provided the minor repairs or modifications conform to the specified limits. NDE or local pressure tests should be allowed in lieu of Type "A" pressure tests for local repair areas that exceed 10% of design wall thickness, especially if the area that has been repaired is small, and the depth of repair does not exceed 50% of design wall thickness. Some value other than 50% may be suggested and could also be acceptable, but the arbitrary 10% limit is not reasonable.

It is not clear whether there is any criteria which supports selecting 10% of design wall thickness as the limit on repairs without requiring a Type "A" pressure test.

IWE-5222(c) allows the deferral of a leakage test for a minor modification that adds a new penetration NPS 1 or smaller. To minimize the potential cost to utilities, it is suggested that this exemption be extended to include repair of cavities whose depth exceeds 10% of required design wall thickness, as discussed above. Any utility faced with repairing a small localized corroded area would seek to install a new penetration of NPS 1 size to avoid the leak rate test. The installation of new penetrations just to avoid this testing requirement is not appropriate. Additional exemptions from the pressure test requirements should be allowed.

Paragraph IWE-5240:

IWE-5240 refers to IWA-5246 for visual examination requirements. IWA-5246 does not exist in Subsection IWA. This reference should be made to IWA-5200.

**Comments on ASME Section XI, Subsections IWE and IWL
(1992 Edition With the 1992 Addenda)**

Comments on IWL

General Comments on Subsection IWL:

VT-1C and VT-3C visual examinations are specified throughout IWL. These visual examinations are described in IWL-2310 and IWA-2210 of the 1992 ASME Code, 1992 Addenda. To comply with the visual examination requirements of IWA-2210, licensees may have to erect extensive scaffolding or take other measures to facilitate inspections. It is not clear whether it is the intent of the Code to require that this type of access be provided to permit VT-1C and VT-3C visual examinations. Clarification of these requirements is warranted to allow for practical considerations. Provisions for remote visual inspections should be included to eliminate the need for scaffolding or other extensive access requirements. The IWA 2210 requirements for VT-1 and VT-3 visual examinations are so restrictive that remote inspection of large areas will not be practical. It appears that the intent of the Code is to permit remote visual examinations. The visual examination requirements need to be clarified or revised.

Article IWL-2000:

Subarticle IWL-2300

Paragraph IWL-2320 lists the responsibilities of the "Responsible Engineer". It is not clear whether it is the intent of the Code that a single individual be personally responsible for completing these activities, or that the Responsible Engineer have direct responsible charge over all personnel involved with completion of these activities. Compliance with these requirements may present some difficulty, especially if licensees desire to use their own personnel to perform the inspections, but wish to contract the services of an outside contractor to perform the technical evaluation of noted problems and to prepare an Engineering Evaluation Report. It is suggested that this requirement be revised to indicate that the Responsible Engineer shall be responsible for IWL-2320(a), (b), (c), (d), and (e), or shall be required to approve all work associated with IWL-2320(a), (b), (c), (d), and (e) when performed by an agent contracted by the licensee.

Subarticle IWL-2400

Subparagraph IWL-2410(a) specifies that "concrete shall be examined in accordance with IWL-2510 at 1, 3, and 5 years following the completion of the containment Structural Integrity Test CC-6000 and every 5 years thereafter." Because 100% of all concrete surfaces are to be examined at intervals not exceeding 5 years for the life of the plant, it is suggested that the general visual examinations required prior to each Type "A" test, as specified in 10 CFR 50, Appendix J be eliminated.

**Comments on ASME Section XI, Subsections IWE and IWL
(1992 Edition With the 1992 Addenda)**

Paragraph IWL-2421 provides for a modified examination schedule for sites with two plants that meet the specified criteria. Duke's Oconee plant has three identical units that do not fit this exception. Because IWL does not have any provisions for sites with more than two plants (units), Duke Power will have to request relief from these rules to allow an alternative plan for examinations at Oconee. It would not be appropriate to consider Oconee as a site with two plants and a site with one plant in order to implement a reduction in the number of required examinations. This would result in an unequal number of examinations performed on the Oconee units.

Subarticle IWL-2500:

Subparagraph IWL-2510(1) incorrectly refers to IWL-1200(b). IWL-2510(1) should refer to IWL-1220(b).

Subparagraph IWL-2521(a), second sentence, should be revised for clarity as follows: "The population from which the random sample is drawn shall consist of all tendons of a particular type (as defined in Table IWL-2521-1) which have not been examined during earlier inspections."

Subparagraph IWL-2525.2(a) should be clarified to read "Each corrosion protection medium sample shall be thoroughly mixed and analyzed for reserve alkalinity, water content, and concentrations of water soluble chlorides, nitrates, and sulfides."

TABLE IWL-2521-1:

Footnote 2 provides for a reduction in sample size of tendons to be selected for inspection if the acceptance criteria of IWL-3221.1 are met during each of the earlier inspections. It is not clear whether it is the intent of the Code to require plants to select 4% of all tendons of each type for inspection during each inspection period for the remaining life of the plant, if the plant has not met this criteria. No specific guidance is provided, but the licensee should be able to use the smaller sample size after completing 3 successful inspections in accordance with the IWL requirements.

ASTM D 974 Modified Standard does not exist except as described in Table IWL-2525-1, footnote 2. It is recommended that reference to ASTM D 974 be eliminated.

Article IWL-3000:

Subarticle IWL-3300:

**Comments on ASME Section XI, Subsections IWE and IWL
(1992 Edition With the 1992 Addenda)**

It is not clear whether it is the intent of the Code that paragraph IWL-3310 require that the Responsible Engineer be responsible for preparation of the Evaluation Report.

Article IWL-5000:

Subarticle IWL-5200:

Paragraph IWE-5230 provides some criteria for determining when a leakage rate test is required. It is inappropriate to detail these criteria in IWL-5230 because IWE-5220 provides these requirements. Because IWE-5220 requirements are more stringent, IWL-5230 requirements may yield an incorrect assessment that a leak rate test is not required as long as the pressure retaining boundary has not been breached. To eliminate confusion, IWL-5230 should be revised to read as follows: "If the repair or replacement damages the containment metallic liner, a leakage rate test shall be conducted if required by IWE-5000."

Paragraph IWL-5250 requires that "The pressure test shall be conducted in accordance with a detailed procedure prepared under the direction of the Responsible Engineer." Licensees already have procedures for pressure testing containments. Because the expertise required to develop and conduct these tests is not related to the expertise necessary to inspect concrete, this function should not specifically be assigned to the Responsible Engineer.