33 Overlook Road
Gales Ferry, CT 06335

April 12, 1994

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Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Docketing and Service Branch

Dear Sir:

Subject: Codes and Standards for Nuclear Power Plants; Subsection IWE and Subsection IWL

This letter is to provide comments regarding the proposed action to amend the regulations in 10CFR50.55a to incorporate by reference the 1992 Edition with the 1992 Addenda of Subsection IWE, "Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Power Plants," and Subsection IWL, "Requirements for Class CC Concrete Components of Light-Water Cooled Power Plants," of Section XI, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code).

I have been an ASME Code Committee member and an active participant in the development of the Subsection IWE and Subsection IWL since 1978. I have also been an engineer involved in containment design, construction, inservice inspection, modification, and repair since 1972. However, the comments in this letter are solely my own and do not necessarily reflect the views of my employer, the ASME, or the ASME Code committees.

I strongly urge the Commission to approve the amendment to the regulations to incorporate Subsection IWE and Subsection IWL. These documents are the result of a consensus process administered by the ASME Code committees that commenced in 1978 at the request of the Commission. The initial rules for metal containments in Subsection IWE were approved by the Code committees and were first published in the Winter, 1981 Addenda to Section XI. The rules for concrete containments were first published in Subsection IWL in the Winter, 1988 Addenda. Input to this process was provided by all interested parties involved in containment inservice inspection - users, regulators, manufacturers, engineering organizations, and enforcement organizations. All of these organizations ultimately approved these requirements through the Code process.

Unfortunately, many lengthy delays in regulatory action to endorse these rules have been experienced. The rules have been reviewed, revised where necessary to reflect differing and emerging inputs, and approved by the consensus process inherent in the ASME Boiler and Pressure Vessel Code. Upon publication, they have been subject to public review by announcement in *Mechanical Engineering* magazine. They represent the best effort by the nuclear industry to provide rules that are necessary, practical, and meaningful. The General Design Criteria in Appendix A to 10CFR50 mandate a program for containment testing and inspection. The documents developed by the Commission present a justifiable case for adoption of the ASME Code

requirements to assure the continued safe operation of nuclear power plants and, specifically, continued leak-tight and structural integrity of steel and concrete nuclear containment vessels. With no suitable alternatives presently in effect industry-wide, adoption of the ASME Code requirements in Subsection IWE and Subsection IWL is needed on an urgent basis.

I have been a participant in the development of the Subsection IWE and Subsection IWL requirements as chairman of the Boiler and Pressure Vessel Code Subgroup on Containment for a ten year period and as a current member of the Subgroup, the Subcommittee on Nuclear Inservice Inspection, and the Main Committee. I firmly believe that the proposed rulemaking is necessary and essential to assure the leak-tight and structural integrity of containments for operating nuclear plants.

However, the present requirements in Subsection IWE and Subsection IWL are not without need for review and refinement to better meet the objectives of assuring safety but without imposing unnecessarily impractical, burdensome, or costly requirements upon the industry. Unfortunately for the ASME Code committees, it it has been difficult to stimulate user interest or feedback during the preparation of the requirements. More recently, however, careful scrutinization of the rules by a number of nuclear utilities and industry organizations has identified areas that can and should be reviewed and, if needed, revised. Many of these areas will undoubtedly be identified to the Commission in responses to this proposed rulemaking from others.

It should and will become a priority of the ASME Code committees that developed the requirements to carefully evaluate each area of concern and to prepare revisions to Subsection IWE and Subsection IWL as appropriate. This process is necessary and correct. It should not, however, subvert the need to approve the present Subsection IWE and Subsection IWL requirements as a foundation for containment inservice inspection at the earliest possible time.

Coincident with my participation on the ASME Code committees, I have had the opportunity for the past several years to present the background, rationale, and content of the proposed requirements in Subsection IWE and Subsection IWL as an instructor for a three-day short course titled *Containment Inservice Inspection and Testing*. This course has been presented twice since the announcement of the proposed rulemaking in the Federal Register in January, 1994. A total of 17 students representing several different utilities attended. One student was from the nuclear regulatory authority in the United Kingdom. His attendance was to evaluate the requirements in Subsection IWE and Subsection IWL for adoption in his country.

Several items pertaining to Subsection IWE, Subsection IWL, and the proposed rulemaking were identified in "brainstorming" sessions in the classroom that warrant further review by the Commission and the ASME Code committees. These are delineated in attachments to this letter. I also plan to present these to the Section XI Subgroup on Containment for their consideration at their next meeting in May, 1994.

The consensus of those attending the two training courses was that some uniform basis for containment inservice inspection is needed provided that this basis is practical and reasonable both in terms of cost of implementation and benefit to be gained in assuring the leak-tight and structural integrity of containments. Most students supported the ASME Code as the appropriate location for these requirements provided, however, that revisions are initiated to resolve the identified areas of concern.

The Commission has provided substantial information to document instances of corrosion and deterioration of containments. These instances will undoubtedly increase in both number and potential consequences as containments continue to age. These data have already been considered

by the ASME Code committees in the development of Subsection IWE. Specifically, the Subgroup on Containment initiated a program to make major revisions to Subsection IWE in 1988 to transit from a weld-based inspection program to a surface-based inspection program. These revisions were prompted by concerns expressed by the Commission when reviewing the Subsection IWE requirements at that time for adoption in the regulations.

Revisions to Subsection IWE prompted by the Commission were essentially completed and the revised requirements were published in the 1991 Addenda to Section XI. It is expected that additional experience will lead to the need for new revisions. This is an expected process and is accepted by the ASME Code committees. However, the process and the efforts already completed to prepare the current Subsection IWE will be of no value if the requirements are not accepted in the regulations.

Arguments from some sources profess that nuclear plant Owners have already identified areas of containment degradation and that these are being addressed. Hence, they argue, no new requirements in the ASME Code are needed. Such arguments are not defensible. Without any uniform, comprehensive, documented, and auditable inspection program in place for all containments, additional and perhaps newly emerging degradation mechanisms for existing containments will not be detected.

Subsection IWE and Subsection IWL provide a framework for containment inspections that is meaningful and necessary if containment corrosion and other degradation mechanisms are to be identified, evaluated, and, if necessary, repaired before containment integrity is affected. Of course, individual considerations for specific plants or containment types may and should warrant additional requirements that go beyond the new scope of Section XI to assure the integrity of the pressure boundary during all modes of plant operation. These additional requirements can and should be addressed separately by the Owners or Owner's groups and the Commission as an extension of the rules in Subsection IWE and Subsection IWL for individual plants.

One other significant concern warrants the attention of the Commission. Although not directly a participant in the Code process or bound by Federal law to comply with Code requirements, several government organizations, including those associated with the national defense, utilize the ASME Code as an accepted national standard for nuclear safety. Many government nuclear installations have adopted Section XI of the ASME Code in whole or in part as a basis for the safety of the facilities under their jurisdiction. To date, to my knowledge, no facilities have established a program for containment inservice inspection comparable to the provisions in Subsection IWE even though instances of containment corrosion have been identified. The argument is that no program is needed since none is required by the Commission for commercial nuclear facilities in 10CFR50.55a. Specifically with this concern in mind, I believe that it is urgent that the Commission approve the proposed regulations at the earliest possible time.

Many countries outside of the United States have adopted the ASME Code as a basis for nuclear plant safety and look to the United States for leadership in developing and maintaining a comprehensive set of requirements in the Code. In the current action to adopt Subsection IWE and Subsection IWL in the regulations, the Commission should be mindful of the larger worldwide context in which the provisions of the ASME Code as endorsed in the Code of Federal Regulations establish safety requirements for inservice nuclear power plants.

In summary, it is essential to the continued safe operation of nuclear power plants that requirements for containment inservice inspection in Subsection IWE and Subsection IWL be mandated in the Code of Federal Regulations at the earliest possible time. Additional delays by the Commission in taking decisive action to assure containment integrity are inexcusable.

The concern for safety extends to the government's own nuclear facilities and to facilities in countries other than the United States that follow the leadership in the ASME Code in addition to commercial plants in the United States. To this end, the consensus process for codes and standards in the ASME Boiler and Pressure Vessel Code provides the best basis for providing a comprehensive set of requirements that have been developed with input and consensus from both users and regulators and all other interested and affected parties. It should be a priority of the ASME Code committees, however, to constantly review and revise the requirements to assure that they provide a proper balance between practicality, the cost of implementation, and the need for assuring continued containment leak-tight and structural integrity.

Very truly yours,

Robert F. Sammataro

Robert F. Sammataro

Attachments:

(1) Subsection IWE Comments
(2) Subsection IWL Comments
(3) Proposed Rulemaking Comments

CODES AND STANDARDS FOR NUCLEAR POWER PLANTS: SUBSECTION IWE AND SUBSECTION IWL

Subsection IWE Comments

- Footnote 1 to Table IWE-2500-1, Examination Category E-A, applies to the General Visual Examination for Item 1.11, Accessible Surface Areas. This footnote states that "examination may be made from either the inside or outside surface." The General Visual Examination is to be performed prior to each Type A test and is intended to replace the general inspection required by 10CFR50, Appendix J. Paragraph V.A of 10CFR50, Appendix J, requires that "a general inspection of the accessible interior and exterior surfaces of the containment structures and components shall be performed prior to any Type A test...." Subsection IWE should be revised to require the examination of both the accessible interior and exterior surfaces of the containment to be consistent with 10CFR50, Appendix J. Otherwise, Owners will need to address these requirements separately.

- The ultrasonic examination required by Table IWE-2500-1, Examination Category E-C, Item E4.12, to determine the point of minimum wall thickness within each 12' x 12" grid is excessive in terms of the effort required. It could also result in high radiation exposure and significantly affect the plant's person-rem budget.

- The requirement for VT-1 examination of containment penetration welds in Item E3.10 of Table IWE-2500-1, Examination Category E-B, is unnecessary in light of the general visual and VT-3 visual examinations of all accessible containment surfaces in Table IWE-2500-1, Examination Category E-A.

- IWE-5240 refers to IWA-5240 for visual examinations during containment pressure tests. IWA-5240 requires VT-2 visual examination of accessible, non-insulated, external exposed surfaces for evidence of leakage. This requirement is excessive for containments. As a minimum, it should be limited to the area of the repair for the 10CFR50, Appendix J, Type A pressure test required following a containment repair.

- A figure should be added and referenced in Table IWE-2500-1, Examination Category E-B, to define the required examination area for containment penetration welds. Similarly, a figure should be added and referenced in Table IWE-2500-1, Examination Category E-A, to define the boundaries of the containment for the required general visual and VT-3 visual examinations.

- A better definition should be provided for the responsibilities and training of the "Registered Professional Engineer or other individual, knowledgeable in the requirements for design, inservice inspection, and testing of Class MC and metallic liners of Class CC components" as defined in IWE-3510.

- The bolt torque or tension test for containment boundary bolted connections required by Table IWE-2500-1, Examination Category E-G, Item E8.20, is unnecessary and impractical. The leakage tests required by 10CFR50, Appendix J, provide adequate assurance of the leak tight integrity of containment boundary bolted connections.

Subsection IWE Comments
(Continued)

- Examination of containment boundary seals and gaskets in Table IWE-2500-1, Examination Category E-D, Items E5.10 and E5.20, respectively, is unnecessary in light of existing plant maintenance procedures and the leakage tests required by 10CFR50, Appendix J.

  Owners interpret Section XI, IWA-6000, to require that all welds included in the examination area be identified. This requirement would apply to containments upon the adoption of Subsection IWE . It would be unnecessarily burdensome and of questionable need for containments and containment liners.

R.F. Sammataro
April 12, 1994

CODES AND STANDARDS FOR NUCLEAR POWER PLANTS: SUBSECTION IWE AND SUBSECTION IWL

Subsection IWL Comments

- IWL-2510 requires concrete surfaces, including coated areas, to be examined for evidence of conditions indicative of damage or degradation by a VT-3C or a VT-1C visual examination method in accordance with IWL-2310. IWL-2310 requires that the minimum illumination, maximum direct examination distance, and maximum procedure demonstration lower case character height shall be as specified in IWA-2210. IWA-2210 delineates the examination requirements. These requirements far exceed those that should be required for the visual examination of concrete. They also render it difficult or impossible to meet the requirements by remote means.

- A better definition is needed for the duties, responsibilities, and certification requirements for the Authorized Nuclear Inspector (ANI) and the Authorized Nuclear Inservice Inspector (ANII). A concern also exists as to how the requirements in Subsection IWL for Authorized Inspection can be met if there are an insufficient number of inspectors who possess the requisite training, experience, and certification for concrete structures.

- IWL-5240 requires that the pressure test following repair or replacement be conducted prior to resumption of operation if the plant is shutdown during the repair. If the replacement is performed when the plant is in operation, the test may be deferred until the next scheduled integrated leak rate test. This requirement places an unnecessary hardship and burden on Owners who may elect to perform concrete repair when the plant is shutdown vice when the plant is operating.

- IWL-5250 requires a VT-1 visual examination prior to start of pressurization, at test pressure, and following completion of depressurization for system pressure tests of the surface of all containment concrete placed during repair . VT-1 visual examination is not applicable to concrete. The requirement should be changed to VT-1C visual examination.

- Remaining differences between Subsection IWL and Regulatory Guides 1.35 and 1.35.1 will require Owners to maintain two separate programs to meet both requirements.

R.F. Sammataro
April 12, 1994

CODES AND STANDARDS FOR NUCLEAR POWER PLANTS: SUBSECTION IWE AND SUBSECTION IWL

Proposed Rulemaking Comments

- The proposed rulemaking addresses the requirements in the 1992 Edition with the 1992 Addenda of Section XI for Subsection IWE and Subsection IWL. Owners are currently working to existing Section XI programs for other portions of the plant and consequently are working to editions and addenda of Subsection IWA earlier than the 1992 Edition and 1992 Addenda. Which edition and Addenda of Subsection IWA should be used when the 1992 Edition and 1992 Addenda of Subsection IWE and Subsection IWL are adopted in the regulations?

- Requirements in the proposed rulemaking for implementation of Subsection IWE and Subsection IWL in a 5 year period following the date of the final rulemaking should be reconsidered to provide a more uniform implementation schedule for all plants. For example, plants that have less than 2 years remaining in their present 120-month inservice inspection interval on the 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 inspection interval for up to 2 years from the end of the present interval (or, for up to a total of 4 years from the date of the final rulemaking.) Conversely, plants that have more than 2 years remaining in their present inservice inspection interval may not defer the Subsection IWE and Subsection IWL portions of the inservice inspection plan. This could require completion of these inspections in slightly over 2 years if the current inservice inspection date is slightly over 2 years from the date of the final rule. The 5 year implementation period is not available in either case. Only plants with more than 5 years remaining in the current 120 month inservice inspection interval will have up to 5 years from the date of the final rule to meet the requirements of Subsection IWE and Subsection IWL.

- The requirements for *Expedited examination of containment* in (6)(ii)(B) of the proposed rule require that licensees of all operating nuclear power plants shall *implement* the examinations specified for the first inspection interval in Subsection IWE and Subsection IWL by a date that is not more than 5 years later than the effective date of the final rule. The relationship between this requirement and the requirement in (b)(2)(x) of the proposed rule that allows Owners to defer *completion* for up to 2 years from the end of the present interval for plants with less than 2 years remaining in their present 120-month inservice inspection interval should be clarified.

- Owners presently follow a 10 year cycle for updating their ISI programs. The inservice inspection cycle for Subsection IWL is based upon a 5 year ISI program. The difference in the frequency of these programs will cause an additional burden for Owners. How frequently must Owners update their Subsection IWL program if the 5 year frequency does not coincide with the 10 year frequency for updating all other Section XI inservice inspections?

- The proposed rule does not require licensees to submit the ISI plan for Class MC and Class CC containments to the Commission. Instead, they may simply retain their initial Subsection IWE and Subsection IWL plans at the site for audit. What does the Commission require be submitted to define the ISI program? Also, if no ISI plan is submitted, what is the basis for licensees to submit relief requests to the Commission?

- Is preservice examination required for plants that are currently in operation? If not, how is the preservice baseline to be established?

Proposed Rulemaking Comments
(Continued)

- The requirements of Subsection IWE are similar to but do not replace the requirements that currently exist in Appendix J for a site walkdown prior to each Type A test. This duplication of requirements is unnecessary and costly.

- A proposed revision to Appendix J currently being considered by the Commission wili revise the frequency of the Type A test from 3 times in every ten years to once in every 10 year interval. If this occurs, the requirements of Subsection IWE will correspondingly be changed inasmuch as the general visual requirements in Table IWE-2500-1, Examination Category E-A, are linked to the Type A test frequency.

- A Workshop to define and discuss the rules in Subsection IWE and Subsection IWL and the proposed rulemaking is highly recommended. This Workshop would be most useful before the date for submittal of comments on the proposed rulemaking to the Commission.

R.F. Sammataro
April 12, 1994