



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

AC 93-1

PDR

MAR 1 1988

MEMORANDUM FOR: Lawrence C. Shao, Director
Division of Engineering and System Technology, NRR

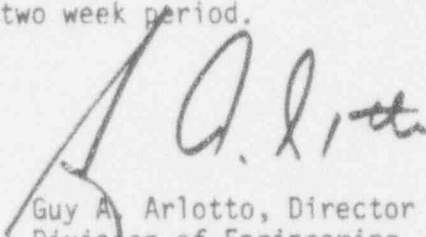
FROM: Guy A. Arlotto, Director
Division of Engineering, RES

SUBJECT: DRAFT RECOMMENDATIONS TO EDO TO INITIATE RULEMAKING
SPONSORED BY RES

Enclosed for your consideration is a draft recommendation supported by a draft office review concerning whether to initiate rulemaking to amend § 50.55a, "Codes and Standards", sponsored by RES for which your office is identified as the user office.

This memorandum constitutes my concurrence in the enclosed draft initiating recommendation. I plan to dispatch this memorandum with the enclosed draft initiating recommendation to the Chair, Internal Regulatory Review Board, two weeks from the date of this memorandum.

Please return this memorandum, Enclosure 1 with or without comments, and the Task Initiation Form within this two week period.


Guy A. Arlotto, Director
Division of Engineering
Office of Nuclear Regulatory Research

Enclosures:

1. Concurrence/Comment Page
2. RES Rulemaking Review Package
3. Task Initiation Form

8806020120 XA

(002)

3pp

RES Rulemaking Review Package

To Incorporate by Reference Subsection IWE of Section XI of the ASME Code
into 10 CFR 50.55a

Item No.

Contents

- | | |
|---|---|
| 1 | Regulatory Agenda Entry for Proposed Amendment to 10 CFR 50.55a |
| 2 | Draft Recommendations on Whether and How to Amend 10 CFR 50.55a |

Item 1

Regulatory Agenda Entry for
Proposed Amendment to 10 CFR 50.55a

TITLE:

Codes and Standards for Nuclear Power Plants (ASME Code, Section XI, Division 1, Subsection IWE)

CFR CITATION:

10 CFR 50

ABSTRACT:

The proposed rule would incorporate by reference Subsection IWE, "Requirements for Class MC 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). Subsection IWE provides rules for the inservice inspection of metal containments, including the metal liners of concrete containments.

TIMETABLE:

Begin Division Review	(6/30/88)
Office Concurrence Complete	(9/23/88)
Submit Rule to EDO	(1/15/89)
Publish for Public Comment	(2/12/89)

LEGAL AUTHORITY:

42 U.S.C. 2201, 40 U.S.C. 5841

EFFECTS ON SMALL BUSINESS AND OTHER ENTITIES:

None

AGENCY CONTACT:

Wallace E. Norris
U. S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Washington, D.C. 20555
301-492-3938

Item 2

Draft Recommendations

Whether to Initiate

Recommendation: Initiate proposed amendment to 10 CFR 50.55a to incorporate by reference Subsection IWE of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code).

Reason: This amendment will incorporate by reference into 10 CFR Part 50, Subsection IWE of Section XI, Division 1, of the ASME Code, "Requirements for Class MC Components of Light-Water-Cooled Power Plants". These rules provide minimum requirements for examining steel containment structures and components (including the metallic liners of concrete containments). These requirements provide details for the general inspection required by Appendix J of 10 CFR Part 50 and also the details for satisfying the periodic inspection and for the surveillance program in Criterion 53 of the General Design Criteria in Appendix A of 10 CFR Part 50.

How to Amend

Recommendation: Proceed with proposed amendment for issuance by the EDO. Future updates to Subsection IWE should be addressed at the time that other Subsections of the ASME Code are periodically updated.

Reason: This recommendation is supported by the response to the following 6 review items which are identified in the RES "Procedures for Task Leaders and Reviewers in Conducting Reviews of Rulemaking" (April 1984).

a. Issue to be addressed.

Criterion 53 of the General Design Criteria (Appendix A of 10 CFR Part 50) requires that the reactor containment be designed to permit: 1) appropriate periodic inspection of all important areas, such as penetrations 2) an appropriate surveillance program, and 3) periodic testing at containment design pressure of the leak-tightness of penetrations which have resilient seals and expansion bellows. Appendix J of 10 CFR 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors", contains specific rules for leak testing of containments and in Paragraph V.A requires that a general inspection of the accessible interior and exterior surfaces of the containment structures and components be performed prior to any Type A

test¹ to uncover any evidence of structural deterioration which may affect either the containment structural integrity or leak tightness. Details for this general inspection, such as what parts of the containment structure must be accessible for inspection and personnel qualification requirements for examiners, are not specified.

This amendment will incorporate by reference into 10 CFR Part 50 the ASME Code, Section XI, Division 1, Subsection IWE, rules for containment inservice inspection and thereby provide systematic examination rules for containment structures for meeting Criterion 53 of the General Design Criteria.

b. The necessity and urgency for addressing the issue.

The industry has participated in developing Subsection IWE to Section XI, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code to provide a consistent set of rules with more explicit examination details for containment structures. The purpose of this amendment is to incorporate by reference this Subsection IWE into the NRC Regulations.

This Subsection was developed through the consensus process, which ensures that the various technical interests (e.g., utility, manufacturers, regulatory) are represented on the standards writing committees and that their viewpoints are considered in the standard writing process. Endorsement of the Subsection IWE rules by the NRC provides a method of improving containment examination practices by incorporating rules into the regulatory process that are acceptable to the NRC and have received industry participation in their development.

Also, there have been age-related degradation of containments in service. Two BWR plants have experienced corrosion of the drywell steel shell at the floor to shell interface. Additional and potentially more serious degradation mechanisms can be anticipated with the increasing age of today's plants. An adequate inservice inspection program can provide a basis for assuring the continued operational integrity of these containments.

¹Type A test means tests intended to measure the primary reactor containment overall integrated leak rate 1) after the containment has been completed and is ready for operation, and 2) at periodic intervals thereafter.

NUREG/CR-4731, EGG-2469, Volume 1, "Residual Life Assessment of Major Light Water Reactor Components - Overview", came to the conclusion that "Establishment of inspection procedures to cover critical areas where adverse environmental conditions such as high temperature, humidity, and/or radiation, and locations subjected to an acidic environment, will be a necessary measure to determine the extent of degradation."

If the NRC did not take action to endorse the Subsection IWE rules, the NRC position on examination practices for containment structures would have to be established on a case-by-case basis. If the NRC does not take action to include the Subsection IWE rules by reference, improved examination practices for steel containment structures might not be implemented.

c. Alternative to rulemaking.

One alternative to referencing Subsection IWE would be to take no action which will result in containment examinations being performed to the present Appendix J rule. This is not desirable since Appendix J is primarily concerned with containment leakage testing and does not provide details for weld and component examinations.

Another alternative would be to incorporate detailed examination requirements into the NRC Regulations, either directly or into American National Standard ANSI/ANS-56.8-1981. This standard, which is referenced in Appendix J, provides guidance for conducting Type A test. Placing the examination requirements directly into the Regulations is not practical because of the volume of Subsection IWE; also, this would be out of character with the other Regulation examination requirements which are imposed by reference of the ASME Code. Possibly ANSI/ANS-56.8-1981 could be updated to include examination requirements. This would not be effective from a time or cost standpoint since the ANS standards writing committee would be adding entirely new scope beyond the containment leak testing methodology presently covered. Also, the ANS committee does not have the broad scope of different working groups that result in rules that complement one another in the different subsections of Section XI. Changes in the ASME Code to reflect improved inservice inspection (ISI) technology are published annually. Improvements would take longer in the ANSI/ANS standard; the time from the first issue to the first revision was six years.

- d. How the issue will be addressed through rulemaking.

This amendment will incorporate by reference Subsection IWE into § 50.55a. Future amendments to § 50.55a will update the Subsection IWE reference to later editions and addenda that the staff has reviewed and found acceptable and not inconsistent with regulatory criteria.

In those cases where significant differences exist between Subsection IWE and staff position, exceptions to specific items in Subsection IWE will be specified, or supplementary criteria will be provided. Exceptions in the regulations to the ASME Code rules will be avoided to the extent that the NPC staff on ASME Code committees can influence the development of Subsection IWE to account for NRC concerns on specific issues.

- e. How the public, industry, and the NRC will be affected as a result of rulemaking.

Incorporating by reference the latest edition and addenda of Subsection IWE will save applicants/licensees and the NRC staff both time and effort by providing uniform detailed criteria against which the staff can review any single submission. Adoption of the proposed amendment would permit the use of improved methods for containment inservice inspection.

The ASME has asked the NRC to expedite its review of of Subsection IWE. A number of states have already adopted Subsection IWE, and the ASME is very anxious for the NRC to also adopt Subsection IWE.

- f. NRC resources and scheduling needed for the rule-making.

The effort associated with the rulemaking falls into two categories. That associated with technical review of Subsection IWE and that associated with developing the amendment and the regulatory analysis, and carrying the rule forward through the various review.

The review of Subsection IWE is done item-by-item during Code development by the NRC staff participating on various levels of ASME Code committees and the NRC staff in appropriate technical branches. Detailed technical input is often provided by the staff at the task group, working group, subgroup and subcommittee levels through NRC staff committee members. A formal ballot on each item is taken by the Boiler and Pressure Vessel Committee which has oversight of the Section XI items. NRC has staff participation on the Boiler and Pressure Vessel Committee and also on the Board on Nuclear Codes and Standards which has the final review authority on

all ASME Code items. The staff effort to develop and review the proposed rule and regulatory analysis, resolve interoffice and public comments, and generally move the rule through its various stages is estimated to be 200 person-hrs.