



U.S. NUCLEAR REGULATORY COMMISSION
STANDARD REVIEW PLAN
OFFICE OF NUCLEAR REACTOR REGULATION

5.2.1.1 COMPLIANCE WITH THE CODES AND STANDARDS RULE, 10 CFR § 50.55a

REVIEW RESPONSIBILITIES

Primary - Mechanical Engineering Branch (MEB)

Secondary - None

I. AREAS OF REVIEW

In order to establish that pressure-retaining components of the reactor coolant pressure boundary and other fluid systems important to safety of water-cooled nuclear power plants are in compliance with the Codes and Standards Rule 10 CFR § 50.55a, an applicant is required to provide a table in his safety analysis report (SAR) identifying pressure vessels, piping, pumps and valves and the component Code, Code Edition, applicable Addenda, and component order date (where applicable) for each component. 10 CFR § 50.55a requires that pressure-retaining components of the reactor coolant pressure boundary be designated as Class 1¹ components and constructed² in accordance with the rules of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, Division 1 (hereafter the Code), except for components which meet the exclusion requirements of footnote 2 of the rule. Components of the reactor coolant pressure boundary which meet the exclusion requirements of footnote 2 may be classified as Quality Group B in accordance with Regulatory Guide 1.26 and constructed as Class 2 components in accordance with the Code.

The Codes and Standards Rule also requires that pressure-retaining components of other fluid systems important to safety be designated as Class 2,³ Class 3, and Class MC⁴ components and constructed in accordance with the rules of the Code.

¹Editions of the Code prior to 1971 use the term Class A in lieu of Class 1.

²Constructed, as used herein, is an all-inclusive term comprising materials certification, design, fabrication, examination, testing, inspection, and certification required in the manufacture and installation of components.

³Editions of the Code prior to 1971 use the term Class C in lieu of Class 2.

⁴Editions of the Code prior to 1971 use the term Class B in lieu of Class MC.

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USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

To meet these requirements, components of fluid systems important to safety may be classified as Quality Group B or C in accordance with the guidance provided in Regulatory Guide 1.26 which is an acceptable method for determining the appropriate Code Class. This review of Quality Group B and Quality Group C components of other fluid systems important to safety is performed under SRP Section 3.2.2.

For construction permit (CP) and operating license (OL) applications, the MEB will determine the acceptability of the information presented in the SAR, to assure that the applicant is in compliance with the rules of Section 50.55a.

In the event there are cases where conformance with the Codes and Standards Rule would result in hardships or unusual difficulties without a compensating increase in the level of safety and quality, the applicant must provide a complete description of the circumstances and the basis for proposed alternate requirements. The applicant must describe how an equivalent and acceptable level of safety and quality will be provided by the proposed alternate requirements. The SAR should identify differences between the specific portions of the Code and Code Addenda to which each component has been constructed and that which is required for conformance with Section 50.55a.

The MTEB verifies, upon request of MEB, the compatibility of the materials of construction with service conditions and, as required, will provide assistance in establishing acceptability in the event an applicant invokes the "hardship" clause, and does not conform in all respects with Section 50.55a.

II. ACCEPTANCE CRITERIA

Acceptance criteria is based on meeting the relevant requirements of the following regulations:

1. 10 CFR Part 50, Appendix A, General Design Criterion 1, as it relates to the requirement that structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed.
2. 10 CFR § 50.55a as it relates to establishing minimum quality standards for the design, fabrication, erection, construction, testing, and inspection of components within the reactor coolant pressure boundary and other fluid systems important to safety of boiling and pressurized water reactor nuclear power plants by requiring conformance with appropriate editions of specified published industry codes and standards.

To meet the requirements of General Design Criterion 1 and 10 CFR § 50.55a, Regulatory Guide 1.26, "Quality Group Classification and Standards," is used. This regulatory guide describes an acceptable method for determining quality standards for Quality Group B, C, and D water- and steam-containing components important to safety of water-cooled nuclear power plants.

III. REVIEW PROCEDURES

The table provided by the applicant identifying pressure vessel components, piping, pumps and valves, and the corresponding component Code, Code Edition, applicable Addenda, and, when required, the component order date of each ASME

Section III, Class 1 and 2 component within the reactor coolant pressure boundary, is checked for compliance with Section 50.55a of 10 CFR Part 50. This review is applicable to CP and OL applications.

For those components within the reactor coolant pressure boundary that are not in compliance with the rules of Section 50.55a, a review of the Code, Code Addenda, and SAR is performed to identify the specific sections of the Code with which the component does not comply. A decision to accept a component which is not fully in compliance with the rules is based on a judgment of the relative importance of the specific provisions in the Code or Code Addenda not complied with, and a determination that any noncompliance will not result in an unacceptable level of safety and quality.

If the staff's concerns are not resolved in a satisfactory manner, a staff position is taken requiring conformance with the rules of Section 50.55a.

IV. EVALUATION FINDINGS

The reviewer should verify that sufficient information is contained in the SAR and amendments and that his evaluation supports conclusions of the following type, which are to be included in the staff's safety evaluation report:

The staff concludes that system components are in compliance with 10 CFR §50.55a and meet the requirements of General Design Criterion 1. This conclusion is based on the following:

The applicant has met the requirements of 10 CFR § 50.55a and General Design Criterion 1 with respect to the construction of structures, systems, and components important to safety to quality standards. The requirements have been met by assuring that the components of the reactor coolant pressure boundary as defined by the rules of 10 CFR § 50.55a, have been properly classified in Table x.x-x of the SAR as ASME Section III, Class 1 (Quality Group A) components except for those reactor coolant pressure boundary components which meet the exclusion requirements of footnote 2 of the rule. These reactor coolant pressure boundary components are classified Quality Group B in accordance with the guidance provided in Regulatory Position C.1 of Regulatory Guide 1.26 and are constructed as ASME Section III, Class 2 components. Table x.x-x identifies the component Code, Code Edition, and Code Addenda for each Quality Group A component such as; reactor vessel, steam generators (primary side), pressurizer, reactor coolant pumps, pressurizer relief valves, control valves, block valves, other reactor coolant pressure boundary valves, and interconnecting piping of the reactor coolant pressure boundary and each Quality Group B component such as: steam generators (secondary side) and interconnecting piping and valves of the reactor coolant pressure boundary which meet the exclusion requirements of footnote 2 of the rule.

We reviewed the component Code, Code Edition, and Addenda, as applied to each of these reactor coolant pressure boundary components, and we find they are constructed in accordance with the requirements of the applicable Codes and Addenda that are specified by the rules of 10 CFR § 50.55a. Our review of Quality Group B (ASME Section III, Class 2) and Quality Group C (ASME Section III, Class 3) components of other fluid systems important to safety is performed in Section 3.2.2 of the SER.

The applicant has met the requirements of General Design Criterion 1 with respect to components of the reactor coolant pressure boundary being designed to assure that component quality is commensurate with the importance of the safety function of the reactor coolant pressure boundary. The provisions of the ASME Code has been met which constitutes an acceptable basis for satisfying the requirements of General Design Criterion 1.

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced Codes and Standards Rule 10 CFR § 50.55a and the regulatory guide.

VI. REFERENCES

1. 10 CFR Part 50, Appendix A, General Design Criterion 1, "Quality Standards and Records."
2. 10 CFR § 50.55a, "Codes and Standards Rule."
3. ASME Boiler and Pressure Vessel Code, 1980 Edition, Section III, "Nuclear Power Plant Components," American Society of Mechanical Engineers (1980).
4. Regulatory Guide 1.26, "Quality Group Classifications and Standards."