

REGULATORY GUIDE

OFFICE OF STANDARDS DEVELOPMENT

*Revised
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REGULATORY GUIDE 1.26

QUALITY GROUP CLASSIFICATIONS AND STANDARDS FOR WATER-, STEAM-, AND RADIOACTIVE-WASTE-CONTAINING COMPONENTS OF NUCLEAR POWER PLANTS

A. INTRODUCTION

General Design Criterion 1, "Quality Standards and Records," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Licensing of Production and Utilization Facilities," requires that structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. Section 50.55a, "Codes and Standards," of 10 CFR Part 50 requires that components of the reactor coolant pressure boundary be designed, fabricated, erected, and tested in accordance with the requirements for Class 1¹ components of Section III of the ASME Boiler and Pressure Vessel Code or equivalent quality standards. This guide describes a quality classification system related to specified national standards that may be used to determine quality standards acceptable to the NRC staff for satisfying General Design Criterion 1 for other safety-related components containing radioactive material, water, or steam in water-cooled nuclear power plants. The Advisory Committee on Reactor Safeguards has been consulted concerning this guide and has concurred in the regulatory position.

B. DISCUSSION

After reviewing a number of applications for construction permits and operating licenses and after discussions with representatives of professional societies and industry, the NRC staff has developed a quality classification system for safety-related components containing radioactive material, water, or steam in water-cooled nuclear power plants. The system consists

¹Editions prior to 1971 of the ASME Boiler and Pressure Vessel Code, Section III, "Nuclear Power Plant Components," use the term Class A in lieu of Class 1.

*Lines indicate substantive changes from previous issue.

of four quality groups, A through D, methods for assigning components to these quality groups, and the specific quality standards applicable to each quality group. The initial portion of this system is described in §50.55a of 10 CFR Part 50, which requires that components of the reactor coolant pressure boundary be designed, fabricated, erected, and tested to the highest available national standards; this corresponds to the quality standard required for quality Group A of the NRC system. This guide describes a method for determining acceptable quality standards for the remaining safety-related components containing radioactive material, water, or steam, i.e., quality Group B, C, and D components. Other systems not covered by this guide, such as instrument and service air, diesel engine and its generators and auxiliary support systems, diesel fuel, emergency and normal ventilation, and fuel handling, should be designed, fabricated, erected, and tested to quality standards commensurate with the safety function to be performed. Evaluation to establish the quality group classification of these other systems should include consideration of the guidance provided in regulatory positions C.1 and C.2 of this guide.

C. REGULATORY POSITION

1. The Group B quality standards given in Table 1 of this guide should be applied to water- and steam-containing pressure vessels, heat exchangers (other than turbines and condensers), storage tanks, piping, pumps, and valves that are either part of the reactor coolant pressure boundary defined in §50.2(v) but excluded from the requirements of §50.55a² pursuant to footnote 2 of that section or are not part of the reactor coolant pressure boundary but part of:

²Group A quality standards that are required for pressure-containing components of the reactor coolant pressure boundary are specified in Section 50.55a of 10 CFR Part 50.

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Comments and suggestions for improvements in these guides are encouraged at all times, and guides will be revised, as appropriate, to accommodate comments and to reflect new information or experience. This guide was revised as a result of substantive comments received from the public and additional staff.

Comments should be sent to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Section.

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e. Other systems not covered by items 2.a through 2.d above that contain or may contain radioactive material and whose postulated failure would result in conservatively calculated potential offsite doses (using meteorology as recommended by Regulatory Guides 1.3 (Revision 2), "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Boiling Water Reactors," and 1.4 (Revision 2), "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Pressurized Water Reactors") that exceed 0.5 rem to the whole body or its equivalent to any part of the body. For those systems located in Seismic Category I structures, only single component failures need be assumed. (However, no credit for automatic isolation from other components in the system or for treatment of released material should be taken unless the isolation or treatment capability is designed to the appropriate seismic and quality group standards and can withstand loss of offsite power and a single failure of an active component.)

3. The Group D quality standards given in Table 1 of this guide should be applied to water- and

steam-containing components not part of the reactor coolant pressure boundary or included in quality Groups B or C but part of systems or portions of systems that contain or may contain radioactive material.

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the staff's plans for utilizing this regulatory guide.

Except in those cases in which the applicant proposes an alternative method for complying with specified portions of the Commission's regulations, the quality group classifications and standards described herein will be used in the evaluation of submittals for operating license or construction permit applications docketed after January 1, 1975.

If an applicant wishes to use this regulatory guide in developing submittals for applications docketed on or before January 1, 1975, the pertinent portions of the application will be evaluated on the basis of this guide.

TABLE 1

Components	QUALITY STANDARDS		
	Quality Group B	Quality Group C	Quality Group D
Pressure Vessels	ASME Boiler and Pressure Vessel Code, Section III, "Nuclear Power Plant Components," ^{a,b,c} Class 2	ASME Boiler and Pressure Vessel Code, Section III, "Nuclear Power Plant Components," ^{a,b,c} Class 3	ASME Boiler and Pressure Vessel Code, Section VIII Division 1
Piping	As above	As above	ANSI B31.1 Power Piping
Pumps	As above	As above	Manufacturer's standards
Valves	As above	As above	ANSI B31.1
Atmospheric Storage Tanks	As above	As above	API-650, AWWA D 100, or ANSI B96.1
0-15 psig Storage Tanks	As above	As above	API-620

^aSee Section 50.55a for guidance with regard to the Code and Addenda to be applied.

^bASME Code N—symbol need not be applied.

^cThe specific applicability of code cases will be covered separately in other regulatory guides or in Commission regulations, where appropriate. Applicants proposing the use of code cases not covered by guides or regulations should demonstrate that an acceptable level of quality and safety would be achieved.