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REGULATORY GUIDE

OFFICE OF STANDARDS DEVELOPMENT

REGULATORY GUIDE 1.38

QUALITY ASSURANCE REQUIREMENTS FOR PACKAGING, SHIPPING, RECEIVING, STORAGE, AND HANDLING OF ITEMS FOR WATER-COOLED NUCLEAR POWER PLANTS

A. INTRODUCTION

Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Licensing of Production and Utilization Facilities," establishes overall quality assurance requirements for the design, construction, and operation of safety-related structures, systems, and components of nuclear power plants. This guide describes a method acceptable to the NRC staff of complying with the Commission's regulations with regard to the quality assurance requirements for the packaging, shipping, receiving, storage, and handling of items[1] for 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

Working Group N45-2.2 (formerly ad hoc committee N45-3.2) of the American National Standards Institute (ANSI) Standards Committee N45, Reactor Plants and Their Maintenance, has prepared a standard that includes quality assurance requirements for the packaging, shipping, receiving, storage, and handling of items for nuclear power plants. This standard was approved by subcommittee N45-2, Nuclear Quality Assurance Standards, of the ANSI Standards Committee N45 and by the full committee and its Secretariat. It was subsequently approved and designated N45.2.2-1972 by the American National Standards Institute on December 20, 1972.

The original issuance of this regulatory guide endorsed as acceptable the guidelines (indicated by the verb "should") as well as the requirements included in ANSI standard N45.2.2-1972. Some uncertainty arose with regard to the NRC staff's intent with this endorsement. As a result of this uncertainty, the staff reevaluated the guidelines contained in ANSI N45.2.2-1972 with respect to importance to safety. This guide has been revised to clarify NRC's position on the requirements and guidelines included in ANSI N45.2.2-1972. Where conformance to this regulatory guide is indicated in an application without further qualification, this means conformance with the requirements of ANSI N45.2.2-1972, as supplemented or modified by the regulatory position of this guide.

ANSI N45.2.2-1972 does not include the statement that is contained in other N45.2 series standards pertaining to its use for activities covered by the ASME Boiler and Pressure Vessel Code, Section III, Divisions 1 and 2, and Section XI. The NRC staff's review of the standard indicates that it should be applied to these Code-covered activities.

C. REGULATORY POSITION

1. The requirements for the packaging, shipping, receiving, storage, and handling of items for water-cooled nuclear power plants that are included in ANSI N45.2.2-1972, "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants During the Construction Phase,"[2] are acceptable to the NRC staff and, when supplemented by the guidelines identified in Regulatory Position 2,

* Lines indicate substantive changes from previous issue.

[1] As used in this guide, an "item" is defined as any level of unit assembly, including system, subsystem, component, part, or material.

[2] Copies may be obtained from the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, N.Y. 10017.

provide an adequate basis for complying with the pertinent quality assurance requirements of Appendix B to 10 CFR Part 50, subject to the following:

a. Subdivision 1.5 of ANSI N45.2.2-1972 states that other documents required to be included as a part of this standard are either identified at the point of reference or described in Section 9 of the standard. The specific acceptability of these listed documents has been or will be covered separately in other regulatory guides or in Commission regulations where appropriate.

b. Subdivision 7.3.4 of ANSI N45.2.2-1972 delineates requirements for re-rating hoisting equipment for special lifts. This subdivision requires that re-rated equipment be given a dynamic load test over the full range of the lift, using a test weight at least equal to the lift weight. In lieu of this requirement, the test weight used in temporarily re-rating hoisting equipment for special lifts in accordance with the provisions of subdivision 7.3.4 should be at least equal to 110% of the lift weight.

c. Subdivision A.3.6.3(1) of ANSI N45.2.2-1972 permits desiccants and desiccant bag materials containing not more than 0.25% halogens to be used with austenitic stainless steels. In lieu of this requirement, desiccants and the materials for the desiccant bags, when used with austenitic stainless steel or nickel alloy materials, should not be compounded from or treated with chemical compounds containing elements in such quantities that harmful concentrations could be leached or be released by breakdown of the compounds under expected environmental conditions (e.g., by radiation). Examples of such compounds are those containing fluorides, chlorides, sulfur, lead, zinc, copper, and mercury.

d. Although ANSI N45.2.2-1972 is entitled "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants During the Construction Phase," the requirements included in the standard are considered to be applicable during the operation phase and should be used, where applicable, consistent with the recommendations of this regulatory guide.

e. Notwithstanding the provisions of subdivision 1.2 of ANSI N45.2.2-1972 with respect to the applicability of this standard and the definition of carrier contained in subdivision 1.4 of ANSI N45.2.2-1972, nothing contained in Section 4, "Shipping," of ANSI N45.2.2-1972 should be deemed to require a common or contract carrier transporting or shipping byproduct, source, or special nuclear material in the ordinary course of its business to comply with the provisions set forth in this section of the standard. In this situation these carriers are exempt from NRC regulation under the provisions of 10 CFR §§ 30.13, 40.12, and 70.12. Therefore, the provisions of Section 4 of ANSI N45.2.2-1972 apply only to the extent that they affect the activities of an NRC licensee (e.g., requirements related to shipping contained in 10 CFR Part 71) or a private carrier subject to NRC regulations.

2. The guidelines (indicated by the verb "should") of ANSI N45.2.2-1972 contained in the following section are considered to have sufficient safety importance to be treated the same as the requirements of the standard, subject to any exceptions noted:

a. Section 4.2.3—The guidelines concerning special shipments.

b. Section 4.3.6—The guideline that addresses written instructions on stacking.

c. Subdivision A.3.5.2(1)(a)—This guideline states that the halogen and sulfur content of tapes should not be in excess of 0.10% by weight when used in contact with austenitic stainless steel and nickel alloy surfaces. In lieu of this guideline, tapes, when used with austenitic stainless steel or nickel alloy materials, should not be compounded from or treated with chemical compounds containing elements in such quantities that harmful concentrations could be leached or be released by breakdown of the compound under expected environmental conditions (e.g., by radiation). Examples of such compounds are those containing fluorides, chlorides, sulfur, lead, zinc, copper, and mercury.

d. Subdivision A.3.5.2(3)—This guideline states that tapes should be brightly colored to preclude their loss into a system. In lieu of this guideline, tapes should be colored to contrast with the materials on which they are used.

e. Section A.3.6.2—This guideline states that the vapor barrier material should be brightly colored to preclude loss within a system. In lieu of this guideline, vapor barrier material should be colored to contrast with the materials on which they are used.

D. IMPLEMENTATION

The purpose of this section is to provide information to the applicants and licensees regarding the NRC staff's plans for using this regulatory guide. 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 in the evaluation of submittals for construction permit or operating license applications docketed after June 15, 1977. If an applicant whose application for a construction permit or operating license is docketed on or before June 15, 1977, wishes to use this regulatory guide in developing submittals for applications, the pertinent portions of the application will be evaluated on the basis of this guide.