U.S. ATOMIC ENERGY COMMISSION

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REGULATORY GUIDE

DIRECTORATE OF REGULATORY STANDARDS

REGULATORY GUIDE 1.85

CODE CASE ACCEPTABILITY ASME SECTION III MATERIALS

A. INTRODUCTION

Section 50.55a, "Codes and Standards," of 10 CFR Part 50, "Licensing of Production and Utilization Facilities," requires, in part, that components of the reactor coolant pressure boundary be designed, fabricated, erected, and tested in accordance with the requirements for Class 1 components of Section III, "Nuclear Power Plant Components,"[1] of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code or equivalent quality standards. Footnote 6 to Section 50.55a states that the use of specific Code Cases may be authorized by the Commission upon request pursuant to §50.55a(a)(2)(ii) which requires that proposed alternatives to the described requirements or portions thereof provide an acceptable level of quality and safety. General Design Criterion 1, "Quality Standards and Records," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 requires, in part, that structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed. Where generally recognized codes and standards are used, Criterion 1 requires that they be identified and evaluated to determine their applicability, adequacy, and sufficiency and be supplemented or modified as necessary to assure a quality product in keeping with the required safety function. Criterion 30, "Quality of Reactor Coolant Pressure Boundary," of the same appendix requires, in part, that components which are part of the reactor coolant pressure boundary be designed, fabricated, erected, and tested to the highest quality standards practical. Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50 requires, in part, that measures be established for the control of special processing of materials and that proper testing be performed. This regulatory guide lists those Section III ASME Code Cases oriented to materials and testing which are generally acceptable to the AEC Regulatory staff for implementation in the licensing of light-water-cooled nuclear power plants.

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

B. DISCUSSION

The Boiler and Pressure Vessel Committee of the ASME publishes documents entitled "Interpretations of the ASME Boiler and Pressure Vessel Code."[1] These documents, referred to as "Code Cases," explain the intent of Code rules or provide Code permission to use alternative requirements under special circumstances or with suitable precautions. Most Code Cases are eventually superseded by revision to the Code and then are annulled by action of the ASME Council.

The Code Cases listed in this guide are limited strictly to those applicable to Section III which are oriented toward materials and testing.

All published Code Cases in the area of materials and testing which are applicable to Section III of the Code and were in effect on November 5, 1973 were reviewed for inclusion in this guide. Code Cases which were annulled by ASME Council between the November 5, 1973, and the March 2, 1974, Council meetings are not included in the listing. Code Cases which are not listed herein are either not endorsed or will require supplementary provisions on an individual basis to attain endorsement status.

The endorsement of a Code Case by this guide constitutes acceptance of its technical position for

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Regulatory Guides are issued to describe and make available to the public methods acceptable to the AEC Regulatory staff of implementing specific parts of the Commission's regulations, to delineate techniques used by the staff in evaluating specific problems or postulated accidents, or to provide guidance to applicants. Regulatory Guides are not substitutes for regulations and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a permit or license by the Commission.

Published guides will be revised periodically, as appropriate, to accommodate comments and to reflect new information or experience.

Copies of published guides may be obtained by request indicating the divisions desired to the U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Director of Regulatory Standards. Comments and suggestions for improvements in these guides are encouraged and should be sent to the Secretary of the Commission, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Staff.

The guides are issued in the following ten broad divisions:

1. Power Reactors
2. Research and Test Reactors
3. Fuels and Materials Facilities
4. Environmental and Siting
5. Materials and Plant Protection
6. Products
7. Transportation
8. Occupational Health
9. Antitrust Review
10. General

applications not precluded by regulatory or other requirements or by the recommendations in this or other regulatory guides. Contingent endorsement is indicated in Regulatory Position C.1.a for specific cases; however it is the responsibility of the user to make certain that no regulatory requirements are violated and that there are no conflicts with other recommended limitations resulting from Code Case usage.

The acceptance or endorsement by the Regulatory staff applies only to those Code Cases or Code Case revisions with the date of "Council Approval" as shown in the Regulatory Position of this guide. Earlier or later revisions of a Code Case are not endorsed by this guide. New Code Cases as they are issued or future revisions of existing Code Cases will require evaluation by the Regulatory staff to determine if they qualify for inclusion in the approved list. Because of the continuing change in the status of Code Cases, it is planned that this guide will require periodic updating to accommodate new Code Cases and any revisions of existing Code Cases.

C. REGULATORY POSITION

1. The Section III ASME Code Cases[2] listed in the following by number, title, and date of Council approval are acceptable to the Regulatory staff for application in the construction of components for water-cooled nuclear power plants. Their use is acceptable within the limitations stated in the "Inquiry" and "Reply" sections of each individual code case, such Regulatory or other requirements as may exist, and the additional limitations recommended by the Regulatory staff given with the individual code cases in the list. The categorization of Code Cases is intended to facilitate the Code Case listing and is not intended to indicate a limitation on its usage.

a. Materials-Oriented Code Cases with Title and Date of Council Approval:

(1) Code Cases involving plate:

1141-1	8/31/61	Foreign Produced Steel
1401-1	3/9/72	Welding Repairs to Cladding of Section III Components After Final Post-Weld Heat Treatment
1492	10/29/71	Post-Weld Heat Treatment Sections I, III, and VIII, Division 1 and 2
1493-1	8/14/72	Post-Weld Heat Treatment, Section III
1571	3/3/73	Additional Material for SA-234 Carbon Steel Fittings, Section III

(2) Code Cases involving pipe and tubes:

1423-2	3/9/72	Wrought Type 304 and 316 with Nitrogen Added, Sections I, III, VIII, Divisions 1 and 2

This Code Case is acceptable subject to the conditions established in Regulatory Guides 1.31, "Control of Stainless Steel Welding," and 1.44, "Control of the Use of Sensitized Stainless Steel."

1474-1	10/29/71	Integrally Finned Tubes for Section III
1484	8/4/71	SB-163 Nickel-Chromium-Iron Alloy Tubing at a Specified Minimum Yield Strength of 40,000 psi, Section III
1527	6/6/72	Integrally Finned Tubes, Section III
1529	6/26/72	Materials for Instrument Line Fittings, Section III
1578	6/25/72	SB-167 Nickel-Chromium Iron (Alloy 600) Pipe or Tube, Section III
1599	8/23/73	ASTM A-234-73 Fittings for use in Section III, Classes 1, 2 and 3 Construction

(3) Code Cases involving bars and forgings:

1332-6	3/9/72	Requirements for Steel Forgings, Section III and VIII, Division 2.
1334-2	1/14/72	Requirements for Corrosion-Resisting Steel Bars and Shapes, Section III
1337-7	8/13/73	Requirements for Special Type 403 Modified Forgings or Bars, Section III
1395-3	11/6/72	SA-508, Class 2 Forgings with Modified Manganese Content, Section III or Section VIII, Division 2
1498-1	11/6/72	SA-508–Class 2, Minimum Tempering Temperature, Section III
1542	Not dtd	Requirements for Type 403 Modified Forgings or Bars for Bolting Material, Section III
1587	8/13/73	SA-508–Class 3 Forgings with 0.4/1.0 Ni for Section III and VIII, Division 2 Construction
1605	11/5/73	Cr-Ni-Mo-V Bolting Material for Section III, Class 1 Components

(4) Code Cases involving general usage:

1344-3	12/18/72	Requirements for Nickel-Chromium, Age-Hardenable Alloys, Section III

[2] A numerical listing of the Code Cases appears in the Appendix.

1345-2	3/9/72	Requirements for Nickel-Molybdenum-Chromium-Iron Alloys, Section III
1434-1	3/9/72	Post-Weld Heat Treatment of SA-487 Class 8N Steel Castings, Section III, Classes 1 and 2
1521	5/1/72	Use of H-Grades of SA-240, SA-479, SA-336, and SA-358, Section III

This Code Case is acceptable subject to the conditions established in Regulatory Guides 1.31, "Control of Stainless Steel Welding," and 1.44, "Control of the Use of Sensitized Stainless Steel."

1531	8/14/72	Electrical Penetrations, Special Alloys For Electrical Penetration Seals, Section III
1532	8/14/72	Section III, Class 3 Components Made of 8 Percent and 9 Percent Nickel Steel
1557-2	12/17/73	Steel Products Refined by Secondary Melting
1567	3/3/73	Testing Lots of Carbon and Low Alloy Steel Covered Electrodes, Section III
1568	3/3/73	Testing Lots of Flux Cored and Fabricated Carbon and Low Alloy Steel Welding Electrodes, Section III
1583	6/25/73	Use of 80-40 Carbon Steel Castings
1590	8/13/73	Chemical Analysis Variations, Section III Construction

b. Testing-Oriented Code Cases with Title and Date of Council Approval:

(1) Code Cases involving plates:

1407-2	6/26/72	Time of Examination for Classes 1, 2, and 3 Section III Vessels
1456-2	6/25/73	Substitution of Ultrasonic Examination for Progressive Penetrant or Magnetic Particle Examinations of Partial Penetration and Oblique Nozzle Attachment Welds, Section III

(2) Code Cases involving bars and forgings:

1515	3/9/72	Ultrasonic Examination of Ring Forgings for Shell Sections, Section III, Class 1 Vessels

2. Code Cases that are annulled by action of the ASME Council should be considered as deleted from the approved list as of the date of the ASME Council action.

D. IMPLEMENTATION

The following guidance is provided for the implementation of Section III ASME Code Cases involving materials and testing.

1. The effective date of this guide is July 1, 1974.

2. This listing of Code Cases is applicable after the effective date of this guide unless a particular Code Case has been annulled by action of the ASME Council.

3. Components ordered to a specific version of a Code Case before the effective date of this guide need not be changed because a subsequent revision to the Code Case is listed as the approved version in this guide.

4. Code Cases on the approved list may be applied to components that were in process of construction prior to the effective date of this guide within the limits specified in the Code Case and applicable regulations or recommended in other regulatory guides.

5. Code Cases for Class 1 components which are not on the approved list of this guide or other regulatory guides, or for which authorization by the Commission has not been granted, are not acceptable on a generic basis for Class 1 components. Special authorization may be granted for individual cases upon special request to the Commission.

6. Code Cases for other Classes of components which are not on the approved list of this guide or other regulatory guides, or for which authorization by the Commission has not been granted, should not be considered acceptable on a generic basis. Special authorization may be granted for individual cases upon special request to the Commission.

APPENDIX
Numerical Listing of Code Cases

1141-1
1332-6
1334-2
1337-7
1344-3
1345-2
1395-3
1401-1
1407-2
1423-2
1434-1
1456-2
1474-1
1484
1492
1493-1
1498-1
1515
1521
1527
1529
1531
1532
1542
1557-2
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1568
1571
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1583
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