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REGULATORY GUIDE

OFFICE OF NUCLEAR REGULATORY RESEARCH

REGULATORY GUIDE 1.84

DESIGN AND FABRICATION CODE CASE ACCEPTABILITY ASME SECTION III DIVISION 1

A. INTRODUCTION

Section 50.55a, "Codes and Standards," of 10 CFR Part 50, "Domestic 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 §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 ensure 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 that 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 design and fabrication that are generally acceptable to the NRC staff for implementation in the licensing of light-water-cooled nuclear power plants.

B. DISCUSSION

The ASME Boiler and Pressure Vessel Committee publishes a document entitled "Code Cases."[1] Generally, the individual Code Cases that make up this document explain the intent of Code rules or provide for alternative requirements under special circumstances.

Most Code Cases are eventually superseded by revision to the Code and then are annulled by action of the ASME Council. In such cases, the intent of the annulled Code Case becomes part of the revised Code, and therefore continued use of the Code Case intent is sanctioned under the rules of the Code. In other cases, the Code Case is annulled because it is no longer acceptable or there is no further requirement for it. A Code Case that was approved for a particular situation and not for a generic application should be used only for construction of the approved situation because annulment of such a Code Case could result in construction that would not meet Code requirements.

The Code Cases listed in this guide are limited to those cases applicable to Section III that are oriented toward design and fabrication.

All published Code Cases in the area of design and fabrication that are applicable to Section III of the Code and were in effect on November 17, 1980, were reviewed for inclusion in this guide. In addition to the listing of acceptable Code Cases, this revision of the guide includes listings

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

• Lines indicate substantive changes from Revision 17.

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This guide was issued after consideration of comments received from the public. 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.

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of (1) Code Cases that were identified as acceptable in a prior version of this regulatory guide and that were annulled after the original issuance of this guide (June 1974) and (2) Code Cases that were identified as acceptable in a prior version of this regulatory guide and that were superseded by revised Code Cases after the original issuance of this guide (June 1974). Code Cases that 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 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.c 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.

Acceptance or endorsement by the NRC 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 will require evaluation by the NRC 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 below (by number, date of Council approval, and title) are acceptable to the NRC staff for application in the construction of components for light-water-cooled nuclear power plants. Their use is acceptable within the limitations stated in the "Inquiry" and "Reply" sections of each individual Code Case, within the limitations of such NRC or other requirements as may exist, and within the additional limitations recommended by the NRC staff given with the individual Code Case in the listing. The categorization of Code Cases used in this guide is intended to facilitate the Code Case listing and is not intended to indicate a limitation on its usage.

a. Design-oriented Code Cases (Code Case number, date of Council approval,[3] and title):

(1) Code Cases applicable to piping design:

1745	03-01-76	Stress Indices for Structural Attachments, Class 1, Section III, Division 1
(N-122)	01-08-79	
1797	03-23-77	Finned Tubing for Construction, Section III, Division 1
	03-17-80	
1812	03-23-77	Size of Fillet Welds for Socket Welding of Piping, Section III, Division 1
(N-174)	01-07-80	

(2) Code Cases applicable to valve design:

1539-1	11-21-77	Metal Bellows and Metal Diaphragm Stem Sealed Valves, Section III, Division 1, Classes 1, 2, and 3
(N-30-1)		
1700	11-03-75	Determination of Capacities of Liquid Relief Valves, Section III, Division 1, Class 1, 2, and 3
(N-94)	03-19-79	
1701-2	07-09-79	Determination of Capacities of Vacuum Relief Valves, Section III, Division 1, Classes 2, 3, and MC and Division 2 Concrete Containments
(N-95-2)		
1761-1	01-14-77	Use of SB-148 Alloy CA954 Section III, Division 1, Class 3
	01-07-80	
N-193	11-21-77	Use of SB-61 and SB-62 Bronze for Section III, Division 1, Class 3 Flange and Socket Weld End Valves
N-214	05-15-78	Use of SA-351, Grade CN7M, for Valves for Section III, Division 1, Construction
N-282	05-15-80	Nameplates for Valves, Section III, Division 1, Class 1, 2, and 3 Construction
N-300	11-17-80	Pressure-Temperature Ratings, Hydrostatic Tests, and Minimum Wall Thickness of Valves, Section III, Division 1, Class 1

(3) Other Code Cases related to design:

1620	03-02-74	Stress Category for Partial Penetration Welded Penetrations, Section III, Class 1 Construction
	01-08-79	
1630-1	07-10-78	External Pressure Charts for High Yield Strength Carbon Steels and Low Alloy Steels. (Yield Strength above 38 Ksi to 60 Ksi Inclusive.) For Section III, Class 1, 2, 3, and MC
(N-66-1)		
1739-4	11-17-80	Pump Internal Items, Section III, Division 1, Class 1, 2, and 3
(N-119-4)		
N-196-1	01-08-79	Exemption from the Shakedown Requirements When Plastic Analysis is Performed for Section III, Division 1, Class 1 and CS Construction
N-220	08-28-78	Code Effective Date for Component Supports, Section III, Division 1
N-228	03-19-79	Alternate Rules for Sequence of Completion of Code Data Report Forms and Stamping for Section III, Class 1, 2, 3 and MC Construction
N-243	08-30-79	Boundaries Within Castings Used for Core Support Structures, Section III, Division 1, Class CS
N-247	07-09-79	Certified Design Report Summary for Component Standard Supports Section III, Division 1, Class 1, 2, 3 and MC
N-272	05-15-80	Compiling Data Report Forms, Section III, Division 1

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

[3] When two dates are given, the earlier date is that on which the Code Case was approved by the ASME Council and the later date is that on which the Code Case was reaffirmed by the ASME Council.

b. Fabrication-oriented Code Cases:

(1) Code Cases related to welding and brazing:

1609-1	03-01-76 08-28-78	Inertia and Continuous Drive Friction Welding, Section I, III, IV, VIII, Division 1 and 2, and IX
1693 (N-212)	03-20-78	Welding Procedure Qualification of Dissimilar Metal Welds When "Buttering" with Alloy Weld Metal and Heat Treatment May Be Involved, Section III, Division 1, and Section IX
1791	03-17-80[4]	Projection Resistance Welding of Valve Seats, Section III, Division 1, Class 1, 2 and 3 Valves
N-182	07-11-77	Alternate Rules for Procedure Qualification Base Material Orientation, Section III, Division 1, Class 2 and 3 Construction
N-217-1	01-07-80	Postweld Heat Treatment of Weld Deposit Cladding on Classes 1, 2, 3, MC, and CS Items, Section III, Division 1
N-229	01-08-79	Alternate Rules for Fabrication Welding SB-148 Alloy CDA 954 for Section III, Division 1, Class 3 Construction
N-233	01-08-79	Alternate Rules for PWHT of P-No. 6, Group 4 Material for Section III, Division 1, Class 1, 2, or 3 Construction
N-260	01-07-80	Weld Repair of SA-182 Type 316 Forgings, Section III, Division 1, Classes 1, 2, 3, and MC
N-261	05-15-80	Weld Procedure Qualification for Materials with Impact Requirements for Section III, Division 1, Class 3 Construction
N-262	01-07-80	Electric Resistance Spot Welding for Structural Use in Component Supports, Section III, Division 1
N-271	03-17-80	Simplified Method for Analyzing Flat Face Flanges with Metal to Metal Contact Outside the Bolt Circle for Section III, Class 2, 3, and MC Construction
N-276	03-17-80	Welding of SA-358 Pipe, Section III, Division 1
N-280	05-15-80	Alternate Rules for Examination of Welds in Section III, Class 3 Storage Tanks
N-281	05-15-80	Welding Operator Performance Qualification, Section III, Division 1

(2) Other Code Cases related to fabrication:

1588	08-13-73 03-19-79	Electro-Etching of Section III Code Symbols
N-215	05-15-78	Integrally Finned Titanium Tubes, Section III, Division 1, Class 3 Construction
N-237	07-09-79	Hydrostatic Testing of Internal Piping, Section III, Division 1
N-240	03-19-79	Hydrostatic Testing of Open Ended Piping, Section III, Division 1
N-241	07-09-79	Hydrostatic Testing of Piping, Section III, Division 1

c. Code Cases with contingent approval:

1540-2	01-14-77 01-07-80	Elastomer Diaphragm Valves, Section III, Class 2 and 3

Code Case 1540-2 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: Each applicant who applies the Code Case should indicate in the referencing Safety Analysis Report that the service life of the elastomer diaphragm should not exceed the manufacturer's recommended service life. This recommended service life should not exceed 1/3 of the minimum cycle life as established by the requirements of paragraph 3 of the Code Case. In addition, the service life of the elastomer diaphragm should not exceed 5 years, and the combined service and storage life of the elastomer diaphragm should not exceed 10 years.

1621-2 (N-62-2)	05-25-77 05-15-80	Internal and External Valve Items, Section III, Division 1, Class 1, 2 and 3 Line Valves

Code Case 1621-2 is acceptable subject to the following condition in addition to those conditions specified in the Code Case: The Code requires that Class 1 and Class 2 valve manufacturers meet the provisions of NCA 4000, "Quality Assurance," and, in addition, Class 3 valve manufacturers should also meet the provisions of NCA 4000.

1711 (N-100)	11-03-75 01-08-79	Pressure Relief Valve Design Rules, Section III, Division 1, Class 1, 2 and 3

Code Case 1711 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case. The following information should be provided in the Safety Analysis Report:

(1) If stress limits are used in excess of those specified for the upset operating condition, it should be demonstrated how the pressure relief function is assured. Refer to paragraph 3.1, Section I, of the Case for Class 1 and paragraph 3.2, Section II, of the Case for Class 2 and 3 pressure relief valves.

(2) If Case 1660 is to be used in conjunction with this Case, it should be stated that the stress limits of Case 1660 supersede those of paragraph 3.2(b), Section I, of Case 1711. Functional assurance of (1) above is required in all situations.

1720-2	11-20-78	Weld End Preparation for Section III, Division 1 Construction

Code Case 1720-2 is acceptable subject to the following condition in addition to those conditions specified in the Code Case: The acceptance of weld end preparations other than those shown in Figures 1, 2, and 3 of the Code Case should be evaluated on a case-by-case basis.

[4]The Code Case was annulled on January 14, 1980 (ASME mandatory annulment date). It was reinstated on March 17, 1980. Because of the circumstances and because there were no changes in the Code Case, the NRC considers that this Case was in effect during the period of 1/14/80 through 3/17/80.

1780-1 (N-146-1) 07-10-78[5] Hydrostatic Testing and Stamping of Components, Section III, Division 1 Construction

Code Case 1780-1 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: On a generic basis, the application of the Code Case is limited to pumps and valves. Application to other components should be treated on a case-by-case basis. Each licensing application in which the Code Case is to be used should contain information showing that, as a minimum, the closure fixture will impose loads that result in stresses equal to or greater than those induced during the hydrostatic test of a complete pump assembly. A closure fixture for the part being tested that is similar in size and shape to the actual mating part is considered adequate to impose these loads. It is not intended that piping reaction loadings be simulated in the hydrostatic testing.

1792-2 (N-155-2) 01-08-79 Fiberglass Reinforced Thermosetting Resin Pipe, Section III, Division 1

Code Case 1792-2 (N-155-2) is acceptable subject to the following condition in addition to those conditions specified in the Code Case: The applicant should comply with the additional requirements that are specified in Regulatory Guide 1.72, "Spray Pond Piping Made from Fiberglass-Reinforced Thermosetting Resin."

N-192-1 08-30-79 Use of Flexible Hose for Section III, Division 1, Class 1, 2, and 3 Construction

Code Case N-192-1 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: The applicant should indicate system application, design and operating pressure, and pressure-temperature rating of the flexible hose. Data to demonstrate compliance of the flexible hose with NC/ND-3649, particularly NC/ND-3649.4(e), are required to be furnished with the application.

N-238 05-14-79 High Temperature Furnace Brazing of Seat Rings in Valve Bodies or Bonnets for Section III, Division 1, Class 1, 2, and 3 Valves

Code Case N-238 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: The furnace brazing process procedure qualification should include a verification for nonsensitization as given in ASTM A 262-70, Practices A or E, or ASTM A 708-74 whenever materials subject to sensitization are to be brazed. Documentation is required that a nonsensitizing brazing procedure was employed for valves produced to this Case.

N-252 11-19-79 Low Energy Capacitive Discharge Welding Method for Temporary or Permanent Attachments to Components and Supports, Section III, Division 1, and XI.

Code Case N-252 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: The applicant should indicate in the Safety Analysis Report the application, the material, and the material thickness to which the strain gage or thermocouple will be attached by CD welding.

N-263 03-17-80 Alternate Thread Forms, Series and Fits for Component Supports, Section III, Division 1

Code Case N-263 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case. The following information should be provided in the Safety Analysis Report: (1) a description of the application, (2) a need for the use of the Code Case, and (3) a demonstration that support design will withstand maximum conditions of loading with the worst combination of thread tolerance.

N-275 05-15-80 Repair of Welds, Section III, Division 1

Code Case N-275 is acceptable subject to the following condition in addition to those conditions specified in the Code Case: Use of the Code Case is applicable only when the removal of an indication requires that the full weld thickness be removed and, in addition, the backside of the weld assembly joint is not accessible for the removal of examination material. If an indication is removed and weld-metal layers still remain, it is not acceptable to gouge through the wall in order to qualify for use of the Code Case. Instead, examination of the cavity is required when such an indication has been removed.

N-279 05-15-80 Use of Torquing as a Locking Device for Section III, Division 1, Class 1, 2, 3, and MC Component Supports

Code Case N-279 is acceptable subject to the following condition in addition to those conditions specified in the Code Case: When torquing or other preloading is used as a locking device and the joint is later unloaded or disassembled, the bolting should be replaced unless it can be demonstrated or proved to the authorized nuclear inspector that the original bolting has not been permanently strained.

N-284 08-25-80 Metal Containment Shell Buckling Design Methods, Section III, Division 1, Class MC

Code Case N-284 is acceptable subject to the following condition in addition to those conditions specified in the Code Case: Prior to implementation of the Code Case, the applicant must demonstrate to the satisfaction of the NRC staff (via Safety Analysis Report) that any axisymmetric techniques that are proposed will be applicable to a vessel having large asymmetric openings and that the overall margin used to prevent shell buckling is acceptable.

2. Code Cases that were endorsed by the NRC in a prior version of this guide and were later annulled by action of the ASME Council should be considered as deleted from the list of acceptable Code Cases as of the date of the ASME Council action that approved the annulment. Such

[5]Corrected date.

Code Cases, which were annulled on or after July 1, 1974, are listed below by number, effective dates,[6] and title.[7]

1361-2	03-09-72 03-01-79	Socket Welds, Section III

Code Case 1361-2 was acceptable when used in connection with Section III, paragraph NB-3356, Fillet Welds.

1461-1[8]	03-09-72 02-16-77	Electron Beam Welding, Section 1, III, and VIII, Division 1 and 2
1470-2[9]	12-18-72 11-04-74	External Pressure Charts for High-Strength Carbon Steels and for Low-Alloy Steels, Section VIII, Division 1 and 2, and Section III
1471-1	03-09-72 01-01-78	Vacuum Electron Beam Welding of Tube Sheet Joints, Section III
1477-1	03-09-72 01-01-78	Use of 1970 Addenda of ANSI B31.7, Section III
1494-1	03-03-73 01-01-78	Weld Procedure Qualification Test, Section III
1506	12-13-71 01-01-78	Stress Intensification Factors, Section III, Class 2 and 3 Piping
1516-2 (N-24)	08-11-75 07-01-78	Welding of Seats or Minor Internal Permanent Attachments in Valves for Section III Applications
1516-2 (N-24)	11-20-78[10] 01-01-80	Welding of Seats or Minor Internal Permanent Attachments in Valves for Section III Applications
1533[11]	06-14-72 07-01-75	Pressure Temperature Ratings of SA-351 Grades CF8A, CF3, and CF3M, Section III
1535-2	04-30-73 03-21-77	Hydrostatic Testing of Section III, Class 1 Valves
1536	08-14-72 07-01-77	Closing Seam for Electrical Penetrations for Section III, Class 2, 3, and MC
1541-3 (N-32-3)	05-15-78 07-01-79	Hydrostatic Testing of Embedded Class 2 and Class 3 Piping for Section III, Division 1 Construction
1552-1 (N-35-1)	08-29-77 07-01-79	Design by Analysis of Section III, Class 1 Valves
1553-1[11]	03-03-75 01-01-76	Upset Heading and Roll Threading of SA-453 for Bolting in Section III
1555-1	01-14-77 01-01-78	Certification of Safety Relief Valves, Section III, Division 1
1569	03-03-75[5] 07-01-79	Design of Piping for Pressure Relief Valve Station, Section III

Code Case 1569 was acceptable subject to compliance with the recommendations contained in Regulatory Guide 1.67, "Installation of Overpressure Protection Devices."

1573	04-30-73 01-01-78	Vacuum Relief Valves, Section III
1574	04-30-73 12-31-74	Hydrostatic Test Pressure for Safety Relief Valves, Section III
1580-1	11-05-73 01-01-78	Buttwelded Alignment Tolerance and Acceptable Slopes for Concentric Centerlines for Section III, Class 1, 2, and 3 Construction
1581	06-25-73 03-01-79	Power-Operated Pressure Relief Valves, Section III
1601	11-05-73 07-01-74	Limits of Reinforcement for Two-Thirds Area, Section III, Class 1
1606-1	12-16-74 07-01-77	Stress Criteria Section III, Classes 2 and 3 Piping Subject to Upset, Emergency, and Faulted Operating Conditions

Code Case 1606-1 was acceptable subject to the interpretation that the stress limit designations of "Upset," "Emergency," and "Faulted" do not necessarily imply agreement with specified plant conditions applicable to ASME Code Class 2 and 3 components for fluid systems. These designations should be established and justified in the design specifications.

1607-1	11-04-74 07-01-77	Stress Criteria for Section III, Classes 2 and 3 Vessels Designed to NC/ND-3300 Excluding the NC-3200 Alternate

Code Case 1607-1 was acceptable subject to the interpretation that the stress limit designations of "Upset," "Emergency," and "Faulted" do not necessarily imply agreement with specified plant conditions applicable to ASME Code Class 2 and 3 components for fluid systems. These designations should be established and justified in the design specifications.

1614	12-17-73[5] 01-01-79	Hydrostatic Testing of Piping Prior To or Following the Installation of Spray Nozzles for Section III, Classes 1, 2, and 3 Piping Systems
1623	03-02-74 03-01-79	Design by Analysis for Section III, Class 1 Sleeve-Coupled and Other Patented Piping Joints
1633	04-29-74 01-01-78	Brazing of Seats to Class 1, 2, and 3 Valve Body or Bonnets, Section III

[6] Earlier date–date Code Case was approved by ASME Council; later date–date Code Case was annulled. Where more than two dates appear, the last date is the date that the Code Case was annulled. The middle date (or dates) was the date of reaffirmation of the Code Case.

[7] Code Cases 1355-3, 1534, and 1554, which were listed in the original issue of this guide, were annulled by Council action prior to July 1, 1974.

[8] Code Case 1461-1 is no longer listed as a Section III Code Case and is therefore deleted from the acceptable listing.

[9] The annulment of Code Case 1470-2 was effective upon Council approval of Code Case 1630. However, because of an oversight, the annulment was not noted until publication of Supplement No. 13 to the 1974 Code Cases.

[10] This revision of the Code Case was originally approved by the ASME Council on 8-11-75 and was annulled on 7-1-78 because of the publication of revisions to Section III in the Winter 1977 Addenda. However, the users did not believe that the Code Case was covered in the Code revision; therefore, ASME reaffirmed the Case on 11-20-78. Because of these circumstances and because there were no changes in the Code Case, the NRC considers that this Case was in effect during the period 7-1-78 through 11-20-78.

[11] Code Case was annulled on date as indicated, but the annulment was first indicated in Revision 12 to this guide.

1635-1[12]	08-12-74 07-01-77	Stress Criteria for Section III, Class 2 and 3 Valves Subjected to Upset, Emergency, and Faulted Operating Conditions

Code Case 1635-1 was acceptable subject to the interpretation that the stress limit designations of "Upset," "Emergency," and "Faulte." do not necessarily imply agreement with specified plant conditions applicable to ASME Code Class 2 and 3 components for fluid systems. These designations should be established and justified in the design specifications.

1636-1[12]	08-12-74 07-01-77	Stress Criteria for Section III, Class 2 and 3 Pumps Subjected to Upset, Emergency, and Faulted Operating Conditions

Code Case 1636-1 was acceptable subject to the interpretation that the stress limit designations of "Upset," "Emergency," and "Faulted" do not necessarily imply agreement with specified plant conditions applicable to ASME Code Class 2 and 3 components for fluid systems. These designations should be established and justified in the design specifications.

1651	08-12-74 03-01-79	Interim Requirements for Certification of Component Supports, Section III, Subsection NF
1657	11-04-74 07-01-77	Stress Criteria for Class 2 and 3 Atmospheric and Low Pressure (0-15 psig) Steel Storage Tanks
1659	11-04-74 07-01-77	Interconnection of Two Piping Systems for Section III, Class 1, 2, and 3 Construction
1660 (N-77)	11-04-74 03-01-79	Overpressure Protection Under Emergency Operating Conditions for Section III, Class 1
1661	11-04-74 01-01-78	Postweld Heat Treatment P-No. 1 Materials for Section III, Class 1 Vessels
1662	11-04-74 01-01-78	Shop Assembly of Components, Appurtenances and Piping Subassemblies for Section III, Class 1, 2, 3 and MC Construction
1665 (N-81)	11-04-74 07-01-78	Pressure-Temperature Ratings for Class 1 Valves Made from 5 Cr-1/2 Mo, Section III
1672	11-04-74 03-21-77	Nuclear Valves for Section III, Division 1, Class 1, 2, and 3 Construction
1675	12-16-74 07-01-76	Tubesheet to Shell or Formed Head Weld Joints, Section III, Class 1 Vessels
1676[11]	12-16-74 07-01-76	Clarification of Stress Intensities in Curved Pipe or Welded Elbows, Section III
1677 (N-82)	12-16-74 03-01-79	Clarification of Flange Design Loads, Section III, Class 1, 2, and 3

[12]Code Cases 1635 and 1636 were approved by Council on July 1, 1974, and revised on August 12, 1974. Because Code Cases 1635 and 1636 were not in effect on September 1, 1974, they are not included in this guide.

1678	12-16-74 01-08-79 01-01-80	Butterfly Valves of Circular Cross Section Larger than 24 in. NPS for Section III, Class 2 and 3 Construction
1681-1[13] (N-84)	03-03-75 03-01-79	Organizations Accepting Overall Responsibility for Section III Construction
1683-1	03-01-76 07-01-76	Bolt Holes for Section III, Class 1, 2, 3 and MC Component Supports
1685	04-28-75 01-01-78	Furnace Brazing Section III, Class 1, 2, 3 and MC Construction
1686	03-03-75 01-01-78	Furnace Brazing, Section III, Subsection NF, Component Supports
1689-1	09-10-76 01-01-78	Alternate PWHT Time and Temperature for SA-182 Grade F22, SA-387 Grade 22, Class 2, and SA-335 Grade P-22 Section III, Class 1, 2, 3 and CS

Code Case 1689-1 was acceptable subject to the following condition in addition to that specified in the Code Case: The alternate postweld heat treatment should be prequalified along with the applicable welding procedure in accordance with ASME Section IX.

1692 (N-90)	04-28-75 07-01-78	Rules for Design of Welded Class 1 Pumps
1695-1	11-03-75 01-01-78	Brazing, Section III, Division 1, Class 3
1702-1 (N-96-1)	07-11-77 01-01-80	Flanged Valves Larger than 24 inches for Section III, Division 1, Class 1, 2 and 3 Construction
1703	06-30-75 01-01-78	Brazing of Copper Alloys Section III, Class 2
1706	06-30-75 12-31-75	Data Report Forms for Component Supports, Section III, Class 1, 2 and 3
1712 (N-101)	08-11-75 03-01-79	Nameplates and Stamping for Section III, Division 1, Class 1, 2, 3 and MC Construction as Referenced in NA-8300
1718[11]	08-11-75 07-01-76	Design of Structural Connections for Linear Type Component Supports, Section III, Division 1, Class 1, 2 and 3 and MC
1719[11]	08-11-75 07-01-76	Single-Welded, Full-Penetration Sidewall Butt Joints in Atmospheric Storage Tanks, Section III, Division 1, Class 2
1726 (N-109)	11-03-75 03-01-79	Refinement of Low Alloy Steel Heat Affected Zone Under Overlay Cladding Section III, Division 1, Class 1 Components
1727 (N-110)	12-22-75 01-01-79	Alternate Test Fluids, Section III, Division 1

Code Case 1727 was acceptable subject to the following condition in addition to those conditions specified

[13]Code Case 1681 was approved by Council on 12-16-74 and revised on 3-3-75. Because Code Case 1681 was not in effect on March 31, 1975, the Code Case was not included in this guide.

in the Code Case: The applicant should provide justification in the referencing Safety Analysis Report for the fluid selected for use in the pressure test. The information provided should demonstrate that the fluid selected will not have deleterious effects on the material of the pressure boundary and that the fluid may be safely used at the specified temperature and pressure of the test. When the fluid selected for use is the operating fluid, additional information is not required.

1729 (N-111)	11-03-75 03-01-79	Minimum Edge Distance - Bolting for Section III, Division 1, Class 1, 2, and 3 and MC Construction of Component Supports
1732 (N-114)	11-03-75 01-01-79	Hardsurfaced Valves with Inlet Connections less than 2-in. Nominal Pipe Size for Section III, Division 1, Class 1 and 2 Construction
1733 (N-115)	11-03-75 01-01-78	Evaluation of Safe Shut Down Earthquake Loadings for Section III, Division 1, Class MC Containment Vessels
1734 (N-116)	11-03-75 01-01-78	Weld Design for Use for Section III, Division 1, Class 1, 2, 3 and MC Construction of Component Supports

Code Case 1734 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case: If the configuration of Figure 1 of the Code Case is used for Class 1 and MC component supports, full penetration welds should be used. The application of the configuration shown in Figures 2 and 3 should be restricted to the welding of cans for spring encapsulation in spring hangers. In Figure 3, the length of the leg of the fillet weld adjacent to the plate should be equal to the thickness of the exposed end of the plate; also, the leg of the fillet weld adjacent to the shell should be equal to the thickness of the exposed end of the shell.

1744 (N-121)	03-01-76 03-01-79	Carbon Steel Pipe Flanges Larger than 24 in. Section III, Division 1, Class 2 and 3 Construction
1765	04-26-76 07-01-77	Machining After Hydrostatic Testing Class 2 and 3 Construction, Section III, Division 1
1768	06-29-76 01-01-78	Permanent Attachments to Containment Vessels–Class MC, Section III, Division 1
1769-1	02-16-77 10-01-77	Qualification of NDE Level III Personnel, Section III, Division 1
1774-1 (N-142-1)	07-11-77 01-01-80	Minimum Wall Thickness for Class 2 and 3 Valves, Section III, Division 1
1775	08-13-76 08-13-79	Data Report Forms for Core Support Structures, Class CS, Section III, Division 1
1783-1	01-14-77 01-01-79	Qualification of Nondestructive Examination Personnel, Section III, Division 1

Code Case 1783-1 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: The first sentence of paragraph (1) should be replaced with the following: "The certification of the Level III nondestructive examination personnel for the purpose of this Section of the Code shall be the responsibility of the employer of the Level III individual. If the employer is not a Certificate Holder, then the verification of such certificate is the responsibility of the Certificate Holder."

1791 (N-154)	01-14-77 01-14-80	Projection Resistance Welding of Valve Seats, Section III, Division 1, Class 1, 2 and 3 Valves
1796 (N-159)	01-14-77 07-01-78	Body Neck Thickness Determination for Valves with Inlet Connections 4-Inch Nominal Pipe Size and Smaller, Section III, Division 1, Class 1, 2, and 3
1808	02-16-77 01-01-78	F-Number Classification of Low Alloy and Carbon Steel Bare Rod Electrodes Sections I, II, III, IV, V, VIII, and IX
1818 (N-175)	03-23-77 07-01-79	Welded Joints in Component Standard Supports, Section III, Division 1

Code Case 1818 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: That portion of the unwelded housing that is limited to 90° maximum should include a minimum of two sectors that are uniform in length.

N-179	07-11-77 07-11-80	Openings in Valves for Section III, Division 1, Class 1, 2 and 3 Construction
N-184	07-11-77 07-01-79	Roll Threading of SA-453 Bolting for Section III, Division 1, Class 1, 2, 3 or CS Construction
N-189	08-29-77 07-01-79	Primary Membrane Plus Primary Bending Stress Intensity Limits for Other Than Solid Rectangular Sections for Section III, Division 1, Class MC Construction
N-199	03-20-78 01-01-81	Intervening Elements Section III, Division 1, Classes 1, 2, 3 and MC Component Construction

Code Case N-199 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: The applicant should provide information in the referencing Safety Analysis Report that demonstrates that all intervening elements have been designed in compliance with the requirements of the respective design specification.

N-226	11-20-78 01-01-80	Temporary Attachment of Thermocouples, Section III, Division 1, Class 1, 2 and 3 Component Construction

3. Code Cases that were endorsed by the NRC in a prior version of this guide and were superseded by revised Code Cases on or after July 1, 1974, should be considered as not

endorsed as of the date of the Council action that approved the revised version of the Code Cases. These Code Cases that are no longer endorsed are listed in the following by number, effective dates,[14] and title.

1508[15]	12-13-71 06-30-75	Allowable Stresses, Design Intensity and/or Yield Strength Values, Section I, III, and VIII, Divisions 1 and 2
1516-1	06-25-73 08-11-75	Welding of Seats in Valves for Section III Applications
1539 (N-30-1)	11-06-72 11-21-77	Metal Bellows and Metal Diaphragm Stem Sealed Valves, Section III, Classes 1, 2, and 3
1540-1	03-03-73 01-14-77	Elastomer Diaphragm Valves, Section III, Classes 2 and 3
1541-1	08-13-73 09-30-76	Hydrostatic Testing of Embedded Class 2 and Class 3 Piping for Section III Construction
1541-2	09-30-76 05-15-78	Hydrostatic Testing of Embedded Class 2 and Class 3 Piping for Section III, Division 1 Construction
1552	12-18-72 08-29-77	Design by Analysis of Section III, Class 1 Valves
1553	12-18-72 03-03-75	Upset Heading and Roll Threading of SA-453 for Bolting, Section III
1555	12-18-72 01-14-77	Certification of Safety Relief Valves on Liquids
1606	11-05-73 12-16-74	Stress Criteria for Section III, Class 2 and 3 Piping Subjected to Upset, Emergency, and Faulted Operating Conditions

Code Case 1606 was acceptable subject to the interpretation that the stress limit designations of "Upset," "Emergency," and "Faulted" do not necessarily imply agreement with specified plant conditions applicable to ASME Code Class 2 and 3 components for fluid systems. These designations should be established and justified in the design specifications.

1607	11-05-73 11-04-74	Stress Criteria for Section III, Classes 2 and 3 Vessels Subjected to Upset, Emergency, and Faulted Operating Conditions

Code Case 1607 was acceptable subject to the interpretation that the stress limit designations of "Upset," "Emergency," and "Faulted" do not necessarily imply agreement with specified plant conditions applicable to ASME Code Class 2 and 3 components for fluid systems. These designations should be established and justified in the design specifications.

1630 (N-77)	11-04-74 07-10-78	External Pressure Charts for High Yield Strength Carbon Steels and Low Alloy Steels. (Yield strength above 38 Ksi to 60 Ksi Inclusive). For Section III, Class 1, 2, 3, and MC; and Section VIII, Division 1 and 2
1683	03-03-75 03-01-76	Bolt Holes for Section III, Division 1, Class 1, 2, 3 and MC Component Supports
1689	06-30-75 09-10-76	Alternate PWHT Time and Temperature for SA-182 Grade F22 Section III, Class 1, 2, 3 and CS

Code Case 1689 was acceptable subject to the following condition in addition to that specified in the Code Case: The alternate postweld heat treatment should be prequalified along with the applicable welding procedure in accordance with ASME Section IX.

1695	04-28-75 11-03-75	Brazing, Section III, Class 3
1701	06-30-75 03-20-78	Determination of Capacities of Vacuum Relief Valves Section III, Class MC
1701-1 (N-95-1)	03-20-78 03-19-79[16] 07-09-79	Determination of Capacities of Vacuum Relief Valves, Section III, Division 1 and 2, Class MC
1702	06-30-75 07-11-77	Flanged Valves Larger than 24 inches for Section III, Class 1, 2 and 3 Construction
1720	08-11-75 03-01-76	Weld End Preparation for Section III, Division 1 Construction

Code Case 1720 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: Weld end preparations other than those shown in Figures 1, 2, and 3 of the Code Case are not acceptable on a generic basis. Such alternative end preparations should be treated on a case-by-case basis.

1720-1	03-01-76 11-20-78	Weld End Preparation for Section III, Division 1 Construction

Code Case 1720-1 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: The acceptance of weld end preparations other than those shown in Figures 1, 2, and 3 of the Code Case should be evaluated on a case-by-case basis.

1739-2 (N-119-2)	08-28-78 08-25-80	Pump Internal Items, Section III, Division 1, Class 1, 2, and 3
1739-3 (N-119-3)	08-25-80 11-17-80	Pump Internal Items, Section III, Division 1, Class 1, 2, and 3
1761	04-26-76 01-14-77	Use of SB-148 Alloy CA954 for Section III, Division 1, Class 2 or 3 Flanged End Valves
1769	08-13-76 02-16-77	Qualification of NDE Level III Personnel, Section III, Division 1
1774	08-13-76 07-11-77	Minimum Wall Thickness for Class 2 and 3 Valves, Section III, Division 1
1780	09-10-76	Hydrostatic Testing and Stamping

[14] Earlier date–date Code Case was approved by ASME Council; later date–date revision of Code Case was approved by ASME Council.

[15] Code Case 1508 is no longer listed by ASME as a Section III Code Case and is therefore deleted from the acceptable listing.

[16] This Code Case had been reaffirmed by the ASME Council prior to its annulment.

03-10-78 of Pumps for Class 1 Construction, Section III, Division 1

Code Case 1780 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case: Each licensing application in which the Code Case is to be used should present information that satisfactorily demonstrates that the subassembly tests adequately simulate the pressure loadings. Also, the closure fixture for the test subassembly should adequately simulate the rigidity of adjacent subassemblies and also simulate the interface loadings from adjacent subassemblies that would result from a hydrostatic pressure test of a complete pump assembly. As a minimum, the closure fixture should impose loads that result in stresses equal to or greater than those induced during the hydrostatic test of a complete pump assembly. It is not intended that piping reaction loadings be simulated in the hydrostatic testing.

1783 09-10-76 Qualification of Nondestructive Personnel, Section III, Division 1
01-14-77

Code Case 1783 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: The first sentence of paragraph (1) should be replaced with the following: "The certification of the Level III nondestructive examination personnel for the purposes of this Section of the Code shall be the responsibility of the employer of the Level III individual. If the employer is not a Certificate Holder, then the verification of such certificate is the responsibility of the Certificate Holder."

N-192 01-09-78 Use of Flexible Hose for Section III, Division 1, Class 1, 2, and 3 Construction
08-30-79

Code Case N-192 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case. The applicant should indicate system application, design and operating pressure, and pressure-temperature rating of the flexible hose. Data to demonstrate compliance of the flexible hose with NC/ND-3649, particularly NC/ND-3649.4(e), are required to be furnished with the application.

N-196 01-09-78 Exemption from the Shakedown Requirements When Plastic Analysis is Performed for Section III, Division 1, Class 1 Construction
01-08-79

4. Code Cases for Class 1 components that are not on the approved list of this guide (paragraph C.1) or other regulatory guides, or for which authorization by the Commission has not been granted, are not acceptable for Class 1 components.

5. Code Cases for other classes of components that are not on the approved list of this guide (paragraph C.1) or other regulatory guides should be considered not acceptable on a generic basis.

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants regarding the use of this regulatory guide.

1. Except for those Code Cases that have been annulled by action of the ASME Council, the NRC staff has found the Code Cases listed in this regulatory guide under regulatory position C.1 acceptable for appropriate use. Other Code Cases may be considered for use in accordance with footnote 6 of the Codes and Standards rule, § 50.55a of 10 CFR Part 50.

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

3. Components ordered to a Code Case that was previously approved for use need not be changed because the Code Case has been subsequently annulled.

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

APPENDIX

NUMERICAL LISTING OF CODE CASES*

1539-1 (N-30-1)
1540-2
1588
1609-1
1620
1621-2 (N-62-2)
1630-1 (N-66-1)
1693 (N-212)
1700
1701-2 (N-95-2)
1711
1720-2
1739-4 (N-119-4)
1745
1761-1
1780-1 (N-146-1)
1791
1792-2 (N-155-2)
1797
1812 (N-174)
N-182
N-192-1
N-193
N-196-1
N-214
N-215
N-217-1
N-220
N-228
N-229
N-233
N-237
N-238
N-240
N-241
N-243
N-247
N-252
N-260
N-261
N-262
N-263
N-271
N-272
N-275
N-276
N-279
N-280
N-281
N-282
N-284
N-300

*Code Case 1625 was inadvertently listed in the appendix of Regulatory Guide 1.84, Revision 1. This Code Case is covered in Regulatory Guide 1.85, Revision 1.

Code Case 1575 is a Section VIII Case and therefore has been eliminated from this regulatory guide, which covers Section III Cases.

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