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DRAFT REGULATORY GUIDE

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DRAFT REGULATORY GUIDE DG-1048
(Proposed Revision 31 to 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)(3), 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

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

This regulatory guide is being issued in draft form to involve the public in the early stages of the development of a regulatory position in this area. It has not received complete staff review and does not represent an official NRC staff position.

Public comments are being solicited on the draft guide (including any implementation schedule) and its associated regulatory analysis or value/impact statement. Comments should be accompanied by appropriate supporting data. Written comments may be submitted to the Rules and Directives Branch, DAS, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Copies of comments received may be examined at the NRC Public Document Room, 2120 L Street NW., Washington, DC. Comments will be most helpful if received by **July 21, 1997.**

Requests for single copies of active or draft regulatory guides (which may be reproduced) or for placement on an automatic distribution list for single copies of future draft guides in specific divisions should be made in writing to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Office of Information Resources Management, Distribution Services Section; or by fax to (301)415-2260.

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. This guide is being issued for public comment on the NRC staff position on new code cases, revised code cases, and annulled code cases since Revision 30 of the guide.

Regulatory guides are issued to describe and make available to the public such information as methods acceptable to the NRC staff for implementing specific parts of the Commission's regulations, techniques used by the staff in evaluating specific problems or postulated accidents, and guidance to applicants. Regulatory guides are not substitutes for regulations, and compliance with regulatory guides is not required. Regulatory guides are issued in draft form for public comment to involve the public in the early stages of developing the regulatory positions. Draft regulatory guides have not received complete staff review and do not represent official NRC staff positions.

This regulatory guide contains no information collection activities and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.).

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. 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 May 12, 1994, were ² reviewed for inclusion in this guide. In addition to the listing of acceptable Code Cases, this revision of the guide includes listings 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 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 ASME 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 whether 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

²Lines indicate substantive changes from Revision 30.

will require periodic updating to accommodate new Code Cases and any revisions of existing Code Cases.

C. REGULATORY POSITION

1. ACCEPTABLE CODE CASES

The Section III ASME Code Cases² listed below (by number, date of ASME 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 ASME approval,³ and title):

(1) Code Cases applicable to piping design:

N-122-2	04-28-94	Procedure for Evaluation of the Design of Rectangular Cross Section Attachments on Class 1 Piping, Section III, Division 1
N-160-1	07-18-85 07-18-88 03-14-91 03-14-94	Finned Tubing for Construction, Section III, Division 1
N-453-2	04-30-92	Nickel-Chromium-Molybdenum-Copper Stainless Steel (UNS N08925 and N08926) Seamless and Welded Pipe for Class 2 and 3 Construction, Section III, Division 1

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

³When more than one date is given, the earlier date is that on which the Code Case was approved by the ASME and the later date(s) is that on which the Code Case was reaffirmed by the ASME.

- N-454-1 04-30-92 Nickel-Chromium-Molybdenum-Copper Stainless Steel (UNS N08925 and N08926) Wrought Fittings for Class 2 and 3 Construction Section III, Division 1
- N-455-1 04-30-92 Nickel-Chromium-Molybdenum-Copper Stainless Steel (UNS N08925 and N08926) Forged Flanges and Fittings for Class 2 and 3 Construction, Section III, Division 1

(2) Code Cases applicable to valve design:

- N-133-3 07-18-85 Use of SB-148 Alloys 952 and 954, Section III,
07-18-88 Division 1, Class 3
03-14-91
03-14-94
- N-313 05-11-81 Alternate Rules for Half-Coupling Branch Connections,
11-28-83 Section III, Division 1
11-28-86
11-28-89
11-28-92
- N-394 02-20-84 Restricting Lift to Achieve Reduced Relieving
07-30-86 Capacities of Full Lift, Nozzle Type, and Flat
07-30-89 Seated Safety and Safety Relief Valves for
07-27-92 Compressible Fluid Applications, Section III, Division 1,
Classes 2 and 3
- N-410 12-05-84 Certified Relieving Capacities of Pressure Relief
07-27-88 Valves Having Set Pressure of 3 psig up to but Not
03-14-91 Including 15 psig Installed for Overpressure
03-14-94 Protection of Compressible Fluid Systems, Section III,
Division 1, Classes 2 and 3

(3) Other Code Cases related to design:

- N-122-2 04-28-94 Procedure for Evaluation of the Design of Rectangular
Cross Section Attachments on Class 1 Piping, Section III,
Division 1
- N-243 08-30-79 Boundaries Within Castings Used for Core Support
07-16-82 Structures, Section III, Division 1, Class CS
05-19-85
05-19-88
03-14-91
03-14-94
- N-309-1 12-05-85 Identification of Materials for Component Supports,
07-27-88 Section III, Division 1
03-14-91
- N-411-1 02-20-86 Alternative Damping Values for Response Spectra
02-20-89 Analysis of Classes 1, 2, and 3 Piping, Section III,
04-30-92 Division 1

Code Case N-411-1 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: (1) The Code Case damping should be used completely and consistently, if used at all. (For equipment other than piping, the damping values specified in Regulatory Guide 1.61, "Damping Values for Seismic Design of Nuclear Power Plants," should be used.) (2) The damping values specified may be used only in those analyses in which current seismic spectra and procedures have been employed. Such use should be limited only to response spectral analyses (similar to that used in the study supporting its acceptance--Reference NUREG/CR-3526). The acceptance of the use with other types of dynamic analyses (e.g., time-history analysis or independent support motion method) is pending further justification. (3) When used for reconciliation work or for support optimization of existing designs, the effects of increased motion on existing clearances and on line mounted equipment should be checked. (4) This Code Case is not appropriate for analyzing the dynamic response of piping systems using supports designed to dissipate energy by yielding (i.e., the design of which is covered by Code Case N-420). (5) This Code Case is not applicable to piping in which stress corrosion cracking has occurred unless a case-specific evaluation is made and is reviewed by the NRC staff.

N-420	02-14-85 02-14-88 03-14-91 03-14-94	Linear Energy Absorbing Supports for Subsection NF, Classes 1, 2, and 3 Construction, Section III, Division 1
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Code Case N-420 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case. Each applicant desiring to use the Code Case should provide the following information prior to implementing the Case: (1) indication of systems in which energy-absorbing supports are to be used, (2) fatigue design, (3) piping system analysis results considering inelastic behavior of supports, and (4) plans for inservice examination of energy absorbers.

N-433	12-16-86 12-16-89 12-16-92	Non-Threaded Fasteners for Section III, Division 1, Class 1, 2, and 3 Component and Piping Supports, Section III, Division 1
N-476	05-06-89 07-27-92	Class 1, 2, 3, and MC Linear Component Supports--Design Criteria for Single Angle Members, Section III, Division 1, Subsection NF
N-505	07-27-92	Alternative Rules for the Examination of Butt Welds Used as Closure Welds for Electrical Penetration Assemblies in Containment Structures, Section III, Division 1
N-511	02-12-93	Design Temperature for Atmospheric and 0-15 PSI Storage Tanks, Section III, Division 1
N-520	12-09-93	Alternative Rules for Renewal of N-type Certificates for Plants Not in Active Construction, Section III, Division 1

b. Fabrication-oriented Code Cases:

(1) Code Cases related to welding and brazing:

N-154-1	12-05-85 12-05-88 02-05-92	Projection Resistance Welding of Valve Seats, Section III, Division 1, Class 1, 2, and 3 Valves
N-304-4	02-23-87 12-11-89 02-12-93	Use of 20Cr-25Ni-6Mo (Alloy UNS N08366) Plate, Sheet, Strip and Welded Pipe, Class 2 and 3 Section III, Division 1
N-315	02-14-83 02-19-86 02-19-89 02-05-92	Repair of Bellows, Section III, Division 1

Code Case N-315 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: Prior to implementation of the Code Case, the applicant should present a description of the repair and a justification why the bellows should be repaired rather than replaced. Following receipt of approval for the repair, but prior to making the repair, the applicant should present the results of the qualification on the full-scale facsimile bellows, including the design requirements, to ensure that the repair meets the requirements of the design specification.

N-345-1	12-13-82 06-30-88 03-14-91 03-14-94	Attachment of AMS 5382 Alloy 31 Seat Rings by Friction Welding, Section III, Division 1, Classes 1, 2, and 3
N-391-1	07-24-89 07-27-92	Procedure for Evaluation of the Design of Hollow Circular Cross Section Welded Attachments on Class 1 Piping, Section III, Division 1

Code Case N-391-1 is acceptable subject to the following conditions in addition to those specified in the Code Case: The following typographical errors need to be corrected:

1. In equation (3) the + sign should be changed to an = sign.
2. In equation (4) the first + sign should be changed to an = sign.

N-392-2	12-11-92	Procedure for Evaluation of the Design of Hollow Circular Cross Section Welded Attachments on Classes 2 and 3 Piping, Section III, Division 1
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Code Case N-392-2 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: Applicants should identify in their Safety Analysis Report: (1) the method of lug attachment, (2) the piping system involved, and (3) the location in the system where the Case is to be applied.

N-393	11-28-83 07-30-86 07-30-89 07-27-92	Repair Welding Structural Steel Rolled Shapes and Plates for Component Supports, Section III, Division 1
N-395	12-11-89 12-11-92	Laser Welding, Section III, Division 1
N-452	03-08-89 04-30-92	Specialized Subcontracted Welding Process (Electron Beam Welding), Section III, Division 1
N-464	03-08-89 04-30-92	Laser Welding of Lap-Joints, Section III, Division 1, Class 2 and 3 Construction

(2) Other Code Cases Related to Fabrication:

N-240	03-19-79 01-21-82 09-17-84 09-17-87 08-14-90 08-14-93	Hydrostatic Testing of Open Ended Piping, Section III, Division 1
N-241	07-09-79 01-21-82 09-17-84 09-17-87 12-11-89 12-11-92	Hydrostatic Testing of Piping, Section III, Division 1
N-368	07-06-83 06-30-87 08-14-90 08-14-93	Pressure Testing of Pump Discharge, Section III, Division 1, Classes 2 and 3

Code Case N-368 is acceptable subject to the following condition in addition to those conditions specified in the Code Case: Applicants using this Code Case should provide information to demonstrate that the length of discharge piping is reasonably short.

N-369	02-14-83 02-19-86 02-19-89 02-05-92	Resistance Welding of Bellows, Section III, Division 1
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c. Code Cases with Contingent Approval:

N-62-7	05-11-94	Internal and External Valve Items, Section III, Division 1, Class 1, 2, and 3
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Code Case N-62-7 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.

1792-2 01-08-79 Fiberglass Reinforced Thermosetting Resin Pipe,
(N-155-2) 01-21-82 Section III, Division 1
 01-21-85
 01-21-88
 03-14-91
 03-14-94

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-192-2 09-16-81 Use of Braided Flexible Connectors, Section III,
 09-17-84 Division 1, Class 2 and 3
 09-17-87
 08-14-90
 08-14-93

Code Case N-192-2 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-284 08-25-80 Metal Containment Shell Buckling Design Methods,
 05-25-83 Section III, Division 1, Class MC
 07-30-86
 07-30-89
 07-27-92

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.

N-292 01-05-81 Depositing Weld Metal Prior to Preparing Ends for
 11-28-83 Welding, Section III, Division 1, Class 1, 2, and 3
 07-30-86 Construction
 07-30-89
 07-27-92

Code Case N-292 is acceptable subject to the following conditions in addition to those conditions specified in the Code Case: Class 3 piping that is longitudinally welded and that has a weld efficiency factor of 1.0 as selected from Table ND-3613.4-1 should receive a 100 percent volumetric examination (RT or UT) of the deposited weld metal in accordance with the requirements of ND-5000.

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 ⁸ 01-01-80	Welding of Seats or Minor Internal Permanent Attachments in Valves for Section III Applications
1533 ⁹	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
1539-1 (N-30-1)	11-21-77 01-01-81	Metal Bellows and Metal Diaphragm Stem Sealed Valves, Section III, Division 1, Classes 1, 2, and 3
N-31-1	07-18-85 07-18-88 03-14-91 07-01-93	Elastomer Diaphragm Valves, Section III, Class 2 and 3

Code Case N-31-1 was 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.

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
N-32-4	03-16-81 03-16-84	Hydrostatic Testing of Embedded Class 2 and 3 Piping for Section III, Division 1 Construction

Code Case N-32-4 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case:

The acceptance was based on the following clarification and interpretation. Code Case N-32-4 does not replace paragraph NC/ND 6129, "Provisions for Embedded or Inaccessible Welded Joints in Piping," of the

⁸This revision of the Code Case was originally approved by the ASME 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.

⁹Code Case was annulled on date as indicated, but the annulment was first indicated in Revision 12 to this guide.

Code. The intent of the Code Case is to (1) provide additional testing above Code requirement and (2) permit liquid penetrant or magnetic particle testing in place of radiographic testing for Class 3 piping with 3/8" nominal wall thickness or less.

Paragraph (1) contains an additional requirement to the Code. It was, therefore, acceptable but unnecessary to include in the Code Case. Paragraph (2) is a variation in the volumetric examination technique and was acceptable as written. Paragraph (3) contains an additional requirement and is not a relaxation of the Code. It was, therefore, acceptable but unnecessary to include in the Code Case.

1552-1 (N-35-1)	08-29-77 07-01-79	Design by Analysis of Section III, Class 1 Valves
1553-1 ⁹	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 ¹⁰ 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 Over-pressure 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
1588 (N-46)	08-13-73 03-19-79 03-19-82	Electro-Etching of Section III Code Symbols
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

¹⁰Corrected date.

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 Stress Criteria for Section III, Classes 2 and 3
 07-01-77 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.

N-55-1 04-05-84 Inertia and Continuous Drive Friction Welding,
 (1609) 04-05-87 Section III, Division 1

1614 12-17-73¹⁰ Hydrostatic Testing of Piping Prior To or Following
 01-01-79 the Installation of Spray Nozzles for Section III,
 Classes 1, 2, and 3 Piping Systems

1620 03-02-74 Stress Category for Partial Penetration Welded
 (N-61) 01-08-79 Penetrations, Section III, Class 1 Construction
 01-08-82

1623 03-02-74 Design by Analysis for Section III, Class I Sleeve-
 03-01-79 Coupled and Other Patented Piping Joints

1630-1 07-10-78 External Pressure Charts for High Yield Strength
 (N-66-1) 07-10-81 Carbon Steels and Low Alloy Steels. (Yield Strength
 above 38 Ksi to 60 Ksi Inclusive.) For Section III, Class
 1, 2, 3, and MC

1630-1 12-11-81¹¹ External Pressure Charts for High Yield Strength
 (N-66-1) 12-05-84 Carbon Steels and Low Alloy Steels. (Yield Strength
 12-05-87 above 38 Ksi to 60 Ksi Inclusive.) Section III, Division
 1, Class 1, 2, 3, and MC

1633 04-29-74 Brazing of Seats to Class 1, 2, and 3 Valve Body or
 01-01-78 Bonnets, Section III

1635-1¹² 08-12-74 Stress Criteria for Section III, Class 2 and 3 Valves
 07-01-77 Subjected to Upset, Emergency, and Faulted Operating
 Conditions

¹¹The Code Case was annulled on July 10, 1981 (ASME mandatory annulment date). It was reinstated on December 11, 1981. 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 7-10-81 through 12-11-81.

¹²Code Cases 1635 and 1636 were approved by ASME 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.

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 F-22, 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
1700 (N-94)	11-03-75 03-19-79 03-19-82	Determination of Capacities of Liquid Relief Valves, Section III, Division 1, Class 1, 2, and 3
1701-2 (N-95-2)	07-09-79 07-09-82	Determination of Capacities of Vacuum Relief Valves, Section III, Division 1, Classes 2, 3, and MC and Division 2 Concrete Containments
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
1711 (N-100)	11-03-75 01-08-79 01-21-82 01-01-83	Pressure Relief Valve Design Rules, Section III, Division 1, Class 1, 2 and 3

¹³Code Case 1681 was approved by ASME 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.

Code Case 1711 was 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 ensured. 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.

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 ⁹	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 ⁹	08-11-75 07-01-76	Single-Welded, Full-Penetration Sidewall Butt Joints in Atmospheric Storage Tanks, Section III, Division 1, Class 2
1720-2 (N-106-2)	11-20-78 08-28-81 09-17-84 09-17-87 08-14-90 08-14-93	Weld End Preparation for Section III, Division 1 Construction

Code Case 1720-2 (N-106-2) 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.

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 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.

1739-4 (N-119-4)	11-17-80 12-01-83 ¹⁴	Pump Internal Items, Section III, Division 1, Class 1, 2, and 3
N-119-6	09-05-85 07-27-88 03-14-91 03-14-94	Pump Internal Items, Section III, Division 1, Class 1, 2 and 3
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

¹⁴The Code Case was annulled on December 1, 1983 (ASME mandatory annulment date). It was reinstated on February 20, 1984. 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 12-1-83 through 2-20-84.

N-182	07-11-77 07-01-81	Alternate Rules for Procedure Qualification Base Material Orientation, Section III, Division 1, Class 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-193	11-21-77 11-21-80	Use of SB-61 and SB-62 Bronze for Section III, Division 1, Class 3 Flange and Socket Weld End Valves
N-196-1	01-08-79 01-21-82 01-21-85 01-21-88 12-03-90 07-01-92	Exemption from the Shakedown Requirements When Plastic Analysis is Performed for Section III, Division 1, Class 1 and CS 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.

1693 (N-212)	03-20-78 01-01-81	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
N-214-2	05-25-83 12-31-83	Use of SA-351 Grade CN7M, for Valves, Section III, Division 1
N-215 ¹⁵	05-15-78 05-15-81	Integrally Finned Titanium Tubes, Section III, Division 1, Class 3 Construction
N-217-1	01-07-80 09-07-82 12-05-84 09-05-85 02-23-87	Postweld Heat Treatment of Weld Deposit Cladding on Classes 1, 2, 3, MC, and CS Items, Section III, Division 1
N-220	08-28-78 07-13-81 07-13-84	Code Effective Date for Component Supports, Section III, Division 1

¹⁵Code Case N-215 was annulled effective May 15, 1981. It was removed from the active Code Case listing with Revision 29 of Regulatory Guide 1.84.

N-226	11-20-78 01-01-80	Temporary Attachment of Thermocouples, Section III, Division 1, Class 1, 2 and 3 Component Construction
N-228	03-19-79 03-19-82	Alternate Rules for Sequence of Completion of Code Data Report Forms and Stamping for Section III, Class 1, 2, 3 and MC Construction
N-229	01-08-79 01-21-82 01-21-85 01-21-88	Alternate Rules for Fabrication Welding SB-148 Alloy CDA 954 for Section III, Division 1, Class 3 Construction
N-233	01-08-79 01-21-82 09-17-84 09-17-87	Alternate Rules for PWHT of P-No. 6, Group 4 Material for Section III, Division 1, Class 1, 2, or 3 Construction
N-237-2	05-25-83 07-30-86 12-07-87 07-01-88	Hydrostatic Testing of Internal Piping, Section III, Division 1, Classes 2 and 3
N-238	05-14-79 01-01-82	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 was 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-247	07-09-79 01-21-82 01-21-85 01-21-88 03-14-91 04-30-93	Certified Design Report Summary for Component Standard Supports, Section III, Division 1, Class 1, 2, 3 and MC
N-252	11-19-79 07-01-82	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 was 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-260-2	12-05-85 12-05-88	Weld Repair of SA-182 Type 316 Forgings, Section III, Division 1, Classes 1, 2, 3, and MC
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Code Case N-260-2 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: Type 308 L welding materials should not be used to repair grade F 316 N forgings because of the difference in strength levels.

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| N-261 | 05-15-80
12-13-82 | Weld Procedure Qualification for Materials with Impact Requirements for Section III, Division 1, Class 3 Construction |
| N-262 | 01-07-80
09-07-82
09-05-85
07-27-88
03-14-91
07-27-91 | Electric Resistance Spot Welding for Structural Use in Component Supports, Section III, Division 1 |
| N-263 | 03-17-80
03-17-83 | Alternate Thread Forms, Series and Fits for Component Supports, Section III, Division 1 |

Code Case N-263 was 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.

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| N-271 | 03-17-80
02-14-86 | 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-272 | 05-15-80
01-01-82 | Compiling Data Report Forms, Section III, Division 1 |
| N-275 | 05-15-80
12-07-82
12-31-83 | Repair of Welds, Section III, Division 1 |

Code Case N-275 was 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.

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| N-276 | 03-17-80
02-14-83
02-14-86 | Welding of SA-358 Pipe, Section III, Division 1 |
| N-279 | 05-15-80
07-13-81 | Use of Torquing as a Locking Device for Section III, Division 1, Class 1, 2, 3, and MC Component Supports |

Code Case N-279 was 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-280	05-15-80 07-01-81	Alternate Rules for Examination of Welds in Section III, Class 3 Storage Tanks
N-281	05-15-80 07-01-81	Welding Operator Performance Qualification, Section III, Division 1
N-282	05-15-80 05-25-83 07-30-86 07-30-89	Nameplates for Valves, Section III, Division 1, Class 1, 2, and 3 Construction
N-300	11-17-80 12-01-83	Pressure-Temperature Ratings, Hydrostatic Tests, and Minimum Wall Thickness of Valves, Section III, Division 1, Class 1
N-302	03-16-81 11-28-83	Tack Welding, Section III, Division 1, Construction
N-309	05-11-81 05-11-84	Identification of Materials for Component Supports, Section III, Division 1
N-314	05-11-81 05-11-84	Alternate Rules for Thread Engagement, Section III, Division 1

Code Case N-314 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case: Applicants should identify in their Safety Analysis Report (1) the minimum length of thread engagement and (2) the procedure used to establish thread engagement.

N-316	12-11-81 09-17-84 09-17-87 08-14-90 08-14-93	Alternate Rules for Fillet Weld Dimensions for Socket Welded Fittings, Section III, Division 1, Class 1, 2, and 3
N-320	07-13-81 12-31-83	Alternate PWHT for SA-487, Grade CA6NM, Section III, Division 1
N-328	12-11-81 09-17-84 09-17-87	Thermit Brazing or Welding of Nonstructural Attachments, Section III, Division 1
N-336	06-17-82 06-30-83	Examination of Welds Inaccessible During Pressure Test, Section III, Division 1, Class MC
N-339	06-17-82 09-17-84	Examination of Ends of Fillet Welds, Section III, Division 1, Classes 1, 2, and MC

N-341	06-17-82 05-19-85 02-23-87 07-01-88	Certification of Level III NDE Examiner, Section III, Division 1 and 2
N-346	06-17-82 05-19-85 06-30-86	Explosive Welding, Section III, Division 1
N-347	12-07-82 12-13-85	Continuous Electric Resistance Seam Welding of P-No. 8 Materials for Component Supports, Section III, Division 1
N-349	07-16-82 12-31-85	Pressure Testing Piping Systems, Section III, Division 1, Classes 2 and 3
N-350	12-07-82 09-05-85	Postweld Heat Treatment -- Thickness of Material, Section III, Division 1

Code Case N-350 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: Applicants wishing to use this Case for other than P-1 materials should demonstrate that the use of this Case will not adversely affect the required material properties.

N-357	12-13-82 05-19-85 07-01-88	Certification of Material for Component Supports, Section III, Division 1, Subsection NF
N-359	12-13-82 12-31-84	Weld Connection for Coaxial Cylinders, Section III, Division 1, Class 1
N-362-2	07-12-84 04-05-87 07-27-87 07-01-88	Pressure Testing of Containment Items, Section III, Division 1, Classes 1, 2, and MC
N-376	05-25-83 07-30-86	Pressure Testing of Embedded Class 2 and 3 Piping, Section III, Division 1
N-377	04-04-83 12-31-83	Effective Throat Thickness of Partial Penetration Groove Welds, Section III, Division 1, Classes 1, 2, and 3
N-383-1	07-18-85 09-05-85	Weld Repair of SA-182 Austenitic Forgings, Section III, Division 1, Classes 1, 2, and 3

Code Case N-383-1 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: Applicants who apply the provisions of this Case to permit material manufacturers to weld repair austenitic forgings without re-solution heat treatment should provide justification to the NRC staff (via the Safety Analysis Report) why this is acceptable for their applications, including their evaluation of the susceptibility for stress corrosion cracking.

revised version of the Code Cases. These Code Cases that are no longer endorsed are listed in the following by number, effective dates,¹⁶ and title.

1508 ¹⁷	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
1540-2 (N-31)	01-14-77 01-07-80 02-14-83 07-18-85	Elastomer Diaphragm Valves, Section III, Class 2 and 3

Code Case 1540-2 (N-31) was 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.

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

¹⁶Earlier date—date Code Case was approved by ASME; later dates—date revision of Code Case was approved by ASME.

¹⁷Code Case 1508 is no longer listed by ASME as a Section III Code Case and is therefore deleted from the acceptable listing.

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 Weld End Preparation for Section III, Division 1
 11-20-78 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 08-28-78 Pump Internal Items, Section III, Division 1,
 (N-119-2) 08-25-80 Class 1, 2, and 3

1739-3 08-25-80 Pump Internal Items, Section III, Division 1,
 (N-119-3) 12-01-80 Class 1, 2, and 3

1739-4 12-01-80 Pump Internal Items, Section III, Division 1,
 (N-119-4) 02-20-84¹⁴ Class 1, 2, and 3
 07-18-85

N-119-5 07-18-85 Pump Internal Items, Section III, Division 1,
 09-05-85 Class 1, 2, and 3

1745 03-01-76 Stress Indices for Structural Attachments, Class 1,
 (N-122) 01-08-79 Section III, Division 1
 01-21-82
 01-21-85
 01-21-88
 07-24-89

1761 04-26-76 Use of SB-148 Alloy CA954 for Section III, Division 1,
 01-14-77 Class 2 or 3 Flanged End Valves

1761-1 01-14-77 Use of SB-148 Alloy CA954, Section III, Division 1,
 (N-133) 01-07-80 Class 3
 04-02-82

N-133-1 04-02-82 Use of SB-148 Alloys 952 and 954, Section III,
 05-19-85 Division 1, Class 3

N-133-2 05-19-85 Use of SB-148 Alloys 952 and 954 Section III,
 07-18-85 Division 1, Class 3

1769 08-13-76 Qualification of NDE Level III Personnel,
 02-16-77 Section III, Division 1

1774 08-13-76 Minimum Wall Thickness for Class 2 and 3 Valves,
 07-11-77 Section III, Division 1

1780 09-10-76 Hydrostatic Testing and Stamping of Pumps for
 03-10-78 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,
 01-14-77 Section III, Division 1

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."

1791 03-17-80¹⁸ Projection Resistance Welding of Valve Seats,
(N-154) 09-09-82 Section III, Division 1, Class 1, 2 and 3 Valves
 09-05-85
 12-05-85

1797 03-23-77 Finned Tubing for Construction, Section III,
(N-160) 03-17-80 Division 1
 09-07-82
 07-18-85

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

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-192-1 08-30-79 Use of Flexible Hose for Section III, Division 1,
 09-16-81 Class 1, 2, and 3 Construction

Code Case N-192-1 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

¹⁸The 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.

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 01-08-79	Exemption from the Shakedown Requirements When Plastic Analysis is Performed for Section III, Division 1, Class 1 Construction
N-214	05-15-78 07-13-81 09-07-82	Use of SA-351, Grade CN7M, for Valves for Section III, Division 1, Construction
N-214-1	09-07-82 05-25-83	Use of SA-351 Grade CN7M, for Valves, Section III, Division 1
N-237	07-09-79 01-21-82 09-07-82	Hydrostatic Testing of Internal Piping, Section III, Division 1
N-237-1	09-07-82 05-25-83	Hydrostatic Testing of Internal Piping, Section III, Division 1, Classes 2 and 3
N-260	01-07-80 05-25-83 07-18-85	Weld Repair of SA-182 Type 316 Forgings, Section III, Division 1, Classes 1, 2, 3, and MC
N-260-1	07-18-85 12-05-85	Weld Repair of SA-182 Type 316 Forgings, Section III, Division 1, Classes 1, 2, 3, and MC

Code Case N-260-1 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: Type 308 L welding materials should not be used to repair grade F 316 N forgings because of the difference in strength levels.

N-304	06-11-81 04-05-84 07-12-84	Use of 20Cr-25Ni-6Mo (Alloy UNS N08366) Welded Tubes for Section III, Division 1, Classes 2 and 3 Construction
N-304-1	07-12-84 05-19-85	Use of 20Cr-25Ni-6Mo (Alloy UNS N08366) Welded Tubes for Section III, Division 1, Classes 2 and 3 Construction
N-304-2	05-19-85 12-05-85	Use of SB-676 20Cr-25Ni-6Mo (Alloy UNS N08366) Welded Tubes, Section III, Division 1, Classes 2 and 3
N-304-3	12-05-85 02-23-87	Use of SB-676 20Cr-25Ni-6Mo (Alloy UNS N08366) Plate, Sheet, Strip and Welded Pipes, Section III, Division 1, Classes 2 and 3
N-309	09-17-84 ¹⁹ 12-05-85	Identification of Materials for Component Supports, Section III, Division 1

¹⁹The Code Case was annulled on May 11, 1984 (ASME mandatory annulment date). It was reinstated on September 17, 1984. 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 5-11-84 through 9-17-84.

N-318 07-13-81 Procedure for Evaluation of the Design of Rectangular
 02-20-84 Cross Section Attachments on Class 2 or 3 Piping, Section
 III, Division 1

Code Case N-318 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case. Applicants should identify in their Safety Analysis Report: (1) the method of lug attachment, (2) the piping system involved, and (3) the location in the system where the Case is to be applied.

N-318-1²⁰ 02-20-84 Procedure for Evaluation of the Design of Rectangular
 07-12-84 Cross Section Attachments on Class 2 or 3 Piping, Section
 III, Division 1

Code Case N-318-1 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case. Applicants should identify in their Safety Analysis Report: (1) the method of lug attachment, (2) the piping system involved, and (3) the location in the system where the Case is to be applied.

N-318-2 07-12-84 Procedure for Evaluation of the Design of Rectangular
 09-05-85 Cross Section Attachments on Class 2 or 3 Piping, Section
 III, Division 1

Code Case N-318-2 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case. Applicants should identify in their Safety Analysis Report: (1) the method of lug attachment, (2) the piping system involved, and (3) the location in the system where the Case is to be applied.

N-318-3 09-05-85 Procedure for Evaluation of the Design of Rectangular
 07-27-88 Cross Section Attachments on Class 2 or 3 Piping,
 12-11-89 Section III, Division 1

Code Case N-318-3 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case. Applicants should identify in their Safety Analysis Report: (1) the method of lug attachment, (2) the piping system involved, and (3) the location in the system where the Case is to be applied.

N-318-4 12-11-89 Procedure for Evaluation of the Design of Rectangular
 12-11-92 Cross Section Attachments on Class 2 or 3 Piping,
 04-28-94 Section III, Division 1

Code Case N-318-4 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case. Applicants should identify in their Safety Analysis Report: (1) the method of lug attachment, (2) the piping system involved, and (3) the location in the system where the Case is to be applied.

²⁰The conditional acceptance was inadvertently omitted in Revision 23 of this guide.

N-319	07-13-81 07-13-84 07-13-87 07-24-89	Alternate Procedure for Evaluation of Stresses in Butt Weld Elbows in Class 1 Piping, Section III, Division 1
N-319-1	07-24-89 08-14-90	Alternate Procedure for Evaluation of Stresses in Butt Weld Elbows in Class 1 Piping, Section III, Division 1
N-345	06-17-82 12-13-82	Attachment of AMS 5382 Alloy 31 Seat Rings by Friction Welding, Section III, Division 1, Classes 1, 2, and 3
N-362	02-14-83 05-25-83	Alternate Rules for Pressure Testing of Containment Items, Section III, Division 1
N-362-1	05-25-83 07-12-84	Pressure Testing of Containment Items, Section III, Division 1, Classes 1, 2, and MC
N-383	10-05-83 07-18-85	Weld Repair of SA-182 Austenitic Forgings, Section III, Division 1, Classes 1, 2, and 3

Code Case N-383 was acceptable subject to the following condition in addition to those conditions specified in the Code Case: Applicants who apply the provisions of this Case to permit material manufacturers to weld repair austenitic forgings without re-solution heat treatment should provide justification to the NRC staff (via the Safety Analysis Report) why this is acceptable for their applications, including their evaluation of the susceptibility for stress corrosion cracking.

N-391	11-28-83 07-30-86 07-24-89	Procedure for Evaluation of the Design of Hollow Circular Cross Section Welded Attachments on Class 1 Piping, Section III, Division 1
N-392	11-28-83 07-30-86 07-30-89 12-11-89	Procedure for Evaluation of the Design of Hollow Circular Cross Section Welded Attachments on Classes 2 and 3 Piping, Section III, Division 1
N-392-1	12-11-89 12-11-92	Procedure for Evaluation of the Design of Hollow Circular Cross Section Welded Attachments on Classes 2 and 3 Piping, Section III, Division 1

Code Case N-392-1 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case: Applicants should identify in their Safety Analysis Report: (1) the method of lug attachment, (2) the piping system involved, and (3) the location in the system where the Case is to be applied.

N-411	09-17-84 02-20-86	Alternative Damping Values for Seismic Analysis of Classes 1, 2, and 3 Piping Sections, Section III, Division 1
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Code Case N-411 was acceptable subject to the following conditions in addition to those conditions specified in the Code Case: (1) The damping values specified may be used in analyzing piping response for seismic and other dynamic loads being filtered through building structures provided

response mode frequencies are limited to 33 Hz and below. Within this range, the Code Case damping should be used completely and consistently, if used at all. (For equipment other than piping, the damping values specified in Regulatory Guide 1.61, "Damping Values for Seismic Design of Nuclear Power Plants," should be used.) (2) The damping values specified may be used only in those analyses in which current seismic spectra and procedures have been employed. Such use should be limited only to response spectral analyses (similar to that used in the study supporting its acceptance -- Reference NUREG/CR-3526). The acceptance of the use with other types of dynamic analyses (e.g., time-history analysis) is pending further justification. (3) When used for reconciliation work or for support optimization of existing designs, the effects of increased motion on existing clearances and on line mounted equipment should be checked. (4) This Code Case is not appropriate for analyzing the dynamic response of piping systems using supports designed to dissipate energy by yielding (i.e., the design of which is covered by Code Case N-420). (5) This Code Case is not applicable to piping in which stress corrosion cracking has occurred unless a case-specific evaluation is made and is reviewed by the NRC staff.

N-453	12-07-87 11-30-88	Nickel-Chromium-Molybdenum-Copper Stainless Steel (UNS N08925) Welded Pipe for Class 2 and 3 Construction, Section III, Division 1
N-453-1	11-30-88 12-16-91 04-30-92	Nickel-Chromium-Molybdenum-Copper Stainless Steel (UNS N08925) Seamless and Welded Pipe for Class 2 and 3 Construction, Section III, Division 1
N-454	12-07-87 12-03-90 04-30-92	Nickel-Chromium-Molybdenum-Copper Stainless Steel (UNS N08925) Wrought Fittings for Class 2 and 3 Construction Section III, Division 1
N-455	12-07-87 12-03-90 04-30-92	Nickel-Chromium-Molybdenum-Copper Stainless Steel (UNS N08925) Forged Flanges and Fittings for Class 2 and 3 Construction Section III, Division 1

4. UNACCEPTABLE CODE CASES

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.

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.

This draft guide has been released to encourage public participation in its development. The final version of this Revision 31, reflecting public comments, will address the ASME Code Cases as follows.

1. Except for those Code Cases that have been annulled by action of the ASME, the NRC staff will find the Code Cases listed in the final version of this regulatory guide under Regulatory Position 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**

N-62-7	N-309-1	N-411-1
N-122-2	N-313	N-420
N-133-3	N-315	N-433
N-154-1	N-318-5	N-452
N-155-2(1792-2)	N-345-1	N-453-1
N-160-1	N-368	N-454
N-192-2	N-369	N-455
N-240	N-391-1	N-464
N-241	N-392-2	N-476
N-243	N-393	N-505
N-284	N-394	N-511
N-292	N-395	N-520
N-304-4	N-410	

VALUE/IMPACT STATEMENT

1. PROPOSED ACTION

1.1 Description

Regulatory Guide 1.84, "Design and Fabrication Code Case Acceptability, ASME Section III, Division 1," is being revised to reflect the current NRC acceptance of the Code Cases of the American Society of Mechanical Engineers (ASME). Code Cases are periodically published by ASME to either clarify the intent of existing code rules or to provide, when the need is urgent, rules for materials or construction not covered by existing Code Rules. These Code Cases require approval by the ASME's Main Committee and the Board of Nuclear Codes and Standards prior to their acceptance by the ASME. Use of these nonmandatory Code Cases is subject to general acceptance by the NRC staff, and the accepted Code Cases are then incorporated into Regulatory Guide 1.84. Pursuant to 10 CFR 50.55a, other Code Cases may be used provided specific NRC authorization is obtained on a case-by-case basis.

1.2 Need

This Revision 31 of Regulatory Guide 1.84 is needed to present the NRC's current position on the ASME Code Cases that have been added, revised, reinstated, reaffirmed, or annulled since Revision 30 was issued.

1.3 Value/Impact

1.3.1 NRC

The guide presents the NRC position on all acceptable and previously acceptable ASME Code Cases. From this document, the NRC reviewing staff can ascertain the NRC position on all Code Cases. Otherwise, the staff would be required to review all applications for use of a Code Case on an individual basis. Using this guide for review greatly reduces the cost and time to the staff.

1.3.2 Industry

The guide informs the industry of the NRC position on all acceptable and previously acceptable ASME Code Cases. The guide states which Code Cases are acceptable to the NRC and which cases must be accepted on a case-by-case basis. This Regulatory Guide 1.84 greatly reduces time and effort for the industry.

1.3.3 Public

The public has access to a published document that states the NRC position on all acceptable and previously acceptable ASME Code Cases.

2. STATUTORY CONSIDERATION

Authority for the proposed action is derived from the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended and implemented through the Commission's regulations cited in the introduction to the guide.

3. SUMMARY AND CONCLUSION

The proposed regulatory guide should be issued for public comment.



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