

ASME Code Cases: What are they and how do I get one?

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Presented at Valve Manufacturers Association of America's
2016 Technical Seminar & Exhibits
March 9-11, 2016 New Orleans, LA

A.K.A.

**The ASME Code Process for a
Code Case:
Non-traditional Manufacturing
Methods/Materials**

Scope of Presentation

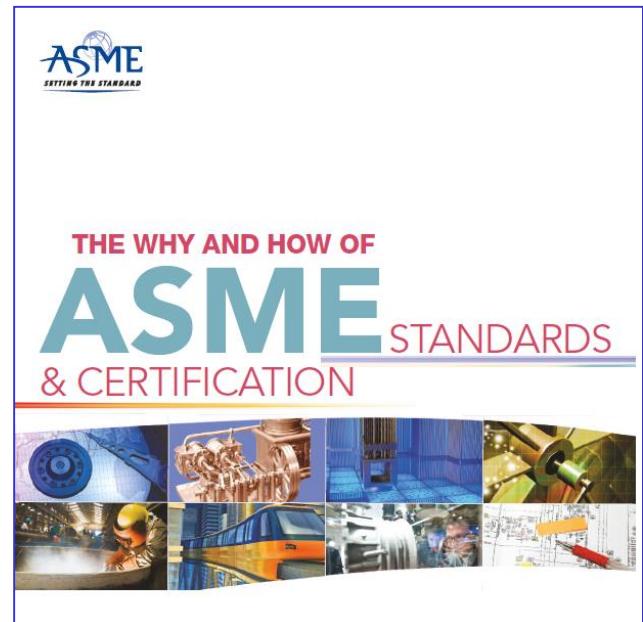
- What is a Code Case?
- History of Code Cases
- Process for developing a Code Case
- Current Code Cases for non-traditional materials manufacturing methods
- In-process Code Cases for the same
- Code Case use
- Open Q&A on ASME materials

Background

- HSB Global Standards
 - Third-party inspection company for pressure equipment
 - ASME B&PV
 - Other International: PED, Malaysia, Singapore, Australia, etc.
 - TPI
 - getinfo@hsbct.com
- Jay Cameron
 - BSME, MSMet
 - aerospace, oilfield, pressure equipment
 - ASME Committees
 - ASM, ASTM, NACE

***What* is a Code Case?**

- What is a standard?
 - Set of technical definitions and guidelines
- What is a Code?
 - A standard adopted by a government
 - has the force of law
 - or a standard required by contract



What is a Code Case?

- What is a Code?



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object,MYSQL_AS
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What is a Code Case?

- Code Case:
 - Exception or alternative to Code rules **[WHY]**
 - Non-mandatory
 - Available to all **[WHO]**
 - Very specific requirements
 - Vast majority are new materials
 - Usually at least documented on ASME Manufacturer's Data Report

What is a Code Case?

- Advanced metal alloys: laboratory → industry
- Non-metallic materials
- Advanced materials manufacturing methods:
 - HIP'd powder metal parts
 - Sintered ceramic parts
 - “additive manufacturing” processes

What is a Code Case? (cont.)

- From page xxvi of the ASME B&PVC:

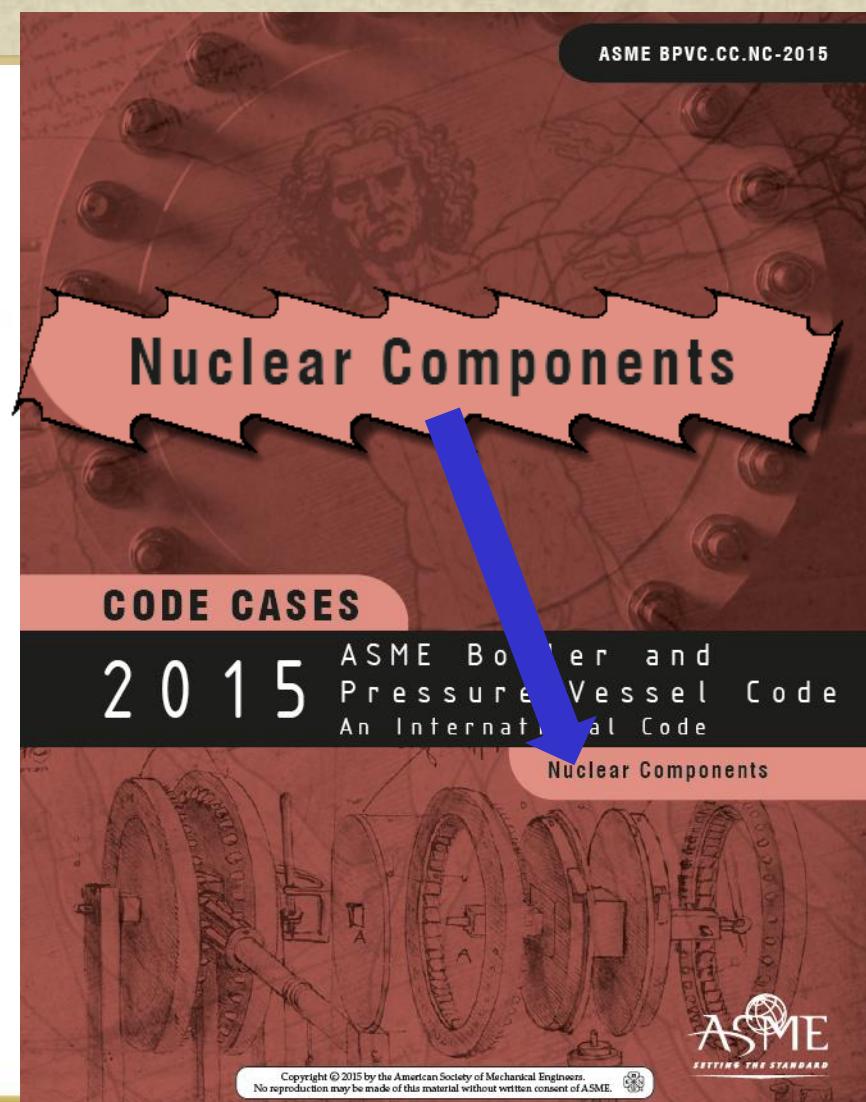
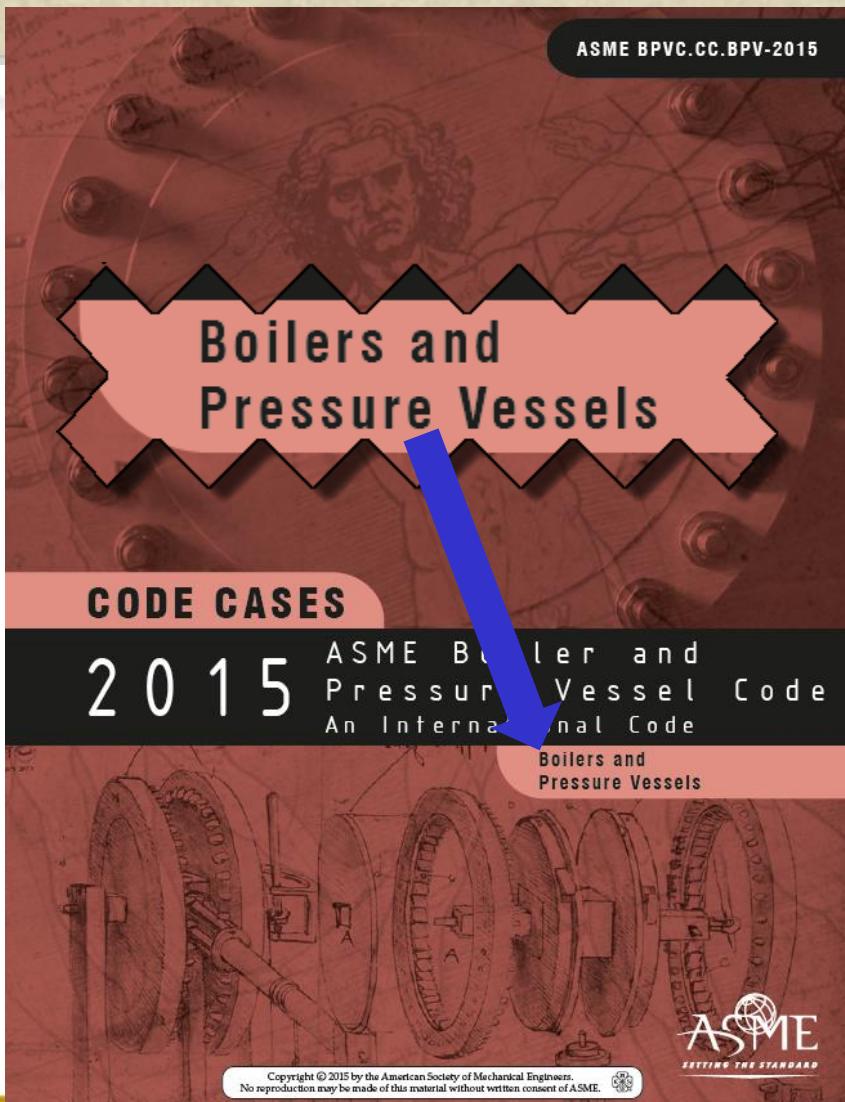
CODE CASES

The Boiler and Pressure Vessel Code committees meet regularly to consider proposed additions and revisions to the Code and to formulate Cases to clarify the intent of existing requirements or **provide, when the need is urgent, rules for materials or constructions not covered by existing Code rules.** Those Cases that have been adopted will appear in the appropriate 2015 Code Cases book: "Boilers and Pressure Vessels" or "Nuclear Components." Supplements will be sent or made available automatically to the purchasers of the Code Cases books up to the publication of the 2017 Code.

What is a Code Case? (cont.)

- Published for ASME B&PVC
 - I, II, III, IV, V, VIII-1/2/3, IX, X, XI & XII
- Also published for Piping Codes
 - e.g., B31.1, B31.3, B31.12
- And for other ASME standards
 - e.g., B16.34

What is a Code Case? (cont.)



Example Code Cases

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

CASE
2192-8

ASME BPVC.CC.BPV-2015

Approval Date: December 18, 2012

Code Cases will remain available for use until annulled by the applicable Standards Committee.

Case 2192-8
Modified 9Cr-1Mo-V Cast Material
Section I

Inquiry: May modified 9Cr-1Mo-V castings with the chemical analysis shown in Table 1, the mechanical properties shown in Table 2, and otherwise conforming to applicable requirements in the following specifications, be used for Section I construction?

(a) Castings, SA-217

(b) Centrifugally Cast Pipe, SA

placed on selected castings in each heat. The number and location of thermocou-

CASES OF ASME BOILER

Approval Date:

The ASME Boiler and Pressure Vessel Code Case 2192-8 eliminates Code Case expiration dates. all Code Cases listed in this Supplement will remain available for use until annulled by the ASME Boiler and Pressure Vessel Code.

Case 2203-1
Omission of Lifting Device Requirements for Pressure Relief Valves on Air, Water Over 140°F, or Steam Service
Section VIII, Division 1

Case 2787
Multiple Marking of Certified Capacities for Pressure-Relief Valves
Section VIII, Division 1

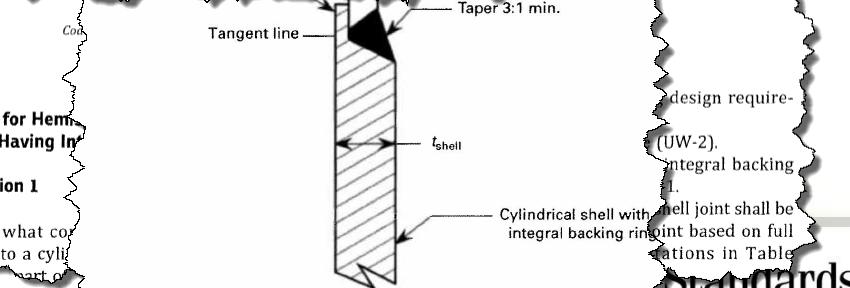
Inquiry: Under what conditions may a Manufacturer or Assembler of a pressure-relief valve place more than one certified capacity on the pressure-relief valve or the name-

Reply: It is the opinion of the Committee that the requirements for a lifting device in UG-136(a)(3) may be omitted, provided:

(a) The user has a documented procedure for the implementation program for the pressure-relief valve.

Case 2751
Alternative Rules for Hemispherical Heads on Cylindrical Shells Having Integral Backing Ring
Part of the Shell
Section VIII, Division 1

Inquiry: Under what conditions may a hemispherical head be attached to a cylindrical shell?



CASE
2179-8

Approval Date: June 28, 2012

CASE
2397

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

CASE
2787

to ensure that production valves will be modeled above.

PG-73.3.3; or Section VIII, Division 1, of either subpara-

Weld Detail

CASE
2751

spherical head

design require-

(UW-2),

integral backing

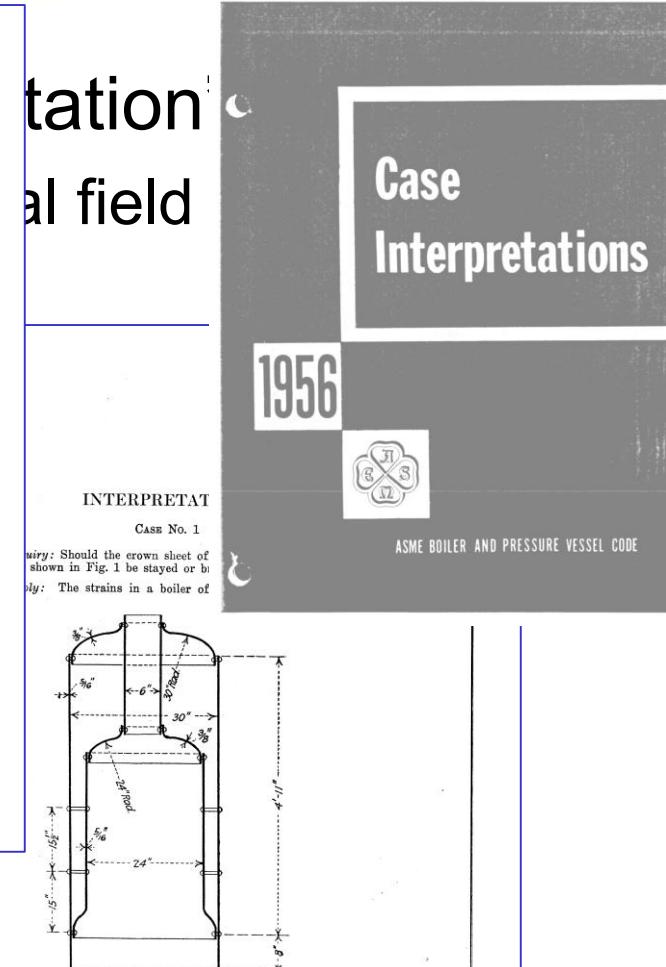
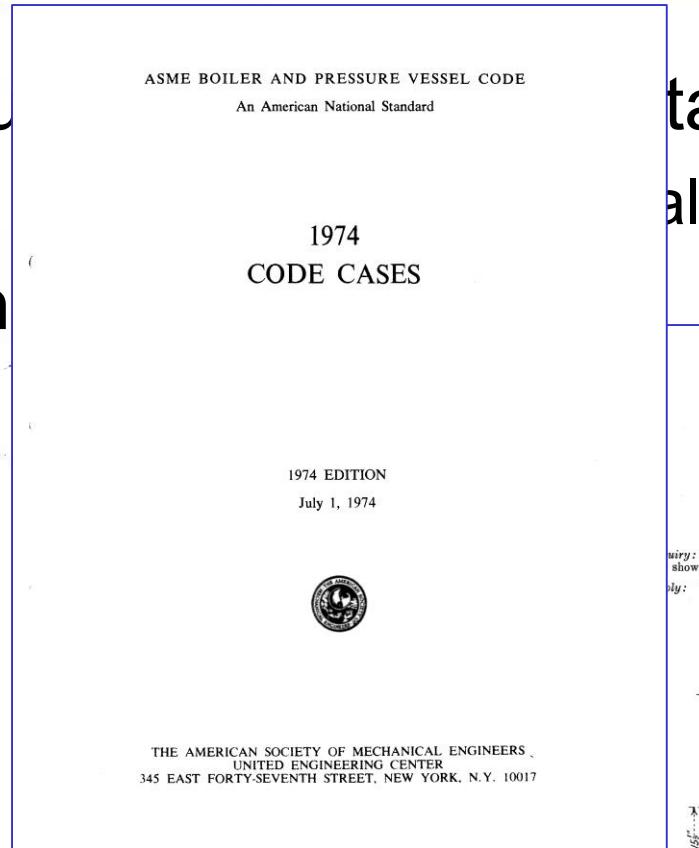
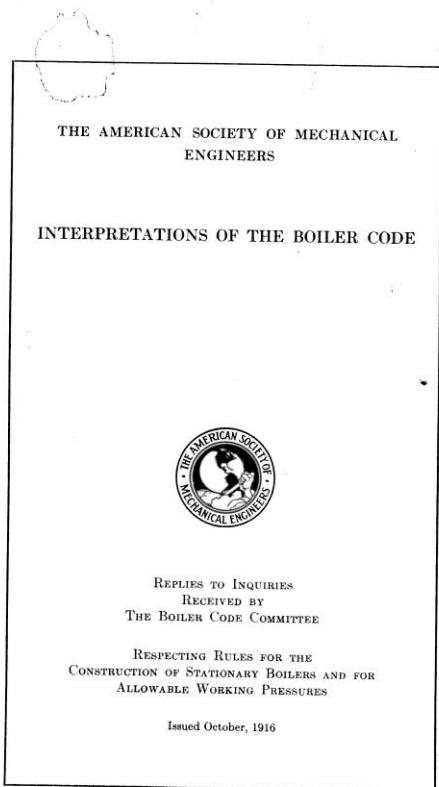
ring.

Cylindrical shell with the hemispherical head joint shall be integral with the shell joint based on full sections in Table UW-2.

Standards

History of Code Cases

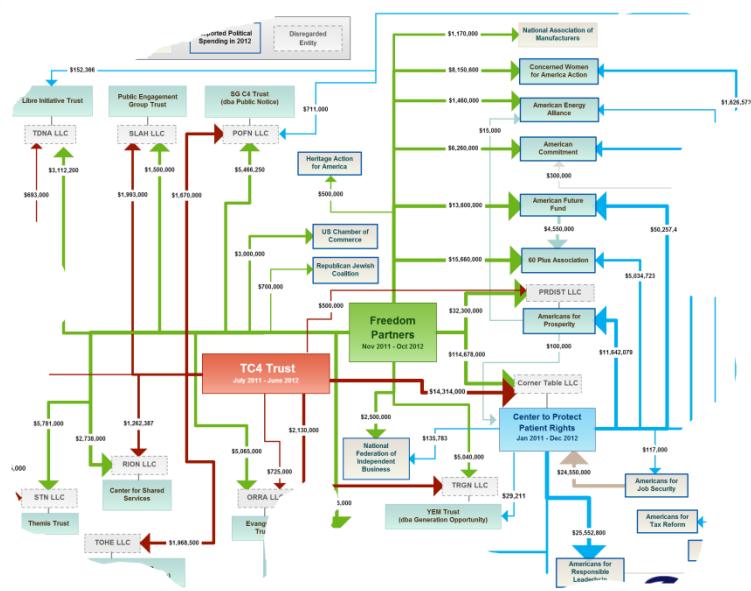
- Originally published as
- also called
- First published in 1916



andards

Process for developing a Code Case

- Can take as little as 2 months (highly unlikely) to years – most typical is about a year
- ASME Committee process flowchart:



Process (cont.)

- Difficulty:
 - Can proceed on auto-pilot, rather easy
 - Can be quite involved
 - technically, administratively and politically
- Actual work
 - Done offline with electronic balloting
 - During in-person quarterly meetings called Code Weeks
- Committees
 - Some meet concurrently
 - May need to literally run from one meeting to another
 - Interested party / Consultant / Project Manager

Process (cont.)

- “Try before you buy”
 - New materials
 - New design rules
 - New welding technologies
 - New NDE technologies
 - Etc.
- Timing
 - Issued quarterly
 - Code book revision: 2-year schedule
 - Code Case revisions can be done quarterly
- Longevity:
 - Intended to be temporary
 - Processed for incorporation or annulment
 - More Code Cases are added than are incorporated
 - Currently >400 B&PVC & >250 Nuclear CCs

How do I get a new one?

- From the Foreword:

The Committee meets regularly to consider revisions of the rules, new rules as dictated by technological development, **Code Cases**, and requests for interpretations. Only the Committee has the authority to provide official interpretations of this Code. Requests for revisions, new rules, **Code Cases**, or interpretations shall be addressed to the Secretary in writing and shall give full particulars in order to receive consideration and action (see Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees). Proposed revisions to the Code resulting from inquiries will be presented to the Committee for appropriate action. The action of the Committee becomes effective only after confirmation by ballot of the Committee and approval by ASME. Proposed revisions to the Code approved by the Committee are submitted to the American National Standards Institute (ANSI) and published at <http://go.asme.org/BPVCpublicReview> to invite comments from all interested persons. After public review and final approval by ASME, revisions are published at regular intervals in Editions of the Code.

How do I get a new one? (cont.)

- From page xxx of the ASME B&PVC:

SUBMITTAL OF TECHNICAL INQUIRIES TO THE BOILER AND PRESSURE VESSEL STANDARDS COMMITTEES

1 INTRODUCTION

(a) The following information provides guidance to Code users for submitting technical inquiries to the committees. See Guideline on the Approval of New Materials Under the ASME Boiler and Pressure Vessel Code in **Section II, Parts C and D** for additional requirements for requests involving adding new materials to the Code. Technical inquiries include requests for revisions or additions to the Code rules, requests for **Code Cases**, and requests for Code Interpretations, as described below.

(2) **Code Cases** Code Cases represent alternatives or additions to existing Code rules. Code Cases are written as a question and reply, and are usually intended to be incorporated into the Code at a later date. When used, Code Cases prescribe mandatory requirements in the same sense as the text of the Code. However, users are cautioned that not all jurisdictions or owners automatically accept Code Cases. The most common applications for Code Cases are:

- (-a) to permit **early implementation of an approved Code revision** based on an urgent need
- (-b) to permit the use of a **new material** for Code construction
- (-c) to gain experience with new materials or **alternative rules** prior to incorporation directly into the Code

How do I get a new one? (cont.)

- From page xxx of the ASME B&PVC:

2 INQUIRY FORMAT

Submittals to a committee shall include:

(a) Purpose. Specify one of the following:

- (1) revision of present Code rules*
- (2) new or additional Code rules*
- (3) Code Case*
- (4) Code Interpretation*

(b) Background. Provide the information needed for the committee's understanding of the inquiry, being sure to include reference to the applicable Code Section, Division, edition, addenda (if applicable), paragraphs, figures, and tables. Preferably, provide a copy of the specific referenced portions of the Code.

(c) Presentations. The inquirer may desire or be asked to attend a meeting of the committee to make a formal presentation or to answer questions from the committee members with regard to the inquiry. Attendance at a committee meeting shall be at the expense of the inquirer. The inquirer's attendance or lack of attendance at a meeting shall not be a basis for acceptance or rejection of the inquiry by the committee.

How do I get a new one? (cont.)

- From page xxxi of the ASME B&PVC:

4 CODE CASES

Requests for Code Cases shall provide a Statement of Need and Background Information similar to that defined in [3\(b\)](#) and [3\(c\)](#), respectively, for Code revisions or additions. The urgency of the Code Case (e.g., project underway or imminent, new procedure, etc.) must be defined and it must be confirmed that the request is in connection with equipment that will bear the Certification Mark, with the exception of Section XI applications. The proposed Code Case should identify the Code Section and Division, and be written as a *Question* and a *Reply* in the same format as existing Code Cases. Requests for Code Cases should also indicate the applicable Code editions and addenda (if applicable) to which the proposed Code Case applies.

How do I get a new one? (cont.)

- From Section II, Part D, Appendix 5:

MANDATORY APPENDIX 5

GUIDELINES ON THE APPROVAL OF NEW MATERIALS UNDER THE ASME BOILER AND PRESSURE VESSEL CODE

5-100 CODE POLICY

It is expected that requests for Code approval will normally be for materials for which there is a recognized national or international specification. It is the policy of the ASME Boiler and Pressure Vessel (BPV) Committee on Materials to approve, for inclusion in the Code Sections, only materials covered by specifications that have been issued by standards-developing organizations such as, but not limited to, American Petroleum Institute (API), American Society for Testing and Materials (ASTM), American Welding Society (AWS), Canadian Standards Association (CSA), European Committee for Standardization (CEN), Japan Industrial Standards (JIS), Standards Association of Australia (SAA), and China Standardization Committee (CSC).

Material specifications of other than national or international organizations, such as those of material producers/suppliers or equipment manufacturers, will not be considered for approval. The Committee will consider only official requests for specifications authorized by the originating standardization body and available in the English language and in U.S. Customary and/or SI/Metric units.

[WHO]

Current Code Cases for non-traditional materials manufacturing methods

- Polymer: Sections III, IV, VIII-1

Case 1 Fiberglass Section III	Case 2411 Use of Poly Section IV	Approval Date: January 21, 1982 <i>Code Cases will remain available for use until annulled by the application of the applicable code or standard.</i>
	Case N-755-2 Use of Polyethylene (PE) Class 3 Plastic Pipe Section III, Division 1	Approval Date: August 13, 2013 <i>Code Cases will remain available for use until annulled by the application of the applicable code or standard.</i>
Case 2795 Use of PTFE Tubing Material for Flue Exchanger Tubes Section VIII, Division 1	Case 2837 Use of PFA Tubing Material for Flue Gas Heat Exchanger Tubes Section VIII, Division 1	<p>(2) three (made from (3) poly</p> <p>(i) The n</p> Approval Date: September 15, 2015 <i>Code Cases will remain available for use until annulled by the application of the applicable code or standard.</i>
		<p>(-a) nam tubes were ma (-b) lot run is the leng</p>

Current Code Cases for non-traditional materials manufacturing methods

- Powder metal: Section I/B31.1 & Section III
 - Gr 91 (CC 2770): described by EPRI @ VMA 2014
 - 316L (CC N-834): ditto

Approval Date: August 7, 2003

Code Cases will remain available for use until annulled by the approv

Case
Bo
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Sec

Code Cas

Case 2770
Grade 91 Steel, 9%Cr-1%Mo
Section I

Inquiry: May austenitized a material that meets the spe ASTM A989/A989M-11 for hc steel powder metallurgy part

B31 Case 198
Approval Date: January 21, 2015
Grade 91 Steel-- 9%Cr-1%Mo (K90901)
ASME B31.1

Inquiry: May normalized and tempered UNS K90901 material that meets the specificati requirements of ASTM A989 / A989M-13 for hot isostatically-pressed alloy steel powder metallurgy parts for high temperature service be used for ASME B31.1 components for we construction?

Case N-834
ASTM A988/A988M-11 UNS S31603, Subsection NB,
Class 1 Components
Section III, Division 1

(1) Dens
amination sh
pons remov
ards
ASTM A988/

In-process Code Cases for the same

- Powder metal
 - Section I:
 - ASTM A988-13 S30400/03, S31600/03, S31725, S31254, N08367
 - ASTM A989-13 K90941 (9), K31545 (21), K21590 (22)
 - ASTM B834-13 N06600, N08367, N06625, N06690, N07718
 - B16.5/34/47:
 - ASTM A989-xx K90901 (91)
 - VIII-3:
 - ASTM Axxxx “SA-723” HSLA

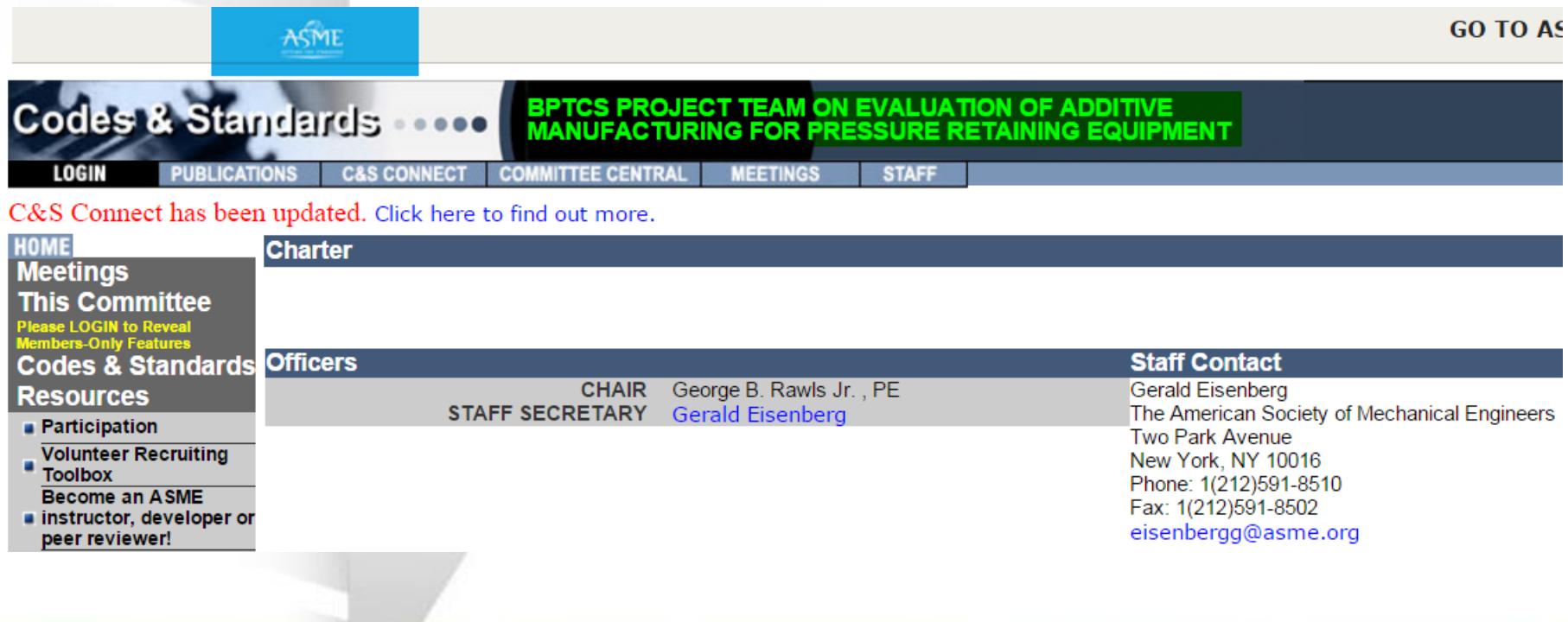
In-process Code Cases (cont.)

- Ceramic
 - Section VIII-1: sintered SiC
- Polymer
 - VIII-1: cast acrylic



In-process Code Cases (cont.)

- Additive manufacturing



The screenshot shows the ASME Codes & Standards website. At the top, there is a blue header bar with the ASME logo and a "GO TO AS" button. Below this, a banner for the "BPTCS PROJECT TEAM ON EVALUATION OF ADDITIVE MANUFACTURING FOR PRESSURE RETAINING EQUIPMENT" is displayed. The main navigation menu includes LOGIN, PUBLICATIONS, C&S CONNECT, COMMITTEE CENTRAL, MEETINGS, and STAFF. A sidebar on the left lists "HOME", "Meetings", "This Committee", "Codes & Standards", "Resources", and a "Participation" section with links for "Volunteer Recruiting", "Toolbox", "Become an ASME", and "instructor, developer or peer reviewer!". The main content area is titled "Charter" and contains sections for "Officers" (Chair: George B. Rawls Jr., PE; Staff Secretary: Gerald Eisenberg) and "Staff Contact" (Gerald Eisenberg, The American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016, Phone: 1(212)591-8510, Fax: 1(212)591-8502, eisenbergg@asme.org).

Code Case use

- Section VIII, Division 1

MANDATORY APPENDIX 43 ESTABLISHING GOVERNING CODE EDITIONS AND CASES FOR PRESSURE VESSELS AND PARTS

43-1 GENERAL

(a) After Code revisions are approved by ASME, they may be used beginning with the date of issuance shown on the Code. Except as noted in (b) below, revisions become mandatory 6 months after the date of issuance. **Code Cases** are permissible and may be used beginning with the date of approval by ASME. Only Code Cases that are specifically identified as being applicable to this Section may be used. At the time a Code Case is applied, only the latest revision may be used. Code Cases that have been incorporated into this Section or have been annulled shall not be used.

(b) Changes in the Code and **Code Cases** that have been published prior to completion of the pressure vessel or part may include details critical to the intended service conditions of the pressure vessel and therefore should be considered by the Manufacturer. Application of such changes shall be a matter of agreement between the Manufacturer and the user. Specific incorporated Code provisions from later editions that have been applied to construction shall be noted in the "Remarks" section of the Manufacturer's Data Report.

Code Case use (cont.)

- Usually at least documented on ASME Manufacturer's Data Report

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1			
1. Manufactured and certified by	① (Name and address of Manufacturer)		
2. Manufactured for	② (Name and address of Purchaser)		
3. Location of installation	③ (Name and address)		
4. Type	④ (Horizontal, vertical, or sphere)	⑤ (Tank, separator, jkt. vessel, heat exch., etc.)	⑥ (Manufacturer's serial number)
	⑨ (CRN)	⑩ (Drawing number)	⑪ (Year built)
5. ASME Code, Section VIII, Div. 1	⑬ [Edition and Addenda, if applicable (date)]		⑭ ⑮ [Code Case number] [Special service per UG-120(d)]

Code Case use (cont.)

- Purchaser acceptance
- Jurisdictional acceptance



 THE
NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

General Meeting NB Members Authorized Inspection Agencies Owner-User Inspection Organizations Review Team Leaders Test Lab
Members Only National Board Inspection Code Training Commissions & Certifications Data Report Registration Pressure Relief Devices

 Print All Synopses

Related Documents

- ASME Codes, Standards, and Designators
- Stamping Requirements by Jurisdiction

NB-370, National Board Synopsis

The National Board Synopsis of Boiler and Pressure Vessel Laws, Rules and Regulations is a compilation of jurisdiction laws, rules, and regulations set forth in a concise, easy-to-read format. It features the prevailing requirements, detailed contact information, and regulatory history for each jurisdiction.

Code Case use (cont.)

- **Where** do I get them?
 - Purchase “book”
 - Subscribers to electronic Code books
 - Online: cstools.asme.org

GO TO ASME.ORG HOME >

ASME

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Welcome Jay Cameron, PE (If you are not Jay Cameron, PE [click here.](#))

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UPDATE: C&S Connect is now supported on the Internet Explorer 10, Chrome, Firefox, and Safari web browsers.

Welcome to the ASME Codes & Standards Tools Website. Listed below are links to key web tools used by both Codes & Standards Staff and Volunteers to facilitate their Committee Process. While some tools provide open access to the Public others are “Members Only” and will require a username and password for access. For inquiries regarding member access, please contact your staff secretary.

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This page offers the first step to learn all you need know about C&S Connect.
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- **PUBLIC REVIEW DRAFTS**
A complete listing of all ASME Codes & Standards proposals currently out for review.
 - Public Review of Boiler and Pressure Vessel Code Proposals
- **BOILER AND PRESSURE VESSEL CODE CASE REVIEW**
A listing of proposed Boiler and Pressure Vessel Code Cases currently available for review.
- **BOILER AND PRESSURE VESSEL CODE INTERPRETATIONS**
A new service to users of the BPVC that allows you to download and print official copies of Code Cases that have been approved, but not yet been released in a printed Supplement.
- **CODE CASE DATABASE**
A new service to users of the BPVC that allows you to download and print official copies of Code Cases that have been approved, but not yet been released in a printed Supplement.
- **BOILER AND NUCLEAR PRESSURE VESSEL CERTIFICATE HOLDER SEARCH**

CODE CASE DATABASE

A new service to users of the BPVC that allows you to download and print official copies of Code Cases that have been approved, but not yet been released in a printed Supplement.

Open Q&A on ASME materials

???

Thank you

Jay Cameron

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