

**SECTION II**  
MATERIALS

2023

ASME Boiler and  
Pressure Vessel Code  
An International Code

**Part B**  
Nonferrous Material  
Specifications

Markings such as “ASME,” “ASME Standard,” or any other marking including “ASME,” ASME logos, or the ASME Single Certification Mark shall not be used on any item that is not constructed in accordance with all of the applicable requirements of the Code or Standard. Use of the ASME Single Certification Mark requires formal ASME certification; if no certification program is available, such ASME markings may not be used. (For Certification and Accreditation Programs, see <https://www.asme.org/certification-accreditation>.)

Items produced by parties not formally possessing an ASME Certificate may not be described, either explicitly or implicitly, as ASME certified or approved in any code forms or other document.

AN INTERNATIONAL CODE

# 2023 ASME Boiler & Pressure Vessel Code

2023 Edition

July 1, 2023

## II MATERIALS

### Part B

---

## Nonferrous Material Specifications

ASME Boiler and Pressure Vessel Committee  
on Materials



The American Society of  
Mechanical Engineers

Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: July 1, 2023

This international code or standard was developed under procedures accredited as meeting the criteria for American National Standards and it is an American National Standard. The standards committee that approved the code or standard was balanced to ensure that individuals from competent and concerned interests had an opportunity to participate. The proposed code or standard was made available for public review and comment, which provided an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not “approve,” “certify,” “rate,” or “endorse” any item, construction, proprietary device, or activity. ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor does ASME assume any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representatives or persons affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

The endnotes and preamble in this document (if any) are part of this American National Standard.



ASME Collective Membership Mark



ASME Single Certification Mark

“ASME” and the above ASME symbols are registered trademarks of The American Society of Mechanical Engineers.

The ASTM standards included within this ASME publication have been reproduced through a license agreement with ASTM International.

No part of this document may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.

Library of Congress Catalog Card Number: 56-3934

Adopted by the Council of The American Society of Mechanical Engineers, 1914; latest edition 2023.

The American Society of Mechanical Engineers  
Two Park Avenue, New York, NY 10016-5990

Copyright © 2023 by  
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
All rights reserved  
Printed in U.S.A.



SB-168	Specification for Nickel-Chromium-Iron Alloys (UNS N06600, N06601, N06603, N06690, N06693, N06025, N06045, and N06696), Nickel-Chromium-Cobalt-Molybdenum Alloy (UNS N06617), Nickel-Iron-Chromium-Tungsten Alloy (UNS N06674), and Nickel-Chromium-Molybdenum-Copper Alloy (UNS N06235) Plate, Sheet, and Strip . . . . .	233
SB-169/SB-169M	Specification for Aluminum Bronze Sheet, Strip, and Rolled Bar . . . . .	247
SB-171/SB-171M	Specification for Copper-Alloy Plate and Sheet for Pressure Vessels, Condensers, and Heat Exchangers . . . . .	253
SB-187/SB-187M	Specification for Copper, Bus Bar, Rod, and Shapes and General Purpose Rod, Bar, and Shapes . . . . .	261
SB-209	Specification for Aluminum and Aluminum-Alloy Sheet and Plate . . . . .	271
SB-210	Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes . . . . .	297
SB-211/SB-211M	Specification for Aluminum and Aluminum-Alloy Rolled or Cold-Finished Bar, Rod, and Wire . . . . .	309
SB-221	Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes . . . . .	323
SB-234	Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes for Condensers and Heat Exchangers . . . . .	339
SB-241/SB-241M	Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube . . . . .	347
SB-247	Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings . . . . .	367
SB-248	Specification for General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar . . . . .	385
SB-249/SB-249M	Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, Shapes, and Forgings . . . . .	399
SB-251/SB-251M	Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube . . . . .	413
SB-265	Specification for Titanium and Titanium Alloy Strip, Sheet, and Plate . . . . .	423
SB-271/SB-271M	Specification for Copper-Base Alloy Centrifugal Castings . . . . .	437
SB-283/SB-283M	Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed) . . . . .	445
SB-308/SB-308M	Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles . . . . .	461
SB-315	Specification for Seamless Copper Alloy Pipe and Tube . . . . .	467
SB-333	Specification for Nickel-Molybdenum Alloy Plate, Sheet, and Strip . . . . .	479
SB-335	Specification for Nickel-Molybdenum Alloy Rod . . . . .	483
SB-338	Specification for Seamless and Welded Titanium and Titanium Alloy Tubes for Condensers and Heat Exchangers . . . . .	489
SB-348/SB-348M	Specification for Titanium and Titanium Alloy Bars and Billets . . . . .	499
SB-359/SB-359M	Specification for Copper and Copper-Alloy Seamless Condenser and Heat Exchanger Tubes with Integral Fins . . . . .	509
SB-363	Specification for Seamless and Welded Unalloyed Titanium and Titanium Alloy Welding Fittings . . . . .	521
SB-366/SB-366M	Specification for Factory-Made Wrought Nickel and Nickel Alloy Fittings . . . . .	527
SB-367	Specification for Titanium and Titanium Alloy Castings . . . . .	537
SB-369	Specification for Copper-Nickel Alloy Castings . . . . .	545
SB-381	Specification for Titanium and Titanium Alloy Forgings . . . . .	551
SB-395/SB-395M	Specification for U-Bend Seamless Copper and Copper Alloy Heat Exchanger and Condenser Tubes . . . . .	561
SB-407	Specification for Nickel-Iron-Chromium Alloy Seamless Pipe and Tube . . . . .	573
SB-408	Specification for Nickel-Iron-Chromium Alloy Rod and Bar . . . . .	579
SB-409	Specification for Nickel-Iron-Chromium Alloy Plate, Sheet, and Strip . . . . .	585
SB-423	Specification for Nickel-Iron-Chromium-Molybdenum-Copper Alloy (UNS N08825 and N08221) Seamless Pipe and Tube . . . . .	591
SB-424	Specification for Ni-Fe-Cr-Mo-Cu Alloy (UNS N08825, UNS N08221, and UNS N06845) Plate, Sheet, and Strip . . . . .	597

SB-425	Specification for Ni-Fe-Cr-Mo-Cu Alloy (UNS N08825 and UNS N08221) Rod and Bar .....	603
SB-434	Specification for Nickel-Molybdenum-Chromium-Iron Alloys (UNS N10003, UNS N10242) Plate, Sheet, and Strip .....	611
SB-435	Specification for UNS N06002, UNS N06230, UNS N12160, and UNS R30556 Plate, Sheet, and Strip .....	615
SB-443	Specification for Nickel-Chromium-Molybdenum-Columbium Alloy (UNS N06625) and Nickel-Chromium-Molybdenum-Silicon Alloy (UNS N06219) Plate, Sheet, and Strip .....	619
SB-444	Specification for Nickel-Chromium-Molybdenum-Columbium Alloys (UNS N06625 and UNS N06852) and Nickel-Chromium-Molybdenum-Silicon Alloy (UNS N06219) Pipe and Tube .....	631
SB-446	Specification for Nickel-Chromium-Molybdenum-Columbium Alloy (UNS N06625), Nickel-Chromium-Molybdenum-Silicon Alloy (UNS N06219), and Nickel-Chromium-Molybdenum-Tungsten Alloy (UNS N06650) Rod and Bar .....	635
SB-462	Specification for Forged or Rolled Nickel Alloy Pipe Flanges, Forged Fittings, and Valves and Parts for Corrosive High-Temperature Service .....	641
SB-463	Specification for UNS N08020 Alloy Plate, Sheet, and Strip .....	647
SB-464	Specification for Welded UNS N08020, N08024, and N08026 Alloy Pipe ..	651
SB-466/SB-466M	Specification for Seamless Copper-Nickel Pipe and Tube .....	655
SB-467	Specification for Welded Copper-Nickel Pipe .....	663
SB-468	Specification for Welded UNS N08020, N08024, and N08026 Alloy Tubes .	671
SB-473	Specification for UNS N08020, UNS N08024, and UNS N08026 Nickel Alloy Bar and Wire .....	675
SB-493/SB-493M	Specification for Zirconium and Zirconium Alloy Forgings .....	685
SA-494/SA-494M	Specification for Castings, Nickel and Nickel Alloy .....	689
SB-505/SB-505M	Specification for Copper Alloy Continuous Castings .....	697
SB-511	Specification for Nickel-Iron-Chromium-Silicon Alloy Bars and Shapes ....	707
SB-514	Specification for Welded Nickel-Iron-Chromium Alloy Pipe .....	717
SB-515	Specification for Welded UNS N08120, UNS N08800, UNS N08810, and UNS N08811 Alloy Tubes .....	721
SB-516	Specification for Welded Nickel-Chromium-Aluminum Alloy (UNS N06699) and Nickel-Chromium-Iron Alloy (UNS N06600, UNS N06601, UNS N06603, UNS N06025, UNS N06045, UNS N06690, AND UNS N06693) Tubes .....	725
SB-517	Specification for Welded Nickel-Chromium-Iron Alloy (UNS N06600, UNS N06603, UNS N06025, and UNS N06045) Pipe .....	729
SB-523/SB-523M	Specification for Seamless and Welded Zirconium and Zirconium Alloy Tubes .....	733
SB-535	Specification for Nickel-Iron-Chromium-Silicon Alloys (UNS N08330 and N08332) Seamless Pipe and Tube .....	739
SB-536	Specification for Nickel-Iron-Chromium-Silicon Alloys (UNS N08330 and N08332) Plate, Sheet, and Strip .....	743
SB-543/SB-543M	Specification for Welded Copper and Copper-Alloy Heat Exchanger Tube .	755
SB-548	Test Method for Ultrasonic Inspection of Aluminum-Alloy Plate for Pressure Vessels .....	769
SB-550/SB-550M	Specification for Zirconium and Zirconium Alloy Bar and Wire .....	775
SB-551/SB-551M	Specification for Zirconium and Zirconium Alloy Strip, Sheet, and Plate ...	781
SB-564	Specification for Nickel Alloy Forgings .....	793
SB-572	Specification for UNS N06002, UNS N06230, UNS N12160, and UNS R30556 Rod .....	805
SB-573	Specification for Nickel-Molybdenum-Chromium-Iron Alloys (UNS N10003, N10242) Rod .....	811

SB-574	Specification for Low-Carbon Nickel-Chromium-Molybdenum, Low-Carbon Nickel-Molybdenum-Chromium, Low-Carbon Nickel-Molybdenum-Chromium-Tantalum, Low-Carbon Nickel-Chromium-Molybdenum-Copper, and Low-Carbon Nickel-Chromium-Molybdenum-Tungsten Alloy Rod .....	815
SB-575	Specification for Low-Carbon Nickel-Chromium-Molybdenum, Low-Carbon Nickel-Chromium-Molybdenum-Copper, Low-Carbon Nickel-Chromium-Molybdenum-Tantalum, Low-Carbon Nickel-Chromium-Molybdenum-Tungsten, and Low-Carbon Nickel-Molybdenum-Chromium Alloy Plate, Sheet, and Strip .....	821
SB-581	Specification for Nickel-Chromium-Iron-Molybdenum-Copper Alloy Rod ..	827
SB-582	Specification for Nickel-Chromium-Iron-Molybdenum-Copper Alloy Plate, Sheet, and Strip .....	833
SB-584	Specification for Copper Alloy Sand Castings for General Applications ....	837
SB-599	Specification for Nickel-Iron-Chromium-Molybdenum-Columbium Stabilized Alloy (UNS N08700) Plate, Sheet, and Strip .....	847
SB-619/SB-619M	Specification for Welded Nickel and Nickel-Cobalt Alloy Pipe .....	861
SB-620	Specification for Nickel-Iron-Chromium-Molybdenum Alloy (UNS N08320) Plate, Sheet, and Strip .....	869
SB-621	Specification for Nickel-Iron-Chromium-Molybdenum Alloy (UNS N08320) Rod .....	873
SB-622	Specification for Seamless Nickel and Nickel-Cobalt Alloy Pipe and Tube ..	877
SB-625	Specification for UNS N08925, UNS N08031, UNS N08034, UNS N08932, UNS N08926, UNS N08354, UNS N08830, and UNS R20033 Plate, Sheet, and Strip .....	885
SB-626	Specification for Welded Nickel and Nickel-Cobalt Alloy Tube .....	889
SB-637	Specification for Precipitation-Hardening and Cold Worked Nickel Alloy Bars, Forgings, and Forging Stock for Moderate or High-Temperature Service .....	895
SB-649	Specification for Ni-Fe-Cr-Mo-Cu-N Low-Carbon Alloys (UNS N08925, UNS N08031, UNS N08034, UNS N08354, and UNS N08926), and Cr-Ni-Fe-N Low-Carbon Alloy (UNS R20033) Bar and Wire, and Ni-Cr-Fe-Mo-N Alloy (UNS N08936) Wire .....	903
SB-653/SB-653M	Specification for Seamless and Welded Zirconium and Zirconium Alloy Welding Fittings .....	911
SB-658/SB-658M	Specification for Seamless and Welded Zirconium and Zirconium Alloy Pipe .....	915
SB-666/SB-666M	Practice for Identification Marking of Aluminum and Magnesium Products .....	921
SB-668	Specification for UNS N08028 Seamless Tubes .....	929
SB-672	Specification for Nickel-Iron-Chromium-Molybdenum-Columbium Stabilized Alloy (UNS N08700) Bar and Wire .....	933
SB-673	Specification for UNS N08925, UNS N08354, and UNS N08926 Welded Pipe .....	941
SB-674	Specification for UNS N08925, UNS N08354, and UNS N08926 Welded Tube .....	945
SB-675	Specification for UNS N08367 Welded Pipe .....	949
SB-676	Standard Specification for UNS N08367 Welded Tube .....	953
SB-677	Specification for Nickel-Iron-Chromium-Molybdenum and Iron-Nickel-Chromium-Molybdenum-Copper Seamless Pipe and Tube .....	957
SB-688	Specification for Chromium-Nickel-Molybdenum-Iron (UNS N08366 and UNS N08367) Plate, Sheet, and Strip .....	961
SB-690	Specification for Iron-Nickel-Chromium-Molybdenum Alloys (UNS N08366 and UNS N08367) Seamless Pipe and Tube .....	971
SB-691	Specification for Iron-Nickel-Chromium-Molybdenum Alloys (UNS N08366 and UNS N08367) Rod, Bar, and Wire .....	979
SB-704	Specification for Welded UNS N06625, UNS N06219, and UNS N08825 Alloy Tubes .....	987
SB-705	Specification for Nickel-Alloy (UNS N06625, N06219 and N08825) Welded Pipe .....	991
SB-706	Specification for Seamless Copper Alloy (UNS NO. C69100) Pipe and Tube .....	995



SB-709	Specification for Iron-Nickel-Chromium-Molybdenum Alloy (UNS N08028) Plate, Sheet, and Strip . . . . .	1003
SB-710	Specification for Nickel-Iron-Chromium-Silicon Alloy Welded Pipe . . . . .	1009
SB-729	Specification for Seamless Nickel-Iron-Chromium-Molybdenum-Copper Nickel Alloy Pipe and Tube . . . . .	1013
SB-751	Specification for General Requirements for Nickel and Nickel-Alloy Welded Tube . . . . .	1017
SB-752/SB-752M	Specification for Castings, Zirconium-Base, Corrosion Resistant, for General Application . . . . .	1025
SB-775	Specification for General Requirements for Nickel and Nickel-Alloy Welded Pipe . . . . .	1031
SB-804	Specification for UNS N08367 and UNS N08926 Welded Pipe . . . . .	1037
SB-815	Specification for Cobalt-Chromium-Nickel-Molybdenum-Tungsten Alloy (UNS R31233) Rod . . . . .	1045
SB-818	Specification for Cobalt-Chromium-Nickel-Molybdenum-Tungsten Alloy (UNS R31233) Plate, Sheet, and Strip . . . . .	1049
SB-824	Specification for General Requirements for Copper Alloy Castings . . . . .	1053
SB-829	Specification for General Requirements for Nickel and Nickel Alloys Seamless Pipe and Tube . . . . .	1061
SB-834	Specification for Pressure Consolidated Powder Metallurgy Iron-Nickel-Chromium-Molybdenum (UNS N08367), Nickel-Chromium-Molybdenum-Columbium (Nb) (UNS N06625), Nickel-Chromium-Iron Alloys (UNS N06600 and N06690), and Nickel-Chromium-Iron-Columbium-Molybdenum (UNS N07718) Alloy Pipe Flanges, Fittings, Valves, and Parts . . . . .	1069
SB-861	Specification for Titanium and Titanium Alloy Seamless Pipe . . . . .	1075
SB-862	Specification for Titanium and Titanium Alloy Welded Pipe . . . . .	1085
SB-906	Specification for General Requirements for Flat-Rolled Nickel and Nickel Alloys Plate, Sheet, and Strip . . . . .	1097
SB-928/SB-928M	Specification for High Magnesium Aluminum-Alloy Sheet and Plate for Marine Service and Similar Environments . . . . .	1115
SB-956	Specification for Welded Copper and Copper-Alloy Condenser and Heat Exchanger Tubes with Integral Fins . . . . .	1129
SF-467	Specification for Nonferrous Nuts for General Use . . . . .	1141
SF-467M	Specification for Nonferrous Nuts for General Use [Metric] . . . . .	1151
SF-468	Specification for Nonferrous Bolts, Hex Cap Screws, Socket Head Cap Screws, and Studs for General Use . . . . .	1161
SF-468M	Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use [Metric] . . . . .	1177
SB/EN 1706	Aluminum and Aluminum Alloys — Castings — Chemical Composition and Mechanical Properties . . . . .	1189
<b>Mandatory Appendix I</b>	<b>Standard Units for Use in Equations</b> . . . . .	1191
<b>Mandatory Appendix II</b>	<b>Framework of ASME Material Specifications</b> . . . . .	1192
II-100	General . . . . .	1192
II-200	Source Standards . . . . .	1192
II-300	Permissibility of Superseded Editions for ASME Construction . . . . .	1192
II-400	Structure of ASME Material Specifications . . . . .	1192
<b>Mandatory Appendix III</b>	<b>Guidelines on Multiple Marking of Materials</b> . . . . .	1202
III-100	Background . . . . .	1202
III-200	Guidelines . . . . .	1202
<b>Mandatory Appendix IV</b>	<b>Guidelines on the Approval of New Materials Under the ASME Boiler and Pressure Vessel Code</b> . . . . .	1204
IV-100	Code Policy . . . . .	1204
IV-200	Application . . . . .	1204
IV-300	Chemical Composition . . . . .	1206

IV-400	Metallurgical Structure and Heat Treatment .....	1206
IV-500	Mechanical Properties .....	1206
IV-600	Definitions for Data Collection Purposes .....	1206
IV-700	Required Sampling .....	1206
IV-800	Time-Independent Properties .....	1207
IV-900	Time-Dependent Properties .....	1207
IV-1000	Low-Temperature Properties .....	1209
IV-1100	Toughness Data .....	1209
IV-1200	Stress-Strain Curves .....	1209
IV-1300	Fatigue Data .....	1209
IV-1400	Physical Properties .....	1209
IV-1500	Data Requirements for Welds, Weldments, and Weldability .....	1210
IV-1600	Long-Term Properties Stability .....	1210
IV-1700	Requests for Additional Data .....	1212
IV-1800	New Materials Checklist .....	1212
IV-1900	Requirements for Recognized National or International Specifications ....	1212
IV-2000	Publication of Recognized National or International Specifications .....	1212
IV-2100	CEN Specifications .....	1212
<b>Nonmandatory Appendix A</b>	<b>Sources of Standards .....</b>	<b>1214</b>

**FIGURE**

II-400-1	Illustrative Table of ASME Material Specifications (for II-400 Explanation Purposes Only) .....	1201
----------	---	------

**TABLES**

I-1	Standard Units for Use in Equations .....	1191
II-200-1	Material Specifications Acceptable for ASME Construction .....	1194
II-200-2	Material Specifications Acceptable for ASME Construction .....	1201
IV-100-1	Hot Isostatically Pressed Component Requirements for Austenitic Stainless Steels, Austenitic-Ferritic (Duplex) Stainless Steels, Martensitic Stainless Steels, Ferritic Steels, and Nickel Alloys .....	1205
IV-800-1	ASTM Test Methods and Units for Reporting .....	1208
IV-1500-1	Example of a Comparison of Allowable Stresses of Base Metals With Compositions Similar to Those of Selected Welding Consumables and the Proposed New Base Metal .....	1211

# LIST OF SECTIONS

(23)

## SECTIONS

- I Rules for Construction of Power Boilers
  
- II Materials
  - Part A — Ferrous Material Specifications
  - Part B — Nonferrous Material Specifications
  - Part C — Specifications for Welding Rods, Electrodes, and Filler Metals
  - Part D — Properties (Customary)
  - Part D — Properties (Metric)
  
- III Rules for Construction of Nuclear Facility Components
  - Subsection NCA — General Requirements for Division 1 and Division 2
  - Appendices
  - Division 1
    - Subsection NB — Class 1 Components
    - Subsection NCD — Class 2 and Class 3 Components
    - Subsection NE — Class MC Components
    - Subsection NF — Supports
    - Subsection NG — Core Support Structures
  - Division 2 — Code for Concrete Containments
  - Division 3 — Containment Systems for Transportation and Storage of Spent Nuclear Fuel and High-Level Radioactive Material
  - Division 4 — Fusion Energy Devices
  - Division 5 — High Temperature Reactors
  
- IV Rules for Construction of Heating Boilers
  
- V Nondestructive Examination
  
- VI Recommended Rules for the Care and Operation of Heating Boilers
  
- VII Recommended Guidelines for the Care of Power Boilers
  
- VIII Rules for Construction of Pressure Vessels
  - Division 1
  - Division 2 — Alternative Rules
  - Division 3 — Alternative Rules for Construction of High Pressure Vessels
  
- IX Welding, Brazing, and Fusing Qualifications
  
- X Fiber-Reinforced Plastic Pressure Vessels
  
- XI Rules for Inservice Inspection of Nuclear Reactor Facility Components
  - Division 1 — Rules for Inspection and Testing of Components of Light-Water-Cooled Plants
  - Division 2 — Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Reactor Facilities
  
- XII Rules for Construction and Continued Service of Transport Tanks
  
- XIII Rules for Overpressure Protection

# FOREWORD\*

In 1911, The American Society of Mechanical Engineers established the Boiler and Pressure Vessel Committee to formulate standard rules for the construction of steam boilers and other pressure vessels. In 2009, the Boiler and Pressure Vessel Committee was superseded by the following committees:

- (a) Committee on Power Boilers (I)
- (b) Committee on Materials (II)
- (c) Committee on Construction of Nuclear Facility Components (III)
- (d) Committee on Heating Boilers (IV)
- (e) Committee on Nondestructive Examination (V)
- (f) Committee on Pressure Vessels (VIII)
- (g) Committee on Welding, Brazing, and Fusing (IX)
- (h) Committee on Fiber-Reinforced Plastic Pressure Vessels (X)
- (i) Committee on Nuclear Inservice Inspection (XI)
- (j) Committee on Transport Tanks (XII)
- (k) Committee on Overpressure Protection (XIII)
- (l) Technical Oversight Management Committee (TOMC)

Where reference is made to “the Committee” in this Foreword, each of these committees is included individually and collectively.

The Committee’s function is to establish rules of safety relating only to pressure integrity, which govern the construction\* of boilers, pressure vessels, transport tanks, and nuclear components, and the inservice inspection of nuclear components and transport tanks. The Committee also interprets these rules when questions arise regarding their intent. The technical consistency of the Sections of the Code and coordination of standards development activities of the Committees is supported and guided by the Technical Oversight Management Committee. This Code does not address other safety issues relating to the construction of boilers, pressure vessels, transport tanks, or nuclear components, or the inservice inspection of nuclear components or transport tanks. Users of the Code should refer to the pertinent codes, standards, laws, regulations, or other relevant documents for safety issues other than those relating to pressure integrity. Except for Sections XI and XII, and with a few other exceptions, the rules do not, of practical necessity, reflect the likelihood and consequences of deterioration in service related to specific service fluids or external operating environments. In formulating the rules, the Committee considers the needs of users, manufacturers, and inspectors of pressure vessels. The objective of the rules is to afford reasonably certain protection of life and property, and to provide a margin for deterioration in service to give a reasonably long, safe period of usefulness. Advancements in design and materials and evidence of experience have been recognized.

This Code contains mandatory requirements, specific prohibitions, and nonmandatory guidance for construction activities and inservice inspection and testing activities. The Code does not address all aspects of these activities and those aspects that are not specifically addressed should not be considered prohibited. The Code is not a handbook and cannot replace education, experience, and the use of engineering judgment. The phrase *engineering judgment* refers to technical judgments made by knowledgeable engineers experienced in the application of the Code. Engineering judgments must be consistent with Code philosophy, and such judgments must never be used to overrule mandatory requirements or specific prohibitions of the Code.

The Committee recognizes that tools and techniques used for design and analysis change as technology progresses and expects engineers to use good judgment in the application of these tools. The designer is responsible for complying with Code rules and demonstrating compliance with Code equations when such equations are mandatory. The Code neither requires nor prohibits the use of computers for the design or analysis of components constructed to the

---

\* The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI’s requirements for an ANS. Therefore, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Code.

\*\* *Construction*, as used in this Foreword, is an all-inclusive term comprising materials, design, fabrication, examination, inspection, testing, certification, and overpressure protection.

requirements of the Code. However, designers and engineers using computer programs for design or analysis are cautioned that they are responsible for all technical assumptions inherent in the programs they use and the application of these programs to their design.

The rules established by the Committee are not to be interpreted as approving, recommending, or endorsing any proprietary or specific design, or as limiting in any way the manufacturer's freedom to choose any method of design or any form of construction that conforms to the Code rules.

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.

The Committee does not rule on whether a component shall or shall not be constructed to the provisions of the Code. The scope of each Section has been established to identify the components and parameters considered by the Committee in formulating the Code rules.

Questions or issues regarding compliance of a specific component with the Code rules are to be directed to the ASME Certificate Holder (Manufacturer). Inquiries concerning the interpretation of the Code are to be directed to the Committee. ASME is to be notified should questions arise concerning improper use of the ASME Single Certification Mark.

When required by context in this Section, the singular shall be interpreted as the plural, and vice versa, and the feminine, masculine, or neuter gender shall be treated as such other gender as appropriate.

The words "shall," "should," and "may" are used in this Standard as follows:

- *Shall* is used to denote a requirement.
- *Should* is used to denote a recommendation.
- *May* is used to denote permission, neither a requirement nor a recommendation.

# **STATEMENT OF POLICY ON THE USE OF THE ASME SINGLE CERTIFICATION MARK AND CODE AUTHORIZATION IN ADVERTISING**

ASME has established procedures to authorize qualified organizations to perform various activities in accordance with the requirements of the ASME Boiler and Pressure Vessel Code. It is the aim of the Society to provide recognition of organizations so authorized. An organization holding authorization to perform various activities in accordance with the requirements of the Code may state this capability in its advertising literature.

Organizations that are authorized to use the ASME Single Certification Mark for marking items or constructions that have been constructed and inspected in compliance with the ASME Boiler and Pressure Vessel Code are issued Certificates of Authorization. It is the aim of the Society to maintain the standing of the ASME Single Certification Mark for the benefit of the users, the enforcement jurisdictions, and the holders of the ASME Single Certification Mark who comply with all requirements.

Based on these objectives, the following policy has been established on the usage in advertising of facsimiles of the ASME Single Certification Mark, Certificates of Authorization, and reference to Code construction. The American Society of Mechanical Engineers does not “approve,” “certify,” “rate,” or “endorse” any item, construction, or activity and there shall be no statements or implications that might so indicate. An organization holding the ASME Single Certification Mark and/or a Certificate of Authorization may state in advertising literature that items, constructions, or activities “are built (produced or performed) or activities conducted in accordance with the requirements of the ASME Boiler and Pressure Vessel Code,” or “meet the requirements of the ASME Boiler and Pressure Vessel Code.” An ASME corporate logo shall not be used by any organization other than ASME.

The ASME Single Certification Mark shall be used only for stamping and nameplates as specifically provided in the Code. However, facsimiles may be used for the purpose of fostering the use of such construction. Such usage may be by an association or a society, or by a holder of the ASME Single Certification Mark who may also use the facsimile in advertising to show that clearly specified items will carry the ASME Single Certification Mark.

## **STATEMENT OF POLICY ON THE USE OF ASME MARKING TO IDENTIFY MANUFACTURED ITEMS**

The ASME Boiler and Pressure Vessel Code provides rules for the construction of boilers, pressure vessels, and nuclear components. This includes requirements for materials, design, fabrication, examination, inspection, and stamping. Items constructed in accordance with all of the applicable rules of the Code are identified with the ASME Single Certification Mark described in the governing Section of the Code.

Markings such as “ASME,” “ASME Standard,” or any other marking including “ASME” or the ASME Single Certification Mark shall not be used on any item that is not constructed in accordance with all of the applicable requirements of the Code.

Items shall not be described on ASME Data Report Forms nor on similar forms referring to ASME that tend to imply that all Code requirements have been met when, in fact, they have not been. Data Report Forms covering items not fully complying with ASME requirements should not refer to ASME or they should clearly identify all exceptions to the ASME requirements.

# PERSONNEL

## ASME Boiler and Pressure Vessel Standards Committees, Subgroups, and Working Groups

January 1, 2023

### TECHNICAL OVERSIGHT MANAGEMENT COMMITTEE (TOMC)

R. E. McLaughlin, <i>Chair</i>	W. M. Lundy
N. A. Finney, <i>Vice Chair</i>	D. I. Morris
S. J. Rossi, <i>Staff Secretary</i>	T. P. Pastor
G. Aurioles, Sr.	M. D. Rana
R. W. Barnes	S. C. Roberts
T. L. Bedeaux	F. J. Schaaf, Jr.
C. Brown	G. Scribner
D. B. DeMichael	W. J. Sperko
R. P. Deubler	D. Sronic
J. G. Feldstein	R. W. Swayne
G. W. Galanes	J. Vattappilly
J. A. Hall	M. Wadkinson
T. E. Hansen	B. K. Nutter, <i>Ex-Officio Member</i>
G. W. Hembree	M. J. Pischke, <i>Ex-Officio Member</i>
R. B. Keating	J. F. Henry, <i>Honorary Member</i>
B. Linnemann	

### Subgroup on Research and Development (TOMC)

S. C. Roberts, <i>Chair</i>	R. B. Keating
S. J. Rossi, <i>Staff Secretary</i>	R. E. McLaughlin
R. W. Barnes	T. P. Pastor
N. A. Finney	D. Andrei, <i>Contributing Member</i>
W. Hoffelner	

### Subgroup on Strategic Initiatives (TOMC)

N. A. Finney, <i>Chair</i>	M. H. Jawad
S. J. Rossi, <i>Staff Secretary</i>	R. B. Keating
R. W. Barnes	R. E. McLaughlin
T. L. Bedeaux	T. P. Pastor
G. W. Hembree	S. C. Roberts

### Task Group on Remote Inspection and Examination (SI-TOMC)

S. C. Roberts, <i>Chair</i>	M. Tannenbaum
P. J. Coco	J. Cameron, <i>Alternate</i>
N. A. Finney	A. Byk, <i>Contributing Member</i>
S. A. Marks	J. Pang, <i>Contributing Member</i>
R. Rockwood	S. J. Rossi, <i>Contributing Member</i>
C. Stevens	C. A. Sanna, <i>Contributing Member</i>

### Special Working Group on High Temperature Technology (TOMC)

D. Dewees, <i>Chair</i>	B. F. Hantz
F. W. Brust	R. I. Jetter
T. D. Burchell	P. Smith
P. R. Donavin	

### ADMINISTRATIVE COMMITTEE

R. E. McLaughlin, <i>Chair</i>	M. J. Pischke
N. A. Finney, <i>Vice Chair</i>	M. D. Rana
S. J. Rossi, <i>Staff Secretary</i>	S. C. Roberts
J. Cameron	R. R. Stevenson
R. B. Keating	R. W. Swayne
B. Linnemann	M. Wadkinson
B. K. Nutter	

### MARINE CONFERENCE GROUP

J. Oh, <i>Staff Secretary</i>	H. N. Patel
J. G. Hungerbuhler, Jr.	N. Prokopuk
G. Nair	J. D. Reynolds

### CONFERENCE COMMITTEE

R. D. Troutt — Texas, <i>Chair</i>	J. LeSage, Jr. — Louisiana
J. T. Amato — Ohio, <i>Secretary</i>	A. M. Lorimor — South Dakota
W. Anderson — Mississippi	M. Mailman — Northwest Territories, Canada
R. Becker — Colorado	W. McGivney — City of New York, New York
T. D. Boggs — Missouri	S. F. Noonan — Maryland
R. A. Boillard — Indiana	C. L. O'Guin — Tennessee
D. P. Brockerville — Newfoundland and Labrador, Canada	B. S. Oliver — New Hampshire
R. J. Bunte — Iowa	J. L. Oliver — Nevada
J. H. Burpee — Maine	P. B. Polick — Illinois
M. Carlson — Washington	J. F. Porcella — West Virginia
T. G. Clark — Oregon	B. Ricks — Montana
B. J. Crawford — Georgia	W. J. Ross — Pennsylvania
E. L. Creaser — New Brunswick, Canada	M. H. Sansone — New York
J. J. Dacanay — Hawaii	T. S. Seime — North Dakota
R. DeLury — Manitoba, Canada	C. S. Selinger — Saskatchewan, Canada
A. Denham — Michigan	J. E. Sharier — Ohio
C. Dinic — Ontario, Canada	R. Spiker — North Carolina
D. A. Ehler — Nova Scotia, Canada	D. Sronic — Alberta, Canada
S. D. Frazier — Washington	D. J. Stenrose — Michigan
T. J. Granneman II — Oklahoma	R. J. Stimson II — Kansas
S. Harder — Arizona	R. K. Sturm — Utah
M. L. Jordan — Kentucky	D. K. Sullivan — Arkansas
R. Kamboj — British Columbia, Canada	J. Taveras — Rhode Island
E. Kawa — Massachusetts	G. Teel — California
A. Khassasi — Quebec, Canada	D. M. Warburton — Florida
D. Kinney — North Carolina	M. Washington — New Jersey
K. S. Lane — Alaska	E. Wiggins — Alabama

#### INTERNATIONAL INTEREST REVIEW GROUP

V. Felix  
Y.-G. Kim  
S. H. Leong  
W. Lin  
O. F. Manafa

C. Minu  
Y.-W. Park  
A. R. Reynaga Nogales  
P. Williamson

#### COMMITTEE ON POWER BOILERS (BPV I)

R. E. McLaughlin, *Chair*  
E. M. Ortman, *Vice Chair*  
U. D'Urso, *Staff Secretary*  
D. I. Anderson  
J. L. Arnold  
K. K. Coleman  
J. G. Feldstein  
S. Fincher  
G. W. Galanes  
T. E. Hansen  
J. S. Hunter  
M. Ishikawa  
M. Lemmons  
L. Moedinger  
Y. Oishi  
M. Ortolani  
A. Spangenberg  
D. E. Tompkins  
D. E. Tuttle  
J. Vattappilly

M. Wadkinson  
R. V. Wielgoszinski  
F. Zeller  
H. Michael, *Delegate*  
D. L. Berger, *Honorary Member*  
P. D. Edwards, *Honorary Member*  
D. N. French, *Honorary Member*  
J. Hainsworth, *Honorary Member*  
J. F. Henry, *Honorary Member*  
W. L. Lowry, *Honorary Member*  
J. R. MacKay, *Honorary Member*  
P. A. Molvie, *Honorary Member*  
J. T. Pillow, *Honorary Member*  
B. W. Roberts, *Honorary Member*  
R. D. Schueler, Jr., *Honorary Member*  
J. M. Tanzosh, *Honorary Member*  
R. L. Williams, *Honorary Member*  
L. W. Yoder, *Honorary Member*

#### Executive Committee (BPV I)

E. M. Ortman, *Chair*  
R. E. McLaughlin, *Vice Chair*  
D. I. Anderson  
J. L. Arnold  
J. R. Braun  
K. K. Coleman  
H. Dalal  
T. Dhanraj

U. D'Urso  
P. F. Gilston  
K. Hayes  
P. Jennings  
A. Spangenberg  
D. E. Tompkins  
M. Wadkinson

#### Subgroup on Design (BPV I)

D. I. Anderson, *Chair*  
L. S. Tsai, *Secretary*  
P. Becker  
L. Krupp  
C. T. McDaris

N. S. Ranck  
J. Vattappilly  
M. Wadkinson  
D. Dewees, *Contributing Member*  
J. P. Glaspie, *Contributing Member*

#### Subgroup on Fabrication and Examination (BPV I)

J. L. Arnold, *Chair*  
P. F. Gilston, *Vice Chair*  
P. Becker, *Secretary*  
K. K. Coleman  
S. Fincher  
G. W. Galanes  
T. E. Hansen

P. Jennings  
M. Lewis  
C. T. McDaris  
R. E. McLaughlin  
R. J. Newell  
Y. Oishi  
R. V. Wielgoszinski

#### Subgroup on General Requirements and Piping (BPV I)

D. E. Tompkins, *Chair*  
M. Wadkinson, *Vice Chair*  
M. Lemmons, *Secretary*  
R. Antoniuk  
T. E. Hansen  
M. Ishikawa  
R. E. McLaughlin  
L. Moedinger

B. J. Mollitor  
Y. Oishi  
E. M. Ortman  
D. E. Tuttle  
J. Vattappilly  
R. V. Wielgoszinski  
W. L. Lowry, *Contributing Member*

#### Subgroup on Locomotive Boilers (BPV I)

J. R. Braun, *Chair*  
S. M. Butler, *Secretary*  
G. W. Galanes  
D. W. Griner  
M. A. Janssen

S. A. Lee  
L. Moedinger  
G. M. Ray  
M. W. Westland

#### Subgroup on Materials (BPV I)

K. K. Coleman, *Chair*  
K. Hayes, *Vice Chair*  
M. Lewis, *Secretary*  
S. H. Bowes  
G. W. Galanes  
P. F. Gilston  
J. S. Hunter  
E. Liebl  
F. Masuyama

L. S. Nicol  
M. Ortolani  
D. W. Rahoi  
F. Zeller  
B. W. Roberts, *Contributing Member*  
J. M. Tanzosh, *Contributing Member*

#### Subgroup on Solar Boilers (BPV I)

P. Jennings, *Chair*  
R. E. Hearne, *Secretary*  
S. Fincher

J. S. Hunter  
P. Swarnkar

#### Task Group on Modernization (BPV I)

D. I. Anderson, *Chair*  
U. D'Urso, *Staff Secretary*  
J. L. Arnold  
D. Dewees  
G. W. Galanes  
J. P. Glaspie

T. E. Hansen  
R. E. McLaughlin  
E. M. Ortman  
D. E. Tuttle  
J. Vattappilly

#### Germany International Working Group (BPV I)

A. Spangenberg, *Chair*  
P. Chavdarov, *Secretary*  
B. Daume  
J. Fleischfresser  
C. Jaekel  
R. Kauer  
D. Koelbl  
S. Krebs  
T. Ludwig

R. A. Meyers  
H. Michael  
F. Miunske  
M. Sykora  
R. Helmholdt, *Contributing Member*  
J. Henrichsmeyer, *Contributing Member*  
B. Müller, *Contributing Member*



**India International Working Group (BPV I)**

H. Dalal, <i>Chair</i>	S. Purkait
T. Dhanraj, <i>Vice Chair</i>	M. G. Rao
K. Thanupillai, <i>Secretary</i>	G. U. Shanker
P. Brahma	D. K. Shrivastava
S. Chakrabarti	K. Singha
A. Hantodkar	R. Sundararaj
A. J. Patil	S. Venkataramana

**Subgroup on International Material Specifications (BPV II)**

M. Ishikawa, <i>Chair</i>	F. Zeller
P. Chavdarov, <i>Vice Chair</i>	C. Zhou
A. Chaudouet	O. Oldani, <i>Delegate</i>
H. Chen	H. Lorenz, <i>Contributing Member</i>
A. F. Garbolevsky	T. F. Miskell, <i>Contributing Member</i>
D. O. Henry	E. Upitis, <i>Contributing Member</i>
W. M. Lundy	

**COMMITTEE ON MATERIALS (BPV II)**

J. Cameron, <i>Chair</i>	D. W. Rahoi
G. W. Galanes, <i>Vice Chair</i>	W. Ren
C. E. Rodrigues, <i>Staff Secretary</i>	E. Shapiro
A. Appleton	R. C. Sutherlin
P. Chavdarov	F. Zeller
K. K. Coleman	O. Oldani, <i>Delegate</i>
D. W. Gandy	A. Chaudouet, <i>Contributing Member</i>
J. F. Grubb	J. D. Fritz, <i>Contributing Member</i>
J. A. Hall	W. Hoffelner, <i>Contributing Member</i>
D. O. Henry	K. E. Orie, <i>Contributing Member</i>
K. M. Hottle	D. T. Peters, <i>Contributing Member</i>
M. Ishikawa	B. W. Roberts, <i>Contributing Member</i>
K. Kimura	J. M. Tanzosh, <i>Contributing Member</i>
M. Kowalczyk	E. Upitis, <i>Contributing Member</i>
D. L. Kurle	R. G. Young, <i>Contributing Member</i>
F. Masuyama	
S. Neilsen	
L. S. Nicol	
M. Ortolani	

**Subgroup on Nonferrous Alloys (BPV II)**

E. Shapiro, <i>Chair</i>	J. A. McMaster
W. MacDonald, <i>Vice Chair</i>	D. W. Rahoi
J. Robertson, <i>Secretary</i>	W. Ren
R. M. Beldyk	R. C. Sutherlin
J. M. Downs	R. Wright
J. F. Grubb	S. Yem
J. A. Hall	D. B. Denis, <i>Contributing Member</i>
D. Maitra	D. T. Peters, <i>Contributing Member</i>

**Subgroup on Physical Properties (BPV II)**

P. K. Rai, <i>Chair</i>	R. D. Jones
S. Neilsen, <i>Vice Chair</i>	P. K. Lam
G. Auriolles, Sr.	D. W. Rahoi
D. Chandiramani	E. Shapiro
P. Chavdarov	D. K. Verma
H. Eshraghi	S. Yem
J. F. Grubb	D. B. Denis, <i>Contributing Member</i>
B. F. Hantz	

**Executive Committee (BPV II)**

J. Cameron, <i>Chair</i>	W. Hoffelner
C. E. Rodrigues, <i>Staff Secretary</i>	M. Ishikawa
A. Appleton	M. Ortolani
K. K. Coleman	P. K. Rai
G. W. Galanes	J. Robertson
J. F. Grubb	E. Shapiro
S. Guzey	

**Subgroup on Strength, Ferrous Alloys (BPV II)**

M. Ortolani, <i>Chair</i>	M. Osterfoss
L. S. Nicol, <i>Secretary</i>	D. W. Rahoi
G. W. Galanes	S. Rosinski
J. A. Hall	M. Ueyama
M. Ishikawa	F. Zeller
S. W. Knowles	F. Abe, <i>Contributing Member</i>
F. Masuyama	R. G. Young, <i>Contributing Member</i>

**Subgroup on External Pressure (BPV II)**

S. Guzey, <i>Chair</i>	M. H. Jawad
E. Alexis, <i>Vice Chair</i>	S. Krishnamurthy
J. A. A. Morrow, <i>Secretary</i>	D. L. Kurle
L. F. Campbell	R. W. Mikitka
H. Chen	P. K. Rai
D. S. Griffin	M. Wadkinson
J. F. Grubb	

**Subgroup on Strength of Weldments (BPV II & BPV IX)**

K. K. Coleman, <i>Chair</i>	J. Penso
K. L. Hayes, <i>Vice Chair</i>	D. W. Rahoi
S. H. Bowes, <i>Secretary</i>	W. J. Sperko
M. Denault	J. P. Swezy, Jr.
G. W. Galanes	M. Ueyama
D. W. Gandy	P. D. Flenner, <i>Contributing Member</i>
M. Ghahremani	B. W. Roberts, <i>Contributing Member</i>
W. F. Newell, Jr.	

**Subgroup on Ferrous Specifications (BPV II)**

A. Appleton, <i>Chair</i>	S. G. Lee
K. M. Hottle, <i>Vice Chair</i>	W. C. Mack
C. Hyde, <i>Secretary</i>	J. Nickel
D. Amire-Brahimi	K. E. Orie
G. Cuccio	D. Poweleit
O. Elkadim	E. Upitis
D. Fialkowski	L. Watzke
J. F. Grubb	J. D. Fritz, <i>Contributing Member</i>
D. S. Janikowski	C. Meloy, <i>Contributing Member</i>
Y.-J. Kim	

**Working Group on Materials Database (BPV II)**

W. Hoffelner, <i>Chair</i>	J. Cameron, <i>Contributing Member</i>
C. E. Rodrigues, <i>Staff Secretary</i>	J. F. Grubb, <i>Contributing Member</i>
F. Abe	D. T. Peters, <i>Contributing Member</i>
W. MacDonald	W. Ren, <i>Contributing Member</i>
R. C. Sutherlin	B. W. Roberts, <i>Contributing Member</i>
D. Andrei, <i>Contributing Member</i>	
J. L. Arnold, <i>Contributing Member</i>	E. Shapiro, <i>Contributing Member</i>

**Working Group on Creep Strength Enhanced Ferritic Steels (BPV II)**

M. Ortolani, <i>Chair</i>	W. F. Newell, Jr.
G. W. Galanes, <i>Vice Chair</i>	J. J. Sanchez-Hanton
P. Becker, <i>Secretary</i>	J. A. Siefert
S. H. Bowes	W. J. Sperko
K. K. Coleman	F. Zeller
K. Kimura	F. Abe, <i>Contributing Member</i>
M. Lang	P. D. Flenner, <i>Contributing Member</i>
S. Luke	J. M. Tanzosh, <i>Contributing Member</i>
F. Masuyama	
T. Melfi	

**Executive Committee (BPV III)**

R. B. Keating, <i>Chair</i>	K. A. Manoly
A. Maslowski, <i>Secretary</i>	D. E. Matthews
T. M. Adams	S. McKillop
P. R. Donavin	J. McLean
J. V. Gardiner	T.-L. Sham
J. Grimm	W. K. Sowder, Jr.
D. W. Lewis	K. A. Kavanagh, <i>Alternate</i>

**Working Group on Data Analysis (BPV II)**

J. F. Grubb, <i>Chair</i>	F. Abe, <i>Contributing Member</i>
W. Ren, <i>Vice Chair</i>	W. Hoffelner, <i>Contributing Member</i>
K. Kimura	W. C. Mack, <i>Contributing Member</i>
F. Masuyama	D. T. Peters, <i>Contributing Member</i>
S. Neilsen	B. W. Roberts, <i>Contributing Member</i>
M. Ortolani	
M. J. Swindeman	

**Argentina International Working Group (BPV III)**

M. F. Liendo, <i>Chair</i>	A. J. Dall'Osto
J. Fernández, <i>Vice Chair</i>	J. I. Duo
O. Martinez, <i>Staff Secretary</i>	M. M. Gamizo
O. A. Verastegui, <i>Secretary</i>	I. M. Guerreiro
E. H. Aldaz	I. A. Knorr
G. O. Anteri	D. E. Matthews
A. P. Antipasti	A. E. Pastor
D. O. Bordato	M. Rivero
G. Bourguigne	M. D. Vigliano
M. Brusa	P. Yamamoto
A. Claus	M. Zunino
R. G. Cocco	

**China International Working Group (BPV II)**

T. Xu, <i>Secretary</i>	S. Tan
W. Cai	C. Wang
W. Fang	Jinguang Wang
Q. C. Feng	Jiongxiang Wang
S. Huo	Q.-J. Wang
F. Kong	X. Wang
H. Leng	H.-C. Yang
Hli Li	J. Yang
Hongbin Li	L. Yin
J. Li	H. Zhang
S. Liu	X.-H. Zhang
Z. Rongcan	Y. Zhang

**China International Working Group (BPV III)**

Y. Wang, <i>Chair</i>	C. Peiyin
H. Yu, <i>Secretary</i>	Z. Sun
L. Feng	G. Tang
J. Gu	L. Ting
L. Guo	F. Wu
C. Jiang	C. Yang
D. Kang	P. Yang
Y. Li	W. Yang
H. Lin	H. Yin
S. Liu	D. Yuangang
W. Liu	G. Zhang
J. Ma	D. Zhao
K. Mao	Z. Zhong
D. E. Matthews	Q. Zhou
J. Ming	H. Zhu
W. Pei	

**COMMITTEE ON CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS (BPV III)**

R. B. Keating, <i>Chair</i>	K. Matsunaga
T. M. Adams, <i>Vice Chair</i>	B. McGlone
D. E. Matthews, <i>Vice Chair</i>	S. McKillop
A. Maslowski, <i>Staff Secretary</i>	J. McLean
A. Appleton	J. C. Minichiello
S. Asada	M. N. Mitchell
R. W. Barnes	T. Nagata
W. H. Borter	J. B. Ossmann
M. E. Cohen	S. Pellet
R. P. Deubler	E. L. Pleins
P. R. Donavin	T.-L. Sham
A. C. Eberhardt	W. J. Sperko
J. V. Gardiner	W. Windes
J. Grimm	C. Basavaraju, <i>Alternate</i>
S. Hunter	C. T. Smith, <i>Contributing Member</i>
R. M. Jessee	W. K. Sowder, Jr., <i>Contributing Member</i>
R. I. Jetter	
C. C. Kim	M. Zhou, <i>Contributing Member</i>
G. H. Koo	E. B. Branch, <i>Honorary Member</i>
D. W. Lewis	G. D. Cooper, <i>Honorary Member</i>
M. A. Lockwood	D. F. Landers, <i>Honorary Member</i>
K. A. Manoly	C. Pieper, <i>Honorary Member</i>

**Germany International Working Group (BPV III)**

J. Wendt, <i>Chair</i>	C. Kuschke
D. Koelbl, <i>Vice Chair</i>	H.-W. Lange
R. Gersinska, <i>Secretary</i>	T. Ludwig
P. R. Donavin	X. Pitoiset
R. Döring	M. Reichert
C. G. Fratescu	G. Roos
A. Huber	J. Rudolph
R. E. Hueggenberg	L. Sybertz
C. Huttner	I. Tewes
E. Iacopetta	R. Tiete
M. H. Koeppen	F. Wille

**India International Working Group (BPV III)**

R. N. Sen, <i>Chair</i>	R. Kumar
S. B. Parkash, <i>Vice Chair</i>	S. Kumar
A. D. Bagdare, <i>Secretary</i>	M. Lakshminarasimhan
S. Aithal	T. Mukherjee
S. Benhur	D. Narain
N. M. Borwankar	A. D. Paranjpe
M. Brijlani	J. R. Patel
H. Dalal	E. L. Pleins
S. K. Goyal	T. J. P. Rao
A. Johori	V. Sehgal
A. P. Kishore	S. Singh
D. Kulkarni	B. K. Sreedhar

**Korea International Working Group (BPV III)**

G. H. Koo, <i>Chair</i>	Y.-S. Kim
O.-S. Kim, <i>Secretary</i>	D. Kwon
H. Ahn	B. Lee
S. Cho	D. Lee
G.-S. Choi	S. Lee
M.-j. Choi	S.-G. Lee
S. Choi	H. Lim
J. Y. Hong	I.-K. Nam
N.-S. Huh	C.-K. Oh
J.-K. Hwang	C.-Y. Oh
S. S. Hwang	E.-J. Oh
C. Jang	C. Park
I. I. Jeong	H. Park
S. H. Kang	Y. S. Pyun
J.-I. Kim	T. Shin
J.-S. Kim	S. Song
M.-W. Kim	W. J. Sperko
S.-S. Kim	J. S. Yang
Y.-B. Kim	O. Yoo

**Seismic Design Steering Committee (BPV III)**

T. M. Adams, <i>Chair</i>	G. H. Koo
F. G. Abatt, <i>Secretary</i>	A. Maekawa
G. A. Antaki	K. Matsunaga
C. Basavaraju	J. McLean
D. Chowdhury	R. M. Pace
R. Döring	D. Watkins

**Task Group on Alternate Requirements (BPV III)**

J. Wen, <i>Chair</i>	D. E. Matthews
R. R. Romano, <i>Secretary</i>	S. McKillop
P. J. Coco	B. P. Nolan
P. R. Donavin	J. B. Ossmann
J. V. Gardiner	E. C. Renaud
J. Grimm	M. A. Richter
R. S. Hill III	I. H. Tseng
M. Kris	Y. Wang
M. A. Lockwood	

**United Kingdom International Working Group (BPV III)**

C. D. Bell, <i>Chair</i>	G. Innes
P. M. James, <i>Vice Chair</i>	S. A. Jones
C. B. Carpenter, <i>Secretary</i>	B. Pellereau
T. M. Adams	C. R. Schneider
T. Bann	J. W. Stairmand
M. J. Chevalier	J. Sulley
A. J. Cole-Baker	J. Talamantes-Silva
M. Consonni	A. J. Holt, <i>Contributing Member</i>
M. J. Crathorne	

**Special Working Group on New Plant Construction Issues (BPV III)**

J. B. Ossmann, <i>Chair</i>	R. E. McLaughlin
A. Maslowski, <i>Staff Secretary</i>	E. L. Pleins
M. C. Buckley, <i>Secretary</i>	D. W. Sandusky
M. Arcaro	M. C. Scott
A. Cardillo	R. R. Stevenson
P. J. Coco	H. Xu
K. Harris	J. Yan
J. Honcharik	J. C. Minichiello, <i>Contributing Member</i>
M. Kris	

**Special Working Group on Editing and Review (BPV III)**

D. E. Matthews, <i>Chair</i>	S. Hunter
R. P. Deubler	J. C. Minichiello
A. C. Eberhardt	J. F. Strunk
J. V. Gardiner	C. Wilson

**Special Working Group on HDPE Stakeholders (BPV III)**

S. Patterson, <i>Secretary</i>	D. P. Munson
S. Choi	T. M. Musto
C. M. Faidy	J. E. O'Sullivan
M. Golliet	V. Rohatgi
R. M. Jessee	F. J. Schaaf, Jr.
J. Johnston, Jr.	R. Stakenborghs
M. Kuntz	M. Troughton
M. Lashley	B. Lin, <i>Alternate</i>
K. A. Manoly	

**Special Working Group on Honors and Awards (BPV III)**

J. C. Minichiello, <i>Chair</i>	R. M. Jessee
A. Appleton	D. E. Matthews
R. W. Barnes	

**Special Working Group on International Meetings and IWG Liaisons (BPV III)**

D. E. Matthews, <i>Chair</i>	P. R. Donavin
A. Maslowski, <i>Staff Secretary</i>	E. L. Pleins
T. M. Adams	W. J. Sperko
R. W. Barnes	

**Joint ACI-ASME Committee on Concrete Components for Nuclear Service (BPV III)**

J. McLean, *Chair*  
L. J. Colarusso, *Vice Chair*  
J. Cassamassino, *Staff Secretary*  
A. Dinizulu, *Staff Secretary*  
C. J. Bang  
A. C. Eberhardt  
B. D. Hovis  
T. C. Inman  
C. Jones  
T. Kang  
N.-H. Lee  
J. A. Munshi  
T. Muraki  
J. S. Saini  
J. F. Strunk

G. Thomas  
A. Varma  
S. Wang  
A. Istar, *Alternate*  
A. Adediran, *Contributing Member*  
S. Bae, *Contributing Member*  
J.-B. Domage, *Contributing Member*  
P. S. Ghosal, *Contributing Member*  
B. B. Scott, *Contributing Member*  
M. R. Senecal, *Contributing Member*  
Z. Shang, *Contributing Member*  
M. Sircar, *Contributing Member*  
C. T. Smith, *Contributing Member*

**Special Working Group on Modernization (BPV III-2)**

S. Wang, *Chair*  
J. McLean, *Vice Chair*  
A. Adediran  
S. Malushte  
J. S. Saini

A. Varma  
F. Lin, *Contributing Member*  
J. A. Pires, *Contributing Member*  
I. Zivanovic, *Contributing Member*

**Task Group on Steel-Concrete Composite Containments (BPV III-2)**

A. Varma, *Chair*  
S. Malushte  
J. McLean

J. A. Pires  
J. S. Saini

**Working Group on Design (BPV III-2)**

N.-H. Lee, *Chair*  
S. Wang, *Vice Chair*  
M. Allam  
S. Bae  
L. J. Colarusso  
A. C. Eberhardt  
B. D. Hovis  
T. C. Inman  
C. Jones  
J. A. Munshi  
T. Muraki  
J. S. Saini

G. Thomas  
A. Istar, *Alternate*  
P. S. Ghosal, *Contributing Member*  
S.-Y. Kim, *Contributing Member*  
J. Kwon, *Contributing Member*  
S. E. Ohler-Schmitz, *Contributing Member*  
B. B. Scott, *Contributing Member*  
Z. Shang, *Contributing Member*  
M. Shin, *Contributing Member*  
M. Sircar, *Contributing Member*

**Working Group on Materials, Fabrication, and Examination (BPV III-2)**

C. Jones, *Chair*  
A. Eberhardt, *Vice Chair*  
C. J. Bang  
B. Birch  
J.-B. Domage  
T. Kang  
N.-H. Lee

Z. Shang  
J. F. Strunk  
A. A. Aboelmagd, *Contributing Member*  
P. S. Ghosal, *Contributing Member*  
B. B. Scott, *Contributing Member*  
I. Zivanovic, *Contributing Member*

**Subcommittee on Design (BPV III)**

P. R. Donavin, *Chair*  
S. McKillop, *Vice Chair*  
R. P. Deubler  
M. A. Gray  
R. I. Jetter  
R. B. Keating  
J.-I. Kim  
K. A. Manoly  
D. E. Matthews  
M. N. Mitchell

B. Pellereau  
T.-L. Sham  
W. F. Weitzel  
C. Basavaraju, *Alternate*  
G. L. Hollinger, *Contributing Member*  
M. H. Jawad, *Contributing Member*  
W. J. O'Donnell, Sr., *Contributing Member*  
K. Wright, *Contributing Member*

**Subgroup on Component Design (SC-D) (BPV III)**

D. E. Matthews, *Chair*  
P. Vock, *Vice Chair*  
S. Pellet, *Secretary*  
T. M. Adams  
D. J. Ammerman  
G. A. Antaki  
J. J. Arthur  
S. Asada  
J. F. Ball  
C. Basavaraju  
D. Chowdhury  
N. A. Costanzo  
R. P. Deubler  
M. Kassar  
D. Keck  
T. R. Liskai  
K. A. Manoly  
J. C. Minichiello

T. Mitsuhashi  
D. Murphy  
T. M. Musto  
T. Nagata  
G. Z. Tokarski  
S. Willoughby-Braun  
C. Wilson  
A. A. Dermenjian, *Contributing Member*  
P. Hirschberg, *Contributing Member*  
R. B. Keating, *Contributing Member*  
O.-S. Kim, *Contributing Member*  
R. J. Masterson, *Contributing Member*  
H. S. Mehta, *Contributing Member*  
I. Saito, *Contributing Member*  
J. P. Tucker, *Contributing Member*

**Task Group to Improve Section III/XI Interface (SG-CD) (BPV III)**

P. Vock, *Chair*  
E. Henry, *Secretary*  
G. A. Antaki  
A. Cardillo  
D. Chowdhury  
J. Honcharik  
J. Hurst  
J. Lambin

C. A. Nove  
T. Nuoffer  
J. B. Ossmann  
A. T. Roberts III  
J. Sciulli  
A. Udyawar  
S. Willoughby-Braun

**Working Group on Core Support Structures (SG-CD) (BPV III)**

D. Keck, *Chair*  
R. Z. Ziegler, *Vice Chair*  
R. Martin, *Secretary*  
G. W. Delpont  
L. C. Hartless  
T. R. Liskai  
M. Nakajima

M. D. Snyder  
R. Vollmer  
T. M. Wiger  
C. Wilson  
Y. Wong  
H. S. Mehta, *Contributing Member*

**Working Group on Design of Division 3 Containment Systems (SG-CD) (BPV III)**

D. J. Ammerman, *Chair*  
S. Klein, *Secretary*  
G. Bjorkman  
V. Broz  
D. W. Lewis  
J. M. Piotter  
A. Rigato  
P. Sakalaukus, Jr.

D. Siromani  
R. Sypulski  
X. Zhai  
X. Zhang  
C. R. Sydnor, *Alternate*  
J. C. Minichiello, *Contributing Member*

**Working Group on HDPE Design of Components (SG-CD) (BPV III)**

T. M. Musto, <i>Chair</i>	K. A. Manoly
J. B. Ossmann, <i>Secretary</i>	D. P. Munson
M. Brandes	F. J. Schaaf, Jr.
S. Choi	R. Stakenborghs
J. R. Hebeisen	M. T. Audrain, <i>Alternate</i>
P. Krishnaswamy	J. C. Minichiello, <i>Contributing Member</i>
M. Kuntz	

**Working Group on Valves (SG-CD) (BPV III)**

P. Vock, <i>Chair</i>	H. O'Brien
S. Jones, <i>Secretary</i>	J. O'Callaghan
M. C. Buckley	M. Rain
A. Cardillo	K. E. Reid II
G. A. Jolly	J. Sulley
J. Lambin	I. H. Tseng
T. Lippucci	J. P. Tucker
C. A. Mizer	Y. Wong, <i>Alternate</i>

**Working Group on Piping (SG-CD) (BPV III)**

G. A. Antaki, <i>Chair</i>	K. E. Reid II
G. Z. Tokarski, <i>Secretary</i>	D. Vlaicu
C. Basavaraju	S. Weindorf
J. Catalano	T. M. Adams, <i>Contributing Member</i>
F. Claeys	R. B. Keating, <i>Contributing Member</i>
C. M. Faidy	T. B. Littleton, <i>Contributing Member</i>
R. G. Gilada	Y. Liu, <i>Contributing Member</i>
N. M. Graham	J. F. McCabe, <i>Contributing Member</i>
M. A. Gray	J. C. Minichiello, <i>Contributing Member</i>
R. J. Gurdal	A. N. Nguyen, <i>Contributing Member</i>
R. W. Haupt	M. S. Sills, <i>Contributing Member</i>
A. Hirano	N. C. Sutherland, <i>Contributing Member</i>
P. Hirschberg	E. A. Wais, <i>Contributing Member</i>
M. Kassab	C.-I. Wu, <i>Contributing Member</i>
J. Kawahata	
D. Lieb	
I.-K. Nam	
J. O'Callaghan	

**Working Group on Vessels (SG-CD) (BPV III)**

D. Murphy, <i>Chair</i>	T. J. Schriefer
S. Willoughby-Braun, <i>Secretary</i>	M. C. Scott
J. J. Arthur	P. K. Shah
C. Basavaraju	D. Vlaicu
M. Brijlani	C. Wilson
L. Constantinescu	R. Z. Ziegler
J. I. Kim	R. J. Huang, <i>Alternate</i>
O.-S. Kim	B. Basu, <i>Contributing Member</i>
D. E. Matthews	R. B. Keating, <i>Contributing Member</i>
T. Mitsuhashi	W. F. Weitze, <i>Contributing Member</i>

**Working Group on Pressure Relief (SG-CD) (BPV III)**

K. R. May, <i>Chair</i>	I. H. Tseng
R. Krithivasan, <i>Secretary</i>	B. J. Yonsky
M. Brown	Y. Wong, <i>Alternate</i>
J. W. Dickson	J. Yu, <i>Alternate</i>
S. Jones	S. T. French, <i>Contributing Member</i>
R. Lack	D. B. Ross, <i>Contributing Member</i>
D. Miller	S. Ruesenberg, <i>Contributing Member</i>
T. Patel	
K. Shores	

**Subgroup on Design Methods (SC-D) (BPV III)**

S. McKillop, <i>Chair</i>	P. Smith
P. R. Donavin, <i>Vice Chair</i>	R. Vollmer
J. Wen, <i>Secretary</i>	W. F. Weitze
K. Avrithi	T. M. Adams, <i>Contributing Member</i>
L. Davies	C. W. Bruny, <i>Contributing Member</i>
M. A. Gray	S. R. Gosselin, <i>Contributing Member</i>
J. V. Gregg, Jr.	H. T. Harrison III, <i>Contributing Member</i>
K. Hsu	W. J. O'Donnell, Sr., <i>Contributing Member</i>
R. Kalnas	K. Wright, <i>Contributing Member</i>
D. Keck	
J. I. Kim	
B. Pellereau	
W. D. Reinhardt	

**Working Group on Pumps (SG-CD) (BPV III)**

D. Chowdhury, <i>Chair</i>	K. B. Wilson
J. V. Gregg, Jr., <i>Secretary</i>	Y. Wong
B. Busse	I. H. Tseng, <i>Alternate</i>
M. D. Eftychiou	X. Di, <i>Contributing Member</i>
R. A. Fleming	C. Gabhart, <i>Contributing Member</i>
K. J. Noel	R. Ladefian, <i>Contributing Member</i>
J. Sulley	

**Working Group on Supports (SG-CD) (BPV III)**

N. A. Costanzo, <i>Chair</i>	G. Thomas
U. S. Bandyopadhyay, <i>Secretary</i>	G. Z. Tokarski
K. Avrithi	L. Vandersip
N. M. Bisceglia	P. Wiseman
R. P. Deubler	R. J. Masterson, <i>Contributing Member</i>
N. M. Graham	J. R. Stinson, <i>Contributing Member</i>
Y. Matsubara	
S. Pellet	

**Special Working Group on Computational Modeling for Explicit Dynamics (SG-DM) (BPV III)**

G. Bjorkman, <i>Chair</i>	D. Siromani
D. J. Ammerman, <i>Vice Chair</i>	C.-F. Tso
V. Broz, <i>Secretary</i>	M. C. Yaksh
S. Kuehner	U. Zencker
D. Molitoris	X. Zhang
W. D. Reinhardt	Y. Wong, <i>Contributing Member</i>

**Working Group on Design Methodology (SG-DM) (BPV III)**

- |                              |  |
|------------------------------|--|
| B. Pellereau, <i>Chair</i>   | T. M. Wiger                                    |
| R. Vollmer, <i>Secretary</i> | K. Hsu, <i>Alternate</i>                       |
| K. Avrithi                   | G. Banyay, <i>Contributing Member</i>          |
| C. Basavaraju                | D. S. Bartran, <i>Contributing Member</i>      |
| F. Berkepille                | R. D. Blevins, <i>Contributing Member</i>      |
| C. M. Faidy                  | M. R. Breach, <i>Contributing Member</i>       |
| Y. Gao                       | C. W. Bruny, <i>Contributing Member</i>        |
| M. Kassar                    | D. L. Caldwell, <i>Contributing Member</i>     |
| J. I. Kim                    | H. T. Harrison III, <i>Contributing Member</i> |
| T. R. Liszkai                | C. F. Heberling II, <i>Contributing Member</i> |
| D. Lytle                     | P. Hirschberg, <i>Contributing Member</i>      |
| K. Matsunaga                 | R. B. Keating, <i>Contributing Member</i>      |
| S. McKillop                  | A. Walker, <i>Contributing Member</i>          |
| S. Ranganath                 | K. Wright, <i>Contributing Member</i>          |
| W. D. Reinhardt              |  |
| P. K. Shah                   |  |
| S. Wang                      |  |
| W. F. Weitze                 |  |
| J. Wen                       |  |

**Working Group on Environmental Fatigue Evaluation Methods (SG-DM) (BPV III)**

- |                                |  |
|--------------------------------|--|
| M. A. Gray, <i>Chair</i>       | B. Pellereau                               |
| W. F. Weitze, <i>Secretary</i> | D. Vlaicu                                  |
| S. Asada                       | K. Wang                                    |
| K. Avrithi                     | R. Z. Ziegler                              |
| R. C. Cipolla                  | S. Cuvilliez, <i>Contributing Member</i>   |
| T. M. Damiani                  | T. D. Gilman, <i>Contributing Member</i>   |
| C. M. Faidy                    | S. R. Gosselin, <i>Contributing Member</i> |
| A. Hirano                      | Y. He, <i>Contributing Member</i>          |
| P. Hirschberg                  | H. S. Mehta, <i>Contributing Member</i>    |
| K. Hsu                         | K. Wright, <i>Contributing Member</i>      |
| J.-S. Park                     |  |

**Working Group on Fatigue Strength (SG-DM) (BPV III)**

- |                                 |  |
|---------------------------------|--|
| P. R. Donavin, <i>Chair</i>     | J. I. Kim  |
| M. S. Shelton, <i>Secretary</i> | S. H. Kleinsmith                                 |
| R. S. Bass                      | B. Pellereau                                     |
| T. M. Damiani                   | S. Ranganath                                     |
| D. W. DeJohn                    | Y. Wang  |
| C. M. Faidy                     | W. F. Weitze                                     |
| P. Gill                         | Y. Zou   |
| S. R. Gosselin                  | S. Majumdar, <i>Contributing Member</i>          |
| R. J. Gurdal                    | H. S. Mehta, <i>Contributing Member</i>          |
| C. F. Heberling II              | W. J. O'Donnell, Sr., <i>Contributing Member</i> |
| C. E. Hinnant                   | K. Wright, <i>Contributing Member</i>            |
| P. Hirschberg                   |  |
| K. Hsu                          |  |

**Working Group on Probabilistic Methods in Design (SG-DM) (BPV III)**

- |                              |  |
|------------------------------|--|
| M. Golliet, <i>Chair</i>     | A. Hirano                                  |
| R. Kalnas, <i>Vice Chair</i> | K. A. Manoly                               |
| K. Avrithi                   | P. J. O'Regan                              |
| G. Brouette                  | B. Pellereau                               |
| J. Hakii                     | M. Yagodich                                |
| D. O. Henry                  | R. S. Hill III, <i>Contributing Member</i> |

**Subgroup on Containment Systems for Spent Nuclear Fuel and High-Level Radioactive Material (BPV III)**

- |                                   |   |
|-----------------------------------|---|
| D. W. Lewis, <i>Chair</i>         | R. Sypulski                               |
| D. J. Ammerman, <i>Vice Chair</i> | J. Wellwood                               |
| S. Klein, <i>Secretary</i>        | X. J. Zhai                                |
| G. Bjorkman                       | X. Zhang                                  |
| V. Broz                           | D. Dunn, <i>Alternate</i>                 |
| A. Rigato                         | W. H. Borter, <i>Contributing Member</i>  |
| P. Sakalaukus, Jr.                | E. L. Pleins, <i>Contributing Member</i>  |
| D. Siromani                       | N. M. Simpson, <i>Contributing Member</i> |
| D. B. Spencer                     |   |

**Subgroup on Fusion Energy Devices (BPV III)**

- |                                      |  |
|--------------------------------------|--|
| W. K. Sowder, Jr., <i>Chair</i>      | C. J. Lammi                              |
| A. Maslowski, <i>Staff Secretary</i> | S. Lawler                                |
| M. Ellis, <i>Secretary</i>           | P. Mokaria                               |
| M. Bashir                            | D. J. Roszman                            |
| J. P. Blanchard                      | F. J. Schaaf, Jr.                        |
| T. P. Davis                          | P. Smith                                 |
| B. R. Doshi                          | Y. Song                                  |
| L. El-Guebaly                        | C. Vangaasbeek                           |
| G. Holtmeier                         | I. J. Zatz                               |
| D. Johnson                           | R. W. Barnes, <i>Contributing Member</i> |
| I. Kimihiro                          |  |

**Special Working Group on Fusion Stakeholders (BPV III-4)**

- |                           |                   |
|---------------------------|-------------------|
| T. P. Davis, <i>Chair</i> | S. C. Middleburgh |
| R. W. Barnes              | R. J. Pearson     |
| V. Chugh                  | W. K. Sowder, Jr. |
| S. S. Desai               | D. A. Sutherland  |
| F. Deschamps              | N. Young          |
| M. Hua                    | J. Zimmermann     |
| S. Lawler                 |                   |

**Working Group on General Requirements (BPV III-4)**

- |                             |                   |
|-----------------------------|-------------------|
| D. J. Roszman, <i>Chair</i> | P. Mokaria        |
| M. Ellis                    | W. K. Sowder, Jr. |

**Working Group on In-Vessel Components (BPV III-4)**

- |                         |                |
|-------------------------|----------------|
| M. Bashir, <i>Chair</i> | M. Kalsey      |
| Y. Carin                | S. T. Madabusi |
| T. P. Davis             |                |

**Working Group on Magnets (BPV III-4)**

- |                                 |               |
|---------------------------------|---------------|
| W. K. Sowder, Jr., <i>Chair</i> | D. S. Bartran |
|---------------------------------|---------------|

**Working Group on Materials (BPV III-4)**

- |                         |            |
|-------------------------|------------|
| M. Porton, <i>Chair</i> | P. Mummery |
| T. P. Davis             |            |

**Working Group on Vacuum Vessels (BPV III-4)**

- |                           |            |
|---------------------------|------------|
| I. Kimihiro, <i>Chair</i> | D. Johnson |
| L. C. Cadwallader         | Q. Shijun  |
| B. R. Doshi               | Y. Song    |

**Subgroup on General Requirements (BPV III)**

J. V. Gardiner, *Chair*  
 N. DeSantis, *Secretary*  
 V. Apostolescu  
 A. Appleton  
 S. Bell  
 J. R. Berry  
 G. Brouette  
 G. C. Deleanu  
 J. W. Highlands  
 E. V. Imbro  
 K. A. Kavanagh  
 Y.-S. Kim  
 B. McGlone  
 E. C. Renaud

T. N. Rezk  
 J. Rogers  
 R. Spuhl  
 D. M. Vickery  
 J. DeKleine, *Contributing Member*  
 H. Michael, *Contributing Member*  
 D. J. Roszman, *Contributing Member*  
 C. T. Smith, *Contributing Member*  
 W. K. Sowder, Jr., *Contributing Member*  
 G. E. Szabatura, *Contributing Member*

**Subgroup on High Temperature Reactors (BPV III)**

T.-L. Sham, *Chair*  
 Y. Wang, *Secretary*  
 M. Ando  
 N. Broom  
 F. W. Brust  
 P. Carter  
 M. E. Cohen  
 W. J. Geringer  
 B. F. Hantz  
 M. H. Jawad  
 W. T. Jessup  
 R. I. Jetter  
 K. Kimura  
 G. H. Koo

A. Mann  
 M. C. Messner  
 X. Wei  
 W. Windes  
 R. Wright  
 G. L. Zeng  
 D. S. Griffin, *Contributing Member*  
 X. Li, *Contributing Member*  
 W. O'Donnell, Sr., *Contributing Member*  
 L. Shi, *Contributing Member*  
 R. W. Swindeman, *Contributing Member*

**Special Working Group on General Requirements Consolidation (SG-GR) (BPV III)**

J. V. Gardiner, *Chair*  
 J. Grimm, *Vice Chair*  
 G. C. Deleanu  
 A. C. Eberhardt

E. C. Renaud  
 J. L. Williams  
 C. T. Smith, *Contributing Member*

**Special Working Group on High Temperature Reactor Stakeholders (SG-HTR) (BPV III)**

M. E. Cohen, *Chair*  
 M. C. Albert  
 M. Arcaro  
 R. W. Barnes  
 N. Broom  
 R. Christensen  
 V. Chugh  
 W. Corwin  
 G. C. Deleanu  
 R. A. Fleming  
 K. Harris  
 R. I. Jetter  
 Y. W. Kim

G. H. Koo  
 N. J. McTiernan  
 T. Nguyen  
 K. J. Noel  
 T.-L. Sham  
 B. Song  
 X. Wei  
 G. L. Zeng  
 T. Asayama, *Contributing Member*  
 X. Li, *Contributing Member*  
 L. Shi, *Contributing Member*  
 G. Wu, *Contributing Member*

**Working Group on General Requirements (SG-GR) (BPV III)**

B. McGlone, *Chair*  
 J. Grimm, *Secretary*  
 V. Apostolescu  
 A. Appleton  
 S. Bell  
 J. R. Berry  
 G. Brouette  
 P. J. Coco  
 N. DeSantis  
 Y. Diaz-Castillo  
 O. Elkadim  
 J. Harris  
 J. W. Highlands  
 E. V. Imbro  
 K. A. Kavanagh  
 Y.-S. Kim  
 Y. K. Law

D. T. Meisch  
 E. C. Renaud  
 T. N. Rezk  
 J. Rogers  
 B. S. Sandhu  
 R. Spuhl  
 J. F. Strunk  
 D. M. Vickery  
 J. L. Williams  
 J. DeKleine, *Contributing Member*  
 S. F. Harrison, Jr., *Contributing Member*  
 D. J. Roszman, *Contributing Member*  
 G. E. Szabatura, *Contributing Member*

**Task Group on Division 5 AM Components (SG-HTR) (BPV III)**

R. Wright, *Chair*  
 R. Bass, *Secretary*  
 M. C. Albert  
 R. W. Barnes  
 F. W. Brust  
 Z. Feng  
 S. Lawler  
 X. Lou

M. McMurtrey  
 M. C. Messner  
 T. Patterson  
 E. C. Renaud  
 D. Rudland  
 T.-L. Sham  
 I. J. Van Rooyen  
 X. Wei

**Working Group on General Requirements for Graphite and Ceramic Composite Core Components and Assemblies (SG-GR) (BPV III)**

W. J. Geringer, *Chair*  
 A. Appleton  
 J. R. Berry  
 C. Cruz  
 Y. Diaz-Castillo  
 J. Lang

M. N. Mitchell  
 J. Potgieter  
 E. C. Renaud  
 R. Spuhl  
 W. Windes  
 B. Lin, *Alternate*

**Working Group on Allowable Stress Criteria (SG-HTR) (BPV III)**

R. Wright, *Chair*  
 M. McMurtrey, *Secretary*  
 R. Bass  
 K. Kimura  
 D. Maitra  
 R. J. McReynolds  
 M. C. Messner  
 J. C. Poehler

W. Ren  
 T.-L. Sham  
 Y. Wang  
 X. Wei  
 M. Yoo, *Alternate*  
 R. W. Swindeman, *Contributing Member*

**Working Group on Analysis Methods (SG-HTR) (BPV III)**

M. C. Messner, <i>Chair</i>	T.-L. Sham
H. Mahajan, <i>Secretary</i>	X. Wei
R. W. Barnes	S. X. Xu
J. A. Blanco	J. Young
P. Carter	M. R. Breach, <i>Contributing Member</i>
W. T. Jessup	T. Hassan, <i>Contributing Member</i>
R. I. Jetter	S. Krishnamurthy, <i>Contributing Member</i>
G. H. Koo	M. J. Swindeman, <i>Contributing Member</i>
H. Qian	
T. Riordan	

**Working Group on Creep-Fatigue and Negligible Creep (SG-HTR) (BPV III)**

Y. Wang, <i>Chair</i>	M. C. Messner
M. Ando	T. Nguyen
P. Carter	J. C. Poehler
M. E. Cohen	H. Qian
J. I. Duo	R. Rajasekaran
R. I. Jetter	T.-L. Sham
G. H. Koo	X. Wei
H. Mahajan	J. Young
M. McMurtrey	M. Yoo, <i>Alternate</i>

**Working Group on High Temperature Flaw Evaluation (SG-HTR) (BPV III)**

C. J. Sallaberry, <i>Chair</i>	H. Qian
F. W. Brust	D. A. Scarth
P. Carter	D. J. Shim
S. Kalyanam	A. Udyawar
B.-L. Lyow	X. Wei
M. C. Messner	S. X. Xu
J. C. Poehler	M. Yoo, <i>Alternate</i>

**Working Group on Nonmetallic Design and Materials (SG-HTR) (BPV III)**

W. Windes, <i>Chair</i>	J. Parks
W. J. Geringer, <i>Vice Chair</i>	T.-L. Sham
J. Potgieter, <i>Secretary</i>	A. Tzelepi
G. Beirnaert	G. L. Zeng
C. Chen	M. Yoo, <i>Alternate</i>
A. N. Chereskin	A. Appleton, <i>Contributing Member</i>
V. Chugh	R. W. Barnes, <i>Contributing Member</i>
C. Contescu	A. A. Campbell, <i>Contributing Member</i>
N. Gallego	S.-H. Chi, <i>Contributing Member</i>
S. T. Gonczy	Y. Katoh, <i>Contributing Member</i>
K. Harris	A. Mack, <i>Contributing Member</i>
M. G. Jenkins	J. B. Ossmann, <i>Contributing Member</i>
J. Lang	
M. P. Metcalfe	
M. N. Mitchell	

**Subgroup on Materials, Fabrication, and Examination (BPV III)**

J. Grimm, <i>Chair</i>	M. Kris
S. Hunter, <i>Secretary</i>	D. W. Mann
W. H. Borter	T. Melfi
M. Brijlani	I.-K. Nam
G. R. Cannell	J. B. Ossmann
A. Cardillo	J. E. O'Sullivan
S. Cho	M. C. Scott
P. J. Coco	W. J. Sperko
R. H. Davis	J. R. Stinson
D. B. Denis	J. F. Strunk
B. D. Frew	W. Windes
D. W. Gandy	R. Wright
S. E. Gingrich	S. Yee
M. Golliet	H. Michael, <i>Delegate</i>
L. S. Harbison	A. L. Hiser, Jr., <i>Alternate</i>
R. M. Jessee	R. W. Barnes, <i>Contributing Member</i>
C. C. Kim	

**Task Group on Advanced Manufacturing (BPV III)**

D. W. Mann, <i>Chair</i>	T. Melfi
D. W. Gandy, <i>Secretary</i>	E. C. Renaud
R. Bass	W. J. Sperko
D. Chowdhury	J. F. Strunk
P. J. Coco	J. Sulley
B. D. Frew	S. Tate
J. Grimm	S. Wolbert
A. L. Hiser, Jr.	H. Xu
J. Lambin	D. W. Pratt, <i>Alternate</i>
T. Lippucci	S. Malik, <i>Contributing Member</i>
K. Matsunaga	

**Joint Working Group on HDPE (SG-MFE) (BPV III)**

M. Brandes, <i>Chair</i>	K. Manoly
T. M. Musto, <i>Chair</i>	D. P. Munson
J. B. Ossmann, <i>Secretary</i>	J. O'Sullivan
G. Brouette	V. Rohatgi
M. C. Buckley	F. Schaaf, Jr.
S. Choi	S. Schuessler
M. Golliet	R. Stakenborghs
J. Hebeisen	M. Troughton
J. Johnston, Jr.	P. Vibien
P. Krishnaswamy	J. Wright
M. Kuntz	T. Adams, <i>Contributing Member</i>
B. Lin	

**COMMITTEE ON HEATING BOILERS (BPV IV)**

M. Wadkinson, <i>Chair</i>	C. Dinic
J. L. Kleiss, <i>Vice Chair</i>	J. M. Downs
C. R. Ramcharran, <i>Staff Secretary</i>	J. A. Hall
B. Ahee	M. Mengon
L. Badziagowski	D. Nelson
T. L. Bedeaux	H. Michael, <i>Delegate</i>
B. Calderon	D. Picart, <i>Delegate</i>
J. P. Chicoine	P. A. Molvie, <i>Contributing Member</i>

**Executive Committee (BPV IV)**

M. Wadkinson, <i>Chair</i>	J. P. Chicoine
C. R. Ramcharran, <i>Staff Secretary</i>	J. A. Hall
L. Badziagowski	J. L. Kleiss
T. L. Bedeaux	



**Subgroup on Cast Boilers (BPV IV)**

J. P. Chicoine, *Chair*  
 J. M. Downs, *Vice Chair*  
 C. R. Ramcharran, *Staff Secretary*  
 T. L. Bedeaux

J. A. Hall  
 J. L. Kleiss  
 M. Mengon

**Subgroup on Materials (BPV IV)**

J. A. Hall, *Chair*  
 J. M. Downs, *Vice Chair*  
 C. R. Ramcharran, *Staff Secretary*  
 L. Badziagowski

T. L. Bedeaux  
 Y. Teng  
 M. Wadkinson

**Subgroup on Water Heaters (BPV IV)**

J. L. Kleiss, *Chair*  
 L. Badziagowski, *Vice Chair*  
 C. R. Ramcharran, *Staff Secretary*  
 B. Ahee  
 J. P. Chicoine  
 C. Dinic

B. J. Iske  
 M. Mengon  
 Y. Teng  
 T. E. Trant  
 P. A. Molvie, *Contributing Member*

**Subgroup on Welded Boilers (BPV IV)**

T. L. Bedeaux, *Chair*  
 C. R. Ramcharran, *Staff Secretary*  
 B. Ahee  
 L. Badziagowski  
 B. Calderon  
 J. P. Chicoine  
 C. Dinic

J. L. Kleiss  
 M. Mengon  
 M. Wadkinson  
 M. J. Melita, *Alternate*  
 D. Nelson, *Alternate*  
 P. A. Molvie, *Contributing Member*

**Europe International Working Group (BPV IV)**

L. Badziagowski, *Chair*  
 D. Picart, *Vice Chair*  
 R. Lozny

E. Van Bruggen  
 G. Vicchi  
 A. Alessandrini, *Alternate*

**COMMITTEE ON NONDESTRUCTIVE EXAMINATION (BPV V)**

N. A. Finney, *Chair*  
 C. May, *Vice Chair*  
 C. R. Ramcharran, *Staff Secretary*  
 D. Bajula  
 P. L. Brown  
 M. A. Burns  
 N. Carter  
 T. Clausing  
 C. Emslander  
 A. F. Garbolevsky  
 P. T. Hayes  
 G. W. Hembree  
 F. B. Kovacs  
 K. Krueger

B. D. Laite  
 P. B. Shaw  
 C. Vorwald  
 S. J. Akryn, *Contributing Member*  
 J. E. Batey, *Contributing Member*  
 A. S. Birks, *Contributing Member*  
 N. Y. Faransso, *Contributing Member*  
 J. F. Halley, *Contributing Member*  
 R. W. Kruzic, *Contributing Member*  
 L. E. Mullins, *Contributing Member*  
 F. J. Sattler, *Contributing Member*  
 H. C. Graber, *Honorary Member*  
 T. G. McCarty, *Honorary Member*

**Executive Committee (BPV V)**

C. May, *Chair*  
 N. A. Finney, *Vice Chair*  
 C. R. Ramcharran, *Staff Secretary*  
 N. Carter  
 V. F. Godinez-Azcuaga  
 P. T. Hayes

G. W. Hembree  
 F. B. Kovacs  
 K. Krueger  
 E. Peloquin  
 C. Vorwald

**Subgroup on General Requirements/Personnel Qualifications and Inquiries (BPV V)**

C. Vorwald, *Chair*  
 D. Bajula  
 N. Carter  
 P. Chavdarov  
 T. Clausing  
 C. Emslander  
 N. A. Finney  
 G. W. Hembree  
 F. B. Kovacs

K. Krueger  
 C. May  
 S. J. Akryn, *Contributing Member*  
 N. Y. Faransso, *Contributing Member*  
 J. F. Halley, *Contributing Member*  
 D. I. Morris, *Contributing Member*  
 J. P. Swezy, Jr., *Contributing Member*

**Project Team on Assisted Analysis (BPV V)**

K. Hayes, *Chair*  
 J. Aldrin  
 J. Chen  
 N. A. Finney  
 V. F. Godinez-Azcuaga

C. Hansen  
 G. W. Hembree  
 R. S. F. Orozco  
 E. Peloquin  
 T. Thulien

**Subgroup on Volumetric Methods (BPV V)**

C. May, *Chair*  
 P. T. Hayes, *Vice Chair*  
 D. Adkins  
 P. L. Brown  
 N. A. Finney  
 A. F. Garbolevsky  
 R. W. Hardy  
 G. W. Hembree  
 F. B. Kovacs  
 K. Krueger

E. Peloquin  
 C. Vorwald  
 S. J. Akryn, *Contributing Member*  
 N. Y. Faransso, *Contributing Member*  
 J. F. Halley, *Contributing Member*  
 R. W. Kruzic, *Contributing Member*  
 L. E. Mullins, *Contributing Member*  
 F. J. Sattler, *Contributing Member*

**Working Group on Radiography (SG-VM) (BPV V)**

C. Vorwald, *Chair*  
 D. M. Woodward, *Vice Chair*  
 J. Anderson  
 P. L. Brown  
 C. Emslander  
 A. F. Garbolevsky  
 R. W. Hardy  
 G. W. Hembree  
 F. B. Kovacs  
 B. D. Laite  
 T. R. Lerohl

C. May  
 R. J. Mills  
 J. F. Molinaro  
 T. Vidimos  
 B. White  
 S. J. Akryn, *Contributing Member*  
 T. L. Clifford, *Contributing Member*  
 N. Y. Faransso, *Contributing Member*  
 R. W. Kruzic, *Contributing Member*

**Working Group on Ultrasonics (SG-VM) (BPV V)**

K. Krueger, *Chair*  
 D. Bajula, *Vice Chair*  
 D. Adkins  
 C. Brown  
 C. Emslander  
 N. A. Finney  
 P. T. Hayes  
 G. W. Hembree  
 B. D. Laite  
 T. R. Lerohl  
 C. May  
 E. Peloquin  
 J. Schoneweis  
 D. Tompkins

D. Van Allen  
 J. Vinyard  
 C. Vorwald  
 C. Wassink  
 N. Y. Faransso, *Contributing Member*  
 J. F. Halley, *Contributing Member*  
 R. W. Kruzic, *Contributing Member*  
 P. Mudge, *Contributing Member*  
 L. E. Mullins, *Contributing Member*  
 M. J. Quarry, *Contributing Member*  
 F. J. Sattler, *Contributing Member*  
 J. Vanvelsor, *Contributing Member*

**Working Group on Acoustic Emissions (SG-VM) (BPV V)**

V. F. Godinez-Azcuaga, *Chair*  
 J. Catty, *Vice Chair*  
 S. R. Doctor  
 N. F. Douglas, Jr.

R. K. Miller  
 N. Y. Faransso, *Contributing Member*

**India International Working Group (BPV V)**

P. Kumar, *Chair*  
 A. V. Bhagwat  
 J. Chahwala  
 S. Jobanputra  
 D. Joshi

G. R. Joshi  
 A. Relekar  
 V. J. Sonawane  
 D. B. Tanpure

**Working Group on Full Matrix Capture (SG-VM) (BPV V)**

E. Peloquin, *Chair*  
 C. Wassink, *Vice Chair*  
 D. Bajula  
 D. Bellistri  
 J. Catty  
 N. A. Finney  
 J. L. Garner  
 R. T. Grotenhuis  
 P. T. Hayes

G. W. Hembree  
 K. Krueger  
 M. Lozev  
 R. Nogueira  
 D. Richard  
 M. Sens  
 D. Tompkins  
 J. F. Halley, *Contributing Member*  
 L. E. Mullins, *Contributing Member*

**Italy International Working Group (BPV V)**

D. D. Raimander, *Chair*  
 O. Oldani, *Vice Chair*  
 C. R. Ramcharran, *Staff Secretary*  
 P. Campli, *Secretary*  
 M. Agostini  
 T. Aldo  
 F. Bresciani  
 N. Caputo  
 M. Colombo  
 P. L. Dinelli  
 F. Ferrarese  
 E. Ferrari

M. A. Grimoldi  
 G. Luoni  
 U. Papponetti  
 P. Pedersoli  
 A. Veroni  
 M. Zambon  
 V. Calo, *Contributing Member*  
 G. Gobbi, *Contributing Member*  
 A. Gusmaroli, *Contributing Member*  
 G. Pontiggia, *Contributing Member*

**Subgroup on Inservice Examination Methods and Techniques (BPV V)**

P. T. Hayes, *Chair*  
 E. Peloquin, *Vice Chair*  
 M. A. Burns  
 M. Carlson  
 N. A. Finney  
 V. F. Godinez-Azcuaga

G. W. Hembree  
 K. Krueger  
 C. May  
 D. D. Raimander  
 C. Vorwald

**COMMITTEE ON PRESSURE VESSELS (BPV VIII)**

S. C. Roberts, *Chair*  
 M. D. Lower, *Vice Chair*  
 S. J. Rossi, *Staff Secretary*  
 G. Aurioles, Sr.  
 S. R. Babka  
 R. J. Basile  
 P. Chavdarov  
 D. B. DeMichael  
 J. F. Grubb  
 B. F. Hantz  
 M. Kowalczyk  
 D. L. Kurle  
 R. Mahadeen  
 S. A. Marks  
 P. Matkovics  
 R. W. Mikitka  
 B. R. Morelock  
 T. P. Pastor  
 D. T. Peters  
 M. J. Pischke  
 M. D. Rana  
 G. B. Rawls, Jr.  
 F. L. Richter  
 C. D. Rodery

J. C. Sowinski  
 D. Srnic  
 D. B. Stewart  
 P. L. Sturgill  
 K. Subramanian  
 D. A. Swanson  
 J. P. Swezy, Jr.  
 S. Terada  
 E. Uptis  
 A. Viet  
 K. Xu  
 P. A. McGowan, *Delegate*  
 H. Michael, *Delegate*  
 K. Oyamada, *Delegate*  
 M. E. Papponetti, *Delegate*  
 A. Chaudouet, *Contributing Member*  
 J. P. Glaspie, *Contributing Member*  
 K. T. Lau, *Contributing Member*  
 U. R. Miller, *Contributing Member*  
 K. Mokhtarian, *Contributing Member*  
 G. G. Karcher, *Honorary Member*  
 K. K. Tam, *Honorary Member*

**Subgroup on Surface Examination Methods (BPV V)**

N. Carter, *Chair*  
 B. D. Laite, *Vice Chair*  
 R. M. Beldyk  
 P. L. Brown  
 T. Clausing  
 C. Emslander  
 N. Farenbaugh  
 N. A. Finney  
 A. F. Garbolevsky  
 K. Hayes  
 G. W. Hembree  
 C. May

P. B. Shaw  
 R. Tedder  
 C. Vorwald  
 C. Wassink  
 D. M. Woodward  
 S. J. Akryn, *Contributing Member*  
 N. Y. Faransso, *Contributing Member*  
 J. F. Halley, *Contributing Member*  
 R. W. Kruzic, *Contributing Member*  
 L. E. Mullins, *Contributing Member*  
 F. J. Sattler, *Contributing Member*

**Executive Committee (BPV VIII)****Germany International Working Group (BPV V)**

P. Chavdarov, *Chair*  
 C. Kringe, *Vice Chair*  
 H.-P. Schmitz, *Secretary*  
 K.-H. Gischler

D. Kaiser  
 S. Mann  
 V. Reusch

M. D. Lower, *Chair*  
 S. J. Rossi, *Staff Secretary*  
 G. Aurioles, Sr.  
 C. W. Cary  
 J. Hoskinson  
 M. Kowalczyk

S. A. Marks  
 P. Matkovics  
 S. C. Roberts  
 J. C. Sowinski  
 K. Subramanian  
 K. Xu

**Subgroup on Design (BPV VIII)**

J. C. Sowinski, *Chair*  
 C. S. Hinson, *Vice Chair*  
 G. Aurioles, Sr.  
 S. R. Babka  
 O. A. Barsky  
 R. J. Basile  
 D. Chandiramani  
 M. D. Clark  
 M. Faulkner  
 B. F. Hantz  
 C. E. Hinnant  
 M. H. Jawad  
 S. Krishnamurthy  
 D. L. Kurle  
 K. Kusc  
 M. D. Lower  
 R. W. Mikitka  
 B. Millet  
 M. D. Rana

G. B. Rawls, Jr.  
 S. C. Roberts  
 C. D. Rodery  
 T. G. Seipp  
 D. Srnic  
 D. A. Swanson  
 S. Terada  
 J. Vattappilly  
 K. Xu  
 K. Oyamada, *Delegate*  
 M. E. Papponetti, *Delegate*  
 P. K. Lam, *Contributing Member*  
 K. Mokhtarian, *Contributing Member*  
 T. P. Pastor, *Contributing Member*  
 S. C. Shah, *Contributing Member*  
 K. K. Tam, *Contributing Member*  
 E. Upitis, *Contributing Member*

**Subgroup on General Requirements (BPV VIII)**

J. Hoskinson, *Chair*  
 M. Faulkner, *Vice Chair*  
 N. Barkley  
 R. J. Basile  
 T. P. Beirne  
 D. B. DeMichael  
 M. D. Lower  
 T. P. Pastor  
 I. Powell  
 G. B. Rawls, Jr.

F. L. Richter  
 S. C. Roberts  
 J. Rust  
 J. C. Sowinski  
 P. Speranza  
 D. Srnic  
 D. B. Stewart  
 D. A. Swanson  
 J. P. Gaspie, *Contributing Member*  
 Y. Yang, *Contributing Member*

**Task Group on Fired Heater Pressure Vessels (BPV VIII)**

J. Hoskinson, *Chair*  
 W. Kim  
 S. Kirk  
 D. Nelson  
 T. P. Pastor

R. Robles  
 J. Rust  
 P. Shanks  
 E. Smith  
 D. Srnic

**Working Group on Design-by-Analysis (BPV VIII)**

B. F. Hantz, *Chair*  
 T. W. Norton, *Secretary*  
 D. A. Arnett  
 J. Bedoya  
 S. Guzey  
 C. F. Heberling II  
 C. E. Hinnant  
 M. H. Jawad  
 S. Kataoka  
 S. Kilambi  
 K. D. Kirkpatrick

S. Krishnamurthy  
 A. Mann  
 C. Nadarajah  
 P. Prueter  
 T. G. Seipp  
 M. A. Shah  
 S. Terada  
 R. G. Brown, *Contributing Member*  
 D. Dewees, *Contributing Member*  
 K. Saboda, *Contributing Member*

**Task Group on Subsea Applications (BPV VIII)**

M. Sarzynski, *Chair*  
 A. J. Grohmann, *Vice Chair*  
 L. P. Antalffy  
 R. C. Biel  
 J. Ellens  
 J. Hademenos  
 J. Kaculi  
 K. Karpanan  
 F. Kirkemo

C. Lan  
 P. Lutkiewicz  
 N. McKie  
 S. K. Parimi  
 R. H. Patil  
 M. P. Vaclavik  
 R. Cordes, *Contributing Member*  
 D. T. Peters, *Contributing Member*  
 J. R. Sims, *Contributing Member*

**Working Group on Elevated Temperature Design (BPV I and VIII)**

A. Mann, *Chair*  
 C. Nadarajah, *Secretary*  
 D. Anderson  
 D. Dewees  
 B. F. Hantz  
 M. H. Jawad  
 R. I. Jetter  
 S. Krishnamurthy  
 T. Le

M. C. Messner  
 M. N. Mitchell  
 P. Prueter  
 M. J. Swindeman  
 J. P. Gaspie, *Contributing Member*  
 N. McMurray, *Contributing Member*  
 B. J. Mollitor, *Contributing Member*

**Subgroup on Heat Transfer Equipment (BPV VIII)**

P. Matkovic, *Chair*  
 M. D. Clark, *Vice Chair*  
 L. Bower, *Secretary*  
 G. Aurioles, Sr.  
 S. R. Babka  
 J. H. Barbee  
 O. A. Barsky  
 T. Bunyarattaphantu  
 A. Chaudouet  
 D. L. Kurle

R. Mahadeen  
 S. Mayeux  
 S. Neilsen  
 E. Smith  
 A. M. Voytko  
 R. P. Wiberg  
 J. Pasek, *Contributing Member*  
 D. Srnic, *Contributing Member*  
 Z. Tong, *Contributing Member*

**Subgroup on Fabrication and Examination (BPV VIII)**

S. A. Marks, *Chair*  
 D. I. Morris, *Vice Chair*  
 T. Halligan, *Secretary*  
 N. Carter  
 J. Lu  
 B. R. Morelock  
 O. Mulet  
 M. J. Pischke  
 M. J. Rice  
 J. Roberts  
 C. D. Rodery

B. F. Shelley  
 D. Smith  
 P. L. Sturgill  
 J. P. Swezy, Jr.  
 E. Upitis  
 C. Violand  
 K. Oyamada, *Delegate*  
 W. J. Bees, *Contributing Member*  
 L. F. Campbell, *Contributing Member*  
 R. Uebel, *Contributing Member*

**Working Group on Plate Heat Exchangers (BPV VIII)**

D. I. Morris, *Chair*  
 S. R. Babka  
 J. F. Grubb  
 V. Gudge  
 R. Mahadeen  
 S. A. Marks

P. Matkovic  
 M. J. Pischke  
 P. Shanks  
 E. Smith  
 D. Srnic  
 S. Sullivan

**Subgroup on High Pressure Vessels (BPV VIII)**

K. Subramanian, *Chair*  
M. Sarzynski, *Vice Chair*  
A. Dinizulu, *Staff Secretary*  
L. P. Antalffy  
J. Barlow  
R. C. Biel  
P. N. Chaku  
L. Fridlund  
D. Fuenmayor  
J. Gibson  
R. T. Hallman  
K. Karpanan  
J. Keltjens  
A. K. Khare  
G. T. Nelson  
D. T. Peters  
E. D. Roll  
J. R. Sims  
E. Smith  
F. W. Tatar  
S. Terada

Y. Xu  
A. M. Clayton, *Contributing Member*  
R. Cordes, *Contributing Member*  
R. D. Dixon, *Contributing Member*  
Q. Dong, *Contributing Member*  
T. A. Duffey, *Contributing Member*  
R. M. Hoshman, *Contributing Member*  
F. Kirkemo, *Contributing Member*  
R. A. Leishear, *Contributing Member*  
G. M. Mital, *Contributing Member*  
M. Parr, *Contributing Member*  
M. D. Rana, *Contributing Member*  
C. Romero, *Contributing Member*  
C. Tipple, *Contributing Member*  
K.-J. Young, *Contributing Member*  
D. J. Burns, *Honorary Member*  
G. J. Mraz, *Honorary Member*

**Subgroup on Materials (BPV VIII)**

M. Kowalczyk, *Chair*  
P. Chavdarov, *Vice Chair*  
S. Kilambi, *Secretary*  
J. Cameron  
J. F. Grubb  
D. Maitra  
D. W. Rahoi  
J. Robertson  
R. C. Sutherlin

E. Uptis  
K. Xu  
S. Yem  
A. Di Rienzo, *Contributing Member*  
J. D. Fritz, *Contributing Member*  
M. Katcher, *Contributing Member*  
W. M. Lundy, *Contributing Member*  
J. Penso, *Contributing Member*

**Subgroup on Toughness (BPV VIII)**

K. Xu, *Chair*  
T. Halligan, *Vice Chair*  
T. Finn  
C. S. Hinson  
S. Kilambi  
D. L. Kurle  
T. Newman  
J. Qu  
M. D. Rana  
F. L. Richter  
K. Subramanian

D. A. Swanson  
J. P. Swezy, Jr.  
S. Terada  
E. Uptis  
J. Vattappilly  
K. Oyamada, *Delegate*  
L. Dong, *Contributing Member*  
S. Krishnamurthy, *Contributing Member*  
K. Mokhtarian, *Contributing Member*

**Subgroup on Graphite Pressure Equipment (BPV VIII)**

C. W. Cary, *Chair*  
A. Viet, *Vice Chair*  
G. C. Becherer  
F. L. Brown  
R. J. Bulgin

J. D. Clements  
H. Lee, Jr.  
S. Mehrez  
T. Rudy  
A. A. Stupica

**Argentina International Working Group (BPV VIII)**

A. Dominguez, *Chair*  
R. Robles, *Vice Chair*  
G. Glissentti, *Secretary*  
M. M. Acosta  
R. A. Barey  
C. Alderetes  
F. A. Andres  
A. Antipasti  
D. A. Bardelli  
L. F. Boccanera  
O. S. Bretones  
A. Burgueno  
G. Casanas  
D. H. Da Rold  
D. A. Del Teglia  
J. I. Duo

M. Favareto  
M. D. Kuhn  
F. P. Larrosa  
L. M. Leccese  
C. Meinl  
M. A. Mendez  
J. J. Monaco  
C. Parente  
M. A. A. Pipponzi  
L. C. Rigoli  
A. Rivas  
D. Rizzo  
J. C. Rubeo  
S. Schamun  
G. Telleria  
M. M. C. Tocco

**China International Working Group (BPV VIII)**

X. Chen, *Chair*  
B. Shou, *Vice Chair*  
Z. Fan, *Secretary*  
Y. Chen  
J. Cui  
R. Duan  
J.-G. Gong  
B. Han  
J. Hu  
Q. Hu  
H. Hui  
K. Li  
D. Luo  
Y. Luo

C. Miao  
L. Sun  
C. Wu  
J. Xiaobin  
F. Xu  
G. Xu  
F. Yang  
Y. Yang  
Y. Yuan  
Yanfeng Zhang  
Yijun Zhang  
S. Zhao  
J. Zheng  
G. Zhu

**Germany International Working Group (BPV VIII)**

R. Kauer, *Chair*  
M. Sykora, *Vice Chair*  
A. Aloui  
P. Chavdarov  
A. Emrich  
J. Fleischfresser  
C. Jaekel  
D. Koelbl

S. Krebs  
T. Ludwig  
R. A. Meyers  
H. Michael  
S. Reich  
A. Spangenberg  
C. Stobbe  
G. Naumann, *Contributing Member*

**India International Working Group (BPV VIII)**

D. Chandiramani, *Chair*  
D. Kulkarni, *Vice Chair*  
A. D. Dalal, *Secretary*  
P. Arulkumar  
B. Basu  
P. Gandhi  
U. Ganesan  
S. K. Goyal  
V. Jayabalan  
V. K. Joshi

A. Kakumanu  
V. V. P. Kumar  
T. Mukherjee  
P. C. Pathak  
D. Prabhu  
A. Sadasivam  
M. P. Shah  
R. Tiru  
V. T. Valavan  
M. Sharma, *Contributing Member*

**Italy International Working Group (BPV VIII)**

A. Teli, <i>Chair</i>	M. Guglielmetti
M. Millefanti, <i>Vice Chair</i>	A. F. Magri
P. Campli, <i>Secretary</i>	P. Mantovani
B. G. Alborali	L. Moracchioli
P. Aliprandi	P. Pacor
A. Avogadri	S. Sarti
A. Camanni	V. Calo, <i>Contributing Member</i>
N. Caputo	G. Gobbi, <i>Contributing Member</i>
M. Colombo	A. Gusmaroli, <i>Contributing Member</i>
P. Conti	
D. Cortassa	G. Pontiggia, <i>Contributing Member</i>
P. L. Dinelli	D. D. Raimander, <i>Contributing Member</i>
F. Finco	

**COMMITTEE ON WELDING, BRAZING, AND FUSING (BPV IX)**

M. J. Pischke, <i>Chair</i>	W. J. Sperko
P. L. Sturgill, <i>Vice Chair</i>	J. P. Swezy, Jr.
R. Rahaman, <i>Staff Secretary</i>	A. D. Wilson
M. Bernasek	E. W. Woelfel
M. A. Boring	D. Pojatar, <i>Delegate</i>
D. A. Bowers	A. Roza, <i>Delegate</i>
N. Carter	M. Consonni, <i>Contributing Member</i>
J. G. Feldstein	P. D. Flenner, <i>Contributing Member</i>
P. Gilston	S. A. Jones, <i>Contributing Member</i>
S. E. Gingrich	D. K. Peetz, <i>Contributing Member</i>
K. L. Hayes	S. Raghunathan, <i>Contributing Member</i>
R. M. Jessee	
J. S. Lee	M. J. Stanko, <i>Contributing Member</i>
W. M. Lundy	P. L. Van Fosson, <i>Contributing Member</i>
D. W. Mann	
S. A. Marks	R. K. Brown, Jr., <i>Honorary Member</i>
T. Melfi	M. L. Carpenter, <i>Honorary Member</i>
W. F. Newell, Jr.	B. R. Newmark, <i>Honorary Member</i>
E. G. Reichelt	S. D. Reynolds, Jr., <i>Honorary Member</i>
M. J. Rice	
M. B. Sims	

**Special Working Group on Bolted Flanged Joints (BPV VIII)**

W. Brown, <i>Chair</i>	W. McDaniel
M. Osterfoss, <i>Vice Chair</i>	R. W. Mikitka
G. Auriolles, Sr.	D. Nash
D. Bankston, Jr.	M. Ruffin
H. Bouzid	R. Wacker
A. Chaudouet	E. Jamalyaria, <i>Contributing Member</i>
H. Chen	
D. Francis	J. R. Payne, <i>Contributing Member</i>
H. Lejeune	G. Van Zyl, <i>Contributing Member</i>
A. Mann	J. Veiga, <i>Contributing Member</i>

**Subgroup on Brazing (BPV IX)**

S. A. Marks, <i>Chair</i>	M. J. Pischke
E. W. Beckman	P. L. Sturgill
A. F. Garbolevsky	J. P. Swezy, Jr.
N. Mohr	

**Subgroup on General Requirements (BPV IX)**

N. Carter, <i>Chair</i>	P. L. Sturgill
P. Gilston, <i>Vice Chair</i>	J. P. Swezy, Jr.
J. P. Bell	E. W. Woelfel
D. A. Bowers	E. W. Beckman, <i>Contributing Member</i>
M. Heinrichs	A. Davis, <i>Contributing Member</i>
A. Howard	D. K. Peetz, <i>Contributing Member</i>
R. M. Jessee	B. R. Newmark, <i>Honorary Member</i>
S. A. Marks	
H. B. Porter	

**Subgroup on Interpretations (BPV VIII)**

G. Auriolles, Sr., <i>Chair</i>	J. C. Sowinski
J. Oh, <i>Staff Secretary</i>	D. B. Stewart
S. R. Babka	K. Subramanian
J. Cameron	D. A. Swanson
C. W. Cary	J. P. Swezy, Jr.
B. F. Hantz	J. Vattappilly
M. Kowalczyk	A. Viet
D. L. Kurle	K. Xu
M. D. Lower	R. J. Basile, <i>Contributing Member</i>
S. A. Marks	D. B. DeMichael, <i>Contributing Member</i>
P. Matkovic	
D. I. Morris	R. D. Dixon, <i>Contributing Member</i>
D. T. Peters	S. Kilambi, <i>Contributing Member</i>
F. L. Richter	R. Mahadeen, <i>Contributing Member</i>
S. C. Roberts	
C. D. Rodery	T. P. Pastor, <i>Contributing Member</i>
T. G. Seipp	P. L. Sturgill, <i>Contributing Member</i>

**Subgroup on Materials (BPV IX)**

M. Bernasek, <i>Chair</i>	M. J. Pischke
T. Anderson	A. Roza
L. Constantinescu	C. E. Sainz
E. Cutlip	P. L. Sturgill
M. Denault	C. Zafir
S. E. Gingrich	V. G. V. Giunto, <i>Delegate</i>
L. S. Harbison	D. J. Kotecki, <i>Contributing Member</i>
M. James	B. Krueger, <i>Contributing Member</i>
R. M. Jessee	W. J. Sperko, <i>Contributing Member</i>
T. Melfi	M. J. Stanko, <i>Contributing Member</i>
S. D. Nelson	

**Subgroup on Plastic Fusing (BPV IX)**

K. L. Hayes, <i>Chair</i>	S. Schuessler
R. M. Jessee	M. Troughton
J. Johnston, Jr.	C. Violand
J. E. O'Sullivan	E. W. Woelfel
E. G. Reichelt	J. Wright
M. J. Rice	

**Subgroup on Welding Qualifications (BPV IX)**

T. Melfi, <i>Chair</i>	E. G. Reichelt
A. D. Wilson, <i>Vice Chair</i>	M. J. Rice
K. L. Hayes, <i>Secretary</i>	M. B. Sims
M. Bernasek	W. J. Sperko
M. A. Boring	P. L. Sturgill
D. A. Bowers	J. P. Swezy, Jr.
R. Campbell	C. Violand
R. B. Corbit	D. Chandiramani, <i>Contributing Member</i>
L. S. Harbison	M. Consonni, <i>Contributing Member</i>
M. Heinrichs	M. Dehghan, <i>Contributing Member</i>
J. S. Lee	P. D. Flenner, <i>Contributing Member</i>
W. M. Lundy	T. C. Wiesner, <i>Contributing Member</i>
D. W. Mann	
W. F. Newell, Jr.	

**COMMITTEE ON FIBER-REINFORCED PLASTIC PRESSURE VESSELS (BPV X)**

B. Linnemann, <i>Chair</i>	D. H. McCauley
D. Eisberg, <i>Vice Chair</i>	N. L. Newhouse
P. D. Stumpf, <i>Staff Secretary</i>	G. Ramirez
A. L. Beckwith	J. R. Richter
F. L. Brown	B. F. Shelley
J. L. Bustillos	G. A. Van Beek
B. R. Colley	S. L. Wagner
T. W. Cowley	D. O. Yancey, Jr.
I. L. Dinovo	P. H. Ziehl
J. Eihusen	D. H. Hodgkinson, <i>Contributing Member</i>
M. R. Gorman	
B. Hebb	
L. E. Hunt	D. L. Keeler, <i>Contributing Member</i>

**Argentina International Working Group (BPV IX)**

A. Burgueno, <i>Chair</i>	M. Favareto
A. R. G. Frinchaboy, <i>Vice Chair</i>	J. A. Gandola
R. Rahaman, <i>Staff Secretary</i>	C. A. Garibotti
M. D. Kuhn, <i>Secretary</i>	J. A. Herrera
B. Bardott	M. A. Mendez
L. F. Boccanera	A. E. Pastor
P. J. Cabot	G. Telleria
J. Caprarulo	M. M. C. Tocco

**COMMITTEE ON NUCLEAR INSERVICE INSPECTION (BPV XI)**

R. W. Swayne, <i>Chair</i>	T. Nuoffer
D. W. Lamond, <i>Vice Chair</i>	J. Nygaard
A. T. Roberts III, <i>Vice Chair</i>	J. E. O'Sullivan
D. Miro-Quesada, <i>Staff Secretary</i>	N. A. Palm
J. F. Ball	G. C. Park
W. H. Bamford	D. A. Scarth
M. L. Benson	F. J. Schaaf, Jr.
J. M. Boughman	S. Takaya
C. Brown	D. Vetter
S. B. Brown	T. V. Vo
T. L. Chan	J. G. Weicks
R. C. Cipolla	M. Weis
D. R. Cordes	Y.-K. Chung, <i>Delegate</i>
H. Do	C. Ye, <i>Delegate</i>
E. V. Farrell, Jr.	B. Lin, <i>Alternate</i>
M. J. Ferlisi	R. O. McGill, <i>Alternate</i>
T. J. Griesbach	L. A. Melder, <i>Alternate</i>
J. Hakii	A. Udyawar, <i>Alternate</i>
M. L. Hall	E. B. Gerlach, <i>Contributing Member</i>
P. J. Hennessey	C. D. Cowfer, <i>Honorary Member</i>
D. O. Henry	R. E. Gimple, <i>Honorary Member</i>
K. Hojo	F. E. Gregor, <i>Honorary Member</i>
S. D. Kulat	R. D. Kerr, <i>Honorary Member</i>
C. Latiolais	P. C. Riccardella, <i>Honorary Member</i>
J. T. Lindberg	R. A. West, <i>Honorary Member</i>
H. Malikowski	C. J. Wirtz, <i>Honorary Member</i>
S. L. McCracken	R. A. Yonekawa, <i>Honorary Member</i>
S. A. Norman	

**Germany International Working Group (BPV IX)**

A. Roza, <i>Chair</i>	S. Wegener
A. Spangenberg, <i>Vice Chair</i>	F. Wodke
R. Rahaman, <i>Staff Secretary</i>	J. Daldrup, <i>Contributing Member</i>
P. Chavadarov	E. Floer, <i>Contributing Member</i>
B. Daume	R. Helmholdt, <i>Contributing Member</i>
J. Fleischfresser	G. Naumann, <i>Contributing Member</i>
P. Khwaja	K.-G. Toelle, <i>Contributing Member</i>
S. Krebs	
T. Ludwig	

**Italy International Working Group (BPV IX)**

D. D. Raimander, <i>Chair</i>	L. Moracchioli
F. Ferrarese, <i>Vice Chair</i>	P. Pacor
R. Rahaman, <i>Staff Secretary</i>	P. Siboni
M. Bernasek	V. Calo, <i>Contributing Member</i>
A. Camanni	G. Gobbi, <i>Contributing Member</i>
P. L. Dinelli	A. Gusmaroli, <i>Contributing Member</i>
M. Mandina	
A. S. Monastra	G. Pontiggia, <i>Contributing Member</i>

**Spain International Working Group (BPV IX)**

F. J. Q. Pandelo, <i>Chair</i>	F. Manas
F. L. Villabrille, <i>Vice Chair</i>	B. B. Miguel
R. Rahaman, <i>Staff Secretary</i>	A. D. G. Munoz
F. R. Hermida, <i>Secretary</i>	A. B. Pascual
C. A. Celimendiz	S. Sevil
M. A. F. Garcia	G. Gobbi, <i>Contributing Member</i>
R. G. Garcia	

**Executive Committee (BPV XI)**

D. W. Lamond, <i>Chair</i>	S. L. McCracken
R. W. Swayne, <i>Vice Chair</i>	T. Nuoffer
D. Miro-Quesada, <i>Staff Secretary</i>	N. A. Palm
M. L. Benson	G. C. Park
M. J. Ferlisi	A. T. Roberts III
S. D. Kulat	B. L. Lin, <i>Alternate</i>
J. T. Lindberg	

**Argentina International Working Group (BPV XI)**

O. Martinez, <i>Staff Secretary</i>	F. J. Schaaf, Jr.
A. Claus	F. M. Schroeter
I. M. Guerreiro	P. Yamamoto
L. R. Miño	