



THE INDUSTRIAL COMMISSION OF ARIZONA

DIVISION OF OCCUPATIONAL SAFETY & HEALTH



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SCOTT P. LEMARR, MEMBER
ROBIN S. ORCHARD, MEMBER
STEVEN J. KRENZEL, MEMBER

P.O. Box 19070
Phoenix, Arizona 85005-9070

BILL WARREN, ADOSH DIRECTOR
PHONE: (602) 542-5795
FAX: (602) 542-1614

JAMES ASHLEY, DIRECTOR

ARIZONA BOILER SAFETY POLICY MEMORANDUM

Use of 2017 Edition of the ASME Boiler and Pressure Vessel Code, Section I	Effective date:
	September 25, 2017

To: Special Inspectors, Owners, Users, Responsible Parties, Manufacturers, Contractors, Installers, Suppliers
From: Randall Austin, Chief Boiler Inspector
Date: September 22, 2017

This memo serves to clarify the use of 2017 ASME Code, Section I, Part PA in the construction of Power Boilers, and High Temperature Water Boilers, along with ASME Code Case 2559-1, or Code Case 2485.

The State of Arizona has not adopted the 2017 ASME Codes, but will accept boilers constructed, stamped, and registered with The National Board of Boiler and Pressure Vessel Inspectors, provided the design does not use or incorporate ASME Code, Section I, Part PA, ALTERNATIVE RULES FOR BOILER CONSTRUCTION. Nor has The State of Arizona, Boiler Safety Section accepted Code Case 2559-1, or Code Case 2485 per Arizona Boiler Rule, R20-5-431.

All of the above referenced documents permit the use of ASME Code, Section VIII, Division 2, for the design, and construction of Power Boilers, in total, or in part.

All boiler inspectors, authorized by The State of Arizona to inspect boilers, potable water heaters, and pressure vessels shall notify the chief boiler inspector immediately upon encountering a boiler incorporating either ASME Code, Section I, Part PA, Code Case 2559-1, or Code Case 2485.

How to identify a boiler that has been constructed using any of the above referenced documents:

1. Boilers incorporating Code Case 2559-1, or Code Case 2485 are required to have a nameplate stamped with the "U2" Designator and stamped "Case 2559", or "Case 2485."
2. Boilers incorporating ASME Code, Section I, Part PA:
 - a. A Section VIII, Division 2 nameplate shall be furnished and marked "Section I, Part PA."
 - b. Components constructed to Section VIII, Division 2 rules shall be stamped with the Certification Mark with "U2" Designator and additional marking as required by Section VIII, Division 2 and documented with Form A-1, Manufacturer's Data Report.
 - c. Form A-1, Manufacturer's Data Report, shall be included in the Section I Master Data Report for the completed boiler unit and shall state "Components designed and constructed to Section VIII, Division 2, as permitted by Part PA."

For further questions regarding boilers constructed using 2017 ASME Code, Part PA or Code Cases mentioned above, please contact the Chief Boiler Inspector at (602) 542-1648.

SECTION I

2017

ASME Boiler and Pressure Vessel Code An International Code

Rules for Construction of Power Boilers

PART PA ALTERNATIVE RULES FOR BOILER CONSTRUCTION

(17)

PA-1 GENERAL

Components designed and constructed to the rules of Section VIII, Division 2 may be installed in a Section I boiler, provided all other requirements of Section I are satisfied by a Section I certificate holder and the requirements of Part PA are met.

PA-2 CODE BOUNDARIES AND INTERFACES

The design and fabrication of components shall be per Section VIII, Division 2. The interface between Section VIII, Division 2 components and other parts of the Section I system shall be of welded construction and shall also meet the thickness requirements of Section I.

PA-3 DESIGN SPECIFICATION AND DESIGN REPORT

A Certified User's Design Specification and Certified Manufacturer's Design Report are required for the components in accordance with Section VIII, Division 2.

PA-4 CONSTRUCTION

PA-4.1 Layered construction as permitted in Section VIII, Division 2 is not permitted in Section I construction.

PA-4.2 Components constructed of Section VIII, Division 2 rules shall have all joints of Category A in accordance with Type No. 1, and all joints of Category B in accordance with Type No. 1 or 2.

PA-5 MATERIALS

Materials shall comply with Section I, [PG-5.5](#) and shall be limited to those permitted by both Section I and Section VIII, Division 2 and to the design temperature limits of Section VIII, Division 2.

PA-6 HYDROSTATIC TEST

The shop hydrostatic test pressure(s) shall be the larger of the test pressures determined by Section VIII, Division 2 and Section I, [PG-99.1](#). The equivalent stress limits due to hydrostatic testing of the Section VIII, Division 2 components shall not exceed those prescribed by Section VIII, Division 2. After installation into a power boiler, such components shall also be subjected to that system's hydrostatic test.

PA-7 DATA REPORTS AND STAMPING

PA-7.1 Components constructed to Section VIII, Division 2 rules shall be stamped with the Certification Mark with "U2" Designator and additional marking as required by Section VIII, Division 2 and documented with Form A-1, Manufacturer's Data Report. A Section VIII, Division 2 nameplate shall be furnished and marked "Section I, Part PA."

PA-7.2 Form A-1, Manufacturer's Data Report, shall be included in the Section I Master Data Report for the completed boiler unit (see [PG-113](#)) and shall state "Components designed and constructed to Section VIII, Division 2, as permitted by Part PA."

THIS PAGE IS FOR INFORMATION ONLY

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

CASE
2559-1

Approval Date: September 26, 2011

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

Case 2559-1
Section VIII, Division 2 Components in Boilers
Section I

Inquiry: Is it permissible to install a component(s), designed and constructed to the rules of Section VIII, Division 2, in a power boiler conforming to the requirements of Section I?

Reply: It is the opinion of the Committee that a component(s), designed and constructed to the rules of Section VIII, Division 2 may be installed in a Section I boiler under the following conditions, provided all other requirements of Section I are satisfied.

(a) *Code Boundaries and Interfaces.* The Section VIII, Division 2 boundaries governing the design and fabrication are as defined by 1.2.3 of Section VIII, Division 2, except that the interface between Section VIII, Division 2 component(s) and other parts of the Section I system shall be of welded construction and shall also meet the thickness requirements of Section I, PG-27 or ASME B31.1, 104.1.2, as appropriate.

(b) A Certified User's Design Specification and Certified Manufacturer's Design Report are required in accordance with 2.2 and 2.3 of Section VIII, Division 2.

(c) Layered construction, per Section VIII, Division 2, is not permitted.

(d) Such component(s) constructed of Section VIII, Division 2 rules shall have all joints of Category A (see 4.2.5) in accordance with Type No. 1 of 4.2.3 and all joints of Category B in accordance with Type No. 1 or 2 of 4.2.3. Nozzles shall be integrally reinforced and meet the requirements of 4.2.5.5(c)(7).

(e) Materials shall comply with PG-5.5 of Section I and shall be limited to those permitted by both Section I and Section VIII, Division 2 and to the design temperature limits of Section VIII, Division 2.

(f) *Hydrostatic Test.* The shop hydrostatic test pressure(s) shall be the larger of the test pressures determined by 8.2.1 of Section VIII, Division 2 and PG-99.1 of Section I. The equivalent stress limits due to hydrostatic testing of the completed component(s) shall not exceed those prescribed by 4.1.6.2(a) of Section VIII, Division 2. After installation into a power boiler, such components shall also be subjected to that system's hydrostatic test.

(g) *Stamping*

(1) Component(s) constructed to Section VIII, Division 2 rules shall be stamped with the ASME Certification Mark with a U2 designator (or the ASME Code "U2" Symbol until such time as the use of that symbol is discontinued) and additional marking required by Annex 2-F, 2-F.1 and documented with the ASME A-1 Data Report. A nameplate per Annex 2-F, 2-F.5 shall be furnished and marked "Case 2559."

(2) The ASME A-1 Data Report shall be included in the Section I Master Data Report for the boiler.

THIS PAGE IS FOR INFORMATION ONLY

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

CASE
2485

Approval Date: July 7, 2006

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

Case 2485 Steam Drum in Heat Recovery Steam Generator System Section I

Inquiry: Under what conditions may a steam drum used on a Heat Recovery Steam Generator (HRSG) be designed and constructed to the rules of 2004 Edition, 2005 Addenda¹ of Section VIII, Division 2 be installed in a Section I system?

Reply: It is the opinion of the Committee that a steam drum used on a HRSG, constructed in accordance with the rules of 2004 Edition, 2005 Addenda¹ of Section VIII, Division 2, may be installed in a Section I system when the requirements of PG-58, PG-59, PG-60, PG-61, and PG-67 through PG-73 of Section I, applicable to piping and protective devices, are satisfied by an appropriate Section I certificate holder, and when the following additional requirements are met:

(a) *Code Boundaries and Interfaces.* The Section VIII, Division 2 boundaries governing the steam drum design and fabrication are as defined by AG-120 of Section VIII, Division 2, except that at the interface with the piping and the Section VIII, Division 2 component shall meet thickness requirements of Section I, PG-27 or ASME B31.1, 104.1.2 as appropriate.

(b) Certified User's Design Specification and Certified Manufacturer's Design Report are required in accordance with AG-301 and AG-302 of Section VIII, Division 2.

(c) Layered construction per AG-140 of Section VIII, Division 2, is not permitted.

(d) Steam drums used on a HRSG with design pressures exceeding 50 psi (342 kPa) constructed to Section VIII, Division 2, shall have all joints of Category A (see AD-410) in accordance with Type 1 of AF-220 and all joints in Category B in accordance with Type No. 1 or Type No. 2 of AF-220. Nozzles shall be integrally reinforced and meet the requirements of AD-613. When fabricated of carbon or low-alloy steel, such vessels shall be postweld heat-treated.

(e) *Materials.* For steam drums constructed to the Section VIII, Division 2 rules, the materials shall be limited to those permitted by Section I that are included in Section VIII, Division 2.

(f) *Hydrostatic Test.* The hydrostatic test pressure shall be the larger of the test pressures determined by AT-300 of Section VIII, Division 2 and PG-99.1 of Section I. The stress intensity limits due to hydrostatic testing of the completed steam drum shall not exceed those prescribed in AD-151.1 of Section VIII, Division 2.

(g) *Stamping*

(1) For steam drums constructed to 2004 Edition, 2005 Addenda of Section VIII, Division 2 rules shall be stamped with the ASME Code "U2" Symbol and additional marking required by AS-100, and be documented with the ASME A-1 Data Report. A nameplate per AS-130 shall be furnished and shall be marked "Case 2485."

(2) All portions constructed to the rules of Section I shall be stamped with the applicable Section I Symbol and be documented with the applicable Section I Data Report Forms.

(3) A Master Data Report shall be completed for the system in accordance with the rules of Section I and include ASME A-1 Data Report.

¹ For this Case, the 2004 Edition, 2005 Addenda of Section VIII, Division 2 shall be used.