To: Jack Karian
Subject: RE: Record #11-21 B31.3 Proposed Referencing of PTC 19.3TW Thermowells in B31.3 (A-09-01)

From: Riad Mohamed
Sent: Thursday, July 26, 2012 11:37 AM
To: Jack Karian
Subject: Record #11-21 B31.3 Proposed Referencing of PTC 19.3TW Thermowells in B31.3 (A-09-01)

Jack,

FYI – This item has been approved for the 2014 publication of B31.3.

Thanks,
Riad.

Tracking Number 11-21; ASME B31.3 Agenda Item AI A-09-01

Latest modifications are in pink.

Existing Code	Proposed Revision
306.5 Fabricated Branch Connections The following requirements do not apply to fittings conforming to para. 306.1. **306.5.1 General.** A fabricated branch connection made and verified for pressure design in accordance with para. 304.3, and welded in accordance with para. 311.1, is suitable for use in Normal Fluid Service. **306.5.2 Fabricated Branch Connections for Severe Cyclic Conditions.** A fabricated branch connection to be used under severe cyclic conditions shall conform to the requirements of para. 306.5.1, except that welding shall be in accordance with para. 311.2.2, with fabrication limited to a detail equivalent to Fig. 328.5.4D sketch (2) or (4), or to Fig. 328.5.4E. **307 VALVES AND SPECIALTY COMPONENTS** The following requirements for valves shall also be met as applicable by other pressure containing piping components, such as traps, strainers, and separators. See also Appendix F, paras. F301.4 and F307.	**306.5 Fabricated Branch Connections** The following requirements do not apply to fittings conforming to para. 306.1. **306.5.1 General.** A fabricated branch connection made and verified for pressure design in accordance with para. 304.3, and welded in accordance with para. 311.1, is suitable for use in Normal Fluid Service. **306.5.2 Fabricated Branch Connections for Severe Cyclic Conditions.** A fabricated branch connection to be used under severe cyclic conditions shall conform to the requirements of para. 306.5.1, except that welding shall be in accordance with para. 311.2.2, with fabrication limited to a detail equivalent to Fig. 328.5.4D sketch (2) or (4), or to Fig. 328.5.4E. **306.6 Thermowells** Thermowells shall comply with ASME PTC 19.3 TW where applicable. **307 VALVES AND SPECIALTY COMPONENTS** The following requirements for valves shall also be met as applicable by other pressure containing piping components, such as traps, strainers, and separators. See also Appendix F, paras. F301.4 and F307.

(10)

Table 326.1 Component Standards

Standard or Specification	Designation
Bolting	
Square and Hex Bolts and Screws (Inch Series)	ASME B18.2.1
Square and Hex Nuts (Inch Series)	ASME B18.2.2
Metallic Fittings, Valves, and Flanges	
Cast Iron Pipe Flanges and Flanged Fittings	ASME B16.1
Malleable Iron Threaded Fittings	ASME B16.3
Gray Iron Threaded Fittings	ASME B16.4
Pipe Flanges and Flanged Fittings	ASME B16.5
Factory-Made Wrought Steel Buttwelding Fittings	ASME B16.9
Face-to-Face and End-To-End Dimensions of Valves	ASME B16.10
Forged Fittings, Socket-Welding and Threaded	ASME B16.11
Ferrous Pipe Plugs, Bushings, and Locknuts With Pipe Threads	ASME B16.14
Cast Bronze Threaded Fittings, Class 125 and 250 [Notes (1), (2)]	ASME B16.15
Cast Copper Alloy Solder Joint Pressure Fittings	ASME B16.18
Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	ASME B16.22
Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500, and 2500	ASME B16.24
Cast Copper Alloy Fittings for Flared Copper Tubes	ASME B16.26
Valves-Flanged, Threaded, and Welding End	ASME B16.34
Orifice Flanges, Class 300, 600, 900, 1500, and 2500	ASME B16.36
Malleable Iron Threaded Pipe Unions, Class 150, 250, and 300	ASME B16.39
Ductile Iron Pipe Flanges and Flanged Fittings, Class 150 and 300	ASME B16.42
Large Diameter Steel Flanges, NPS 26 Through NPS 60	ASME B16.47
Steel Line Blanks	ASME B16.48
Bioprocessing Equipment [Note (3)]	ASME BPE
Flanged Steel Pressure-Relief Valves	API 526
Check Valves: Flanged, Lug, Wafer and Butt-welding	API 594
Metal Plug Valves—Flanged, Threaded, and Welding Ends	API 599
[illegible]	[illegible]
Thermowells [Note (9)]	ASME PTC 19.3 TW
[illegible]	[illegible]
Butterfly Valves: Double-flanged, Lug- and Wafer-type	API 609
Ductile-Iron and Gray-Iron Fittings, 3 Inch Through 48 Inch (75 mm Through 1200 mm), for Water and Other Liquids	AWWA C110
Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges	AWWA C115
Steel Pipe Flanges for Waterworks Service, Sizes 4 inch Through 144 inch (100 mm Through 3,600 mm)	AWWA C207
Dimensions for Fabricated Steel Water Pipe Fittings	AWWA C208
Metal-Seated Gate Valves for Water Supply Service	AWWA C500
Rubber-Seated Butterfly Valves	AWWA C504
Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings	MSS SP-6
Spot Facing for Bronze, Iron and Steel Flanges	MSS SP-9
Standard Marking Systems for Valves, Fittings, Flanges, and Unions	MSS SP-25
Class 150 (PN 20) Corrosion Resistant Gate, Globe, Angle and Check Valves With Flanged and Butt Weld Ends	MSS SP-42
Wrought Stainless Steel Butt-Welding Fittings Including Reference to Other Corrosion Resistant Materials [Note (4)]	MSS SP-43
Steel Pipeline Flanges	MSS SP-44
Bypass and Drain Connections	MSS SP-45
Class 150LW Corrosion Resistant Flanges and Cast Flanged Fittings	MSS SP-51
High Pressure Chemical Industry Flanges and Threaded Stubs for Use with Lens Gaskets	MSS SP-65
Gray Iron Gate Valves, Flanged and Threaded Ends	MSS SP-70
Gray Iron Swing Check Valves, Flanged and Threaded Ends	MSS SP-71
Ball Valves With Flanged or Buttwelding Ends for General Service	MSS SP-72
Specifications for High Test Wrought Buttwelding Fittings	MSS SP-75
Socket-Welding Reducer Inserts	MSS SP-79
Bronze Gate, Globe, Angle and Check Valves	MSS SP-80
Stainless Steel, Bonnetless, Flanged, Knife Gate Valves	MSS SP-81
Class 3000 Steel Pipe Unions, Socket-Welding and Threaded	MSS SP-83

Table 326.1 Component Standards (Cont'd) (10)

Standard or Specification	Designation
Metallic Fittings, Valves, and Flanges (Cont'd)	
Gray Iron Globe and Angle Valves, Flanged and Threaded Ends	MSS SP-85
Diaphragm Type Valves	MSS SP-88
Swage(d) Nipples and Bull Plugs	MSS SP-95
Integrally Reinforced Forged Branch Outlet Fittings — Socket Welding, Threaded, and Buttwelding Ends	MSS SP-97
Instrument Valves for Code Applications	MSS SP-105
Cast Copper Alloy Flanges and Flanged Fittings Class 125, 150, and 300 [Note (1)]	MSS SP-106
Factory-Made Wrought Belled End Socket Welding Fittings [Note (5)]	MSS SP-119
Refrigeration Tube Fittings — General Specifications	SAE J513
Hydraulic Tube Fittings	SAE J514
Hydraulic Flanged Tube, Pipe, and Hose Connections, Four-Bolt Split Flanged Type	SAE J518
Metallic Pipe and Tubes [Note (6)]	
Welded and Seamless Wrought Steel Pipe	ASME B36.10M
Stainless Steel Pipe	ASME B36.19M
Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges	AWWA C115
Thickness Design of Ductile-Iron Pipe	AWWA C150
Ductile-Iron Pipe, Centrifugally Cast, for Water	AWWA C151
Steel Water Pipe 6 inches (150 mm) and Larger	AWWA C200
Miscellaneous	
Unified Inch Screw Threads (UN and UNR Thread Form)	ASME B1.1
Pipe Threads, General Purpose (Inch)	ASME B1.20.1
Dryseal Pipe Threads (Inch)	ASME B1.20.3
Hose Coupling Screw Threads (Inch)	ASME B1.20.7
Metallic Gaskets for Pipe Flanges — Ring: Joint, Spiral Wound, and Jacketed	ASME B16.20
Nonmetallic Flat Gaskets for Pipe Flanges	ASME B16.21
Buttwelding Ends	ASME B16.25
Surface Texture (Surface Roughness, Waviness, and Lay)	ASME B46.1
Specification for Threading, Gaging and Thread Inspection of Casing, Tubing, and Line Pipe Threads	API 5B
Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings	AWWA C111
Thermowells [Note (9)]	ASME PTC 19.3 TW

GENERAL NOTE: It is not practical to refer to a specific edition of each standard throughout the Code text. Instead, the approved edition references, along with the names and addresses of the sponsoring organizations, are shown in Appendix E.

NOTES:

(1) This standard allows the use of unlisted materials; see para. 323.1.2.

(2) This standard allows straight pipe threads in sizes ≤ DN 15 (NPS ½); see para. 314.2.1(d).

(3) Part DT of ASME BPE covers dimensions and tolerances for stainless steel automatic welding and hygienic clamp tube fittings and process components.

(4) *Cautionary Note:* See MSS SP-43 (Section 3) for specific pressure–temperature ratings of available thicknesses of Class CR fittings. The ratings for MSS SP-43 fittings cannot be calculated based on straight seamless pipe such as is done, for example, for ASME B16.9 buttwelding fittings.

(5) MSS SP-119 includes three classes of fittings: MP, MARINE, and CR. Only the MP class fittings are considered a "Listed Component" for the purpose of this Code. *Cautionary Note*: See MSS SP-119 (Section 6) for special provisions concerning ratings. (In accordance with MSS SP-119, the pressure ratings for MP class fittings are 87.5% of those calculated for straight seamless pipe of *minimum* wall thickness.)

(6) See also Appendix A.

(7) Welding and brazing to be in accordance with paras. 328 and 333, respectively in lieu of the referenced specifications in this standard.

(8) This standard contains recommended materials of construction for certain chemical services; the responsibility for the ultimate selection of material is the responsibility of the Owner and is, therefore, not within the scope of this Code.

(9) PTC 19.3 TW allows mechanical design of thermowells to be in accordance with various design codes. Only PTC 19.3 TW thermowells with design and calculations for pressure containing elements in accordance with ASME B31.3 are considered a "Listed Component" for the purpose of this Code.

REFERENCE STANDARDS (CONT'D)

ASTM Specifications (Cont'd)

F 1055-98 (R2006)
F 1281-03$^{\epsilon 1}$
F 1282-03$^{\epsilon 1}$
F 1290-98a (R2004)
F 1412-09
F 1498-08
F 1545-97 (R2003)
F 1673-04
F 1970-05
F 1974-04

AISC Publication

325-05 (Steel Construction Manual, 2006)

ASCE Standard

ASCE 7-05

ASME Codes (Use Latest Edition)

ASME Boiler and Pressure Vessel Code
Section II, Part D
Section III, Division 1
Section V
Section VIII, Division 1
Section VIII, Division 2
Section VIII, Division 3
Section IX

ASME Standards (Use Latest Edition)

A13.1
B1.1
B1.20.1
B1.20.3
B1.20.7

B16.1
B16.3
B16.4
B16.5
B16.9
B16.10
B16.11
B16.14
B16.15
B16.18
B16.20

B16.21
B16.22
B16.24
B16.25
B16.26
B16.34
B16.36
B16.39

ASME Standards (Cont'd)

B16.42
B16.47
B16.48

B18.2.1
B18.2.2

B36.10M
B36.19M

B46.1
BPE

PTC 19.3 TW

API Specifications

5B, 2008
5L, 2009
15LE, 2008
15LR, 2001

API Standards

526, 2002
594, 2004
599, 2007
600, 2001 (R2006)

602, 2005
603, 2007
608, 2008
609, 2004

API Recommended Practice

RP 941, 5th Ed., 1997

ASNT Standards

ACCP-2007
CP-189-2001
SNT-TC-1A-2006

ASQ Standards

Q 9000-1: 1994
Q 9000-2: 1997
Q 9000-3: 1997
Q 9001: 2008
Q 9002: 1994
Q 9003: 1994

AWS Standards

A3.0-2001
A5.1/A5.1M-2004
A5.4/A5.4M-2006
A5.5/A5.5M-2006
A5.9/A5.9M-2006
A5.11/A5.11M-2005
A5.14/A5.14M-2009
A5.22-1995 (R2005)

AWWA Standards

C110-03
C111-07
C115-05
C150/A21.50-08
C151/A21.51-04
C200-05
C207-07
C208-07
C300-07
C301-07
C302-04
C500-02

C504-06
C900-07 and Errata 2008
C950-07

CDA Publication

Copper Tube Handbook, 2006

CGA Publication

G-4.1-2004

CSA Publication

Z245.1-1998

EJMA Publication

EJMA Standards, 2008

MSS Standard Practices

SP-6-2007
SP-9-2008
SP-25-2008
SP-42-2009
SP-43-2008
SP-44-2006
SP-45-2003 (R2008)