ASME B31.3

INTERPRETATIONS NO. 18

Replies to Technical Inquiries
December 1, 1999 through March 31, 2001

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply.

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparation of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Interpretation: 18-01

Subject: ASME B31.3-1999 Edition, Para. 341.3.4(a), Progressive Sampling for Examination

Date Issued: May 31, 2000

File: B31-00-002

Question (1): In accordance with ASME B31.3-1999 Edition, if a welding operator's weld is rejected and the repair is made by another welding operator, does para. 341.3.3 require the repair weld be examined?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3-1999 Edition, may the two additional welds required by para. 341.3.4(a) be examined at the same time as the above referenced repair weld?

Reply (2): Yes.

Interpretation: 18-02

Subject: ASME B31.3-1999 Edition, Para. 331.1.3, Governing Thickness

Date Issued: May 31, 2000

File: B31-00-003

Question (1): In accordance with ASME B31.3-1999 Edition, para. 331.1.3, can the governing thickness for the heat treatment of branch connection welds in Fig. 328.5.4D be calculated or determined by means other than the formulas provided in para. 331.1.3(a)?

Reply (1): No.

Question (2): In accordance with ASME B31.3-1999 Edition, para. 331.1.3, shall the governing through-weld thickness for the heat treatment of branch connection welds in accordance with Fig. 328.5.4D be calculated in accordance with the formulas provided in para. 331.1.3(a), even if a dimension through the weld may be greater than calculated by the formulas?

Reply (2): Yes.

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Interpretation: 18-03

Subject: ASME B31.3-1999 Edition, Para. 345.4.2, Test Pressure

Date Issued: May 31, 2000

File: B31-00-004

Question (1): In accordance with ASME B31.3-1999 Edition, para. 345.4.2(b), when a piping system is constructed of different materials, shall the stress values, S_T and S, from each of the individual points in the system be used to calculate the required test pressure for that point in the system in accordance with Eq. (24)?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3-1999 Edition, when the required test pressure for individual points in a piping system differ, and the system is tested as a whole, may any point in the piping system be subjected to a pressure less than its required test pressure in accordance with Eq. (24)?

Reply (2): No, except as provided for in paras. 345.4.2(b), 345.4.2(c), and 345.4.3.

Interpretation: 18-04

Subject: ASME B31.3-1999 Edition, Para. 331.2, Heat Treatment Specific Requirements

Date Issued: May 31, 2000

File: B31-00-006

Question: In accordance with ASME B31.3-1999 Edition, may alternative heat treatment methods or exceptions be specified in the engineering design?

Reply: Yes. See para. 331.2.

Interpretation: 18-05

Subject: ASME B31.3-1999 Edition, Para. A328.2.1(b), Bonding Qualification Requirements

Date Issued: May 31, 2000

File: B31-00-009

Question (1): In accordance with ASME B31.3-1999 Edition, para. A328.2.1(b), does each material type, using the same joining method, require a separate bonding procedure specification (BPS)?

Reply (1): No.

Question (2): In accordance with ASME B31.3-1999 Edition, para. A328.2.5 is a bonder or bonding operator required to qualify for each material type listed in the BPS?

Reply (2): No.

Question (3): In accordance with ASME B31.3-1999 Edition, can a bonder qualification test pressure for thermoplastics when using the hydrostatic test method, be less than the calculated test pressure in accordance with A328.2.5(c)(1)?

Reply (3): No.

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Interpretation: 18-06

Subject: ASME B31.3-1999 Edition, Para. 304.2.2, Curved and Mitered Segments of Pipe

Date Issued: May 31, 2000

File: B31-00-010

Question (1): In accordance with para. 304.2.2, if a B16.9 elbow is modified by trimming it (e.g., a standard 90 deg elbow trimmed to 75 or 15 deg), such that it no longer is in compliance with B16.9, must it be qualified as an unlisted component in accordance with para. 304.7.2?

Reply (1): Yes.

Question (2): Is the pressure rating of a B16.9 fitting determined by the actual pipe to which it is attached?

Reply (2): No. See para. 302.2.2.

Question (3): If the ends of a B16.9 or B16.10 component have been taper bored, such that its length no longer meets the length requirements of the component standard, must it be qualified by para. 304.7.2?

Reply (3): Yes.

Interpretation: 18-07

Subject: ASME B31.3-1999 Edition, Table 341.3.2, Acceptance Criteria for Welds

Date Issued: May 31, 2000

File: B31-00-011

Question: In accordance with ASME B31.3-1999 Edition, Table 341.3.2, what is the acceptance criteria for surface porosity and exposed slag inclusions for weld thickness greater than $^3/_{16}$ in.?

Reply: The Code does not require welds greater than $^3/_{16}$ in. nominal thickness to be evaluated for these imperfections.

Interpretation: 18-08

Subject: ASME B31.3-1999 Edition, Para. 328.2.3, Performance Qualification by Others

Date Issued: May 31, 2000

File: B31-00-012

Question: In accordance with ASME B31.3-1999 Edition, para. 328.2.3, is it acceptable to use the date furnished by a previous employer for the Welder Qualification Record as the date that the individual last used the procedure on pressure piping when that date cannot be determined?

Reply: No.

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Interpretation: 18-09

Subject: ASME B31.3-1999 Edition, Para. 300(c), General Statements

Date Issued: May 31, 2000

File: B31-00-013

Question (1): In accordance with ASME B31.3-1999 Edition, should the designer use Eq. (1d) to assess fatigue from two or more sources (e.g., thermal plus wave action)?

Reply (1): Yes. However, see para. 300(c)(3).

Question (2): When determining the allowable displacement stress range of high strength materials in B31.3 piping, does B31.3 use the allowable stresses in Appendix A in Eqs. (1a) and (1b)?

Reply (2): Yes. However, see para. 300(c)(5).

Interpretation: 18-10

Subject: ASME B31.3-1999 Edition, Para. 345.2.2(a), Other Test Requirements

Date Issued: May 31, 2000

File: B31-00-016

Question: In accordance with ASME B31.3-1999 Edition, can the requirement of para. 345.2.2(a) be satisfied by lowering the test pressure to the design pressure (multiplied by the ratio of the allowable stress for the test temperature to the allowable stress for the design temperature) before examination for leaks?

Reply: No.

Interpretation: 18-11

Subject: ASME B31.3-1999 Edition, Para. 344, Types of Examination

Date Issued: November 1, 2000

File: B31-00-025

Question (1): In accordance with ASME B31.3-1999 Edition, in a weld that is visually examined for Category D Fluid Service, shall incomplete penetration be judged only on indications at the root and/or surface area?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3-1999 Edition, in a weld that is visually and/or radiographically examined for Normal Fluid Service, is it required that depth of incomplete penetration be determined by radiography?

Reply (2): No.

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Interpretation: 18-12

Subject: ASME B31.3a-2000 Addenda, Table 323.2.2, Impact Testing Requirements for Metals

Date Issued: November 1, 2000

File: B31-00-028

Question (1): In accordance with ASME B31.3a-2000 Addenda, may welded austenitic stainless steel pipe and fittings, with carbon content less than or equal to 0.1% and furnished in the solution heat-treated condition, be used at temperatures warmer than those listed in the Minimum Temperature Column of Table A-1 for the particular alloy in question without impact testing of the base metal?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3a-2000 Addenda, Table 323.2.2, does box A-4(a) apply to austenitic stainless steel pipe and fittings?

Reply (2): Yes.

Question (3): In accordance with ASME B31.3a-2000 Addenda, Table 323.2.2, does box A-4 (b) apply to welds performed on austenitic stainless steel pipe and fittings, by both the manufacturer of the component and the fabricator of the piping?

Reply (3): Yes.

Question (4): In accordance with ASME B31.3a-2000 Addenda, does para. 323.2.2(f) apply to welds (with or without filler metal added) that are not subsequently solution heat treated?

Reply (4): Yes.

Interpretation: 17-09R (Replaces 17-09)

Subject: ASME B31.3a-2000 Addenda, Table 323.2.2, Impact Testing Requirements for Metals

Date Issued: November 1, 2000

File: B31-00-028

Question: In accordance with ASME B31.3b-1997 Addenda, are classes 12, 13, 22, and 23 of ASME A671, A672, and A691 the only listed materials in the Code for these specifications?

Reply: Yes.

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Interpretation: 18-13

Subject: ASME B31.3a-2000 Addenda, Para. 319.2.3, Displacement Stress Range

Date Issued: November 1, 2000

File: B31-00-029

Question (1): In Accordance with ASME B31.3a-2000 Addenda, is it permissible for the allowable displacement stress range calculated by Eq. (1b) to exceed the yield strength of the material at the maximum metal temperature?

Reply (1): Yes, see para. 319.2.3. Also, see para. 319.2.2 regarding cautions for unbalanced systems.

Question (2): Does ASME B31.3a-2000 Addenda provide specific requirements for earthquake loads other than para. 301.5.3?

Reply (2): No.

Interpretation: 18-14

Subject: ASME B31.3-1999 Edition, Para. 341.4.1(b)(1), Examination Normally Required

Date Issued: November 1, 2000

File: B31-00-030

Question: In accordance with ASME B31.3-1999 Edition, if examination of a welder's work is satisfactorily represented in accordance with the requirements of para. 341.4.1(b)(1) when producing welds requiring 100% examination, must examination of his work also be represented in production requiring a lesser degree of examination?

Reply: No, unless the welds requiring a lesser degree of examination are in a different designated lot.

Interpretation: 18-15

Subject: ASME B31.3a-2000 Addenda, Para. 345.9.1, Alternative Leak Test

Date Issued: November 1, 2000

File: B31-00-031

Question: In accordance with ASME B31.3a-2000 Addenda, when 100% radiography is required by para. 345.9.1 for an alternative leak test, may 100% ultrasonic examination in accordance with para. 344.6 be used in place of radiography?

Reply: No.

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Interpretation: 18-16

Subject: ASME B31.3a-2000 Addenda, Para. 302.3.5 (c), Limits of Calculated Stresses Due to Sustained Loads and Displacement Strains

Date Issued: November 1, 2000

File: B31-00-032

Question: In accordance with ASME B31.3a-2000 Addenda, does the calculation of longitudinal stresses due to pressure, weight and other sustained loadings per para. 302.3.5(c) include vibrational loadings?

Reply: No. See para. 302.3.5(d), including footnote 5, for allowable displacement stress range.

Interpretation: 18-17

Subject: ASME B31.3-1999 Edition, Para. 344.2, Visual Examination

Date Issued: November 1, 2000

File: B31-00-043

Question (1): In accordance with ASME B31.3-1999 Edition, paras. 344.2 and 344.7, for in-process visual examination, shall the acceptance or rejection of the individual items specified in para. 344.7 be recorded?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3-1999 Edition, paras. 344.2 and 344.7 for in-process visual examination, is it required to record the value of each individual item specified in para. 344.7.1?

Reply (2): No.

Interpretation: 18-18

Subject: ASME B31.3a-2000 Addenda, Appendix D, Thickness of a Welding Tee

Date Issued: November 1, 2000

File: B31-00-044

Question (1): In accordance with ASME B31.3a-2000 Addenda, does the crotch thickness, T_c, requirement for a "welding tee" in Appendix D apply to the whole arc, from where the wall is tangent to the header direction to where the wall is tangent to the branch direction?

Reply (1): No.

Question (2): In accordance with ASME B31.3a-2000 Addenda Appendix D, does the Code specify the specific location where T_c, for a welding tee, shall be measured?

Reply (2): No.

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(GENERAL NOTE: Code references are based on ASME B31.3-1990 or later Editions. References in brackets are to previous Editions and Addenda.)

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ASME B31.3

INTERPRETATIONS NO. 17

Replies to Technical Inquiries
April 1, 1998 Through November 31, 1999

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply.

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparation of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Interpretation: 17-01

Subject: ASME B31.3b-1997 Addenda, Para. 323.1.2, Unlisted Materials

Date Issued: May 19, 1998

File: B31-97-044

Question (1): In accordance with ASME B31.3b-1997, does Table 300.1.1 apply to materials that are not listed in Table A-1 but are listed in ASME BPVC Section IX?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3b-1997, does Table 331.1.1 apply to materials that are not listed in Table A-1 but are listed in ASME BPVC Section IX?

Reply (2): Yes, unless the provisions of para. 331.2.2 are satisfied.

Interpretation: 17-02

Subject: ASME B31.3b-1997 Addenda, Para. 345.8(b), Sensitive Leak Test

Date Issued: May 19, 1998

File: B31-97-046

Question: In accordance with ASME B31.3b-1997, para. 345.8(b), must the test pressure for a sensitive leak test be greater than 15 psi?

Reply: No.

Interpretation: 17-03

Subject: ASME B31.3b-1997 Addenda, Table 341.3.2, Acceptance Criteria for Welds

Date Issued: May 19, 1998

File: B31-97-047

Question: In accordance with ASME B31.3b-1997, Table 341.3.2, is the maximum allowable height of reinforcement or internal protrusion, in any plane through the weld, listed in "L" for each face of the weld?

Reply: Yes. See also Interpretation 9-04.

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Interpretation: 17-04

Subject: ASME B31.3b-1997 Addenda, Para. 302.3.5(d), Limits of Calculation Stresses Due to Sustained Loads and Displacement Strains

Date Issued: May 19, 1998

File: B31-97-048

Question (1): In accordance with ASME B31.3b-1997, para. 302.3.5(d), may the number of cycles, N_i, in Equation (1d) exceed 2,000,000 cycles?

Reply (1): Yes; however, see also Note (5) of Equation (1c) for limits on the equivalent number of full displacement cycles, N.

Question (2): In accordance with ASME B31.3b-1997, para. 302.3.5(d), Equation (1d), is it required to combine thermal displacement cycles with displacement cycles due to other conditions such as wave motion.

Reply (2): Yes.

Interpretation: 17-05

Subject: ASME B31.3-1996 Edition, Para. 345.9.1(b), Alternative Leak Test Examination of Welds

Date Issued: May 19, 1998

File: B31-97-049

Question: In accordance with ASME B31.3-1996 Edition, para. 345.9.1(b), may the liquid penetrant method be used to examine a weld on a magnetic material?

Reply: Yes.

Interpretation: 17-06

Subject: ASME B31.3-1996 Edition; Para. A328.2.5(b)(1), Qualification Test Pressure

Date Issued: May 19, 1998

File: B31-98-001

Question: In accordance with ASME B31.3-1996 Edition, can the pressure design thickness be used instead of the nominal thickness in Equation (27) of para. A328.2.5(b)(1), to calculate the qualification pressure?

Reply: No.

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Interpretation: 17-07

Subject: ASME B31.3b-1997 Addenda; Para. 301.3, Design Temperatures

Date Issued: May 19, 1998

File: B31-98-006

Question: In accordance with ASME B31.3b-1997, para. 301.3, should fire case temperature or pressures be considered to satisfy the requirements of para. 301.2, in establishing the design conditions of piping that may be exposed to an accidental fire?

Reply: The Code does not require the consideration of accidental fire cases when establishing the piping design conditions, except as required to meet the pressure relief requirements of para. 322.6.3. See also para. 300(c)(5).

Interpretation: 17-08

Subject: ASME B31.3-1996 Edition, Para. 323.1.2, Unlisted Materials and Unlisted Components for Metallic Piping Lined With Nonmetals

Date Issued: May 19, 1998

File: B31-98-008

Question (1): In accordance with ASME B31.3-1996 Edition, may unlisted metallic materials be used in the manufacture of metallic piping components lined with non-metals?

Reply (1): Yes. See para. A323.1.

Question (2): In accordance with ASME B31.3-1996 Edition, may pressure containing metallic piping components (lined with non-metals), not manufactured in accordance with a listed standard and for which the rules in para. 304 (other than para. 304.7.2) do not apply, be qualified for use under this Code?

Reply (2): Yes. See paras. A300(d) and 304.7.2.

Interpretation: 17-09

Subject: ASME B31.3b-1997 Addenda, Para. 323.1.1, Listed Materials

Date Issued: May 19, 1998

File: B31-98-009

Question (1): In accordance with ASME B31.3b-1997, are classes 12, 13, 22, and 23 of ASTM A 671, A 672, and A 691 the only listed materials in the Code for these specifications?

Reply (1): Yes.

Question (2): Is it a requirement that listed pipe and tube materials in ASME B31.3 be hydrotested by the manufacturer?

Reply (2): Yes. See the requirements of the listed specifications and Note (76) of Appendix A.

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Interpretation: 17-10

Subject: ASME B31.3b-1997 Addenda, Para. 345.9.1(a), Alternative Leak Test Examination of Welds

Date Issued: May 19, 1998

File: B31-98-011

Question: In accordance with ASME B31.3b-1997, para. 345.9.1(a), is 100% UT examination an acceptable substitute for 100% radiography?

Reply: No.

Interpretation: 17-11

Subject: ASME B31.3b-1997 Addenda, Para. 302.2.2, Listed Components Not Having Specific Ratings

Date Issued: November 11, 1998

File: B31-98-017

Question: In accordance with ASME B31.3b-1997, if a fitting is manufactured to ASME B16.9 and a listed material specification that includes a reference to Note (16) of Appendix A, may the user establish the pressure-temperature rating in accordance with para. 302.2.2, without applying a weld joint quality factor in accordance with para. 302.3.4?

Reply: Yes.

Interpretation: 17-12

Subject: ASME B31.3b-1997 Addenda, Para. 302.2.4, Allowances for Pressure and Temperature Variation

Date Issued: November 11, 1998

File: B31-98-019A

Question (1): In accordance with ASME B31.3b-1997, para. 302.2.4, are the allowable variations permitted in this paragraph only applicable when the increased pressure is less than or equal to the test pressure used in accordance with para. 345?

Reply (1): Yes.

Question (2): When establishing the maximum allowable relieving pressure permitted in accordance with para. 322.6.3(c), may the test pressure used in accordance with para. 345 be exceeded?

Reply (2): Yes, provided the maximum relieving pressure requirements of ASME BPVC Section VIII, Division 1 are met?

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Interpretation: 17-13

Subject: ASME B31.3b-1997 Addenda, Para. 331.1.3, Governing Thickness

Date Issued: November 11, 1998

File: B31-98-020

Background [Question (1)]: An integrally-reinforced branch connection fitting is welded externally to a pipe that has a wall thicker than the minimum material thickness requiring PWHT, and the branch pipe has a wall thickness thinner than the minimum material thickness requiring PWHT.

Question (1a): In accordance with ASME B31.3b-1997, does the thickness of the branch pipe attached to the branch connection fitting have any effect on whether the weld between the branch connection and the main pipe requires PWHT?

Reply (1a): No.

Question (1b): Does the weld throat thickness between the branch connection fitting and main pipe have any effect on whether this joint requires PWHT?

Reply (1b): Yes. See para. 331.1.3(a).

Question (1c): Does the thickness of the branch connection fitting have any effect on whether this joint requires PWHT?

Reply (1c): No. See para. 331.1.3(a).

Question (2): In accordance with ASME B31.3b-1997, para. 331.1.3, if the header has a wall thickness less than the minimum material thickness requiring PWHT, would the deciding factor for carrying out PWHT be whether the throat thickness of the joint is greater than twice the minimum material thickness requiring PWHT?

Reply (2): Yes.

Interpretation: 17-14

Subject: ASME B31.3-1993 Edition, Table 302.3.4, Longitudinal Weld Joint Quality Factor

Date Issued: November 11, 1998

File: B31-98-022

Question: In accordance with ASME B31.3-1993 Edition, is it permissible to increase E_j for ASTM A 312 EFW pipe to 1.00 by 100% radiography?

Reply: Yes. See Table 302.3.4.

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Interpretation: 17-15

Subject: ASME B31.3b-1997 Addenda, Para. 340.4, Qualification of the Owner's Inspector

Date Issued: November 11, 1998

File: B31-98-023

Question: In accordance with ASME B31.3b-1997, may the owner's inspector and the installing contractor's examiner both be employed by the same organization?

Reply: Yes, provided all requirements of para. 340.4 are met.

Interpretation: 17-16

Subject: ASME B31.3b-1997 Addenda, Para. K300(a), Applicability of High Pressure Piping

Date Issued: November 11, 1998

File: B31-98-025

Question (1): In accordance with ASME B31.3b-1997, para. K300(a), is it mandatory that the owner of a piping system designate it as being in High Pressure Fluid Service in accordance with Chapter IX when the system pressure exceeds that allowed by ASME B16.5, PN 420 (Class 2500) rating?

Reply (1): No.

Question (2): In accordance with ASME B31.3b-1997, para. K300(a), can piping be designated by the owner as being in High Pressure Fluid Service in accordance with Chapter IX and be designed to Chapter IX, even if this results in a wall thickness that is less than that required by design in accordance with Chapters I through VI?

Reply (2): Yes; however, when piping is so designated, Chapter IX shall be applied in its entirety.

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Interpretation: 17-17

Subject: ASME B31.3b-1997 Addenda, Appendix V, Allowable Variation in Elevated Temperature Service

Date Issued: November 11, 1998

File: B31-98-026

Question (1): In accordance with ASME B31.3b-1997, when evaluating variations in elevated temperature service in accordance with Appendix V, must the design temperature established in accordance with para. 301.3 be high enough such that the corresponding allowable stress value in Table A-1 is based on creep criteria?

Reply (1): No; however, if the maximum temperature experienced during the variations is where the creep properties control design, Appendix V applies. Note that the word "design" in para. V302(c) does not apply and will be deleted by errata from a future edition of the Code.

Question (2): When some varying conditions are below the creep range and some are in the creep range, does ASME B31.3b-1997, Appendix V require that conditions below the creep range be included in the calculation of the usage factor in accordance with para. V303.2?

Reply (2): No. See para. V302(c).

Question (3): In accordance with ASME B31.3b-1997, when determining if Table A-1 allowable stress values are based upon creep criteria, may the maximum temperature in Tables 2A or 2B of ASME BPVC Section II, Part D be used as the highest temperature, which is below the range of values based upon the creep criteria?

Reply (3): Yes. See Footnote 2 to para. 302.3.2.

Interpretation: 17-18

Subject: ASME B31.3c-1998 Addenda, Para. 302.3.5(c), Longitudinal Stress

Date Issued: July 1, 1999

File: B31-99-004

Question (1): Shall longitudinal stresses due to the misalignment of piping during assembly, or intentional cold spring, be included as a longitudinal sustained stress in accordance with para. 302.3.5(c)?

Reply (1): No.

Question (2): Is it required to include the stresses due to misalignment of piping during assembly or intentional cold spring in the calculation of displacement stress range in accordance with para. 319.2.3?

Reply (2): No. See para. 319.2.1(c).

Question (3): Shall axial stresses due to the imposed displacements be considered in the evaluation of the displacement stress range?

Reply (3): Yes. See para. 319.2.3(c).

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Interpretation: 17-19

Subject: ASME B31.3-1996 Edition, Para. K314.2, Special Threaded Joints

Date Issued: July 1, 1999

File: B31-99-008

Question (1): In accordance with ASME B31.3-1996 Edition, is a hammer union, whose male and female ends are butt welded to the piping, considered a Special Threaded Joint as defined in para. K314.2?

Reply (1): No.

Question (2): In accordance with ASME B31.3-1996 Edition, can a threaded joint that does not meet the requirements of para. K314.2 be qualified for High Pressure Fluid Service in accordance with the requirements of para. K304.7.2?

Reply (2): Yes, provided the requirements of para. K314.3 are also met.

Interpretation: 17-20

Subject: ASME B31.3c-1998 Addenda, Para. 335.2.3, Bolt Length

Date Issued: July 1, 1999

File: B31-99-009

Question: In accordance with ASME B31.3c-1998, Para. 335.2.3, if a bolt fails to extend beyond its nut and no more than one thread is visible inside the nut, is the bolt considered acceptably engaged?

Reply: Yes.

Interpretation: 17-21

Subject: ASME B31.3c-1998 Addenda, Para. 331.1.3, Governing Thickness

Date Issued: July 1, 1999

File: B31-99-010

Question: In accordance with ASME B31.3c-1998, para. 331.1.3, if the thicker of two components is machined before welding, in accrodance with para. 328.4.2, to match the thickness of the thinner component, is the resulting matching thickness at the weld joint used in determining the requirements for PWHT?

Reply: Yes.

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Interpretation: 17-22

Subject: ASME B31.3c-1998 Addenda, Table 341.3.2, Acceptance Criteria for Welds

Date Issued: July 1, 1999

File: B31-99-011

Question (1): In accordance with ASME B31.3c-1998, Table 341.3.2, is surface porosity acceptable on the crown or external surface of a groove weld that is greater than $^3/_{16}$ in. in nominal thickness?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3c-1998, Table 341.3.2, is surface porosity acceptable on the crown of a $^1/_4$ in. fillet weld?

Reply (2): Yes.

Interpretation: 17-23

Subject: ASME B31.3c-1998 Addenda, Para. 300.2, Defining Piping Components

Date Issued: July 1, 1999

File: B31-99-012

Question: In accordance with ASME B31.3c-1998, are pressure containing components such as strainers, filters, knock-out pots, holding pots and other devices that serve such purposes as mixing, separating, snubbing, distributing, and metering or controlling flow included in the scope of this Code?

Reply: Yes, unless the Owner specifies another code. See definition of "piping components" (para. 300.2)

Interpretation: 17-24

Subject: ASME B31.3c-1998 Addenda, Para. 322.3, Instrument Piping

Date Issued: July 1, 1999

File: B31-99-013

Question: In accordance with ASME B31.3c-1998, are instrument piping components (such as tubing, compression fittings, barstock valves, etc.) outside of a piping isolation valve (piping root valve) within the scope of ASME B31.3?

Reply: Yes. See para. 322.3.

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Interpretation: 17-25

Subject: ASME B31.3-1996 Edition, Para. 335.1.1(c), Alignment of Flanged Joints

Date Issued: November 16, 1999

File: B31-99-020

Question (1): In accordance with ASME B31.3-1996 Edition, para. 335.1.1(c), does the specified tolerance apply to each individual flange, measured to the design plane, or to the total misalignment between two mating flanges?

Reply (1): It applies to each individual flange, measured to the design plane.

Question (2): In accordance with ASME B31.3-1996 Edition, para. 335.1.1(c), do the requirements apply to all pipe sizes and pressure rating classes?

Reply (2): Yes.

Interpretation: 17-26

Subject: ASME B31.3-1999 Edition, Para. 304.3.3, Reinforcement of Welded Branch Connections

Date Issued: November 16, 1999

File: B31-99-022

Question: In accordance with ASME B31.3-1999 Edition, can the rules in para. 304.3.3 be used for the pressure design of a Tee, machined from stock with a remaining block shape, that does not conform to a listed standard?

Reply: Yes; however, see paras. 304.3.5 and 300(c).

Interpretation: 17-27

Subject: ASME B31.3-1999 Edition, Para. K328.2.1(a), Welding Qualification Requirements

Date Issued: November 16, 1999

File: B31-99-024

Question: In accordance with ASME B31.3-1999 Edition, para. K328.2.1(a), must the performance qualification test coupons for each welder and welding operator be impact tested?

Reply: Yes.

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Interpretation: 17-28

Subject: ASME B31.3-1999 Edition, Para. 345.2.3(c), Special Provisions for Testing of Closure Welds

Date Issued: November 16, 1999

File: B31-99-025

Question (1): Does ASME B31.3-1999 Edition, para. 345.2.3(c) require that the described examinations be performed for closure welds connecting piping systems or components that have been successfully tested in accordance with para. 345?

Reply (1): No. The weld may be leak tested in accordance with para. 345.1 instead.

Question (2): Can weld connecting a flange to a piping system be considered a closure weld?

Reply (2): Yes, but if the weld is to be examined in accordance with para. 345.2.3(c), the flange, as well as the piping system must have been successfully tested.

Interpretation: 17-29

Subject: ASME B31.3-1999 Edition, Para. A322.6, Pressure Relieving Devices

Date Issued: November 16, 1999

File: B31-99-027

Question: Are pressure relieving devices installed in accordance with ASME B31.3-1999 Edition, para. A322.6 required to meet ASME BPVC Section VIII, Division 1, UG-136(b)(3)?

Reply: Yes.

Interpretation: 17-30

Subject: ASME B31.3-1999 Edition, Para. 345, Testing

Date Issued: November 16, 1999

File: B31-99-028

Question: In accordance with ASME B31.3-1999 Edition, para. 345, may the test pressure exceed the maximum allowable internal pressure, P_m, for a miter bend in accordance with para. 304.2.3?

Reply: Yes.

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ASME B31.3

INTERPRETATIONS NO. 16

Replies to Technical Inquiries
April 1, 1997, Through March 31, 1998

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply.

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparation of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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STD.ASME B31.3 INT NO. 16-ENGL ■ 0759670 0606828 250 ■

Interpretation: 14-12R

Subject: ASME B31.3-1993 Edition, Table 323.2.2, Minimum Temperatures Without Impact Testing for Carbon Steel Materials

Date Issued: November 20, 1995

File: B31-95-018

Question: Does ASME B31.3-1993 Edition require impact testing of ASTM A 403 WP304W, B16.9 fittings manufactured from A 312 welded TP304 pipe without the use of weld metal deposits and used at design temperatures of –425°F or above.

Reply: No. See Table 323.2.2, Column A.

Interpretation: 16-01

Subject: ASME B31.3-1996 Edition, Para. 341.3.4, Progressive Examination

Date Issued: May 20, 1997

File: B31-96-053

Question: In accordance with ASME B31.3-1996 Edition, para. 341.3.4, Progressive Examination, if a defective weld is repaired, found defective again, repaired a second time and again found to be defective, is it necessary to examine two additional items for each failed repair?

Reply: No. See para. 341.3.3.

Interpretation: 16-02

Subject: ASME B31.3-1993 Edition, Para. 341.3.4, Progressive Examination

Date Issued: May 20, 1997

File: B31-96-054

Question (1): In accordance with ASME B31.3-1993 Edition, Table 341.3.2A and para. 341.3.4, when the engineering design specifies more stringent acceptance criteria for normal fluid service, do the requirements of para. 341.3.4, Progressive Examination, still apply?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3-1993 Edition, for normal fluid service, when a particular one hundred welds constitute a designated lot, welder "A" completes three welds and two are radiographed to acceptance, and welder "B" completes ninety-seven welds and five are radiographed to acceptance, do all welds in the lot, after visual and leak tests, meet the requirements of the Code?

Reply (2): Yes, provided no other welds in the designated lot were examined showing unacceptabel defects.

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Interpretation: 16-03

Subject: ASME B31.3-1996 Edition, Para. 345, Leak Testing

Date Issued: May 20, 1997

File: B31-96-055

Question (1): In accordance with ASME B31.3-1996 Edition, para. 345.1(b), with a system design pressure of 150 psig at 200°F, and where a hydrostatic pressure test is impractical, does a pneumatic test at 150 psig or 110% of design pressure, whichever is less, satisfy the requirements of the Code?

Reply (1): No. See para. 345.5.4.

Question (2): In accordance with ASME B31.3-1996 Edition, under the above conditions, would testing in accordance with para. 345.9 be required?

Reply (2): No. Use of the alternative leak test is permitted only if the conditions of para. 345.1(c) are met.

Interpretation: 16-04

Subject: ASME B31.3a-1996 Addenda, Para. 302.3.2, Limits of Calculated Stresses Due to Sustained Loads and Displacement Strains

Date Issued: May 20, 1997

File: B31-96-057

Question (1): In accordance with ASME B31.3a-1996 Addenda, para. 302.3.5, shall the longitudinal sustained stresses, S_L, be evaluated in the installed and all operating positions of the pipe relative to its supports and restraints?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3a-1996 Addenda, para. 302.3.5, is there an allowable operating stress for the combination of longitudinal sustained stresses and displacement stresses, not displacement stress ranges?

Reply (2): No. See para. 319.2.3.

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Interpretation: 16-05

Subject: ASME B31.3-1996 Edition, Para. 341.3.4, Progressive Examination

Date Issued: May 20, 1997

File: B31-96-058A

Question (1): A welder's production welds experience some rejections. The welder is retained and requalified. In accordance with ASME B31.3-1996 Edition, para. 341.3.4, Progressive Examination, does the Code require more stringent examination of this welders welds?

Reply (1): No.

Question (2): In accordance with ASME B31.3-1996 Edition, para. 341.3.4, can the two additional joints examined after a defective joint is found to be counted as part of the 5% random radiography requirement?

Reply (2): No.

Interpretation: 16-06

Subject: ASME B31.3-1996 Edition, Para. 328.5.2, Welding Requirements — Fillet and Socket Welds

Date Issued: May 20, 1997

File: B31-96-058B

Question: In accordance with ASME B31.3-1996 Edition, para. 328.5.2 and Fig. 328.5.2c, what is the minimum gap acceptable in a socket-welded joint after welding?

Reply: The $^{1}/_{16}$ in. approximate gap shown in Fig. 328.5.2c is "before welding." The Code does not provide a gap dimension after welding.

Interpretation: 16-07

Subject: ASME B31.3-1993 Edition, Table 341.3.2A, Examination Acceptance Criteria

Date Issued: May 20, 1997

File: B31-96-060

Question: In accordance with ASME B31.3-1993 Edition, Table 341.3.2A, in the radiographic examination of girth and miter groove welds, can a densitometer be used to evaluate root concavity?

Reply: The Code does not address the use of a densitometer for this purpose.

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Interpretation: 16-08

Subject: ASME B31.3-1996 Edition, Para. 332.2.2(a), Bending Temperature

Date Issued: May 20, 1997

File: B31-97-001

Question: In accordance with ASME B31.3-1996 Edition, paras. 332.2.2(a) and (b), are the transformation ranges used in B31.3 considered to be the lower critical temperatures in ASME B31.1-1995 Edition, para. 129.3.1?

Reply: No.

Interpretation: 16-09

Subject: ASME B31.3a-1996 Addenda, Para. 331.1.6, Temperature Verification

Date Issued: May 20, 1997

File: B31-97-013

Question: In accordance with ASME B31.3a-1996 Addenda, para. 331.1.6, can a thermocouple be laid on a part being heat treated as opposed to being attached?

Reply: The Code requires only that temperature be checked by thermocouple, pyrometers, or other suitable methods to ensure that WPS requirements are met. It does not otherwise address positioning or attachment of thermocouples, except for a permissive statement in para. 330.1.3(b) allowing attachment by capacitor discharge method without procedure and performance qualifications.

Interpretation: 16-10

Subject: ASME B31.3a-1996 Addenda, Table 302.3.5, Stress-Range Reduction Factors

Date Issued: May 20, 1997

File: B31-97-014

Question (1): In accordance with ASME B31.3a-1996 Addenda, does the stress range reduction factor, f, as listed in Table 302.3.5 and provided in equation (1c) depend on the material of construction?

Reply (1): No, except see para. 319.3.4(b).

Question (2): In accordance with ASME B31.3a-1996 Addenda, Appendix D, do the stress intensification factors, i_i and i_o, depend on the material of construction?

Reply (2): No.

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Interpretation: 16-11

Subject: ASME B31.3a-1996 Addenda, Para. 302.3.5, Limits of Calculated Stresses Due to Sustained Loads and Displacement Strains

Date Issued: November 10, 1997

File: B31-97-024

Question (1): In accordance with ASME B31.3a-1996 Addenda, para. 302.3.5, is the stress range reduction factor independent of the material of construction?

Reply (1): Yes; however, see para. 319.3.4(b).

Question (2): In accordance with ASME B31.3a-1996 Addenda, are the stress intensification factors listed in Appendix D independent of the material of construction?

Reply: Yes; however, see para. 319.3.4(b).

Interpretation: 16-12

Subject: ASME B31.3a-1996 Addenda, Para. 300(c)(3), Intent of the Code

Date Issued: November 10, 1997

File: B31-97-026B

Question (1): May a piping designer use para. 300(c)(3) of ASME B31.3a-1996 Addenda and apply a more rigorous analysis to qualify the design and acceptance criteria of piping where the Code requirements employ a simplified approach?

Reply (1): Yes, if the designer can demonstrate the validity of the approach to the owner.

Question (2): In accordance with ASME B31.3-1996 Edition, does a piping system that has been designed in accordance with the Code but not fabricated or assembled as specified by the engineering design, comply with the Code if a more rigorous analysis proves it suitable for the service intended?

Reply (2): No. See para. 300.2, Definitions — Assembly and Erection. Also, see para. 341.3.2.

Interpretation: 16-13

Subject: ASME B31.3a-1996 Addenda, Para. 344, Types of Examination

Date Issued: November 10, 1997

File: B31-97-028

Question: In accordance with ASME B31.3a-1996 Addenda, para. 344, does the Code contain instruction or restrictions regarding the design of a designated lot of piping?

Reply: No, other than the definition in Note 2 of para. 344.1.3.

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Interpretation: 16-14

Subject: ASME B31.3a-1996 Addenda, Para. 304.1.1, Pressure Design of Components

Date Issued: November 10, 1997

File: B31-97-029

Question: For subsea production systems where ASME B31.3 is required, can the internal design gage pressure, P, in paras. 304.1.1 and 304.1.2 be interpreted as coincident internal design gage pressure minus external gage pressure?

Reply: Yes; however, when the coincident external gage pressure is greater than the internal gage pressure, the design shall be in accordance with para. 304.1.3.

Interpretation: 16-15

Subject: ASME B31.3a-1996 Addenda, Tapered Thread Joints

Date Issued: November 10, 1997

File: B31-97-032

Question: In accordance with ASME B31.3a-1996 Addenda, does the Code permit the use of tapered pipe thread joints?

Reply: Yes, provided the joints comply with the provisions of paras. 314 and 335.3.

Interpretation: 16-16

Subject: ASME B31.3-1996 Edition, Flanged Ball Valves

Date Issued: November 10, 1997

File: B31-97-036

Question: According to ASME B31.3-1996 Edition, are flanged ball valves where the ball is held in place by a threaded retainer plug in which the end of the plug forms some or all of the flange face prohibited from use in Category M Fluid Service?

Reply: No.

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Interpretation: 16-17

Subject: ASME B31.3-1996 Edition, Tubing in Category M Fluid Service

Date Issued: September 3, 1997

File: B31-97-037

Question: In accordance with ASME B31.3-1996 Edition, is tubing with flared, flareless, and compression tubing joints prohibited for Category M fluid service in sizes larger than 16 mm ($\frac{5}{8}$ in.) O. D. for piping other than instrumentation signal lines in contact with process fluids and process temperature-pressure conditions?

Reply: No. Also, see Interpretation 2-13.

Interpretation: 16-18

Subject: ASME B31.3a-1996 Addenda, Para. 302.2.1, Pressure-Temperature Design Criteria — Listed Components Having Established Ratings

Date Issued: September 3, 1997

File: B31-97-038

Question: When selecting a flange on the basis of pressure-temperature rating given in ASME B16.5, in accordance with ASME B31.3a-1996 Addenda, para. 302.2.1, is it required to consider any external forces and moments acting on the flange?

Reply: Yes. See para. 303.

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ASME B31.3 INTERPRETATIONS NO. 15

Replies to Technical Inquiries
April 1, 1996, Through March 31, 1997

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparation of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Interpretation: 15-01

Subject: ASME B31.3c-1995 Addenda, Table A-1, Allowable Stresses

Date Issued: May 21, 1996

File: B31-95-044

Question (1): Are the material requirements of ASME SA-106 the same as ASTM A 106?

Reply (2): Yes.

Question (2): When doing an ASME B31.3 system stress evaluation, what allowable stresses are used for ASTM A 106 or ASME SA-106?

Reply (2): Those listed in ASME B31.3c-1995 Addenda, Table A-1 for ASTM A 106.

Interpretation: 15-02

Subject: ASME B31.3c-1995 Addenda, Para. 345.9.1(a), Examination of Welds

Date Issued: May 21, 1996

File: B31-95-045

Question: In accordance with ASME B31.3c-1995 Addenda, is it permissible to perform magnetic particle examination of a circumferential weld in lieu of radiography as specified in para. 345.9.1(a)?

Reply: No.

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Interpretation: 15-03

Subject: ASME B31.3c-1995 Addenda, Para. 323.4, Fluid Service Requirements for Materials

Date Issued: May 21, 1996

File: B31-95-046

Question (1): Does the ASME B31.3c-1995 Addenda permit the use of gray cast iron at temperatures down to −150°F?

Reply (1): Yes, however, see para. 323.4.2(b) and F323.4(a).

Question (2): For temperatures below −20°F, are there any special toughness test requirements for gray cast iron?

Reply (2): No. See Table 323.2.2, Box B-1.

Question (3): For any temperatures below −20°F, are the allowable stresses at −20°F applicable?

Reply (3): Yes.

Interpretation: 15-04

Subject: ASME B31.3c-1995 Addenda, Para. 323.1.2, Unlisted Materials

Date Issued: May 21, 1996

File: B31-95-048

Question (1): In accordance with ASME B31.3c-1995 Addenda, can API 5L X65 pipe be qualified under para. 323.1.2 for Normal Fluid Service?

Reply (1): Yes.

Question (2): Can API 5L X65 pipe be qualified for applications above operating temperatures of 100°F under para. 323.2.3 for Normal Fluid Service?

Reply (2): Yes.

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Interpretation: 15-05

Subject: ASME B31.3c-1995 Addenda, Para. 304.3.3, Reinforcement of Welded Branch Connections

Date Issued: May 21, 1996

File: B31-95-052

Question: In accordance with ASME B31.3c-1995 Addenda, para. 304.3.3, is it permissible to multiply the required area replacement in Eq. (6) by factor F from ASME Section VIII, Division 1, 1995 Edition, Fig. UG-37? The nozzle is welded on a cylindrical header as per Fig. UW-16.1 sketch (a).

Reply: No, except as provided in para. 300(c)(3) considering the design conditions of para. 301 and design criteria of para. 302.

Interpretation: 15-06

Subject: ASME B31.3c-1995 Addenda, Para. 304.1.1, Pressure Design of Components; Straight Pipe

Date Issued: May 21, 1996

File: B31-96-007

Question: In accordance with ASME B31.3c-1995 Addenda, para. 304.1.1, shall the quality factor E also include ligament efficiency?

Reply: No; see para. 304.3 for the reinforcement of multiple openings.

Interpretation: 15-07

Subject: ASME B31.3c-1995 Addenda, Para. 335.1.1(c), Alignment; Flanged Joints

Date Issued: May 21, 1996

File: B31-96-008

Question: In accordance with ASME B31.3c-1995 Addenda, para. 335.1.1(c), prior to bolting up a flanged joint, may the flange faces be out of alignment from the design plane by more than 1/16 in./ft (0.5%), provided the misalignment is considered in the design of the flanged assembly and attached piping in accordance with para. 300(c)(3)?

Reply: Yes.

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Interpretation: 15-08

Subject: ASME B31.3c-1995 Addenda, Fig. 328.5.2B Sketch (3), Socket Welding Flange

Date Issued: May 21, 1996

File: B31-96-009

Question: In accordance with ASME B31.3c-1995 Addenda, may the fillet weld shown in Fig. 328.5.2B Sketch (3) (socket welding flange) be repositioned to the inside of the pipe?

Reply: No, unless qualified under para. 304.7.

Interpretation: 15-09

Subject: ASME B31.3c-1995 Addenda, Para. 300.1.3, Scope; Exclusions

Date Issued: May 21, 1996

File: B31-96-010

Question: Does ASME B31.3c-1995 Addenda apply to internal fuel gas manifolds installed in a fired heater?

Reply: No, see paras. 300.1.3(c) and (d).

Interpretation: 15-10

Subject: ASME B31.3c-1995 Addenda, Para. 304.1, Pressure Design of Components; Straight Pipe

Date Issued: May 21, 1996

File: B31-96-011

Question: May the internal pressure design thickness t be computed in accordance with the provisions of ASME B31.3c-1995 Addenda, paras. 304.1.1 and 304.1.2 when t is greater than or equal to $D/6$ and $P/SE > 0.385$?

Reply: Yes. However, it is the responsibility of the designer to provide the special consideration required in para. 304.1.2(b). Alternatively, as an option to the owner, the design may be in accordance with Chapter IX.

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Interpretation: 15-11

Subject: ASME B31.3c-1995 Addenda, Table 323.2.2, Minimum Temperature Without Impact Testing for Carbon Steel Materials

Date Issued: May 21, 1996

File: B31-96-014

Question (1): Does the assigned curve in the second sentence of Box B-3, Table 323.2.2, ASME B31.3c-1995 Addenda refer to the curve assignment from Table A-1?

Reply (1): Yes.

Question (2): If the material has been heat treated per Note (2) or (3), Fig. 323.2.2, is further heat treatment or impact testing of the base metal required for use below the original assigned curve, but above the reassigned curve?

Reply (2): No.

Interpretation: 15-12

Subject: ASME B31.3c-1995 Addenda, Para. 323.2.2, Lower Temperature Limits, Listed Materials

Date Issued: May 21, 1996

File: B31-96-015, B31-96-016

Question (1): In accordance with ASME B31.3c-1995 Addenda, when making blind flanges of carbon steel plate materials which have a Fig. 323.2.2 Curve assignment in Table A-1, is the thickness of the finished blind considered the nominal thickness when using Fig. 323.2.2 to establish the need for impact testing?

Reply (1): Yes.

Question (2): For carbon steel materials with a letter designation in the Min. Temp. column of Table A-1, can flanges manufactured in accordance with ASME B16.5 be used at temperatures down to $-10°F$ without impact testing regardless of thickness?

Reply (2): No, the requirements of para. 323.2.2 apply.

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Interpretation: 15-13

Subject: ASME B31.3c-1995 Addenda, Para. 341, Examination

Date Issued: May 21, 1996

File: B31-96-017

Question: If a fabricated valve meets all the requirements of ASME B16.34, does ASME B31.3c-1995 Addenda require that nondestructive examination in accordance with ASME B31.3 also be performed on the valve?

Reply: No, see also Interpretation 12-12.

Interpretation: 15-14

Subject: ASME B31.3c-1995 Addenda, Para. 304.2, Curved and Mitered Segments of Pipe

Date Issued: May 21, 1996

File: B31-96-018

Question (1): In accordance with ASME B31.3c-1995 Addenda, para. 304.2.1, can the minimum required thickness t_m of a bend, after bending, be determined by taking in consideration of lower (pressure) stresses on the outside of a bend (and higher pressure stresses on the inside of the bend) than on a straight pipe with identical wall thickness?

Reply (1): No, except as provided in para. 300(c)(3).

Question (2): In accordance with ASME B31.3c-1995 Addenda, Chapter IX (High Pressure Piping), can the minimum required thickness t_m of a bend, after bending, be determined by taking into consideration lower stresses on the outside of a bend (and higher stresses on the inside of the bend) than on a straight pipe with identical wall thickness?

Reply (2): No, except as provided in para. 300(c)(3).

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Interpretation: 15-15

Subject: ASME B31.3c-1995 Addenda, Para. 302.3.5, Limits of Calculated Stresses due to Sustained Loads and Displacement Strains

Date Issued: May 21, 1996

File: B31-96-020

Question (1): What is the definition of *sustained loadings* as intended in ASME B31.3c-1995 Addenda, para. 302.3.5(c)?

Reply (1): The Code does not offer for sustained loadings other than in the referenced paragraph. Sustained loads do not typically include forces resulting from applied displacements such as restrained thermal growth. See para. 319.2.3.

Question (2): When flanges are subjected to external forces and moments, is it permissible to calculate the stresses in the flange due to these forces and moments using BPV Code, Section VIII, Division 1, Appendix 2, and using the equivalent pressure calculated from these forces and moments?

Reply (2): The Code does not provide specific design formulas for the design of flange joints subjected to applied external forces and moments except as provided in para. 300(c)(3). However, external forces and moments shall be considered in design. See paras. 319.1.1 and 321.1.1.

Interpretation: 15-16

Subject: ASME B31.3c-1995 Addenda, Table 323.2.2, Minimum Temperature Without Impact Testing for Carbon Steel Materials

Date Issued: May 21, 1996

File: B31-96-021

Question (1): Does the assigned curve in the second sentence of Box B-3, Table 323.2.2, ASME B31.3c-1995 Addenda refer to the curve assignment from Table A-1?

Reply (1): Yes.

Question (2): If the material has been heat treated per Notes (2) or (3), Fig. 323.2.2, is further heat treatment or impact testing of the base metal required for use below the original assigned curve, but above the reassigned curve?

Reply (2): No.

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Interpretation: 15-17

Subject: ASME B31.3-1990 Edition, Para. 332.4.2(a), Cold Bending and Forming

Date Issued: October 30, 1996

File: B31-96-034

Question: In accordance with ASME B31.3-1990 Edition, para. 332.4.2(a), cold bending and forming, can the elongation value for SA-106 B reported in the Certified Material Test Report be substituted for the specified basic minimum elongation in calculating the maximum fiber elongation?

Reply: No.

Interpretation: 15-18

Subject: ASME B31.3c-1993 Addenda, Para. 331.1.3(b), Heat Treatment Requirements

Date Issued: October 30, 1996

File: B31-96-036

Question (1): In accordance with ASME B31.3c-1993 Addenda, Table 331.1.1 and para. 331.1.3(b), do socket welds and seal welds with P-No. 5 materials with a chromium content greater than 3% but less than 10%, a carbon content less than 0.15%, and a weld throat thickness of 0.5 in. or less require postweld heat treatment if matching filler material is used?

Reply (1): Yes, unless applicable provisions of para. 331.1.3(b) are met.

Question (2): In accordance with ASME B31.3c-1995 Addenda, Table 331.1.1 and para. 331.1.3(b), do socket welds and seal welds with P-No. 5 materials with a chromium content greater than 3% but less than 10%, a carbon content less than 0.15%, and a weld throat thickness of 0.5 in. or less require postweld heat treatment if a non-air-hardening filler metal is used?

Reply (2): No.

Question (3): In accordance with ASME B31.3c-1995 Addenda, Table 331.1.1 and paras. 331.1.3(b) and 331.1.7, if a non-air-hardenable filler is used, is the base metal HAZ required to be 241 maximum Brinell hardness for P-No. 5 materials with chromium content greater than 3% but less than 10%?

Reply (3): Yes, unless the applicable provisions of para. 331.3(b) are met.

Question (4): In accordance with ASME B31.3c-1995 Addenda, Table 331.1.1 and para. 331.1.3(b), do the requirements of para. 331.1.3(b) override the requirements of Table 331.1.1 relating to base metal group and/or the specified minimum tensile strength?

Reply (4): No, unless the applicable provisions of para. 331.1.3(b) are met.

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Interpretation: 15-19

Subject: ASME B31.3-1996 Edition, Para. 328.2.3, Performance Qualification by Others

Date Issued: October 30, 1996

File: B31-96-037

Question: In accordance with ASME B31.3-1996 Edition, para. 328.2.3, is it acceptable for an employer to accept a welder performance qualification previously conducted by an organization whose welder qualification program, with the exception of testing under the full supervision and control of the manufacturer, contractor, assembler, or installer, complies fully with the provisions of ASME Section IX?

Reply: No.

Interpretation: 15-20

Subject: ASME B31.3-1993 Edition, Hardness Testing

Date Issued: October 30, 1996

File: B31-96-039

Question: Does ASME B31.3-1993 Edition require P-No. 1 carbon steel welds, hot bends, and hot-formed components locally heat treated to be hardness tested?

Reply: No.

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Interpretation: 15-21

Subject: ASME B31.3a-1993 Addenda, Paras. 342 and 344.2, Examination

Date Issued: October 30, 1996

File: B31-96-041

Question (1): Does ASME B31.3a-1993 Addenda, paras. 342 and/or 344.2 require that personnel performing visual examinations required by paras. 341.4 and 344.7 be qualified and certified in accordance with SNT-TC-1A, Recommended Practice for Nondestructive Testing Personnel Qualification and Certification?

Reply (1): No.

Question (2): Does ASME B31.3a-1993 Addenda, paras. 342 and/or 344.2 require that personnel performing visual examinations required by paras. 341.4 and 344.7 be qualified and certified to AWS QC1, Standard for Qualification and Certification of Welding Inspectors?

Reply (2): No.

Question (3): Does ASME B31.3a-1993 Addenda, paras. 342 and 344.2 permit that the visual examinations required by paras. 341.4 and 344.7 be performed by personnel that (1) meet the physical requirements of ASME BPV Code, Section V, Article 9, (2) are competent to perform visual examination in accordance with the manufacturer's written procedures and (3) the employer certifies and makes available records of the examiner which show dates and results of qualifications?

Reply (3): Yes.

Question (4): Does ASME B31.3a-1993 Addenda, paras. 342 and 344.2 permit that the visual examinations required by paras. 341.4 and 344.7 be performed by personnel that (1) meet the physical requirements of ASME BPV Code Section C, Article 9, (2) have training and experience commensurate with the needs of the visual examinations required by paras. 341.4 and 344.7, (3) have demonstrated competence to perform the visual examinations using the employer's written procedures through written and practical testing administered by the employer, and (4) the employer certifies and makes available records of the examiner which show dates and results of qualification?

Reply (4): Yes.

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Interpretation: 15-22

Subject: ASME B31.3-1996 Edition, Para. X302.2.3, Leak Test

Date Issued: October 30, 1996

File: B31-96-043

Question: In accordance with ASME B31.3-1996 Edition, para. X302.2.3, is a pneumatic leak check of an expansion joint at a test pressure of 110% of the design pressure, in accordance with para. 345.5, an acceptable test?

Reply: No.

Interpretation: 15-23

Subject: ASME B31.3-1996 Edition, Table 323.3.1, Impact Testing Requirements for Metals

Date Issued: October 30, 1996

File: B31-96-044

Question: In accordance with ASME B31.3-1996 Edition, when qualifying welding procedures which require impact testing, is the thickness range qualified to $T/2$ to $T + 1/4$ in. rather than the range given in ASME Section IX, QW-403.10?

Reply: Yes, provided the criteria and thickness limits specified in ASME Section IX, para. QW-403.10 are not exceeded. See ASME B31.3, Table 323.3.1, box A-5.

Interpretation: 15-24

Subject: ASME B31.3-1996 Edition, Para. 319.3.1(b), Thermal Expansion Data

Date Issued: October 30, 1996

File: B31-96-045

Question (1): In accordance with ASME B31.3-1996 Edition, para. 319.3.1(b), must all thermal conditions of a piping system be evaluated for end reactions on equipment?

Reply (1): Yes.

Question (2): Does ASME B31.3 provide specific allowable piping load limits for end reactions on equipment?

Reply (2): No.

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Interpretation: 15-25

Subject: ASME B31.3c-1995 Addenda, Para. 323.2.2, Lower Temperature Limits, Listed Materials

Date Issued: October 30, 1996

File: B31-96-047

Question: In accordance with ASME B31.3c-1995 Addenda, Para. 323.2.2 and Table 323.2.2, does P-No. 1 carbon steel subject to metal temperatures between −20°F and −50°F with coincident pressure in excess of 25% of the maximum allowable design pressure require impact testing?

Reply: Yes, except as provided in Note (5) of Table 323.2.2.

Interpretation: 15-26

Subject: ASME B31.3-1996 Edition, Metallic Valves Lined with a Nonmetal

Date Issued: October 30, 1996

File: B31-96-049

Question (1): Does ASME B31.3-1993 Edition prohibit the use of a metallic valve lined with a nonmetal in Category M Fluid Service?

Reply (1): No.

Question (2): Does ASME B31.3-1993 Edition address a sensitive leak test for a metallic valve lined with a nonmetal?

Reply (2): No.

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(GENERAL NOTE: Code references are based on ASME B31.3-1990 or later Editions. References in brackets are to previous Editions and Addenda.)

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ASME B31.3
INTERPRETATIONS NO. 14

Replies to Technical Inquiries
April 1, 1995, Through March 31, 1996

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparation of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Fig. 323.2.2, Minimum Temperatures Without Impact Testing for Carbon Steel Materials	14-08	B31-95-010
Maximum Allowable External Loads	14-06	B31-95-007
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Para. 304.3.3 Reinforcement of Welded Branch Connections	14-10	B31-95-014
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Table 341.3.2A Acceptance Criteria for Welds	14-15	B31-95-034

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Interpretation: 14-01

Subject: ASME B31.3b-1994 Addenda, Para. 331.1.3(b), and Table 331.1.1, Heat Treatment Requirements

Date Issued: June 22, 1995

File: B31-94-064

Question (1): In accordance with ASME B31.3-1993 Edition, Addenda b, does the portion of para. 331.1.3(b) which states "the thickness through the weld in any plane" refer to the weld thickness?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3-1993 Edition, Addenda b, does the minimum material thickness stated in para. 331.1.3(b) refer to the requirements of Table 331.1.1?

Reply (2): Yes.

Question (3): In accordance with ASME B31.3-1993 Edition, Addenda b, can the BHN (Brinell Hardness Number) equivalent of tensile strength of material before PWHT be considered a minimum value?

Reply (3): The Code does not address BHN equivalent of tensile strength or minimum BHN.

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Interpretation: 14-02

Subject: ASME B31.3b-1994 Addenda, Table 341.3.2A Acceptance Criteria for Welds

Date Issued: June 22, 1995

File: B31-95-001

Question (1): In accordance with ASME B31.3-1993 Edition, Addenda b, what does the notation "NA" for concave root surfaces for fillet welds in Table 341.3.2A mean?

Reply (1): This indicates that there is no acceptance criterion.

Question (2): In accordance with ASME B31.3-1993 Edition, Addenda b, does internal protrusion or suck up apply to fillet welds?

Reply (2): No; see Note (8) in Table 341.3.2A.

Question (3): Does ASME B31.3-1993 Edition, Addenda b, address the acceptance criteria for root surface concavity of fillet welds?

Reply (3): No.

Question (4): In accordance with ASME B31.3-1993 Edition, Addenda b, does melt-through of a pressure boundary with a fillet weld constitute a violation of the Code?

Reply (4): The Code does not address this subject.

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Interpretation: 14-03

Subject: ASME B31.3b-1994 Addenda, Para. 300.2 Definitions

Date Issued: June 22, 1995

File: B31-95-002

Question (1): In accordance with ASME B31.3-1993 Edition, Addenda b, para. 300.2, is weld considered to be a piping component?

Reply (1): No.

Question (2): Does ASME B31.3-1993 Edition, Addenda b, specifically address the areas of general workmanship regarding squareness, levelness, and plumbness?

Reply (2): No; except as provided for in para. 335.1.

Question (3): In accordance with B31.3-1993 Edition, Addenda b, if there are additional requirements specified in the engineering design, does the Code require the manufacturer, fabricator, and erector to adhere to those requirements?

Reply (3): Yes, see paras. 300(b)(3) and 300(c)(5).

Question (4): Does ASME B31.3-1993 Edition, Addenda b, have requirements for the minimum lengths of pipe sections between welds?

Reply (4): No.

Interpretation: 14-04

Subject: ASME B31.3b-1994 Addenda, Para. 328.4.3, Preparation for Welding Alignment

Date Issued: June 22, 1995

File: B31-95-003

Question: In accordance with ASME B31.3-1993 Edition, Addenda b, how much angular deflection can a section of piping contain after a circumferential butt weld is made?

Reply: The angular deflection shall not exceed what is permissible by para. 335.1, provided the requirements of para. 304.2.3 are met.

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Interpretation: 14-05

Subject: ASME B31.3b-1994 Addenda, Para. 328.2.2(g), Procedure Qualification by Others

Date Issued: June 22, 1995

File: B31-95-005

Question: In accordance with ASME B31.3-1993 Edition, Addenda b, is the use of AWS E-6013 welding electrode permissible under the provisions of para 328.2.2?

Reply: No; however, this welding material may be used if the provisions of paras. 328.1 and 328.2.1 are met.

Interpretation: 14-06

Subject: ASME B31.3b-1994 Addenda, Maximum Allowable External Loads

Date Issued: June 22, 1995

File: B31-95-007

Question (1): Does ASME B31.3-1993 Edition, Addenda b, provide design rules for establishing the magnitude of the maximum allowable external loads on flanged joints?

Reply (1): No.

Question (2): Does ASME B31.3-1993 Edition, Addenda b, allow the use of other design methods, such as contained in ASME B31.1 or ASME Boiler and Pressure Vessel Code Section III for establishing the maximum allowable external loads for flanged joints, considering the application and the appropriate allowable stress basis?

Reply (2): Yes. The designer is responsible for the design approach used.

Interpretation: 14-07

Subject: ASME B31.3b-1994 Addenda, Table 341.3.2A Acceptance Criteria for Welds

Date Issued: June 22, 1995

File: B31-95-009

Question: Does ASME B31.3-1993 Edition, Addenda a, require the acceptance criteria of Table 341.3.2A for lack of fusion and/or incomplete penetration be applied to internal undercut?

Reply: No.

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Interpretation: 14-08

Subject: ASME B31.3b-1994 Addenda, Fig. 323.2.2 Minimum Temperatures Without Impact Testing for Carbon Steel Materials

Date Issued: June 22, 1995

File: B31-95-010

Question: In accordance with ASME B31.3-1993 Edition, Addenda b, if ASTM A 234, Grade WPB fittings are normalized or stress relieved or ASTM A 106, Grade B pipe is normalized, may they be used at temperatures below Curve B, Fig. 323.2.2 without impact testing?

Reply: No. The requirements of box B-3, Table 323.2.2 apply.

Interpretation: 14-09

Subject: ASME B31.3-1993 Edition, Para 302.2.4, Design Criteria Allowances for Pressure and Temperature Variations, and Para. 322.6.3(c), Pressure Relieving Devices

Date Issued: November 20, 1995

File: B31-95-012

Question (1): In accordance with ASME B31.3-1993 Edition, are the provisions of para. 302.2.4 applicable for the initial design of piping systems?

Reply (1): Yes.

Question (2): In accordance with ASME B31.3-1993 Edition, para 322.6.3(c), when a pressure relieving device is set above the design pressure, what requirements limit the maximum allowance relieving pressure?

Reply (2): The greater of the pressure requirements of Section VIII, Division 1, or para. 302.2.4

Interpretation: 14-10

Subject: ASME B31.3-1993 Edition, Para. 304.3.3 Reinforcement of Welded Branch Connections

Date Issued: November 20, 1995

File: B31-95-014

Question: In accordance with ASME B31.3-1993 Edition, para. 304.3.3, is it permissible to multiply the required area replacement in Eq. (6) by the factor F from the ASME Section VIII, Division 1, 1992, Fig. UG-37?

Reply: No. See 304.3.3(f)(1).

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Interpretation: 14-11

Subject: ASME B31.3a-1993 Addenda, Para. K304.1.2 Straight Pipe Under Internal Pressure

Date Issued: November 20, 1995

File: B31-95-016

Question: May Eq. (35a) in para. K304.1.2 of ASME B31.3a-1993 Addenda be modified to take into account external and internal mechanical (thread or groove depth), corrosion, and erosion allowances separately?

Reply: No. See para. K304.1.1(b) for the definition of *c*.

Interpretation: 14-12

Subject: ASME B31.3-1993 Edition, Table 323.2.2, Minimum Temperatures Without Impact Testing for Carbon Steel Materials

Date Issued: November 20, 1995

File: B31-95-018

Question: Does ASME B31.3-1993 Edition require impact testing of ASTM A 403 WP304W, B16.9 fittings manufactured from A 312 welded TP304 pipe without use if weld metal deposits and used at design temperatures of −425°F or above.

Reply: No. See Table 323.2.2, Column A.

Interpretation: 14-13

Subject: ASME B31.3b-1994 Addenda, Para. 328.2 Welding Qualifications

Date Issued: November 20, 1995

File: B31-95-025

Question (1): In accordance with ASME B31.3-1993 Edition, Addenda b, when a proprietary integrally reinforced branch connection fitting is welded to the outside of run pipe, is the weld classified as a single vee full penetration butt weld with a cover fillet weld?

Reply (1): No, see para. 328.5.4(d).

Question (2): In accordance with ASME B31.3-1993 Edition, Addenda b, what pipe diameter would be used for the WPS, PQR, and WQR for NPS ½ and NPS ¾ proprietary integrally reinforced branch connection fittings?

Reply (2): All welding qualifications shall be in accordance with para. 328.2.

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Interpretation: 14-14

Subject: ASME B31.3b-1994 Addenda, Para. 341.3.3 Defective Components and Workmanship

Date Issued: November 20, 1995

File: B31-95-032

Question: In accordance with ASME B31.3-1993 Edition, Addenda b, if a welder's welds which are rejected are completely cut out and the joints are welded by a new welder, does para. 341.3.3 require these new welds to be examined?

Reply: Yes.

Interpretation: 14-15

Subject: ASME B31.3b-1994 Addenda, Table 341.3.2A Acceptance Criteria for Welds

Date Issued: November 20, 1995

File: B31-95-034

Question: In accordance with ASME B31.3-1993 Edition, Addenda b, when 100% radiographic examination and no further acceptance criteria are specified, is it required that the acceptance criteria for severe cyclic conditions as noted in Table 341.3.2A be applied to the examination?

Reply: No, see para. 341.3.1.

Interpretation: 14-16

Subject: ASME B31.3-1990 Edition, Table 331.1.1, Postweld Heat Treatment

Date Issued: November 20, 1995

File: B31-95-036

Question: In accordance with ASME B31.3-1990 Edition, does A 335 P5 (5 Cr, ½Mo) pipe require PWHT after welding?

Reply: Yes, per Table 331.1.1.

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Interpretation: 14-17

Subject: ASME B31.3-1993 Edition, Para. A304.1.1 (a), Pressure Design of Nonmetallic Piping Components

Date Issued: November 20, 1995

File: B31-95-037

Question: According to ASME B31.3-1993 Edition, do the requirements of para. A304.1.1 apply to the reduced sections of RTR pipe outside the socket of a socket joint?

Reply: Yes.

Interpretation: 14-18

Subject: ASME B31.3-1993 Edition, Para A304.1.1 (a), Pressure Design of Nonmetallic Piping Components

Date Issued: November 20, 1995

File: B31-95-038

Question: According to ASME B31.3-1993 Edition, can the minimum thickness of RTR and RPM pipe be calculated using ASTM D 2992 procedure B HDS with a service factor of 0.5 (static HDBS)?

Reply: Yes, refer to A302.3.2(c)(2).

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ASME B31.3

INTERPRETATIONS NO. 13

Replies to Technical Inquiries
April 1, 1994, Through March 31, 1995

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparaion of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Interpretation: 13-01

Subject: ASME B31.3-1990 Edition, Para. 328.4, Preparation for Welding

Date Issued: November 21, 1994

File: B31-93-059

Question: In accordance with ASME B31.3-1990 Edition, Addenda a, does the Code require that all transitional tapers be filled with weld metal to obtain a consistent outside diameter when welding together two weld end components that are manufactured to include all of the following:

(1) a weld bevel to nominal wall thickness;

(2) an actual outside diameter greater than the nominal outside diameter;

(3) a taper transition from the actual outside diameter to the nominal outside diameter weld bevel per ASME B16.25, Fig. 1.

Reply: No, the weld must have at least the same nominal wall thickness as the thinner of the two components.

Interpretation: 13-02

Subject: ASME B31.3-1993 Edition, Para. 304.7.2, Pressure Design of Unlisted Components and Elements

Date Issued: November 21, 1994

File: B31-94-015

Question: In accordance with ASME B31.3-1993 Edition, para. 304.7.2, may the maximum allowable pressure of an unlisted component be greater than the manufacturer's rating?

Reply: Yes, see para. 300(c)(2).

Interpretation: 13-03

Subject: ASME B31.3-1993 Edition, Paras. 304.7.2 and 304.7.2(d), Pressure Design of Unlisted Components and Elements

Date Issued: November 21, 1994

File: B31-94-016

Question: In accordance with ASME B31.3-1993 Edition, is a proof pressure test, in accordance with para. 304.7.2(c), required to qualify a flange design not in accordance with a listed standard if the design meets the requirements of para. 304.7.2(d) as well as the introductory requirements of para. 304.7.2?

Reply: No.

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Interpretation: 13-04

Subject: ASME B31.3-1993 Edition, Alterations of Existing Piping and Hot Tapping

Date Issued: November 21, 1994

File: B31-94-017

Question: Does ASME B31.3-1993 Edition and Addenda a apply to alterations of existing piping, including tie-in branch connections, e.g., hot taps?

Reply: No.

Interpretation: 13-05

Subject: ASME B31.3-1993 Edition, Para. 304.7.2, Pressure Design of Unlisted Components and Elements, and Para. 319.3.6 Flexibility and Stress Intensification Factors

Date Issued: November 21, 1994

File: B31-94-018

Question (1): In accordance with ASME B31.3-1993 Edition, may a pressure containing piping component, not manufactured in accordance with a listed standard, and for which the rules in para. 304 do not apply, be qualified in accordance with para. 304.7.2?

Reply (1): Yes.

Question (2): In accordance with para. 319.3.6, may stress intensification factors for pressure containing piping components, not manufactured in accordance with a listed standard listed in Appendix D, be established by fatigue testing?

Reply (2): Yes.

Interpretation: 13-06

Subject: ASME B31.3-1993 Edition, Para. 345.5, Pneumatic Testing

Date Issued: November 21, 1994

File: B31-94-020

Question: In accordance with ASME B31.3-1993 Edition and Addenda a, is it allowable to pneumatically test above 110% of design pressure?

Reply: No, unless otherwise specified in the engineering design.

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Interpretation: 13-07

Subject: ASME B31.3-1990 Edition, Para. 304.1.1(a), Pressure Design of Straight Pipe

Date Issued: November 21, 1994

File: B31-94-028

Question: In accordance with ASME B31.3-1990 Edition, may the minimum pipe wall thickness determined by measurement be used to satisfy the requirements of para. 304.1.1(a)?

Reply: Yes.

Interpretation: 13-08

Subject: ASME B31.3-1993 Edition, Para. A328.5.4, Heat Fusion Joints in Thermoplastic Piping

Date Issued: November 21, 1994

File: B31-94-029

Question: Does ASME B31.3-1993 Edition, para. A328.5.4, apply to electrofusion bonding of polyolefin pipe and fittings?

Reply: No. Electrofusion joints are not listed; see para. A304.7.2.

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ASME B31.3*INT NO.*13 ** 0759670 0565957 695

Interpretation: 13-09

Subject: ASME B31.3-1987 Edition, Appendix X, Para. X3.2.2, Metallic Bellows Expansion Joints

Date Issued: November 21, 1994

File: B31-94-031

Question (1): In accordance with ASME B31.3-1987 Edition, para. X3.2.2, is it required to examine inaccessible surfaces of the bellows longitudinal seam weld after forming using liquid penetrant?

Reply (1): No.

Question (2): Is a dye penetrant leak test (putting dye penetrant on the inside surface and developer on the weld outside surface) an acceptable alternative to liquid penetrant examination of the inside surface of bellows longitudinal seam welds?

Reply (2): No.

Question (3): Are the rules in ASME Section VIII, Division 1, Appendix 26, applicable to bellows in ASME B31.3 piping systems?

Reply (3): No.

Interpretation: 13-10

Subject: ASME B31.3-1993 Edition, Certification of a Listed Material to Another Listed Material Specification.

Date Issued: November 21, 1994

File: B31-94-034

Question: Is it permissible under the requirements of ASME B31.3-1993 Edition for an organization to recertify a listed material to another listed material specification?

Reply: B31.3 does not establish rules for materials certification other than the requirements of the materials specifications.

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Interpretation: 13-11

Subject: ASME B31.3-1993 Edition, Para 328.5.4, Welded Branch Connections

Date Issued: November 21, 1994

File: B31-94-037

Question: In accordance with ASME B31.3-1993 Edition, Addenda a, what is the effective weld throat thickness required for a proprietary integrally reinforced branch connection fitting?

Reply: The thickness is as required by the manufacturer's design qualified in accordance with para. 304.7.2 or MSS SP-94, and para. 328.5.4(d).

Interpretation: 13-12

Subject: ASME B31.3-1990 Edition, Para. 341.3.4(e), Progressive Examination

Date Issued: November 21, 1994

File: B31-94-039

Question: In accordance with ASME B31.3-1990 Edition, para. 341.3.4(e), what is the meaning of the phrase "all items represented by the progressive examinations."?

Reply: All items within the same designated lot. See para. 344.1.3 Definitions, *random examinations*.

Interpretation: 13-13

Subject: ASME B31.3-1993 Edition, Para. 345.4.2(a), Hydrostatic Test Requirements

Date Issued: November 21, 1994

File: B31-94-040

Question: Does ASME B31.3-1993 Edition, Addenda a, permit a hydrostatic test pressure less than 1.5 times design pressure?

Reply: No, unless para. 345.4.2(c) or 345.4.3(b) applies.

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ASME B31.3*INT NO.*13 ** 0759670 0565959 468

Interpretation: 13-14

Subject: ASME B31.3-1993 Edition, Para. 319.4.1, Flexibility Analysis

Date Issued: November 21, 1994

File: B31-94-041

Question: In accordance with para. 319.4.1, how many years of operation or number of operating cycles are required to qualify a piping system as having a successful service record?

Reply: Such determination is the responsibility of the designer. See para. 300(b)(2).

Interpretation: 13-15

Subject: ASME B31.3-1993 Edition, Paras. 301.2.1 and 302.2.5, Design Pressure

Date Issued: November 21, 1994

File: B31-94-042

Question: When a valve isolates two process streams so that one condition on one side of the valve occurs at the same time as another condition occurs on the other side of the valve, are the requirements of paras. 301.2.1 and 302.2.5 met if the pressure design is based on the most severe conditions of coincident pressure and component temperature?

Reply: Yes.

Interpretation: 13-16

Subject: ASME B31.3-1993 Edition, Chapter VI Inspection, Examination, and Testing

Date Issued: November 21, 1994

File: B31-94-059

Question (1): In accordance with ASME B31.3-1993 Edition, Addenda a, if a weld has not penetrated to the inside corner of the root face on one side of the joint and the remainder of the weld is sound, does ASME B31.3 classify this defect as lack of fusion?

Reply (1): No, refer to Fig. 341.3.2 sketch (c).

Question (2): Can lack of fusion occur at the root of a groove weld joint?

Reply (2): Yes.

Question (3): Is 1.5 in. of incomplete penetration in any 6 in. weld length for girth and miter groove welds acceptable for normal fluid service?

Reply (3): Yes, per acceptance criteria listed in Table 341.3.2A.

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(GENERAL NOTE: Code references are based on ASME B31.3-1990 Edition. References in brackets are to previous Editions and Addenda.)

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ASME B31.3

INTERPRETATIONS NO. 12

Replies to Technical Inquiries
April 1, 1993, Through March 31, 1994

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparaion of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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ASME B31.3*INT NO.*12 ** 0759670 0542184 898

Interpretation: 12-01

Subject: ASME B31.3-1990 Edition, Para. 345.9, Alternative Leak Test

Date Issued: June 7, 1993

File: B31-92-072

Question: In accordance with ASME B31.3-1990 Edition, may in-process examination, in accordance with para. 344.7, be substituted for all or part of the radiographic examination requirements specified in para. 345.9.1 if so specified in the engineering design?

Reply: No.

Interpretation: 12-02

Subject: ASME B31.3-1990 Edition, Para. 345.5.4, Pneumatic Leak Test Pressure

Date Issued: June 7, 1993

File: B31-92-074

Question: In accordance with ASME B31.3-1990 Edition, para. 345.5.4, does the Code require that pneumatic test pressure be adjusted according to the ratio of stress value at test temperature to stress at design temperature?

Reply: No.

Interpretation: 12-03

Subject: ASME B31.3-1990 Edition, Para. 345.3, Preparation for Leak Test

Date Issued: June 7, 1993

File: B31-92-075

Question: In accordance with ASME B31.3-1990 Edition, does the Code require that all radiographic examination, and all owner-specified magnetic particle examination, be completed before any leak testing is performed?

Reply: No.

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ASME B31.3*INT NO.*12 ** 0759670 0542185 724

Interpretation: 12-04

Subject: ASME B31.3-1990 Edition, Para. 322.6.3(b)(2), Pressure Relieving Devices

Date Issued: June 7, 1993

File: B31-93-001

Question (1): In accordance with ASME B31.3-1990 Edition, if the system test pressure is greater than 120% of design pressure, is it acceptable to set a liquid thermal relief device at the system test pressure?

Reply (1): No; the set pressure shall not exceed 120% of design pressure, unless the requirements of para. 322.6.3(b)(1) are met.

Question (2): Which pressure is considered the system test pressure for a piping system where all piping subassemblies which include all welds and components are hydrotested at 150% of design pressure and then assembled and pneumatically tested at 110% of design pressure?

Reply (2): 110% of design pressure.

Question (3): What is the basis for the 120% of design pressure as used in para. 322.6.3(b)(2)?

Reply (3): The Committee does not provide rationale.

Interpretation: 12-05

Subject: ASME/ANSI B31.3-1987 Edition, Para. 304.3.3, Reinforcement of Welded Branch Connections

Date Issued: June 7, 1993

File: B31-93-004

Question: In accordance with ASME/ANSI B31.3-1987 Edition, does a fabricated tee, for which the rules of para. 304 apply, that has been proof tested in accordance with the rules of ASME B16.9 and its references, also have to meet the requirements of para. 304.3.3 to determine the amount of reinforcement required?

Reply: Yes, unless it meets all of the requirements of ASME B16.9

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ASME B31.3*INT NO.*12 ** 0759670 0542186 660

Interpretation: 12-06

Subject: ASME B31.3-1990 Edition, Para. 319.2.3, Displacement Stress Range

Date Issued: June 7, 1993

File: B31-93-007

Question: In accordance with ASME B31.3-1990 Edition, does para. 319.2.3 require that the difference between the minimum and maximum piping temperatures, whether caused by ambient or operating conditions, be considered as one of the range of conditions for calculating the displacement stress range?

Reply: Yes.

Interpretation: 12-07

Subject: ASME B31.3-1990 Edition, Para. 328.1, Welding Responsibility

Date Issued: June 7, 1993

File: B31-93-009

Question: In accordance with ASME B31.3-1990 Edition, para. 328.1, is it permissible for owner, rather than employer, to assume responsibility for the welding done by employer's personnel; and for owner to provide WPS, PQR, and to arrange for tests required to qualify or re-qualify welders and welding operators?

Reply: No.

Interpretation: 12-08

Subject: ASME B31.3-1990 Edition, Table D-1, Flexibility Factor k and Stress Intensification Factor i

Date Issued: June 7, 1993

File: B31-93-010

Question: In accordance with ASME B31.3-1990 Edition, may a tee manufactured in accordance with ASME B16.9, that does not meet the radius and thickness requirements listed in Table D-1 of Appendix D, be used in the construction of B31.3 piping systems?

Reply: Yes; however, the stress intensification factor listed in Table D-1 of Appendix D for B16.9 tees does not apply. Refer to Notes for Table D-1 and para. 319.3.6 for additional guidance on stress intensification factors.

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ASME B31.3*INT NO.*12 ** 0759670 0542187 5T7

Interpretation: 12-09

Subject: ASME B31.3-1990 Edition with Addenda, Para. 304.7.2(e) and Table A-1, Unlisted Components and Elements and Basic Allowable Stresses

Date Issued: June 7, 1993

File: B31-93-017

Question (1): In accordance with ASME B31.3-1990 Edition, does the Code permit the use of pipe made from ASTM A 240 Grade 321H plate in accordance with ASTM A 358?

Reply (1): Yes, see para. 323.1.2.

Question (2): If so, can the allowable stresses listed for ASTM A 312 Grade TP 321H with appropriate joint factors be used?

Reply (2): The Code does not specify allowable stress values for unlisted materials.

Interpretation: 12-10

Subject: ASME B31.3-1990 Edition With ASME B31.3b-1991 Addenda, Para. 328.4.2(a)(2) and Fig. 328.4.2 Sketches (a) and (b), End Preparation

Date Issued: June 7, 1993

File: B31-93-022

Question: In accordance with ASME B31.3-1990 Edition with ASME B31.3b-1991 Addenda, para. 328.4.2(a)(2) and Fig. 328.4.2 sketches (a) and (b), can the tolerance for the end bevel angle for a groove weld exceed plus or minus $2^1/_2$ deg, if verifiable to the WPS?

Reply: Yes.

Interpretation: 12-11

Subject: ASME B31.3-1990 Edition, Table D-1, Flexibility and Stress Intensification Factors

Date Issued: September 17, 1993

File: B31-93-006

Question: In accordance with ASME B31.3-1990 Edition, what is the definition of "large diameter thin wall elbows" mentioned in Note (7) to Table D-1?

Reply: A large diameter thin wall elbow is one in which the pressure significantly affects the calculated values of k and i when corrected by the equation in Note (7).

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ASME B31.3*INT NO.*12 ** 0759670 0542188 433

Interpretation: 12-12

Subject: ASME B31.3-1993 Edition, Para. 328, Welding

Date Issued: November 19, 1993

File: B31-93-024

Question: In accordance with ASME B31.3-1993 Edition, if a customer invokes B31.3 in his general specification and requires that the valves be made to ASME B16.34, do the specific requirements of B16.34 in reference to welding and postweld heat treatment take precedence over the requirements given in B31.3 for pipe welding?

Reply: B16.34 applies to the manufacture of the valve. Welding of the valve to the piping system (including postweld heat treatment) shall be per the requirements of B31.3.

Interpretation: 12-13

Subject: ASME B31.3-1993 Edition, Para. 304.3.5(d), Additional Design Considerations

Date Issued: November 19, 1993

File: B31-93-027

Question (1): In accordance with ASME B31.3-1993 Edition, may the ribs and gussets referred to in para. 304.3.5(d) be either internal or external?

Reply (1): Yes.

Question (2): Does the placement of one or more bars across the internal opening of a branch connection contribute to reinforcement of the opening?

Reply (2): No, unless qualified in accordance with the requirements of para. 304.7.2

Interpretation: 12-14

Subject: ASME B31.3-1990 Edition With Addenda ASME B31.3a-1990, Table 331.1.1, Heat Treatment Requirements

Date Issued: November 19, 1993

File: B31-93-030

Question: In accordance with ASME B31.3-1990 Edition with Addenda ASME B31.3a-1990, Table 331.1.1, do P-No. 5 materials with a chromium content greater then 3% but less than 10%, a carbon content less than 0.15%, and a nominal thickness of $^1/_2$ in. or less require postweld heat treatment?

Reply: Yes.

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ASME B31.3*INT NO.*12 ** 0759670 0542189 37T

Interpretation: 12-15

Subject: ASME B31.3-1993 Edition, Para. M305.1, Fluid Service Requirements for Metallic Piping Components

Date Issued: November 19, 1993

File: B31-93-031

Question: In accordance with ASME B31.3-1993 Edition, may tubing be used for process piping in Category M Fluid Service?

Reply: Yes; see para. M305.1 and definition of pipe in para. 300.2.

Interpretation: 12-16

Subject: ASME B31.3-1993 Edition, Para. 306.4, Fabricated or Flared Laps

Date Issued: November 19, 1993

File: B31-93-032

Question: In accordance with ASME B31.3-1993 Edition, what are the limitations of "hot flaring" NPS 6–12 ASTM B 106 Grade B and A 53 Grade B carbon steel pipe?

Reply: Hot flaring for NPS 6–12 is not permitted for severe cyclic conditions, Category M Fluid Services, or High Pressure Fluid Services. For Normal Fluid Service, see paras. 306.4.2, 332.1, and 332.3.

Interpretation: 12-17

Subject: ASME B31.3-1990 Edition, Table D-1, Flexibility Factor k and Stress Intensification Factor i

Date Issued: November 19, 1993

File: B31-93-034

Question: In accordance with ASME B31.3-1990 Edition, Table D-1, Appendix D, does the use of the stress intensification factor listed for a welding tee per ASME B16.9 require $T_c = 1.5T$ for both full size and reducing tees?

Reply: Yes; however, see Note (11) to Table D-1 and para. 319.3.6 for additional guidance when the thickness limits are not met.

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Interpretation: 12-18

Subject: ASME B31.3-1993 Edition, Para. 322.6.1, Stop Valves in Pressure Relief Piping

Date Issued: November 19, 1993

File: B31-93-035

Question: In accordance with ASME B31.3-1993 Edition, para. 322.6.1, may a stop valve be installed between piping being protected and its protective device or devices, or between the protective device or devices and the point of discharge?

Reply: Yes, provided that the requirements of para. 322.6.1 (a) and (b) or (b) and (c) are met. The precautionary consideration of Appendix F, para. F322.6, should be taken into account in the engineering design.

Interpretation: 12-19

Subject: ASME B31.3-1993 Edition, Para. 345.4.1, Hydrostatic Leak Test

Date Issued: November 19, 1993

File: B31-93-036

Question: In accordance with ASME B31.3-1993 Edition, does the B31.3 Code contain requirements for the water to be used for hydrostatic testing?

Reply: No, except see paras. 345.2.2(c) and 345.4.1.

Interpretation: 12-20

Subject: ASME B31.3-1993 Edition, Para. 300.1, Scope

Date Issued: November 19, 1993

File: B31-93-041

Question: In accordance with ASME B31.3-1993 Edition, may the owner apply B31.3 to piping containing radioactive fluids in a chemical plant?

Reply: Yes, see the Introduction which states that, "If no Section of the Code for Pressure Piping specifically covers the installation, the owner at his discretion may select any Section determined to be generally applicable ... It should be noted, however, that requirements supplementing the Code Section may be necessary to provide safe piping for the intended application."

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ASME B31.3*INT NO.*12 ** 0759670 0542191 T28

Interpretation: 12-21

Subject: ASME B31.3-1990 Edition, Paras. 345.1 and 345.9, Required Leak Test and Alternative Leak Test

Date Issued: November 19, 1993

File: B31-93-044

Question (1): In accordance with ASME B31.3-1990 Edition, when parts of an existing piping system are replaced, does the Code require that the conditions of para. 345.1 be met?

Reply (1): ASME B31.3-1990 Edition is intended to apply to newly constructed piping. By contractual agreement it may be applied to the repair or replacement of piping.

Question (2): Does the alternative leak test in para. 345.9 apply only to welded joints?

Reply (2): No. Also, see para. 345.2.2(a).

Interpretation: 12-22

Subject: ASME B31.3-1993 Edition, Table 341.3.2a, Acceptance Criteria For Welds

Date Issued: November 19, 1993

File: B31-93-051

Question: In accordance with ASME B31.3-1993 Edition, Table 341.3.2a, criterion value symbols B, C, F and G, would the allowable cumulative length of a defect be prorated down for welds containing less than the weld length shown?

Reply: The Code does not specifically address this situation.

Interpretation: 12-23

Subject: ASME B31.3-1993 Edition With Addenda ASME B31.3a-1993, Para. X3.1.3 and Fig. X3.1.3 Design Fatigue Curve for Stainless Bellows

Date Issued: November 19, 1993

File: B31-93-055

Question: In accordance with ASME B31.3-1993 Edition with Addenda ASME B31.3a-1993, para. X3.1.3, shall an additional temperature correction factor be applied to the equation for N_c in Fig. X3.1.3?

Reply: No.

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ASME B31.3

INTERPRETATIONS NO. 11

Replies to Technical Inquiries
April 1, 1992, Through March 31, 1993

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparaion of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Interpretation: 11-01

Subject: ASME/ANSI B31.3-1987 Edition, Para. 341.4, Extent of Required Examination

Date Issued: May 22, 1992

File: B31-91-034

Question (1): In accordance with ASME/ANSI B31.3-1987 Edition, para. 341.4, when applied to the radiography of welds, what areas, in addition to the weld, are to be included in the "area of interest" for interpretation and evaluation?

Reply (1): The Code does not specifically define "area of interest."

Question (2): Does the term "weld" include the base metal heat affected zone adjacent to the weld deposit when applied to radiography?

Reply (2): No. See the definition for "weld" in para. 300.2.

Interpretation: 11-02

Subject: ASME/ANSI B31.3-1987 Edition, Para. 341.3.4(a), Progressive Examination

Date Issued: May 22, 1992

File: B31-91-050

Question: In accordance with ASME/ANSI B31.3-1987 Edition, para. 341.3.4(a), how far back in time should one go searching for additional joints to examine to meet the requirements of progressive examination?

Reply: Time is not a factor. Only piping in the "lot" under examination shall be considered for progressive examination. See paras. 341.3.4 and 344.1.3.

Interpretation: 11-03

Subject: ASME B31.3-1990 Edition, Paras. 306.4.2 and 332.4.2, Heat Treatment for Flared Laps

Date Issued: May 22, 1992

File: B31-91-052

Question: In accordance with ASME B31.3-1990 Edition, paras. 306.4.2 and 332.4.2, does a flared lap on a P-No. 1 material made at ambient temperatures and exhibiting a calculated maximum fiber elongation greater than 50% of the specified basic minimum for the grade of steel used, require heat treatment under para. 332.4.2(a)?

Reply: Yes, except as excluded by para. 332.4.2(a).

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Interpretation: 11-04

Subject: ASME B31.3-1990 Edition, Para. 341.3.4, Progressive Examination

Date Issued: May 22, 1992

File: B31-91-053

Question: In accordance with ASME B31.3-1990 Edition, para. 341.3.4, if a reject is found at the second step [para. 341.3.4(c)] of progressive examination, is it required that every weld made by the same welder since the beginning of the job be examined?

Reply: No. The progressive examination applies only to the particular lot of piping represented by the original examination.

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Interpretation: 11-05

Subject: ASME B31.3-1990 Edition, Para. 302.3.2(f), Bases for Design Stresses – Unlisted Materials

Date Issued: May 22, 1992

File: B31-92-002

Question (1): Does ASME B31.3-1990 Edition provide the basis for determining average expected yield or tensile strength of unlisted materials referred to in para. 302.3.2(f)?

Reply (1): No.

Question (2): Does ASME B31.3 allow the use of API 5LX52 above 400°F?

Reply (2): No, see Note (55) to Table A-1.

Question (3): Does this limitation still apply even if the yield (tensile) strength is defined above this temperature?

Reply (3): Yes; however, unlisted materials may be used above 400°F if qualified per para. 323.1.2.

Question (4): Does B31.3 provide for improving longitudinal weld joint factors through the use of ultrasonic or eddy current testing?

Reply (4): No. See Table 302.3.4.

Question (5): May ultrasonic examination be substituted for radiography to attain Code required weld joint quality factor for welded fittings?

Reply (5): No.

Question (6): Does B31.3 provide for a 0.95 weld joint quality factor for the longitudinal (including spiral) welds in pipe that is 100% ultrasonically or eddy current tested and radiographed on each end?

Reply (6): No, except as specified for certain API 5L pipe in Item 4b of Table 302.3.4.

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Interpretation: 11-06

Subject: ASME B31.3-1990 Edition, Para. 331.1.3, Heat Treatment – Governing Thickness

Date Issued: May 22, 1992

File: B31-92-004

Question: In accordance with ASME B31.3-1990 Edition, para. 331.1.3, is PWHT required when the header thickness is greater than the limiting thickness shown in Table 331.1.1 but the computed thickness through the weld is less than two times the limiting thickness shown in Table 331.1.1?

Reply: No. See Interpretation 5-06.

Interpretation: 11-07

Subject: ASME B31.3-1990 Edition, Para. 345.5, Pneumatic Leak Testing

Date Issued: May 22, 1992

File: B31-92-005

Question (1): In accordance with ASME B31.3-1990 Edition, para. 345.5, is the minimum pneumatic test pressure considered to be the design pressure?

Reply (1): No. See para. 345.5.4.

Question (2): In accordance with para. 345.5.4, is the 110% of design pressure considered to be the minimum or maximum pneumatic test pressure?

Reply (2): The Code defines "test pressure" and does not specifically address minimum or maximum pneumatic test pressure.

Question (3): In accordance with para. 345.5.2, is the set pressure of the relief device considered to be the maximum pneumatic pressure?

Reply (3): No.

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Interpretation: 11-08

Subject: B31.3-1990 Edition, Table 341.3.2A, Weld Reinforcement

Date Issued: November 25, 1992

File: B31-91-051

Question (1): In accordance with ASME B31.3-1990 Edition, Table 341.3.2A, what is the minimum height of external weld reinforcement allowed by the Code?

Reply (1): Zero.

Question (2): Is a weld exhibiting concavity on the outside surface acceptable?

Reply (2): The Code does not address external weld concavity, but the total weld thickness must be equal to or greater than $\overline{T}_w$, as defined in Note (6) to Table 341.3.2A.

Interpretation: 11-09

Subject: ASME B31.3-1990 Edition, Para. 328.2, Welding Qualification

Date Issued: November 25, 1992

File: B31-92-013

Question: In accordance with ASME B31.3-1990 Edition, para. 328.2, may a contractor use a welding procedure specification written by others provided that he produces a supporting procedure qualification made by his own organization?

Reply: Yes, see para. 328.2.2

Interpretation: 11-10

Subject: ASME B31.3-1990 Edition, Para. 304.3.3 and Appendix H, Reinforcement of Welded Branch Connections

Date Issued: November 25, 1992

File: B31-92-014

Question: In accordance with ASME B31.3-1990 Edition, para. 304.3.3, may the groove weld attaching an integrally reinforced branch connection fitting to the run pipe be less than fully penetrated, if the depth of the groove is greater than required for adequate branch reinforcement?

Reply: No. See para. 328.5.4(d).

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Interpretation: 11-11

Subject: ASME B31.3-1990 Edition, Paras. 341.4.1, 344.2.2, and 344.7.1, Records of Examinations

Date Issued: November 25, 1992

File: B31-92-015

Question: In accordance with ASME B31.3-1990 Edition, paras. 341.4.1, 344.2.2, and 344.7.1, are records for individual in-process examinations required only when used as a substitute for radiographic/ultrasonic examinations in accordance with para. 341.4.1(b)?

Reply: In-process examinations, when used in accordance with para. 341.4.1(b) as a substitute for radiographic/ultrasonic examinations, must be documented in accordance with para. 344.2.2. When in-process examination in accordance with para. 344.7, as opposed to visual examination under para. 341.4.1(a), is specified by the engineering design as the type of examination for any other purpose, documentation is also required. Documentation is not required for visual examinations performed in accordance with para. 341.4.1(a).

Interpretation: 11-12

Subject: ASME B31.3-1990 Edition, Para. 323.3.2 and Table 323.3.1, Impact Testing and Acceptance Criteria

Date Issued: November 25, 1992

File: B31-92-016

Question: In accordance with ASME B31.3-1990 Edition, when impact testing the weld and HAZ to the requirements of Table 323.2.2, can the base material be represented by any base material within the same P-Number group?

Reply: Yes, provided the requirements for filler metal and flux are in accordance with Table 323.3.1, Box A-4.

Interpretation: 11-13

Subject: ASME B31.3-1990 Edition, Table A-1, Basic Allowable Stresses in Tension for Metals

Date Issued: November 25, 1992

File: B31-92-018

Question: According to ASME B31.3-1990 Edition, what rules are used to develop allowable stresses for ASTM A 351 CN7M for usage over 100°F?

Reply: The requirements of paras. 323.2.1 and 323.2.4 apply.

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Interpretation: 11-14

Subject: ASME B31.3-1990 Edition, Para. 341.4.1 and Table 341.3.2A, Examination Normally Required and Acceptance Criteria

Date Issued: November 25, 1992

File: B31-92-020

Question: In accordance with ASME B31.3-1990 Edition, para. 341.4.1, if a weld for severe cyclic service has been accepted under visual examination and later shows surface porosity under a subsequent liquid penetrant examination, is the weld acceptable in accordance with Table 341.3.2A?

Reply: Yes.

Interpretation: 11-15

Subject: ASME B31.3-1990 Edition, Para. 341.4.1, Examination Normally Required

Date Issued: November 25, 1992

File: B31-92-021

Question: In accordance with ASME B31.3-1990 Edition, para. 341.4.1, for a normal fluid service, does para. 341.4.1(b)(1) permit the in-process examination option for the 5% random examination requirement?

Reply: Yes, if specified in the engineering design.

Interpretation: 11-16

Subject: ASME B31.3-1990 Edition, Table 314.2.1, Minimum Thickness of Male Threaded Components

Date Issued: November 25, 1992

File: B31-92-029

Question: In accordance with ASME B31.3-1990 Edition, Table 314.2.1, does the Fluid Service Limitation (the first column of the Table) shown as "None" mean "All fluid services"?

Reply: Yes.

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Interpretation: 11-17

Subject: ASME B31.3-1990 Edition, Para. A305, Fluid Service Requirements for Nonmetallic Piping Components — Pipe

Date Issued: November 25, 1992

File: B31-92-030

Question: Does ASME B31-3-1990 Edition, para. A305, allow the use of thermoplastics and RTR piping in flammable fluid service?

Reply: Yes, subject to the fluid service limitations of the pressure containing material. See para. A323.4.2.

Interpretation: 11-18

Subject: ASME B31.3-1990 Edition, Para. A323.4.2(c), Fluid Service Requirement for Nonmetallic Materials — Specific Requirements

Date Issued: November 25, 1992

File: B31-92-031

Question: Does ASME B31.3-1990 Edition, para. A323.4.2(c), allow the use of reinforced thermosetting resin piping in flammable fluid service?

Reply: Yes.

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Interpretation: 11-19

Subject: ASME B31.3-1990 Edition, Para. 345.5.2, Pneumatic Leak Testing – Pressure Relief Device

Date Issued: November 25, 1992

File: B31-92-050

Question (1): In accordance with ASME B31.3-1990 Edition, para. 345.5.2, is it permissible for the engineering design to specify a higher pneumatic test pressure for a piping system than is required by para. 345.5.4?

Reply (1): Yes.

Question (2): Is the engineering design specification of a higher test pressure subject to the limitations of para. 345.5.2?

Reply (2): Yes.

Question (3): May a pressure regulator be employed as a substitute for the pressure relief device required by para. 345.5.2?

Reply (3): No.

Interpretation: 11-20

Subject: ASME B31.3-1990 Edition, Para. 323.1.2, Unlisted Materials

Date Issued: November 25, 1992

File: B31-92-059

Question: In accordance with ASME B31.3-1990 Edition, may micro-alloyed carbon steel bars not listed in Appendix A-1 be used for piping components in B31.3 piping systems?

Reply: Yes. See the requirements of para. 323.1.2.

Interpretation: 11-21

Subject: ASME B31.3-1990 Edition, Para. K304.1.2, Eqs. (34a), (34b), (35a), and (35b), Straight Pipe Under Internal Pressure

Date Issued: November 25, 1992

File: B31-92-060

Question: In accordance with ASME B31.3-1990 Edition, is the 1.155 factor used in the formulas in para. K304.1.2 technically correct?

Reply: Yes, see para. K304.1.2 footnote (4) and K302.3.2(b)(1).

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ASME B31.3

INTERPRETATIONS NO. 10

Replies to Technical Inquiries
April 1, 1991, Through March 31, 1992

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparaion of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Para. 304.7.2(c), Unlisted Components and Elements	10-18	B31-91-038
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Para. 340.3, Rights of the Owner's Inspection; Para. 341.2(c), Responsibility for Examination; Para. 341.4.1(a)(1), Visual Examination; and Para. 341.4.1(c), Certification and Records	10-03	B31-90-056
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Paras 341.3.4(a) and (e), Progressive Examination	10-09	B31-91-012
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Para. A323.4.2(a)(1), Specific Requirements for Thermoplastics	10-06	B31-91-006
Para. A328.2(a), Bonding Qualification Tests; and Para. A328.5.3(b), Solvent Cemented Joints in Thermoplastic Piping	10-08	B31-91-008
Table A-1, Basic Allowable Stresses in Tension for Metals	10-13	B31-91-021

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Interpretation: 10-01

Subject: ASME B31.3-1990 Edition, Para. 323.4.2(b)(1)

Date Issued: June 14, 1991

File: B31-90-051

Question (1): In accordance with ASME/ANSI B31.3-1990 Edition, para. 323.4.2(b)(1), may cast iron piping components be used in a refrigeration system, using a hydrocarbon refrigerant with a design pressure of 300 psig.

Reply (1): No, if the owner classifies a refrigeration system using a hydrocarbon refrigerant as a process unit. Otherwise, yes, if the system is located outside process unit limits and all other requirements of para. 323.4.2 applicable to cast iron are met.

Question (2) What is the meaning of "process unit limit" in para. 323.4.2(b)(1)?

Reply (2): See the definition of "process unit" in para. 300.2. The owner must classify and establish the boundaries of process units not specifically described in para. 300.2.

Interpretation: 10-02

Subject: ASME B31.3-1990 Edition, Para. 301.3.1 and Table 323.2.2

Date Issued: June 14, 1991

File: B31-90-052

Question (1): In accordance with ASME B31.3-1990 Edition, para. 301.3.1, is the design minimum temperature the lowest component temperature expected in service, which may result from auto refrigeration?

Reply (1): Yes, unless the process design provides means to control minimum temperature.

Question (2): In accordance with Table 323.2.2, Note (2), for P-No. 1 carbon steel materials, if the design minimum temperature is below −20°F, but not lower than −50°F, and the coincident pressure below −20°F does not exceed 25% of the design pressure, and the combined longitudinal stresses do not exceed 6 ksi, is impact testing required?

Reply (2): No.

Question (3): For P-No 1 materials, if the design minimum temperature is below −50°F, is impact testing required?

Reply (3): Yes, the Table 323.2.2, Note (2) exemption applies only for design minimum temperatures down to −50°F. Also see para. 302.2.4(h).

Question (4): If impact testing is required, is the required test temperature the design minimum temperature, even though coincident pressure may be at or near atmospheric pressure?

Reply (4): Yes. See Table 323.2.2 Column B, Box B-3, and Para. 323.3.4.

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Interpretation: 10-03

Subject: ASME B31.3-1990 Edition, Interpretations 3-7 and 5-10, Paras. 340.3, 341.2(c), 341.4.1(a)(1), and 341.4.1(c)

Date Issued: June 14, 1991

File: B31-90-056

Question (1): In accordance with ASME B31.3-1990 Edition, para. 341.4.1(c), are individual component markings in accordance with the applicable material specification sufficient to assure the examiner that the material is of proper specification and grade?

Reply (1): Yes.

Question (2): In accordance with para. 340.3, may the owner's Inspector require that all documentation produced by the original material manufacturer, including documentation beyond the material specification requirements, be provided?

Reply (2): No.

Question (3): For an owner's inspection system, does the Code require documentation to assure component traceability?

Reply (3): The Code does not address this subject.

Question (4): For an owner's stocking system, are warehouse markings sufficient to assure component traceability?

Reply (4): The Code does not address this subject.

Question (5): For components which lack full identification, because of size or other reasons, may the shipping container be properly marked instead.

Reply (5): The Code does not address this subject, except as requirements are stated in the referenced specification.

Interpretation: 10-04

Subject: ASME/ANSI B31.3-1987 Edition With Addenda, Paras. 311.2.5(a) and (b) and 328.5.4(d)

Date Issued: June 14, 1991

File: B31-90-057

Question: Does ASME/ANSI B31.3-1987 Edition and its Addenda permit the use of fillet welds as the primary pressure retaining welds for installation of a full encirclement tee type branch connection?

Reply: ASME/ANSI B31.3-1987 Edition and its Addenda do not specifically address rules for fillet welding of full encirclement tee type branch connections.

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ASME B31.3 90 ■ 0759670 0525282 871 ■

Interpretation: 10-05

Subject: ASME/ANSI B31.3-1987 Edition, Para. 300.1.3(d); ASME B31.3-1990 Edition

Date Issued: June 14, 1991

File: B31-91-004

Question (1): In accordance with ASME/ANSI B31.3-1987 Edition, para. 300.1.3(d), is piping which is contained in a pressure vessel exempt from the Code?

Reply (1): Yes.

Question (2): In accordance with para. 300.1.3(d), if a pressure vessel, heat exchanger, pump, or other piece of equipment is supplied with external piping, are the piping components exempt from the Code?

Reply (2): No.

Question (3): Does ASME B31.3-1990 Edition provide a means for qualifying the use of ASTM A 240 TP 304 material to −457°F if material is thinner than 0.099 in.?

Reply (3): No.

Interpretation: 10-06

Subject: ASME B31.3-1990 Edition, Para. A323.4.2(a)(1), Specific Requirements for Thermoplastics

Date Issued: June 14, 1991

File: B31-91-006

Question (1): Does ASME B31.3-1990 Edition, para. A323.4.2(a)(1) prohibit the use of thermoplastic expansion joints, such as PTFE, in above ground flammable fluid service.

Reply (1): Yes.

Question (2): Does the Code permit the use of thermoplastic expansion joints, such as PTFE, in above ground flammable fluid service if safeguarded?

Reply (2): No.

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Interpretation: 10-07

Subject: ASME B31.3-1990 Edition, Para. 304.7.2(c), Unlisted Components and Elements

Date Issued: June 14, 1991

File: B31-91-007

Question (1): Paragraph 304.7.2(c) of ASME B31.3-1990 Edition requires that the proof test be subject to the approval of the Inspector. Is it permissible for a professional engineer or others without the official title of inspector, but experienced in the design, fabrication, or inspection of B31.3 piping, to approve the proof test?

Reply (1): Yes, provided that the individual has been designated by the owner and is qualified to perform that function in accordance with para. 340 of B31.3.

Question (2): For components qualified in accordance with para. 304.7.2(c), must the inspector designated by the owner to approve the test also have been a witness to the proof test?

Reply (2): No.

Interpretation: 10-08

Subject: ASME B31.3-1990 Edition; Para. A328.2(a), Bonding Qualification Tests; and Para. A328.5.3(b), Solvent Cemented Joints in Thermoplastics Piping

Date Issued: June 14, 1991

File: B31-91-008

Question (1): In conforming to the qualification tests per ASME B31.3-1990 Edition, para. A328.2.5(a), is a bell-end-to-plain-end connection considered a pipe-to-pipe joint for plastic piping?

Reply (1): Yes, if the joint connects two straight pipe sections of the test assembly.

Question (2): If a bonding procedure specification for plastic piping specifically states that it is limited to pipe-to-fitting joints only, are both a pipe-to-pipe joint and a pipe-to-fitting joint mandatory for conformance with the qualification tests per para. A328.2.5(a)?

Reply (2): Yes.

Question (3): Can the lack of a small fillet as specified in para. A328.5.3(b) be considered an unfilled area per Table A341.3.2?

Reply (3): Yes. Also see ASME B31.3, Interpretation 8-14, Question (6). The Committee will consider future revisions to this paragraph.

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Interpretation: 10-09

Subject: ASME B31.3-1990 Edition, Para. 341.3.4(a) and (e), Progressive Examination

Date Issued: June 14, 1991

File: B31-91-012

Question (1): In complying with the requirements of ASME B31.3-1990 Edition, para. 341.3.4, must additional items examined be of the same size as the defective item?

Reply (1): No, unless otherwise specified by the engineering design.

Question (2): In para. 341.3.4(e), does the phrase "all items represented by the progressive examinations" refer only to those items which have been examined and found to contain defects?

Reply (2): No.

Interpretation: 10-10

Subject: ASME B31.3-1990 Edition, Para. 322.6.1(b), Stop Valve in Piping for Pressure Relieving Safety Devices

Date Issued: June 14, 1991

File: B31-91-013

Question (1): In accordance with ASME B31.3-1990 Edition, para. 322.6, are reduced area stop valves permitted on both the inlet side and discharge side of pressure relieving devices protecting piping?

Reply (1): Yes, provided the additional requirements of para. 322.6 are met.

Question (2): In accordance with para. 322.6, are reduced area stop valves permitted on both the inlet side and discharge side of pressure relieving devices protecting pressure vessels in accordance with Section VIII, Division 1 of the BPV Code?

Reply (2): The requirements of ASME B31.3 apply only to B31.3 piping.

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Interpretation: 10-11

Subject: ASME B31.3-1990 Edition; Para. 304.7.2, Unlisted Components; and Para. 300(b)(2), Responsibility

Date Issued: June 14, 1991

File: B31-91-016

Question: In accordance with ASME B31.3-1990 Edition, para. 304.7.2, is the designer responsible to the owner for assuring that the design of unlisted components has been substantiated?

Reply: Yes, see also para. 300(b)(2).

Interpretation: 10-12

Subject: ASME B31.3-1990 Edition, Para. 341.3.4, Progressive Examination

Date Issued: June 14, 1991

File: B31-91-019

Question (1): In accordance with ASME B31.3-1990 Edition, para. 341.3.4, is progressive examination mandatory?

Reply (1): Yes.

Question (2): Is progressive examination per para. 341.3.4 considered as part of the Code procedure to determine the acceptability of welds in a particular lot of piping?

Reply (2): Yes.

Interpretation: 10-13

Subject: ASME B31.3-1990 Edition, Table A-1, Basic Allowable Stresses in Tension for Metals

Date Issued: June 14, 1991

File: B31-91-021

Question: In accordance with ASME B31.3-1990 Edition, is it acceptable to use the published ASTM A 240 or ASTM A 167 Type 317L allowable stresses in Table A-1 for a design based on seamless pipe purchased to the ASTM A 312 Type 317L pipe specification?

Reply: Yes, see para. 323.1.2.

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ASME B31.3 90 ■ 0759670 0525286 417 ■

Interpretation: 10-14

Subject: ASME B31.3-1990 Edition, Para. 304.5, Pressure Design of Flanges and Blanks

Date Issued: December 2, 1991

File: B31-91-024

Question: Shall flanges designed in accordance with ASME B31.3a-1990, para. 304.5.1(b) or 304.5.2(b) be designed using the allowable stresses from Table A-1?

Reply: Yes, except for austenitic stainless steels and nickel alloys whose allowables are based on 90% of yield strength at temperature and are shown in italics or boldface in Table A-1. In those cases, refer to para. 302.3.2(e) for the recommended allowable stress limits.

Interpretation: 10-15

Subject: ASME B31.3-1990 Edition, Para. 345.9.1, Examination of Welds

Date Issued: December 2, 1991

File: B31-91-027

Question (1): In accordance with ASME B31.3-1990 Edition, para. 345.9.1, when 100% radiography is performed as part of an alternative leak test for Normal Fluid Service piping, are the acceptance criteria for Normal Fluid Service used?

Reply (1): Yes.

Question (2): When 100% radiography, instead of 20% radiography, is required by the engineering design for Category M Fluid Service and the acceptance criteria are specified to be in accordance with B31.3, are the acceptance criteria the same as for 20% radiography?

Reply (2): Yes.

Interpretation: 10-16

Subject: ASME B31.3-1990 Edition, Para. 341, Examination

Date Issued: December 2, 1991

File: B31-91-028

Question: In accordance with ASME B31.3-1990 Edition, paras. 341.3.3 and 341.3.4, what method of examination is required for a weld replaced due to defect(s) observed under a visual examination process?

Reply: The new weld requires the same examination as was required for the original weld.

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ASME B31.3 90 ■ 0759670 0525287 353 ■

Interpretation: 10-17

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 341.4.1(b)(1), 341.4.3(b), and 344.6.2

Date Issued: December 2, 1991

File: B31-91-033

Question (1): In accordance with ASME/ANSI B31.3-1987 Edition, paras. 341.4.1(b)(1) and 341.4.3(b), is it acceptable to replace radiographic examination (RT) with ultrasonic examination (UT)?

Reply (1): Yes, but in the case of severe cyclic conditions [para. 341.4.3(b)], such replacement is permissible only if specified by the engineering design.

Question (2): In accordance with paras. 341.3.2 and 344.6.2, what are the acceptance criteria for welds examined by ultrasonic examination?

Reply (2): The requirements are specified in para. 344.6.2.

Question (3): What is the definition of "linear-type" discontinuities?

Reply (3): A discontinuity which is a least three times as long as it is wide.

Question (4): For ultrasonic examination are there types of discontinuities other than linear-type discontinuities which are acceptable?

Reply (4): The Code does not address such discontinuities.

Question (5): For ultrasonic examination will any types of discontinuities be unacceptable if they meet the requirements as stated in para. 344.6.2(a)?

Reply (5): The Code does not address types of discontinuities other than linear-type.

Question (6): Is there other information in B31.3 concerning acceptance criteria for ultrasonic examination under para. 344.6?

Reply (6): No.

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Interpretation: 10-18

Subject: ASME B31.3-1990 Edition, Para. 304.7.2(c), Unlisted Components and Elements

Date Issued: December 2, 1991

File: B31-91-038

Question: In accordance with ASME B31.3a-1990, when the pressure rating of a component has been established in accordance with para. 304.7.2(c) by performing a proof test in accordance with Section VIII, Division 1, para. UG-101, shall the maximum allowable working pressure be reduced by a factor which incorporates allowances, *c*, as defined in para. 304.1.1, and differences in wall thickness due to any manufacturing tolerances?

Reply: Yes, in addition to the other requirements of para. UG-101.

Interpretation: 10-19

Subject: ANSI/ASME B31.3-1984 Edition, Para. 327.4.2, Fillet and Socket Welds

Date Issued: December 2, 1991

File: B31-91-039

Question: Are socket weld joints with intimate contact before welding (i.e., zero gap) between the end of the pipe and the bottom of the socket weld fitting prohibited by the Code?

Reply: Yes.

Interpretation: 10-20

Subject: ASME B31.3-1990 Edition, Para. 304.1.2, Straight Pipe Under Internal Pressure

Date Issued: December 2, 1991

File: B31-91-042

Question: In accordance with ASME B31.3-1990 Edition, is an additional allowance required for specified wall thickness for pipe beyond that calculated using the formulas under para. 304.1.2, to cover manufacturing tolerances for under wall thickness?

Reply: Yes, the requirements of para. 304.1.1 shall also be met.

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(GENERAL NOTE: Code references are based on ASME B31.3-1990 Edition. References in brackets are to previous Editions and Addenda.)

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ASME B31.3

INTERPRETATIONS NO. 9

Replies to Technical Inquiries
June 1, 1990, Through March 31, 1991

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparaion of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

Subject	Interpretation	File No.
Fig. 328.4.4; Branch Pipe Projection into Run Pipe	8-28R	B31-90-008*
Paras. 300.1 and 300.2; Applicability to the Transportation of an Emptied System	9-06	B31-90-030
Para. 300.1.1, 300.2, MA306.5, and MA323.4; Applicability to a Textile Plant, and Category M Fluid Service	9-02	B31-90-026
Para. 304.5; Pressure Design of Flanges and Blanks and Para. 312; Flange Joint System	9-07	B31-90-034
Para. 304.5.1(b); Flange-General	9-09	B31-90-033
Para. 331.1.1 and Table 330.1.1; Heat Treatment Requirements for Attachment of Bellows Expansion Joints to Piping	9-05	B31-90-029
Para. 331.1.3 and Table 331.1.1; Heat Treatment Requirements of 5% Cr Socket Weld	9-03	B31-90-027
Para. 345.4.2; Test Pressure, Metallic Piping	9-08	B31-90-031
Table 319.3.6 and Appendix D; Flexibility Analysis for Branch Connections	9-01	B31-90-25A
Table 341.3.2A; Reinforcement and Internal Protrusion Limits	9-04	B31-90-028

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ASME B31.3 90 ■ 0759670 0084895 1 ■

Interpretation: 8-28R

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Fig. 328.4.4; Branch Pipe Projection Into Run Pipe

Date Issued: December 7, 1990

File: B31-90-008*

Question: In accordance with ASME/ANSI B31.3, Fig. 328.4.4 sketch (c), is there a maximum distance that the branch pipe can project into the run pipe?

Reply: No. The Code does not specify any requirements other than those given in Fig. 328.4.4 sketch (c). Further requirements are the responsibility of the owner.

Interpretation: 9-01

Subject: ASME/ANSI B31.3-1987 Edition, With Addenda Through B31.3c-1989, Table 319.3.6 and Appendix D; Flexibility Analysis for Branch Connections

Date Issued: November 28, 1990

File: B31-90-25A

Question: In accordance with ASME/ANSI B31.3, para. 319.3.6 and Appendix D, is it permissible to use the *k*- and *i*- factors for 90 deg. branch connections from Table D-1 for branch connections that intersect the run at angles other than 90 deg. (with or without added reinforcement)?

Reply: ASME/ANSI B31.3 does not provide specific *k* and *i* factors for branch connections at other than 90 deg.

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ASME B31.3 90 ■ 0759670 0084896 3 ■

Interpretation: 9-02

Subject: ASME B31.3-1990 Edition, Paras. 300.1.1, 300.2, MA306.5, and MA323.4; Applicability to a Textile Plant, and Category M Fluid Service

Date Issued: November 28, 1990

File: B31-90-026

Question (1): Is a textile plant which regularly handles caustic chemicals in its manufacturing process covered by ASME B31.3, para. 300.1.1(c)?

Reply (1): Yes. See also the ninth paragraph of the Introduction which begins "It is the owner's responsibility..."

Question (2): Is it a requirement of ASME B31.3-1990 that piping for 30% sodium hydroxide be classified as Category M Fluid Service as defined in para. 300.3?

Reply (2): It is the owner's responsibility to determine which fluid services are to be identified as Category M. See para. 300(b)(1). Appendix M may be used as a guide in making such determinations.

Question (3): Does ASME B31.3, para. MA323.4.2 prohibit the use of a polypropylene flow measuring device in Category M fluid services?

Reply (3): Yes, if the polypropylene is used as a pressure containing component, not as a liner or gasket.

Question (4): Does ASME B31.3, para. MA306.5 prohibit the use of a polypropylene insertion flow measuring device in Category M fluid service?

Reply (4): If a flow measuring device is not a fabricated branch connection, para. MA306.5 does not apply.

Interpretation: 9-03

Subject: ASME/ANSI B31.3-1987 Edition, With Addenda Through B31.3c-1989, Para. 331.1.3 and Table 331.1.1; Heat Treatment Requirements of 5% Cr Socket Weld

Date Issued: November 28, 1990

File: B31-90-027

Question: Are the exceptions in ASME/ANSI B31.3, para. 331.1.3(b)(2) applicable to the requirements of Table 331.1.1?

Reply: Yes.

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ASME B31.3 90 ■ 0759670 0084897 5 ■

Interpretation: 9-04

Subject: ASME/ANSI B31.3-1987 Edition, Table 341.3.2A; Reinforcement and Internal Protrusion Limits

Date Issued: November 28, 1990

File: B31-90-028

Question: In accordance with ASME/ANSI B31.3, Table 341.3.2A, may heights of reinforcement and internal protrusion be added together in determining penetrameter requirements for radiographing girth welds?

Reply: Yes.

Interpretation: 9-05

Subject: ASME B31.3-1990 Edition, Para. 331.1.1 and Table 330.1.1; Heat Treatment Requirements for Attachment of Bellows Expansion Joints to Piping

Date Issued: November 28, 1990

File: B31-90-029

Question: In accordance with ASME B31.3, para. 331.1.1, is it required to postweld heat treat attachment welds joining austentic bellows to P-No. 1, 3, 4, and 5 piping (in thickness requiring PWHT) when the bellows material thickness is less than or equal to $\frac{1}{8}$ in. and the attachment weld is made with austentic weld material?

Reply: Yes, except as permitted by para. 331.2.2.

Interpretation: 9-06

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 300.1 and 300.2; Applicability to the Transportation of an Emptied System

Date Issued: November 28, 1990

File: B31-90-030

Question: Does ASME/ANSI B31.3-1987, para. 300.1.2 address the transportation of a piece of packaged equipment which includes piping?

Reply: Yes.

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ASME B31.3 90 ■ 0759670 0084898 7 ■

Interpretation: 9-07

Subject: ASME B31.3-1990 Edition, Para. 304.5; Pressure Design of Flanges and Blanks and Para. 312; Flange Joint System

Date Issued: November 28, 1990

File: B31-90-034

Question: Does ASME B31.3 prohibit the use of raised and flat face metallic flanges in combination?

Reply: No, provided the design of both flanges meets the requirements of paras. 304.5 and 312.

Interpretation: 9-08

Subject: ASME B31.3-1987 Edition, Para. 345.4.2; Test Pressure, Metallic Piping

Date Issued: December 7, 1990

File: B31-90-031

Question: Does a component built to a manufacturer's own standard require shop pressure testing per ASME B31.3?

Reply: ASME B31.3 does not address the pressure testing of individual unlisted components by the manufacturer.

Interpretation: 9-09

Subject: ASME B31.3-1990 Edition, Para. 304.5.1(b); Flange-General

Date Issued: December 7, 1990

File: B31-90-033

Question: When designing aluminum flange, in accordance with ASME B31.3, para. 304.5.1(b), is it permissible to design them in accordance with ASME Section VIII, Division 1, Appendix 2, not considering the large difference in modulus of elasticity between steel and aluminum?

Reply: Yes, however; see also para. 300(c)(2).

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(GENERAL NOTE: Code references are based on ASME B31.3-1990 Edition. References in brackets are to previous Editions and Addenda.)

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ASME B31.3

INTERPRETATIONS NO. 8

Replies to Technical Inquiries
May 1, 1989, Through May 31, 1990

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the update service to the Code. The interpretations have been assigned numbers in chronological order. Each interpretation applies to the Edition or Addenda stated in the interpretation, or if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **These interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply bearing the original interpretation number with the suffix R is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparaion of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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ASME B31.3 90 ■ 0759670 0085062 3 ■

Interpretation: 8-01

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 300.1.1 and 300.2; Rules for In-Line Sensing Devices

Date Issued: May 22, 1989

File: B31-88-028B

Question: Shall the pressure containing piping components of an in-line sensing device be designed, fabricated, examined, and tested in accordance with the rules of ASME/ANSI B31.3?

Reply: Yes; see the definitions for "piping" and "piping components" in ASME/ANSI B31.3, para. 300.2. See also para. 300.1.1.

Interpretation: 8-02

Subject: ASME/ANSI B31.3-1987 Edition, Para. 341.4.1(c); Certifications and Records

Date Issued: May 22, 1989

File: B31-88-030

Question: In accordance with ASME/ANSI B31.3, para. 341.4.1(c), can manufacturers' markings on pipe, fittings, and components be regarded as confirmation of material compliance with the specifications?

Reply: Yes.

Interpretation: 8-03

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 332.1; Use of Elbowless Steel Pipe in B31.3

Date Issued: May 22, 1989

File: B31-89-006

Question: In accordance with ASME/ANSI B31.3 is the use of pipe bending permitted?

Reply: Yes; see ASME/ANSI B31.3, para. 332.1.

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ASME B31.3 90 ■ 0759670 0085063 5 ■

Interpretation: 8-04

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Paras. 302.2.4 and 345.4; Maximum Allowable Valve Body Cavity Pressure

Date Issued: May 22, 1989

File: B31-89-007

Question: In accordance with ASME/ANSI B31.3, what is the maximum pressure buildup relative to the pressure rating of the valve permitted in the valve body cavity?

Reply: 133% of the pressure rating of the valve provided that all of the requirements of ASME/ANSI B31.3, para. 302.2.4 are met. Also see para. 345.4 for pressure test requirements.

Interpretation: 8-05

Subject: ANSI/ASME B31.3-1984 Edition, Paras. 331.1.2, 331.3.4, and 331.3.7; Temperature Monitoring of Stress Relieving of Pipe Welds in Series

Date Issued: May 22, 1989

File: B31-89-008

Question: Several identical welds in a single assembly are separately locally heat treated using electrical resistance heaters in series. In accordance with ANSI/ASME B31.3, paras. 331.1.2 and 331.3.4 is a temperature measurement of each weld required?

Reply: Yes.

Interpretation: 8-06

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 304.3.3 and Appendix H; Branch Reinforcement

Date Issued: May 22, 1989

File: B31-89-009

Question: In accordance with ASME/ANSI B31.3, para. 304.3.3, is the weld joint factor E_j for calculating the required thickness of the branch t_b always equal to 1.0 whether the branch is longitudinally welded or not?

Reply: No. The weld joint quality factor E_j for the branch in accordance with para. 302.3.4 shall be used.

Note: Example H-2 of Appendix H will be reviewed by the Committee for possible revision.

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Interpretation: 8-07

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 323.1.2 and Table 326.1; Material for Valve Body and Internals

Date Issued: May 22, 1989

File: B31-89-010

Question (1): Is ASTM A487-1C (formerly A487-1Q) an acceptable material for valve bodies within the scope of ASME/ANSI B31.3?

Reply (1): Yes, if qualified as an unlisted material in accordance with ASME/ANSI B31.3, para. 323.1.2.

Question (2): Are valve internal materials covered by ASME/ANSI B31.3?

Reply (2): ASME/ANSI B31.3 does not cover valve internal components except by reference to valve standards listed in Table 326.1.

Interpretation: 8-08

Subject: ASME/ANSI B31.3-1987 Edition, Para. 331.1.1; Postweld Heat Treatment

Date Issued: May 22, 1989

File: B31-89-013

Question: In accordance with ASME/ANSI B31.3, para. 331.1.1, is postweld heat treatment required in the welding procedure specification for P-No. 1 materials when postweld heat treatment is needed solely for the type of service?

Reply: Yes, and the requirements for postweld heat treatment should be specified in the engineering design.

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Interpretation: 8-09

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Paras. 300(b) and 300.2, and Appendix M; Classification of Fluid Service, Large Temperature Changes

Date Issued: November 16, 1989

File: B31-89-018

Question (1): Is it a requirement of ASME/ANSI B31.3 that piping for liquid oxygen (LOX) at −297°F and 6000 psig be classified as Category M fluid service as defined in para. 300.2?

Reply (1): No; it is the owner's responsibility to determine which fluid services are to be identified as Category M. See para. 300(b)(1). Appendix M may be used as a guide in making such determinations.

Question (2): Does ASME/ANSI B31.3 require that piping which undergoes a large, rapid temperature change be considered to experience severe cycle conditions as defined in para. 300.2?

Reply (2): No.

Interpretation: 8-10

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Paras. 341.4.1, 341.4.3, and 344.2.1; Visual Examination — Internal Inspection

Date Issued: November 16, 1989

File: B31-89-019

Question: Is it the intent of ASME/ANSI B31.3, paras. 344.2.1, 341.4.1, and 341.4.3 that random or 100% visual examination of weld internal surfaces requires indirect observation by aids such as borescopes?

Reply: No. The intent of ASME/ANSI B31.3, para. 344.2.1 is that the phrase "...or can be exposed to view..." refers to direct visual examination.

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ASME B31.3 90 ■ 0759670 0085066 0 ■

Interpretation: 8-11

Subject: ASME/ANSI B31.3-1987 Edition, Table A-1; Minimum Ultimate Tensile Strength and Allowable Stresses for ASTM B 464, Grade 20 Cb

Date Issued: November 16, 1989

File: B31-89-020

Question (1): Are the correct specified minimum tensile strength (SMTS) and basic allowable stresses listed in ASME/ANSI B31.3, Table A-1 for ASTM B 464 Grade 20 Cb (UNS N08020)?

Reply (1): No. The SMTS should be 80 ksi. The basic allowable stresses are being revised for inclusion in a future addenda to ASME/ANSI B31.3.

Question (2): For ASTM B464 Grade 20 Cb may the allowable stresses in ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, Table UNF-23.3 be used for design of ASME/ANSI B31.3 piping.

Reply (2): Yes, but the allowable stresses must be adjusted by the appropriate weld joint factor.

Interpretation: 8-12

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988; Postweld Heat Treatment — Seal Welding

Date Issued: November 16, 1989

File: B31-89-023

Question: What are the requirements of ASME/ANSI B31.3 regarding preheating and postweld heat treatment of rings or similar welded parts in the manufacture of valves?

Reply: ASME/ANSI B31.3 does not address this subject.

Interpretation: 8-13

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Paras. 318 and 328.5.4; Fillet Welds

Date Issued: November 16, 1989

File: B31-89-028

Question: Does ASME/ANSI B31.3 permit the use of fillet welds as the primary pressure containing welds for special (proprietary) joints?

Reply: Yes, provided the requirements of ASME/ANSI B31.3, paras. 328.5.4 and 318 are met.

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Interpretation: 8-14

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Paras. A304, A328.2.1, A328.2.5, and A328.5; Bonding Qualification Test, Joint Limitations

Date Issued: November 16, 1989

File: B31-89-034

Question (1): Applying the rules of ASME/ANSI B31.3, para. A328.2.5(a), the required bonding qualification test assembly should consist of at least one pipe-to-pipe joint and one pipe-to-fitting joint. Is a pipe-to-pipe joint required for solvent cemented joints in thermoplastic piping?

Reply (1): Yes.

Question (2): In ASME/ANSI B31.3, para. A328.2.5(a), is a pipe-to-fitting joint required for hot gas welded joints in thermoplastic piping?

Reply (2): Yes.

Question (3): Applying the rules of ASME/ANSI B31.3, para. A304, the required test pressure for the bonding qualification test assembly specified in para. 328.2.5(b) may exceed the minimum burst pressure of the plastic components. Is this the intent of ASME/ANSI B31.3?

Reply (3): ASME/ANSI B31.3 does not address the issue of minimum burst strength.

Question (4): Is it in violation of ASME/ANSI B31.3 to conduct hot gas bonded welds with joints that have a root face and root gap other than $\frac{1}{32}$ in.?

Reply (4): No, ASME/ANSI B31.3, para. A328.5.2(a) states recommendations for joint dimensions. See the requirements of para. A328.2.1(b).

Question (5): In ASME/ANSI B31.3, paras. A328.5.3 and A328.5.4, does the word "fillet" apply to heat fusion joints?

Reply (5): Yes.

Question (6): ASME/ANSI B31.3, para. A328.5.3(b) states that assembly of the surfaces to be joined shall produce a small fillet of cement at the outer limits of the joint. If, after the joint cures and the cement dries, there are areas at the outer limits that do not exhibit a small fillet, is the joint rejectable?

Reply (6): Yes.

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Interpretation: 8-15

Subject: ASME/ANSI B31.3-1987 Edition With Addenda B31.3b-1988, Paras. 345.1 and 345.9; Leak Testing

Date Issued: November 16, 1989

File: B31-89-035

Question (1): Where leak testing a system follows guidelines under ASME/ANSI B31.3, para. 345.1(c), does ASME/ANSI B31.3 require that all items under para. 345.9 be performed (345.9.1, 345.9.2, and 345.9.3)?

Reply (1): Yes.

Question (2): Where tying a newly constructed ASME/ANSI B31.3 normal fluid service piping system into an existing piping system, and the tie-in weld cannot be isolated for hydrostatic or pneumatic testing, and the conditions of para. 345.1(c) do not apply, what does ASME/ANSI B31.3 require for leak testing?

Reply (2): ASME/ANSI B31.3 does not address leak testing under these circumstances.

Interpretation: 8-16

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 302.3.5; Stresses due to Cold Spring

Date Issued: November 16, 1989

File: B31-89-036

Question: In accordance with ASME/ANSI B31.3, para. 302.3.5(c), is it required to include the stresses due to cold spring in the sustained longitudinal stress S_L?

Reply: No.

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Interpretation: 8-17

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Paras. 300 and 300.1 and Fig. 300.1.1, Applicability — Offshore Platform

Date Issued: December 4, 1989

File: B31-89-017

Question: At what point does the coverage of ASME/ANSI B31.3 end in piping connected to a launcher/receiver for a pipeline pig and a pipeline/riser on an offshore platform?

Reply: Except as stated in para. 300.1.1(c) and shown in Fig. 300.1.1, ASME/ANSI B31.3 does not specify limits of coverage; it is the owner's responsibility to specify the appropriate B31 Code break points. See para. 300(b)(1).

Interpretation: 8-18

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 304.5.1 and Table A-1; Materials/Fittings — Use of Two Grades

Date Issued: April 20, 1990

File: B31-89-033

Question (1): When using stainless steel materials that meet ASTM requirements for two grades (e.g. 304/304L or 316/316L) in B31.3 piping, may the design be based on the allowable stresses tabulated in ASME/ANSI B31.3, Table A-1 for the straight grade through 1000°F and for the L grade above 1000°F?

Reply (1): Yes.

Question (2): May stainless steel flanges and flanged fittings, that meet ASTM requirements for two grades (e.g. 304/304L or 316/316L) be qualified by ASME/ANSI B31.3, para. 304.5.1 for design temperatures above 800°F and 850°F, respectively?

Reply (2): Yes; L grade stresses must be used above 1000°F.

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Interpretation: 8-19

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 323.1.1 and 323.1.2; Material Reidentification

Date Issued: May 7, 1990

File: B31-89-043

Question (1): Does ASME/ANSI B31.3 require that materials conforming to para. 323.1.1 or 323.1.2 be reidentified after cutting for fabrication?

Reply (1): No.

Question (2): Does ASME/ANSI B31.3 have qualification requirements for an individual who reidentifies material?

Reply (2): No.

Interpretation: 8-20

Subject: ASME/ANSI B31.3-1987 Edition, Para. 332.2.1; Bends — Requirements for

Date Issued: May 7, 1990

File: B31-89-044

Question: In accordance with ASME/ANSI B31.3, para. 332.2.1, is it permissible to reduce the outside diameter of the bend by grinding if the wall thickness required by the design is maintained?

Reply: ASME/ANSI B31.3 does not address this subject.

Interpretation: 8-21

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 330; Preheat Requirements — Welding Procedure Specification

Date Issued: May 7, 1990

File: B31-89-045

Question: In accordance with ASME/ANSI B31.3, para. 330, for temperature verification, extent of preheat zone, and limitations on interruption of welding, is it required that the welding procedure specification detail these requirements?

Reply: No.

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Interpretation: 8-22

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 331.1.7; Hardness Tests — Procedure Qualification Records

Date Issued: May 7, 1990

File: B31-89-046

Question: In accordance with ASME/ANSI B31.3, para. 331.1.7, is it required that hardness tests be verified on procedure qualification records?

Reply: No.

Interpretation: 8-23

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Para. 330.1; Preheat Temperature — Procedure Qualification

Date Issued: May 7, 1990

File: B31-89-047

Question: In meeting the requirements of ASME/ANSI B31.3, para. 330.1.1 for preheat temperatures, is it necessary to comply with the values in Table 330.1.1, or can the requirements of the BPV Code, Section IX be used?

Reply: ASME/ANSI B31.3, Table 330.1.1 applies, except for those values which are listed as recommendations.

Interpretation: 8-24

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Table 331.1.1; Heat Treatment Requirements

Date Issued: May 7, 1990

File: B31-89-050

Question: In meeting the requirements of ASME/ANSI B31.3, Table 331.1.1 for heat treatment of materials in P-Nos. SP-1 through SP-5, what heat treatment is necessary if the engineering design does not specify the requirements?

Reply: ASME/ANSI B31.3 does not designate a specific heat treatment procedure for these materials. For conformance with ASME/ANSI B31.3, the engineering design must establish procedures in accordance with Note (1) of Table 331.1.1.

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Interpretation: 8-25

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Para. 302.3.2 and Table A-1; Stress Value for A 387, Grade 9, Classes 1 and 2

Date Issued: May 7, 1990

File: B31-89-051

Question: Basic allowable stresses for listed materials ASTM A 387, Grade 9, Class 1 and Class 2 are not listed in ASME/ANSI B31.3. May the rules of para. 302.3.2(d) be used for calculating the allowable stresses at 100°F for ASTM A 387, Grade 9, Classes 1 and 2 materials?

Reply: Yes.

Interpretation: 8-26

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3b-1988, Paras. 341.4.1 and 344.2; Visual Examination — Small Bore Piping

Date Issued: May 7, 1990

File: B31-90-001

Question: Should small bore piping systems be excluded from ASME/ANSI B31.3 because it is impractical to conduct "direct" visual examination of internal imperfections?

Reply: No. The engineering design may specify any measures necessary to supplement visual examination within the requirements of ASME/ANSI B31.3, para. 344.2.

Interpretation: 8-27

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Fig. 328.5.2B; Double-Welded Slip-On Flange — Dimension

Date Issued: May 7, 1990

File: B31-90-007

Question (1): Is it the intent of ASME/ANSI B31.3, Fig. 328.5.2B sketch (1), to have the inside fillet weld some distance below the face of the slip-on flange?

Reply (1): Yes.

Question (2): What is the acceptable range of that dimension?

Reply (2): ASME/ANSI B31.3 does not specify a range for that dimension.

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Interpretation: 8-28

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Fig. 328.4.4; Branch Pipe Projection Into Run Pipe

Date Issued: May 7, 1990

File: B31-90-008

Question: In accordance with ASME/ANSI B31.3, Fig. 328.4.4 sketch (c), is there a maximum distance that the branch pipe can project into the run pipe?

Reply: No.

Interpretation: 8-29

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Table 323.3.1 and Para. 328.2.1; Impact Requirements in Qualifying a Welding Procedure

Date Issued: May 7, 1990

File: B31-90-009

Question: In accordance with ASME/ANSI B31.3, para. 328.2.1(d), when impact testing is required by ASME/ANSI B31.3 or the engineering design in qualifying a welding procedure, does this requirement apply to both fabricators and manufacturers?

Reply: Yes.

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Interpretation: 8-30

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Paras. 300(c)(2) and 323.3.4; Impact Testing Methods and Acceptance Criteria Below −320°F

Date Issued: May 7, 1990

File: B31-90-010

Question (1): Does ASME/ANSI B31.3 permit the use of other toughness testing methods in place of Charpy impact testing for systems with a minimum design temperature below −320°F?

Reply (1): No.

Question (2): Does ASME/ANSI B31.3 prohibit the use of other testing methods and/or analysis to supplement Charpy testing to evaluate materials for use below −320°F

Reply (2): No. See para. 300(c)2.

Question (3): Can the Charpy testing requirements of ASME/ANSI B31.3 be satisfied by testing at −320°F, even though the minimum design temperature is −423°F?

Reply (3): No; see para. 323.3.4.

Interpretation: 8-31

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Paras. 345 and 345.2.2; Leak Test as Nondestructive Examination

Date Issued: May 7, 1990

File: B31-90-011

Question (1): In accordance with ASME/ANSI B31.3, para. 345, are all forms of leak testing described considered to be nondestructive examination?

Reply (1): No. ASME/ANSI B31.3 does not classify leak testing as examination.

Question (2): Does ASME/ANSI B31.3 have requirements for the personnel that perform leak testing?

Reply (2): No; however, the examination for leaks required in ASME/ANSI B31.3, para. 345.2.2 should be by personnel qualified for visual examination.

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Interpretation: 8-32

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Para. 341.3.2 and Table 341.3.2A; Acceptance Criteria — Liquid Penetrant and Magnetic Particle

Date Issued: May 7, 1990

File: B31-90-012

Question: In accordance with ASME/ANSI B31.3, para. 341.3.2, for the determination of an imperfection using liquid penetrant or magnetic particle examination techniques, is it the size of the indication or the size of the discontinuity that is used in the determination of acceptance or rejection?

Reply: ASME/ANSI B31.3 specifies liquid penetrant and magnetic particle examination for the detection of cracks only, and all cracks are rejectable.

Interpretation: 8-33

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Para. A314 and Table 314.2.1; Plastic Lined Pipe — Use of Screwed Flanges

Date Issued: May 7, 1990

File: B31-90-013

Question: Does ASME/ANSI B31.3 prohibit the use of threaded flanges on plastic lined metallic pipe?

Reply: No; threaded joints within the size ranges and limitations in accordance with ASME/ANSI B31.3, Table 314.2.1 may be used. Safeguarding may be required; see Note (4) of Table 314.2.1.

Interpretation: 8-34

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Tables 326.1 and A-1; Dual Certified Materials and Components

Date Issued: May 7, 1990

File: B31-90-014

Question (1): For temperatures not exceeding 1000°F, may ASME/ANSI B31.3 piping systems be constructed of dual certified stainless steels (e.g. 304/304L) using Table A-1 stresses for the straight grades?

Reply (1): Yes.

Question (2): May the pressure–temperature rating for the straight grade of the corresponding materials for components listed in ASME/ANSI B31.3, Table 326.1 be used?

Reply (2): The requirements of the referenced standards apply.

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Interpretation: 8-35

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Paras. M307.2 and MA323.4.2; Category M Fluid Service — Double Contained Piping; Use of Valves

Date Issued: May 7, 1990

File: B31-90-015

Question (1): Does ASME/ANSI B31.3 require the use of double contained piping systems for Category M Fluid Service?

Reply (1): No.

Question (2): Does ASME/ANSI B31.3, para. MA323.4.2 permit the use of a double contained thermoplastic piping system for Category M Fluid Service?

Reply (2): No.

Question (3): Does ASME/ANSI B31.3, para. M307.2 require the use of fire safe (fire tested) valves for Category M Fluid Service?

Reply (3): No.

Interpretation: 8-36

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Table A-1; Use of Plate Material for Pipe

Date Issued: May 7, 1990

File: B31-90-016

Question: Is pipe fabricated in accordance with ASME/ANSI B31.3, from a listed plate material (e.g., A 516 Gr. 60) without reference to a pipe specification (such as ASTM A 671), acceptable per ASME/ANSI B31.3?

Reply: Yes.

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Interpretation: 8-37

Subject: ASME/ANSI B31.3-1987 Edition With Addenda Through B31.3c-1989, Para. 304.3.3 and Figs. 304.3.3 and K328.5.4; Area Replacement — Definitions

Date Issued: May 7, 1990

File: B31-90-017

Question: In accordance with ASME/ANSI B31.3, para. 304.3.3, what is the correct value of T_b to be used in calculation L_4 for the branch connection shape shown in the lower half of Fig. K328.5.4? Is T_b based upon the reinforcing barrel of the fitting or the wall thickness of the matching branch pipe?

Reply: The value of T_b to be used in calculation L_4 for the referenced fitting is the nominal thickness of the reinforcing barrel less manufacturing mill tolerances, provided that the increased barrel thickness is uniform and extends at least to the L_4 limit as shown in Fig. 304.3.3. Otherwise, T_b is the nominal thickness of the matching branch pipe, less manufacturing mill tolerance.

Interpretation: 8-38

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 341.4.2 and 341.5 and Table 341.3.2A; Category D Fluid Service

Date Issued: May 25, 1990

File: B31-89-049

Question (1): In accordance with ASME/ANSI B31.3, Table 341.3.2A, what acceptance criteria should be used for Category D Fluid Service pipe welds which have been radiographed?

Reply (1): ASME/ANSI B31.3 does not address radiography for Category D Fluid Service welds.

Question (2): In accordance with ASME/ANSI B31.3, may the owner specify radiography as a supplementary examination to be performed on Category D Fluid Service piping?

Reply (2): Yes; in accordance with ASME/ANSI B31.3, para. 341.5.

Question (3): In accordance with ASME/ANSI B31.3, para. 341.4.2 and Table 341.3.2A, if radiography is performed on Category D Fluid Service pipe welds, and was not specified by the engineering design, should the radiography be disregarded?

Reply (3): ASME/ANSI B31.3 does not address this subject.

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(GENERAL NOTE: Code references are based on ASME B31.3-1990 Edition. References in brackets are to previous Editions and Addenda.)

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Interpretations No. 1 to ANSI/ASME B31.3

(This supplement is not part of the ANSI/ASME B31.3. It is included for information only.)

It has been agreed to publish Interpretations issued by the B31 Committee concerning B31.3 as part of the subscription service. This supplement includes Interpretations concerning B31.3 issued between January 1, 1980, and December 31, 1982. Future versions of this supplement will cover inquiries issued over 1 year periods. Each Interpretation applies to the latest Edition or Addenda at the time of issuance of the Interpretation. Subsequent revisions to the Code may have superseded the reply.

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Interpretation: 1-1

Subject: Table 327.4.1A, Limitations on Imperfections in Welds

Date Issued: February 8, 1980

File: 1426

Question: Does Note F to Table 327.4.1A allow concavity of the root surface of a depth equivalent to the actual external weld reinforcement, provided the reinforcement does not exceed the maximum allowed by the Code?

Reply: It is the opinion of the Committee that Note F to Table 327.4.1A allows concavity of the root surface of a depth equivalent to the actual external weld reinforcement, provided the reinforcement does not exceed the maximum allowed by the Code.

Interpretation: 1-2

Subject: 337, Pressure Tests

Date Issued: April 11, 1980

File: 1428

Question (1): When pressure testing, does 337 require the test pump to be isolated from the piping being tested when the test pressure has been attained?

Reply (1): It is the opinion of the Committee that the Code does not require isolation of the test pump. It is not the intent of the Code to require specific equipment which may be necessary to perform the examinations and tests required by the Code.

Question (2): What are the acceptance criteria for pressure tests performed in accordance with ANSI/ASME B31.3?

Reply (2): It is the opinion of the Committee that the acceptance criterion is a visual examination for leakage to verify that there are no leaks in the tested piping.

Question (3): In reference to 337.1, what are some examples of "minor repairs or additions"?

Reply (3): It is the opinion of the Committee that minor repairs or additions are those which would not affect the load carrying ability or leak tightness when precautionary measures are taken to assure sound construction.

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Interpretation: 1-3

Subject: 302.2.4, Allowances for Pressure and Temperature Variations

Date Issued: April 11, 1980

File: 1434

Question (1): What is the reason for allowances for occasional variations of pressure and temperature above design conditions in ANSI/ASME B31.3?

Reply (1): As stated in ANSI/ASME B31.3, "Occasional variations of pressure or temperature, or both, above operating levels are characteristic of certain services". It is the opinion of the Committee that this Code recognizes that occasional loads do not require the same factor of safety on stress as long time sustained loads. ANSI/ASME B31.3 allows an increase in allowable stress when designing for such variations provided all of the limitations of 302.2.3 (now 302.2.4) are adhered to.

Question (2): Is the allowance normally used in refinery and offshore facilities design?

Reply (2): The Committee does not have statistics on the frequency of application of various Code provisions by users. It is the opinion of the Committee that occasional variations are normally designed for in certain services in petroleum refineries and offshore facilities.

Question (3): Is it permissible to apply 302.2.3 (now 302.2.4) to offshore piping installations designed in accordance with ANSI/ASME B31.3?

Reply (3): Yes. It is the opinion of the Committee that all provisions of ANSI/ASME B31.3 are applicable to all facilities covered by the scope of the Code unless there is a specific statement to the contrary.

The reader is directed to the Introduction and Scope of the Code which state, "The designer is cautioned that the Code is not a design handbook. The Code does not do away with the need for the designer or competent engineering judgement" and "Where service requirements necessitate measures beyond the Code minimum, such measures shall be specified by the engineering design. Where so specified, the Code requires that they be accomplished."

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Interpretation: 1-4

Subject: 337.1, Pressure Tests

Date Issued: April 11, 1980

File: 1435

Question (1): Does the test referred to in 337.1 apply only to newly constructed piping systems?

Reply (1): Yes. It is the opinion of the Committee that the test required by 337.1 applies only to newly constructed piping systems, whether in the original installation or replacement in or of existing facilities.

Question (2): Does the test referred to in 337.1 apply only to leakage to the environment?

Reply (2): Yes. It is the opinion of the Committee that the test referred to in 337.1 applies only to leakage to the environment.

Interpretation: 1-5

Subject: 336.6.1(c), Progressive Examination

Date Issued: April 11, 1980

File: 1444

Question: At what percentage repair rate does ANSI/ASME B31.3 permit one to revert to spot radiography, upon improvement of the quality of welds, in a piping system requiring spot radiography of welds but which has been subjected to 100% radiography due to poor weld quality?

Reply: ANSI/ASME B31.3 does not set down a repair rate percentage at which time the user may return to a random or spot percentage. 336.6.1(c), Progressive Examination, requires that all welds represented by the original examination be repaired or replaced as per 336.6.1(c)(1) or 336.6.1(c)(2). It is the opinion of the Committee that when this is completed, one may revert to the original examination requirements.

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Interpretation: 1-6

Subject: 319.3.6, Flexibility and Stress Intensification Factors

Date Issued: April 11, 1980

File: 1446

Question (1): Does ANSI/ASME B31.3 provide specific stress intensification factors for unreinforced or reinforced fabricated pipe intersections which intersect at other than 90 deg.?

Reply (1): It is the opinion of the Committee that ANSI/ASME B31.3 does not provide specific stress intensification factors for lateral connections at other than 90 deg.

Question (2): What is the correct flexibility and stress intensification factor for welded elbows at angles less than 90 deg.?

Reply (2): It is the opinion of the Committee that, in the absence of more directly applicable data, the flexibility characteristics and stress intensification factors specified for welding elbows and pipe bends in Appendix D may be applied to welded elbows and pipe bends at angles less than 90 deg. in accordance with 319.3.6.

The reader is directed to the Scope and Introduction to the Code which state, "Engineering requirements of this Code, while considered necessary and adequate for safe design, generally employ a simplified approach to the subject. A designer capable of applying a more rigorous analysis shall have the latitude to do so." The designer is cautioned that the Code does not do away with the need for the designer or competent engineering judgement.

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Interpretation: 1-7

Subject: Flexibility and Stress Intensification Factors for an ANSI B16.9 Butt-Welding Tee

Date Issued: April 11, 1980

File: 1450

Question (1): What are the ANSI/ASME B31.3 flexibility and stress intensification factors for an ANSI B16.9 butt-welding tee with a crotch radius less than 12.5% of the branch outside diameter?

Question (2): What are the ANSI/ASME B31.3 flexibility and stress intensification factors for an ANSI B16.9 butt-welding tee with a crotch thickness less than 150% of the nominal wall thickness of the header pipe?

Reply: It is the opinion of the Committee that extruded ANSI B16.9 welding tees with a crotch radius less than 12.5% of the branch diameter may use flexibility characteristics and stress intensification factors for an extruded welding tee, provided the crotch thickness is less than 150% of the nominal wall thickness of the header pipe. If the crotch thickness is greater than 150% of the nominal header wall, or the ANSI B16.9 tee is fabricated by methods other than extrusion, the designer has the responsibility to determine the proper flexibility characteristics and stress intensification factors.

The reader is directed to the Introduction and Scope of the Code which state: "Engineering requirements of this Code, while considered necessary and adequate for safe design, generally employ a simplified approach to the subject. A designer capable of applying a more rigorous analysis shall have the latitude to do so. He must be able to demonstrate the validity of his approach."

Interpretation: 1-8

Subject: Compressors and Internal Piping

Date Issued: May 23, 1980

File: 1465

Question: Are compressors and internal piping excluded from the scope of ANSI/ASME B31.3?

Reply: Compressors and internal piping are excluded from the scope of ANSI/ASME B31.3 as indicated by 300.1.4(d) [now 300.1.3(c)] and Fig. 300.1.1. However, the Code does not prohibit equipment not within the scope of the Code from being designed to ANSI/ASME B31.3. This is a contractual matter between the manufacturer and customer.

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Interpretation: 1-9

Subject: Table 327.4.1A, Limitations on Imperfections in Welds

Date Issued: June 20, 1980

File: 1449

Question (1): Is it the intent of Notes B and C of Table 327.4.1A to require evaluation of porosity by

(*a*) summing the areas of the individual pockets in any square inch of projected weld and rejecting the weld if the sum exceeds three times the area of a single maximum pocket allowable; or

(*b*) summing the diameters of the individual pockets in any square inch of projected weld and rejecting the weld if the sum exceeds the diameter calculated for a circle with an area equal to three times the area of a single maximum pocket?

Reply (1): It is the opinion of the Committee that the total area of porosity projected radially through the weld is the sum of the areas of all the individual areas. Neither the greatest dimension of an individual pocket nor the total projected area shall exceed the limits set forth in Notes B and C, that is part (a) of Question (1) is the correct method.

Question (2): The Inquirer requests that porosity charts be sent to him.

Reply (2): The Committee does not have porosity charts. As a result of your inquiry, the Committee will consider the addition of such charts to future Addenda to the Code.

Question (3): Are tungsten inclusion imperfections classified as nonfusion or porosity?

Reply (3): ANSI/ASME B31.3 does not specifically classify tungsten inclusion imperfections. As a result of your inquiry, the Committee will consider specific classification for future Addenda.

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Interpretation: 1-10

Subject: Radiographic Examination in 336

Date Issued: June 20, 1980

File: 1457

Question: What records are required by 336 for radiographic examinations performed? How long must the records be retained?

Reply: It is the opinion of the Committee that 336.1.3 requires the manufacturer, the erector, and the fabricator to prepare suitable records of radiographic examinations performed for the Inspector's use.

336.4.5(b) requires the radiographic methodology to be in accordance with Article 2, Section V of the ASME BPV Code. T-236, System of Identification, of Section V states that:

> A system shall be used to produce permanent identification on the radiograph traceable to the contract, component, weld or weld seam, or part numbers, as appropriate. In addition, the Manufacturer's symbol or name and the date of the radiograph shall be plainly and permanently included on the radiograph.

T-292, Evaluation by Manufacturer, of Section V states that:

> Prior to being presented to the Inspector for acceptance, the radiographs shall be examined and interpreted by the Manufacturer as complying with the referencing Code Section. The Manufacturer shall record on a review form accompanying the radiographs the interpretation of each radiograph and disposition of the material examined.

T-293, Radiographic Setup Information, of Section V states that:

> To aid in proper interpretation of radiographs, details of the radiographic examination setup used shall accompany each group of radiographs if the same information applies. Reference to a standard setup is acceptable if descriptions of this standard setup are readily available to the Inspector. As a minimum, the information shall include:
>
> (*a*) number of films;
>
> (*b*) the data specified in T-236 and T-237.

336.5.1(b) of ANSI/ASME B31.3 requires that the welds selected for random radiography include at least one weld of each individual welder or welding operator doing the production welding. A record of this is required so that the Inspector can verify this requirement.

Records are required to be retained to allow the Inspector reasonable time to exercise his rights delineated in 336.3.

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Interpretation: 1-11

Subject: Use of MSS SP-75 Fittings

Date Issued: June 20, 1980

File: 1458

Question: Does ANSI/ASME B31.3 permit the use of ASTM A 633 Gr. E material to be used in the manufacture of fittings in accordance with MSS SP-75?

Reply: MSS SP-75 does not list specific materials of construction for fittings covered by that specification. It is the opinion of the Committee that it is the responsibility of the designer to insure that the material used conforms with the requirements of both MSS SP-75 (Section 6) and ANSI/ASME B31.3. Chapter III of ANSI/ASME B31.3 provides a basis for establishing allowable stresses and lists some of the factors to be considered in evaluating the suitability of an unlisted material, such as ASTM A 633 Gr. E.

Interpretation: 1-12

Subject: Tables 323.2.1 and 323.2.2

Date Issued: June 20, 1980

File: 1460

Question: What impact tests does ANSI/ASME B31.3 require for solution-annealed Type 304 SS (0.08 maximum carbon) for:

(1) weld procedure qualification;
(2) welder performance qualification;
(3) production welds?

Reply: It is the opinion of the Committee that the impact test requirements for weldments are covered in Column A of Table 323.3.1 modified by 3b of Column A of Table 323.2.2 to exclude testing of the heat affected zone. On this basis weld procedure qualification requires one test piece (3 specimens) for impact testing of the weld for each welding procedure, type of electrode or filler metal (i.e., AWS E-XXX classification), and each flux to be used. Additional test piece(s) (3 specimens) are required if the material thicknesses to be welded are outside the range 1/2 to t + 1/4 where t is the thickness of the test piece. Test pieces are not required for welder performance qualification or production welds.

As a result of your inquiry, the Committee will review present impact requirements for possible clarification. Any revision will appear in a subsequent Addenda to the Code.

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Interpretation: 1-13

Subject: Allowable Stresses for ASTM A 587

Date Issued: June 20, 1980

File: 1461

Question: Why does ANSI/ASME B31.3 limit allowable stresses in Appendix A to 650°F for ASTM A 587?

Reply: At the time that ASTM A 587 was added to Appendix A, it was the opinion of the Committee that a maximum temperature of 650°F was adequate to cover applications of this material in chemical plant and petroleum refinery piping. It should be noted, however, that this does not preclude the use of this material at higher temperatures, and procedures for establishing upper temperature limitations are given in 323.2.1.

As a result of your inquiry, the Committee will review the need for providing allowable stresses at higher temperatures. Any revision will appear in a subsequent Addenda to the Code.

Interpretation: 1-14

Subject: Limitations on Undercutting in Table 327.4.1A

Date Issued: June 20, 1980

File: 1466

Question: Table 327.4.1A lists the limitations for undercutting on girth welds as the lesser of 1/32 in. or $\overline{T}w/4$ for the depth. Is there a limitation on the length or width of undercutting?

Reply: No. It is the opinion of the Committee that the limiting dimension is only applicable to the depth of undercutting.

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Interpretation: 1-15

Subject: 323.1.1, Listed or Published Specifications

Date Issued: August 1, 1980

File: 1477

Question: What is meant by the term "published specification" as used in 323.1.1?

Reply: It is the opinion of the Committee that a published specification for material is one that contains all of the information outlined in 323.1.1 and is available to the public. In addition, a published specification is one that has been prepared for continuing usage as opposed to a single or very limited application such as might be covered in a design specification. Examples of published specifications include manufacturer's specifications for proprietary material, federal military specifications, and unlisted ASTM specifications.

Interpretation: 1-16

Subject: Expansion Joints

Date Issued: August 22, 1980

File: 1455

Question: Is an expansion joint that is used to provide for relative movement between the inner and outer shells of a refrigerated ammonia storage tank, and to seal the space between them, considered to be piping within the scope of ANSI/ASME B31.3, and therefore subject to the rules of 319.7?

Reply: It is the opinion of the Committee that such a flexible component used in this manner is not within the scope of ANSI/ASME B31.3 under the provisions of 300.1.4(d) [now 300.1.3(d)]. Such exclusion does not bar contractual agreement between purchaser and manufacturer to apply the provisions of ANSI/ASME B31.3 to such tank parts insofar as the provisions may be suitable.

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Interpretation: 1-17

Subject: Use of Brazed Joints for Flammable Service

Date Issued: August 22, 1980

File: 1474

Question: The 1976 Edition allows the use of brazed joints for flammable service, whereas the 1973 Edition prohibits brazed joints in this service. Why are these provisions different?

Reply: The use of brazed joints in flammable service is allowed in the 1976 Edition only if appropriately safeguarded as outlined in Appendix G. Without the consideration for safeguarding, the 1976 Edition prohibits the use of brazed joints in flammable service, which is the same requirement as in the 1973 Edition. Recognition of safeguarding was not incorporated in the 1973 Edition.

Interpretation: 1-18

Subject: 302.3.2 Bases for Allowable Stresses

Date Issued: August 22, 1980

File: 1475

Question: Are the allowable stress values in tension that are listed in Table 1 of Appendix A the lowest values obtained by applying all of the criteria listed in 302.3.2(d)?

Reply: It is the opinion of the Committee that, in the majority of cases, the allowable stress values in tension listed in Table 1 of Appendix A are the lowest values obtained by applying all of the criteria listed in 302.3.2(d), multiplied by the appropriate quality factor (see Note 46 to Table 1). For some materials where it was not possible to obtain allowable stress values based on the criteria of 302.3.2, a more conservative basis was used (e.g., ASME BPV Code, Section VIII, Division 1 and ANSI B31.3-1966).

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Interpretation: 1-19

Subject: Code Exclusions

Date Issued: August 22, 1980

File: 1478

Question: 300.1.4(c) and (d) [now 300.1.3(c) and (d)] set out, and Fig. 300.1.1 illustrates, a number of pieces of equipment that are excluded from the scope of ANSI/ASME B31.3. Often the equipment listed as well as other equipment, sometimes of a proprietary nature, is assembled on skids or is packaged in a manufacturing facility. When such skids or packages containing two or more of the excluded pieces of equipment are for installation in a facility that is to be in accordance with ANSI/ASME B31.3, is it the intent of the Code also to exclude the piping that interconnects the equipment?

Reply: No, such interconnecting piping is not excluded. It is the opinion of the Committee that neither the assembly method nor the point of assembly are pertinent. Whether skidded or packaged, and whether assembled in a manufacturing facility or in the field, the interconnecting piping must comply with the requirements of the Code any time the ultimate installation must comply. Some examples of where such piping must conform to the Code are: compressor interstage piping, heater external crossover piping, and lube oil console piping.

Interpretation: 1-20

Subject: Thickness Allowances in 302.4

Date Issued: August 22, 1980

File: 1480

Question: Should thickness allowances for items listed in 302.4 (corrosion, erosion, and thread depth or groove depth) be included in the thickness used in the calculation of longitudinal stresses S_L in 302.3.5(c)?

Reply: It is the opinion of the Committee that the thickness allowances described in 302.4 shall not be included in the wall thickness used in the calculation of longitudinal stresses S_L in 302.3.5(c). The reader is referred to the last sentence of 302.3.5(c).

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Interpretation: 1-21

Subject: Extruded Outlet Headers

Date Issued: August 22, 1980

File: 1482

Question: Are the rules for pressure design of extruded outlet headers in 304.3.4 applicable to extruded outlets that do not fall within the definition of an "extruded outlet header" given in that paragraph?

Reply: It is the opinion of the Committee that the rules of 304.3.4 are not applicable to extruded outlets that do not fall within the definition of an extruded outlet header as specified in that paragraph. Pressure design of branch connections must meet the requirements of 304.3.

Interpretation: 1-22

Subject: Value of R_1 in 304.2.3

Date Issued: August 22, 1980

File: 1483

Question: In the pressure design of miter bends, is the correct value of R_1 to be used in Eq. (4b) of 304.2.3 the actual bend radius of the value obtained from Eq. (5)?

Reply: It is the opinion of the Committee that the correct value of R_1 to be used in the pressure design of miter bends in accordance with Eq. (4b) of 304.2.3 is the actual effective bend radius of miter bend as defined for Fig. 304.2.3. In addition, compliance with the Code requires that the value of R_1 be equal to or greater than the value given by Eq. (5).

Interpretation: 1-23

Subject: Bends

Date Issued: August 22, 1980

File: 1485

Question (1): How does a bend with buckles differ from a corrugated bend?

Reply (1): It is the opinion of the Committee that a corrugated bend has intentional geometrically spaced corrugations placed at the inside radius, whereas buckling associated with pipe bends is unintentional and random.

Question (2): Define "substantially free of buckles" as used in 329.1.

Reply (2): The Code does not define "substantially free of buckles."

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Interpretation: 1-24

Subject: 336.5 and M336.5, Extent of Required Examinations

Date Issued: August 22, 1980

File: 1486

Question: What is the technical basis for the varied percentages of required examinations stated in 336.5.1(b), M336.5.1(b), 336.5.3(b), and M336.5.3(b)(2)? [NOTE: M336.5.3(b)(2) was deleted in ANSI/ ASME B31.3e-1980.]

Reply: It is the opinion of the Committee that the Code sets forth what industry considers to be the minimum requirements for the safe design and construction of piping systems. The increasing NDE requirements are consistent with the increasing potential for hazards. The designer has the responsibility to specify, and the owner to require, more stringent requirements when considered necessary to increase the required level of safety.

Interpretation: 1-25

Subject: 337.6, Sensitive Leak Test

Date Issued: September 5, 1980

File: 1484

Question: Does demonstration of the sensitivity requirement of 337.6 apply to the gas and bubble formation testing method specified in Article 10, Section V of the ASME BPV Code?

Reply: No. It is the opinion of the Committee that demonstration of the sensitivity requirement of 337.6 is required only if a testing method other than the gas and bubble formation testing method specified in Article 10, Section V of the ASME BPV Code is intended to be used.

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Interpretation: 1-26

Subject: Examination and Inspection

Date Issued: October 10, 1980

File: 1488

An equipment fabricator is contracted by an owner to construct a palletized assembly of components and interconnecting piping to meet ANSI/ASME B31.3. Some of the components (e.g., heat exchangers) are supplied by the owner and some of the components (e.g., valves) are purchased by the fabricator. The engineering design is the owner's.

Question (1): With regard to 300(b)(1) and 336.1.2, does the owner have the overall responsibility, exercised through the Authorized Inspector, to verify that compliance with all the applicable requirements of ANSI/ASME B31.3 and the engineering design have been met by the fabricator? (NOTE: The term *Authorized Inspector* is now *Owner's Inspector*.)

Reply (1): Yes. It is the opinion of the Committee that under the conditions given, the owner is also the designer and has overall responsibility for compliance with Code requirements both for the engineering design and the required examinations and tests.

Question (2): With regard to 336.5.1(d), does the certification referred to apply only to components and materials, or also to fabrication, examination, inspection, and test?

Reply (2): It is the opinion of the Committee that the certification applies only to components and materials.

Question (3): With regard to 336.1.1, under the conditions defined above, is the fabricator responsible for fulfilling the requirements of the examiner?

Reply (3): It is the opinion of the Committee that the fabricator is responsible for fulfilling the requirements of the examiner unless otherwise specified by the owner or the engineering design.

Question (4): With regard to 336.5.1(d), if the fabricator and the examiner cannot or will not provide the owner (Authorized Inspector) with a written certification on the materials and components, is it in compliance with the Code if the Authorized Inspector certifies that the components and materials meet the requirements of ANSI/ASME B31.3, provided that supporting certifications, records, or other evidence have been reviewed by the Authorized Inspector and found satisfactory?

Reply (4): It is the opinion of the Committee that this is in compliance with the Code.

Question (5): With regard to 336.5.1(d), are the fabricator and the examiner required to furnish a certification only for the materials and components that the fabricator supplied, or are they also required to furnish a certification for the owner supplied components?

Reply (5): The Code requires that a certification be furnished for all materials and components. Normally the certification is furnished by the entity providing the materials or components, but since specific contractual agreements can modify that, it is not a matter of Code interpretation.

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Question (6): With regard to 300.1.4(d) [later changed to 300.1.3(d)], are pressure vessels, heat exchangers, pumps, and other fluid handling or process equipment, including internal piping and connections for external piping, excluded from ANSI/ASME B31.3?

Reply (6): It is the opinion of the Committee that pressure vessels, heat exchangers, pumps, and other fluid handling or process equipment, including internal piping and connections for external piping, are excluded from ANSI/ASME B31.3, as indicated in 300.1.4(d) [later changed to 300.1.3(d)].

Interpretation: 1-27

Subject: Random Radiography in 336.5.1(b)

Date Issued: October 10, 1980

File: 1489

Question (1): Is it the intent of 336.5.1(b) that, in addition to the required radiography of 5% of circumferential buttwelds for a designated lot of piping, a minimum of 5% of each welder's welds be also radiographed?

Reply (1): No. It is the opinion of the Committee that it is the intent of the Code that each welder's work be included in the 5% examination required in 336.5.1(b). It is not the intent to require examination of 5% of each welder's work.

Question (2): Who selects the random welds to be examined?

Reply (2): It is the opinion of the Committee that 336.1.3 places the responsibility for performing examinations on the manufacturer, the fabricator, or the erector; and therefore, in the absence of any contractual arrangement between the owner and the manufacturer, the fabricator, or the erector giving the owner the right to select welds for examination, the choice of selected welds would be the prerogative of the manufacturer, the fabricator, or the erector.

Interpretation: 1-28

Subject: Definition of T in Fig. 327.4.2B

Date Issued: October 10, 1980

File: 1491

Question: Figure 327.4.2B refers to the symbol T. What is the definition of T?

Reply: It is the opinion of the Committee that the definition of the symbol T is given in Appendix J.

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Interpretation: 1-29

Subject: Allowable Stresses for Austenitic Stainless Steel H Grades

Date Issued: November 3, 1980

File: 1492

Question: May the allowable stresses for ASTM A 312 Grade TP 347H pipe shown in Appendix A, Table 1 be used at 1000°F and below for material that has had a stabilizing heat treatment at 1500°F to enhance corrosion resistance following the required solution anneal?

Reply: It is the opinion of the Committee that the allowable stresses in Appendix A, Table 1 for all austenitic stainless steel H grades are applicable whether or not the material has received a 1500°F heat treatment.

It should be noted, however, that heat treatment to enhance corrosion resistance is not a Code matter, and as indicated in Appendix F [F323.2(c)(2)], the designer has a responsibility to consider the possible adverse effects of any heat treatment that he might specify.

Interpretation: 1-30

Subject: Change of Wording in 337.1

Date Issued: November 3, 1980

File: 1495

Question: What is the reason for changing the first sentence in 337.1 of ANSI B31.3-1976 from "Prior to initial operation, installed piping shall be..." To "Prior to initial operation, each piping system shall be..."? This change is in Addenda ANSI/ASME B31.3d-1980.

Reply: This change was made because "installed piping" was not defined and "piping system" is defined in 300.2.

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Interpretation: 1-31

Subject: 336.2, Qualification of the Owner's Inspector

Date Issued: November 3, 1980

File: 1499

Question: May the piping erector of a facility designed in accordance with ANSI/ASME B31.3 also act as the Authorized Inspector?

Reply: As stated in 336.2, the Authorized Inspector shall not represent nor be an employee of the piping erector unless the owner is also the erector. Please note that the term Authorized Inspector has been changed to Owner's Inspector in ANSI/ASME B31.3e-1980.

Interpretation: 1-32

Subject: Pressure Relief Devices

Date Issued: January 9, 1981

File: 1490

Question (1): What specific rules govern the setting of pressure relief devices in ANSI/ASME B31.3?

Reply (1): ANSI/ASME B31.3 does not give specific rules for determining the set pressure on pressure relief devices. The exact set pressure is the responsibility of the designer.

Question (2): May the limitations in 302.2.3 be used as the basis for determining the setting of pressure relief devices?

Reply (2): The limitations in 302.2.3 may not be used as the only basis for determining the set pressure of relief devices. The pressure setting of relief devices shall be such as to safely relieve excessive pressures above those for which the piping system has been designed, considering all design conditions specified in 302, including the allowances for pressure-temperature variations in 302.2.3, as well as such considerations as pressure accumulation and relief device capacity.

The designer is cautioned that pressure relief devices are only capable of limiting pressure. Assurance of compliance with the limits on frequency and duration used by the designer in the design is the responsibility of the owner [see 300(b)].

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Interpretation: 1-33

Subject: 319.4.1, Requirements for Analysis

Date Issued: January 9, 1981

File: 1507

Question (1): 319.4.1(c) of ANSI B31.3-1976 lists an empirical equation that can be used to exempt piping systems from the requirement for a formal analysis of adequate flexibility. The statement is made that in order to apply Eq. 19 (Eq. 16, 1980 Ed.), the system must be "of uniform size". Please provide an interpretation on what is meant by "uniform size".

Reply (1): Uniform size refers to a piping system of a single nominal diameter and thickness.

Question (2): In a footnote, a warning is given listing additional criteria to be considered. Contained in the warning is a reference to "near straight sawtooth runs". Please provide an interpretation of what "near straight sawtooth runs" are.

Reply (2): Near straight sawtooth runs occur in piping systems containing more than one small U, L, or Z shaped expansion loop, or bends between two anchor points.

Question (3): Considering the limitations referenced, is it the opinion of the Committee that the formula is in general use?

Reply (3): The Committee cannot offer any specific information concerning the frequency or use of the formula; however, the Committee is aware that the formula is still used.

The reader is referred to a paper by A. R. C. Markl, "Piping Flexibility Analysis," published in the ASME transactions, 1955, for additional information.

Interpretation: 1-34

Subject: Appendix D on Stress Intensification Factors

Date Issued: February 23, 1981

File: 1470-1

Question: Is it the intent that the stress intensification factors shown in Appendix D of each respective Code be applied for sustained and occasional loads as well as for expansion loads?

Reply: Stress intensification factors (SIF's) listed in Appendix D of the various Code Sections are intended for design against fatigue failure and were to a large extent developed from cyclic bending tests of piping components. Therefore, the application of the SIF for cyclic bending and torsion loads is appropriate. Sustained and occasional loads may not be cyclic loads; however, it is the intent of the various Codes to provide adequate protection from component collapse. It has been shown that the SIF of $0.75i$ (but not less than 1.0) found in ANSI/ASME B31.1 applied to sustained and occasional bending and torsion loads provides a conservative margin against component collapse.

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Interpretation: 1-35

Subject: Hydrostatic and Pneumatic Testing

Date Issued: March 6, 1981

File: 1508

Question: If piping designed for external pressure is tested hydrostatically or pneumatically in accordance with 337.4.3(a) or 337.4.4, is it necessary to use the ratio of the allowable stress at test temperature to the allowable stress at design temperature in establishing the test pressure, as in Eq. 27 (now Eq. 24) of 337.4.1(b)?

Reply: No.

Interpretation: 1-36

Subject: 337.5.2, Alternative Test for Category D Fluid Service

Date Issued: March 6, 1981

File: 1509

Question (1): What pressure should be used for the preliminary check required in 337.5.2 if the operating pressure of the system does not exceed 25 psig?

Reply (1): It is the intent of 337.5.2 that the preliminary check be conducted at a pressure less than the operating pressure to minimize the consequences of gross leakage or failure during the test. The value to be used shall be selected by the designer after consideration of such consequences.

Question (2): What test fluid does 337.5.2 require for the preliminary check?

Reply (2): 337.5.2 does not define the test fluid requirements for the preliminary check.

Question (3): May the preliminary check be waived if the operating pressure is less than 25 psig?

Reply (3): No.

Please note that the test may be conducted during or prior to initial operation.

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Interpretation: 1-37

Subject: Use of Term, "Radius of any Arc Sector of Approximately 45 deg." in 304.3.4(c)

Date Issued: April 24, 1981

File: 1496

Question: In 304.3.4(c)(3), what is intended by the expression "radius of any arc sector of approximately 45 deg."?

Reply: The approximate 45 deg. arc sector is specified as a practical necessity for establishing maximum and minimum radii limits on a die controlled contour that may have a continuously varying radius of curvature. The current Edition of the Code does not address the limits of radii at any specific point on the surface, although the intent of the Code is met if the radius of curvature is nowhere less than the specified minimum. The best fit radius to any 45 deg. arc shall be within the minimum and maximum radii limits specified in 304.3.4.

Interpretation: 1-38

Subject: Yield Strength Values for ASTM A 570 Gr. C

Date Issued: April 24, 1981

File: 1510

Question: Using the criteria of ANSI/ASME B31.3, what values of yield strength for ASTM A 570 Gr. C are suitable for establishing allowable stresses for this material from -20°F to 750°F?

Reply: Suitable yield strength values for ASTM A 570 Gr. C from -20°F to 750°F are:

Temperature, °F	Yield Strength, ksi
−20 to 100	33.0
200	30.1
300	29.3
400	28.3
500	26.7
600	24.4
650	24.0
700	23.8
750	23.1

Note that the yield strength does not govern in establishing allowable stresses in this temperature range. It should be noted also that the only pipe specification listed in Appendix A using ASTM A 570 material is A 134, which is limited to Category D Fluid Service (see 305.2.1).

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Interpretation: 1-39

Subject: 331.3.6, Thickness Effect on Heat Treatment Requirements

Date Issued: April 24, 1981

File: 1517

Question (1): In ANSI/ASME B31.3, is postweld heat treatment required for an NPS 2 or smaller socket or seal weld if the fitting is A 182-F5, the pipe is A 335-P5, a 350°F preheat is used, and the fillet weld size is less than ½ in.?

Reply (1): No, if the provisions of 331.3.6(b) (2) are met.

Question (2): Same, except the fitting is A 182-F5a?

Reply (2): Postweld heat treatment is required by 331.3.6(b) (2). Exceptions to this requirement are in 331.1.1 and 331.3.6(b) (3).

Question (3): In ANSI/ASME B31.3, is postweld heat treatment required for an NPS 2 or smaller socket or seal weld if the fitting is A 182-F5 or A 182-F5a, the pipe is A 335-P5, and the weld is made with metal that is not air hardening?

Reply (3): No, provided the requirements of 331.3.6(b) (3) are met.

Interpretation: 1-40

Subject: Definition of Category M Fluid Service in 300.2

Date Issued: April 24, 1981

File: 1518

Question: What constitutes "a very small quantity" in the definition of Category M Fluid Service, in 300.2?

Reply: "A very small quantity" is the amount determined by the owner to be significant in his identification of a Category M Fluid Service. See 300(b) (1).

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Interpretation: 1-41

Subject: Table 327.4.1A, Limitations on Imperfections in Welds

Date Issued: April 24, 1981

File: 1522

Question: Are different type imperfections as listed in Table 327.4.1A permitted in the same area, as long as each specific imperfection is within its own respective limitation?

Reply: Yes.

Interpretation: 1-42

Subject: Joint Factors

Date Issued: May 22, 1981

File: 1527

Question (1): Does ANSI/ASME B31.3 require the use of a joint factor E_j other than 1.0 when establishing SE values for calculating the required thickness (304.1) of seamless pipe containing a circumferential weld(s)?

Reply (1): No.

Question (2): Why doesn't Table 302.3.4 list a joint factor for a circumferential or girth butt weld?

Reply (2): Table 302.3.4 does not list a joint factor for a circumferential or girth butt weld because none of the design rules covered in ANSI/ASME B31.3 require the use of such a factor.

Interpretation: 1-43

Subject: 337.4.4, Pneumatic Testing

Date Issued: May 22, 1981

File: 1531

Question: Should a temperature correction such as that given in Eq. 24 of 337.4.2 (Eq. 27 of the 1976 Edition) be applied to a pneumatic pressure test in 337.4.4?

Reply: The requirement for a temperature correction does not apply to pneumatic pressure testing in 337.4.4.

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Interpretation: 1-44

Subject: Components and Material Manufactured to an Edition of a Standard or Specification Which Has Been Superseded

Date Issued: May 29, 1981

File: 1526(3)

Question: Dated component standards and materials specifications which are acceptable for use are listed in Appendix K. Under what conditions is it permissible to use components and material manufactured to a superseded or later edition of these standards and specifications?

Reply: Components and material manufactured to an edition of a standard or specification which has been superseded in the ANSI/ASME B31.3 Code may be used in piping systems designed and constructed to the edition of the Code in which they were listed.

Components and material manufactured to an edition of a standard or specification which has been superseded or has a later date than in the edition of ANSI/ASME B31.3 under which the piping system(s) is being designed and constructed shall be evaluated as an unlisted component (302.2.3) or unlisted material (323.1.1).

Interpretation: 1-45

Subject: 336.5 and M336.5, Type and Extent of Required Examination

Date Issued: July 21, 1981

File: 1542

Question: 336.5.1 (b) requires that random radiography be used to examine the full length of at least 5% of the circumferential butt welds in a piping installation. M336.5.1 (b) increases the minimum to 20% and includes other types of welds. Referring only to circumferential butt welds, if 100% radiography is applied, may the user omit the visual examination of these welds which is required by 336.5.1 (a) and M336.5.1 (a), respectively?

Reply: No.

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Interpretation: 1-46

Subject: Stress Intensification Factors

Date Issued: August 7, 1981

File: 1537

Question: When applying the equations given in Appendix D for determining the stress intensification factor for a reinforced fabricated tee with a pad, what limits does the Code place on the width of the reinforcing pad?

Reply: The Code does not place any limits on the width of reinforcing pad used other than those required by 304.3 for pressure design.

The reader is referred to the transactions of the ASME Vol. 74, No. 3, "Fatigue Tests of Piping Components" by A. R. C. Markl for a more complete discussion of the technical basis for the Code rules.

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Interpretation: 1-47

Subject: B31.3 and B31.4, Comparison of Codes

Date Issued: September 4, 1981

File: 1538

Question: Why cannot the two piping Code Sections B31.3 and B31.4 be combined into a single Code Section?

Reply: It is the opinion of the B31 Committee that it is appropriate to continue publishing ANSI/ASME B31.3 and ANSI/ASME B31.4 as separate Code Sections for the following reasons.

(*a*) *Established Practice.* Publication of separate Code Sections began in 1952. In 1955, the B31 Committee decided, after review of pertinent factors, that other industry Sections should also be published separately. The last edition of a combined Code for Pressure Piping, ASA B31.1-1955, appeared that same year.

(*b*) *Basis for Decisions.* Questions of combining Code Sections, as well as developing new Sections, have been raised periodically during the past 25 years and, in fact, decisions to combine two Sections have been made in two instances. Decisions to merge, or to develop separate Sections, have been based on similarities and differences in the following factors:

(*1*) Services – fluids handled, range of pressure and temperature, etc.

(*2*) Environments – surroundings which may impact on piping safety, or which may be affected by possible piping failure.

(*3*) Application – how the Code is used; actual or potential regulatory jurisdictions.

These factors, where they differ substantially as in the case of piping for refineries and chemical plants versus piping for cross-country oil transportation, account for crucial differences in philosophy relating to design, construction, operation, and maintenance of piping – which in turn necessitate separate Sections.

(*c*) *Differences vs. Similarities.* Similarities among different Code Sections are natural and encouraged because of similarities in the basic subject matter. Several technical Committees are maintained by the B31 Committee to exploit opportunities for common practice among all Code Sections. But these similarities do not warrant merging one Section with another where basic differences in services, environment, and application exist.

(*d*) *Specific Differences.* A few of the major differences between B31.3 and B31.4 that arise from basic differences outlined above are listed here. There are many others.

(*1*) *Allowable Stress Basis.* The more extensive and complex criteria in B31.3 are necessitated by the extreme range of temperatures and material of construction.

(*2*) *Unlisted Materials and Components.* These are not permitted under B31.4 because services are of limited diversity. They are permitted, with rules for qualifying them, in B31.3 because unanticipated service can be expected to require them.

(*3*) *Limitations on Components and Joints.* These are expressed as straightforward rules in B31.4. In B31.3 they require complex guidelines (e.g., the safeguarding and severe cyclic conditions concepts) because of the diversity of services and environments.

(*4*) *Operation and Maintenance.* These are not dealt with in B31.3 because the complexity of activities is too great for effective codification (e.g., corrosion can take so many forms and result from so many sources that the designer must rely on expertise not found in the Code). In B31.4 the fruits of many years of experience are summed up in useful rules (e.g., for corrosion protection and monitoring) which also aid in protecting the public.

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Interpretation: 1-48

Subject: Carbon Steel Pipe

Date Issued: September 8, 1981

File: 1549

Question (1): For carbon steel pipe made from plate (such as ASTM A671) for service below -20°F, is normalizing the plate acceptable or does the pipe require normalizing?

Reply (1): Either approach is acceptable as long as the finished product meets the impact requirements of the Code.

Question (2): What are the allowable B31.3 stresses for ASTM A671 Classes 30, 31, and 32?

Reply (2): The allowable stresses for unlisted materials may be determined in accordance with 323.1.1.

Interpretation: 1-49

Subject: 321, Design of Pipe Supporting Elements

Date Issued: September 8, 1981

File: 1552

Question: Does 321.1.4(d) permit plastic materials approved for pressure piping to be used as pipe support elements in tension at pipe temperatures above ambient?

Reply: Yes, provided the other requirements of 321.1 have been satisfied.

Interpretation: 1-50

Subject: Loads Due to Pressure Surges

Date Issued: September 8, 1981

File: 1553

Question: How shall longitudinal piping stresses due to unbalanced loads from pressure surges which result in anchor displacements be evaluated in ANSI/ASME B31.3?

Reply: Loads due to pressure surges are considered as primary loads, and longitudinal stress limits must comply with 302.3.3(c) for sustained loads or 302.3.6 for occasional loads. Pressure-temperature limits of 302.2 must also be met.

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Interpretation: 1-51

Subject: Use of Aluminum Flanges

Date Issued: October 19, 1981

File: 1554

Question: Will ASME B31 reinstate ANSI B16.31, "Non-Ferrous Pipe Flanges 150, 300, 600, 900, 1500 and 2000 lb" that has been dropped from ANSI/ASME B31.3-1980 Edition, Addenda ANSI/ASME B31.3a-1981?

Reply: Since the American National Standards Institute has withdrawn ANSI B16.31, the Committee considers it inappropriate to reference it. Please refer to 304.7.2 for qualifying unlisted aluminum flanges.

Interpretation: 1-52

Subject: B31.1 and B31.3, Synfuel Plant Piping

Date Issued: October 27, 1981

File: 1541

Question: What section of the ASME Code for Pressure Piping, B31, may be used for materials, design, fabrication, assembly, erection, examination, inspection, and test of piping within coal based syn fuels plants for the production of electric power and/or industrial steam?

Reply: ANSI/ASME B31.1 applies to piping associated with power boilers and subject to ASME Boiler and Pressure Vessel Code Section I inspection and stamping. (See B31.1, 300.1.3 (b) and Fig. 300.1.1.)

Either ANSI/ASME B31.1 or B31.3 is applicable to other piping associated with the production or distribution of industrial steam or production of electric power. (See B31.3, Fig. 300.1.1.)

ANSI/ASME B31.3 applies to all other piping.

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Interpretation: 1-53

Subject: Definition of "Substantially Free of Buckles"

Date Issued: February 10, 1982

File: 1485R

Question: Since ANSI/ASME B31.3 does not specifically define the phrase "substantially free of buckles," is it intended that the definition of "substantially," given in Webster's New Collegiate Dictionary, be applicable?

Reply: It is appropriate to use a recognized English language dictionary for each of the words in a phrase, in the absence of any specific definition in the Code.

Interpretation: 1-54

Subject: Definition of "*d*" in 304.1.1(b)

Date Issued: February 18, 1982

File: 1566

Question: In accordance with 304.1.1(b), what is the correct definition of *d*, inside diameter of pipe, given in equation form?

Reply: The correct definition of *d* for pressure design is given by the following equation:

$$d = D - 2(T - c)$$

where D and c are defined in 304.1.1 and T = pipe wall thickness, measured or minimum per purchase specification (see Appendix J).

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Interpretation: 1-55

Subject: 304.3.4 and Appendix D

Date Issued: February 19, 1982

File: 1567

Question (1): May a "drawn tee" be considered as an extruded outlet header in accordance with 304.3.4?

Reply (1): Yes, provided that it is extruded using a die or dies to control the radii of the extrusion and that all of the limits on geometry required by 304.3.4 are met.

Question (2): Are the stress intensification factors given in Appendix D for welding tees valid for fabricated tees and/or for tees formed by an extrusion process?

Reply (2): The stress intensification factors given in Appendix D for welding tees are not valid for fabricated tees employing intersection welds. Stress intensification factors for fabricated tees are given separately in Appendix D in the description column.

The stress intensification factors for welding tees formed by an extrusion process are given in Appendix D both for tees in accordance with ANSI B16.9, with the geometry limits specified, and for extruded welding tees with other geometry limits.

Question (3): Is the flexibility characteristic h specified in Appendix D for an extruded welding tee valid only within the geometry limits for r given in 304.3.4(c)?

Reply (3): Yes. Refer to Note 2 in Appendix D.

Question (4): When the geometry limits specified for the components listed in Appendix D are not met, what equations should be used in calculating the respective flexibility characteristic h?

Reply (4): ANSI/ASME B31.3 does not specifically address the requirements for flexibility characteristic h outside the geometry limits specified in Appendix D. Refer to 319.3.6 for components not covered in Appendix D.

Question (5): Are the geometry limitations specified for components listed in Appendix D intended to be mandatory for manufacturing such components?

Reply (5): No; unless specifically required elsewhere in ANSI/ASME B31.3, the geometry limitations given in Appendix D are intended only to provide limits on the specific applicability of the equations for flexibility characteristic h.

Question (6): Can the limitations on r_x required in 304.3.4(c) and Appendix D both be met in all instances?

Reply (6): In certain instances, for large diameter welding tees for ANSI B16.9, all of the geometry limits specified for r_x in Appendix D and in 304.3.4(c) cannot be met, in which case the flexibility characteristic h specified for B16.9 welding tees is not directly applicable. Appendix D also provides an equation for flexibility characteristic h for extruded welding tees with other than B16.9 geometry limitations. Refer also to 319.3.6 for components not covered in Appendix D.

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Interpretation: 1-56

Subject: Appendix D, Flexibility and Stress Intensification Factors

Date Issued: February 22, 1982

File: 1443

Question (1): What is the basis for the formulas for stress intensification factors and flexibility factors given in Appendix D?

Reply (1): Basic background material for derivations of formulas for flexibility characteristics can be found in the following:

(*a*) "Fatigue Tests of Welding Elbows and Comparable Double-Mitre Bends," by A. R. C. Markl, Trans. ASME Vol. 69, n 8, 1947, pp. 869-879.

(*b*) "Fatigue Tests on Flanged Assemblies," by A. R. C. Markl and H. H. George, Trans. ASME Vol. 72, 1950, pp. 77-87.

(*c*) "Fatigue Tests of Piping Components," by A. R. C. Markl, Trans. ASME Vol. 74, 1952, pp. 287-303.

(*d*) "Piping Flexibility Analysis," by A. R. C. Markl, Trans. ASME Vol. 77, 1955, pp. 127-149.

(*e*) "Effects of Internal Pressure on Flexibility and Stress-Intensification Factors of Curved Pipe or Welding Elbows," E. C. Rodabaugh and H. H. George, Trans. ASME Vol. 79, 1957.

(*f*) "Comparisons of Test Data with Code Methods for Fatigue Evaluation," by E. C. Rodabaugh and S. E. Moore, Phase Report No. 115-10, ORNL-TM-3520, Nov. 1971.

Question (2): What is the effect of relative branch to run diameter on the flexibility characteristic h in Appendix D?

Reply (2): The relative effect of branch diameter to run diameter on flexibility characteristic h for branch outlets is being investigated at the present time. When properly substantiated design criteria are available, they will be considered for inclusion in the Code.

Question (3): Is $\overline{T}$ shown in Appendix D for extruded welding tees the nominal wall thickness of the fitting or the matching pipe?

Reply (3): The $\overline{T}$ to be used is the wall thickness of the matching pipe.

Question (4): What is the effect of external crotch radius r_x and crotch wall thickness T_c on flexibility characteristic h or extruded outlets?

Reply (4): The effect of crotch radius r_x on flexibility characteristic h for extruded welding tees within specified thickness limits is given in Appendix D. From a practical standpoint both the external radius of curvature r_x and the crotch wall thickness T_c have influence on the flexibility characteristic h. The formulated relationship has not been developed at the present time.

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Interpretation: 1-57

Subject: 304.1.2, Straight Pipe Under Internal Pressure

Date Issued: February 22, 1982

File: 1559

Question (1): In accordance with 304.1.2, may the Lamé Eq. (3c) be used instead of Eq. (3a) for the internal pressure design of straight pipe?

Reply (1): Yes, Eqs. (3a), (3b), and (3c) are all permissible.

Question (2): When the pipe wall thickness t is equal to or greater than 0.385, may the Lamé theory be used for calculating the stresses due to internal pressure?

Reply (2): Yes, the Lamé theory may be used for the determination of elastic pressure stresses; however, in the pressure design of piping components, other factors need to be considered such as those listed in 304.1.2(b).

A discussion concerning the bursting strength of thick walled cylinders is contained in the ASME publication, "Pressure Vessels and Piping: Design and Analysis, A Decade of Progress," B. F. Langer Commemorative Volume, Vol. One, 1972.

Interpretation: 1-58

Subject: Note 2 of Appendix A

Date Issued: February 22, 1982

File: 1568

Question: Why does Note 2 of Appendix A specify a temperature of 800°F relative to the onset of graphitization rather than 775°F as in ANSI/ASME B31.1?

Reply: Since the disassociation of the metastable iron carbide to graphite and iron is influenced by many factors in addition to temperature (including time of exposure), it is difficult to be very precise in specifying a temperature above which prolonged exposure will cause graphitization. The Committee considers the value of 800°F to be reasonable.

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Interpretation: 1-59

Subject: -331.3.6, Thickness Effect on Heat Treatment Requirements

Date Issued: May 4, 1982

File: 1577

Question: 331.3.6(a) of ANSI/ASME B31.3-1980 gives formulas for calculating thickness of various branch welds to determine if the weld requires heat treatment. For detail (1) of Fig. 327.4.4D, the thickness is given as $\overline{T_b} + t_c$. The value of t_c is defined in 327.4.4(b) as "the smaller of 0.7 $\overline{T_b}$ or ¼ in." For most, the fillet size t_c is usually larger than ¼ in. What value is required to be used for t_c when determining heat treatment requirements?

Reply: 327.4.4(b) of ANSI/ASME B31.3-1980 states, "Welds shall be calculated in accordance with 304.3.3 but shall not be less than the sizes shown in Fig. 327.4.4D." The value for t_c to be used is the greater of the minimum required in 327.4.4(b) (the smaller of 0.7 $\overline{T_b}$ or ¼ in.) or the size calculated for the design.

Interpretation: 1-60

Subject: 336.5.1, Examination Normally Required

Date Issued: June 9, 1982

File: 1569

Question: 336.5.1(b) of ANSI/ASME B31.3-1980 Edition requires a minimum of 5% of circumferential butt welds to be examined fully by random radiography in accordance with 336.4.5 or by ultrasonic examination in accordance with 336.4.6 when piping is intended for service at temperatures above 366°F (186°C) or gage pressure above 150 psi (1030 kPa). If the fluid is toxic or flammable and exceeds neither 150 psig nor 366°F service, does the 5% minimum examination apply?

Reply: The 1981 Addenda, ANSI/ASME B31.3a-1981, requires the 5% minimum examination if the fluid is toxic or flammable without regard to the pressure or temperature. Prior to issuance of the above Addenda, the 5% minimum examination did not apply. Also, please note that if specified in the engineering design, in-process examination may be substituted on a weld-for-weld basis for the radiographic or ultrasonic examination.

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Interpretation: 1-61

Subject: 337.4.1, Hydrostatic Testing of Internally Pressured Piping

Date Issued: June 9, 1982

File: 1576

Question (1): 337.4.1(c) allows the hydrostatic test pressure to be reduced to the maximum pressure that will not exceed the yield strength at test temperature. Does the Code require a weld joint quality factor to be applied when calculating this maximum pressure?

Reply (1): No.

Question (2): Is this considered safe?

Reply (2): Yes, when all applicable requirements of the Code have been fulfilled; but no single requirement can be considered as the sole criterion for safety.

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Interpretation: 1-62

Subject: -336.5, Types and Extent of Required Examinations

Date Issued: June 9, 1982

File: 1578

Question (1): The third sentence of 336.5 states, "when the required examination of a spot or random type reveals a defect requiring repair, two additional examinations of the same kind of item (if of a weld, others by the same welder or welding operation)."

Is it the intent of the Code that "same kind" encompass all of the following?

(*a*) same type of base material;

(*b*) same type of weldment;

(*c*) same size of butt weld;

(*d*) same method of welding operation.

Reply (1): No. This is a general statement applying to all spot and random examinations, i.e., it is not limited to welds. "same kind" examples are supports, threaded joints, bolted joints, alignment, cold spring, and welds. With respect to welds, the Code is not specific as to what criteria determine "same kind" except for the same welder or welding operator, but leaves such factors as base material, welding procedure, size of pipe, etc., to the requirements of the engineering design.

Question (2): Please refer to the progressive examination delineated in 336.5. For 5% radiography, at the point of original examination, a 5% sampling has been represented (1 out of 20). Should that radiograph fail to meet specification, two additional examinations are required, which represents a 15% (3 out of 20) sampling.

(*a*) If any of the second group fails to meet Code, is it mandatory, as the Code implies, that further examinations are required? Is the alternative available whereby all welds of that given group of 20 may be totally repaired without subsequent radiographs?

(*b*) If any of the third group of radiographed welds fails to meet Code, does one progress to a fourth group?

Reply (2):

(*a*) No to both questions. The following options are available.

(*1*) Replace all items in the group. Examinations performed on items which are subsequently replaced may not be counted as contributing toward the required percent random examination.

(*2*) Continue progressive examination, repair and reradiograph all defective welds until they are acceptable. Only the first weld in the group may be counted toward the required percent.

(*3*) Repair and radiograph all welds in the group until all are acceptable. Only the first weld in the group may be counted toward the required percent.

(*b*) No. At this point in the progression, all welds in the group (20) shall be replaced or repaired and radiographed until acceptable.

Question (3): When a weld representing the 5% random radiography required by 336.5.1(b) is defective, 336.5 requires radiographic examination of two additional welds by the same welder or welding operator and so on.

When a weld in the third group of the progression is found defective, the Code states, "all comparable items may be replaced or they shall be fully examined and repaired to meet applicable quality requirements."

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(*a*) If the welder was terminated after welding a total of 11 welds, does replacement of the 11 welds or repair and examination of the 11 welds until they are acceptable terminate the progression?

(*b*) Is this changed if the total was 31 welds and the weld representing the first 20 welds was found acceptable?

Reply (3):

(*a*) Yes.

(*b*) No. Only the group of 11 welds is required to be replaced or repaired and examined until acceptable, i.e., finding a defect in one group does not affect the status of another group.

Interpretation: 1-63

Subject: 337.4.2, Hydrostatic Testing Piping With Vessels as a System

Date Issued: June 9, 1982

File: 1579

Question (1): For calculating the hydrostatic test pressure, 337.4.2(b) conditionally allows a factor of 1.15 to be substituted for the 1.5 factor in Formula (24) [337.4.1(b)]. Is this considered safe for subsequent operation?

Reply (1): Yes, if the owner has authorized the use of this conditional clause.

Question (2): If so, why can't one use 1.15 for all pressure tests?

Reply (2): The factor of 1.5 is required where feasible. The lower factor represents the Committee's best judgment for the special case of integrated equipment and piping which cannot be readily isolated for a separate test. Also, the Owner must approve its use for each specific case.

Interpretation: 1-64

Subject: 336.5, Type and Extent of Required Examination

Date Issued: June 9, 1982

File: 1580

Question: For P-Nos. 3, 4, and 5 materials, does radiographic examination performed before heat treatment satisfy the ANSI/ASME B31.3 Code requirements?

Reply: No. 336.5 requires the examination to be performed after heat treatment.

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Interpretation: 1-65

Subject: Impact Testing

Date Issued: June 9, 1982

File: 1587

Question (1): Under ANSI/ASME B31.3 can austenitic stainless steel having a carbon content of 0.10% and below (including "H" grades) be used at -100°F without impact testing?

Reply (1): Yes.

Question (2): Is impact testing required for deposited filler metal of production welds, welded to a qualified welding procedure with filler metal impact tested at -300°F?

Reply (2): No. See Note 1, Table 323.2.2.

Question (3): Is heat treatment for austenitic stainless steel required after welding?

Reply (3): No.

Interpretation: 1-66

Subject: 327.5, Qualification for Welding

Date Issued: June 9, 1982

File: 1588

Question: If a procedure for the GTAW or SMAW welding process is qualified in accordance with the requirements of 327.5 and the welder is qualified in both the uphill and downhill position, is it acceptable to the Code for the production welds to be made in either the uphill or downhill position?

Reply: Yes. Please note that when the Supplementary Essential Variables – Notch Toughness of the ASME BPV Code Section IX are applicable, the progression for welding the qualification test is required to be uphill.

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Interpretation: 1-67

Subject: A304.5; Pressure Design of Flanges

Date Issued: June 9, 1982

File: 1589

Question: In accordance with A304.5.1(d), what is the correct Appendix in Section VIII, Division 1 of the ASME BPV Code for the design of full face gaskets?

Reply: The correct Appendix in Section VIII, Divison 1 of the 1980 Edition of the ASME BPV Code for the design of full face gaskets is Appendix Y. Section VIII recently reorganized portions of Division 1 and the existing reference in Addenda (a) of B31.3 is to an earlier edition of the ASME BPV Code.

Any revisions to this section of ANSI/ASME B31.3 will appear in future Addenda.

Interpretation: 1-68

Subject: High Pressure

Date Issued: June 9, 1982

File: 1592

Question: What calculation method shall be used for the pressure design of pipe with $t \geq D/6$, or $P/SE > 0.385$?

Reply: The Code does not have a specific design procedure for designs in the high pressure range at this time.

The ASME B31.3 Subgroup on High Pressure Piping is a Committee currently working on specific design rules for the High Pressure range. These rules, when approved, will appear in a future Addenda of ANSI/ASME B31.3. The reader is referred to the following publications for a discussion of pressure design in the high pressure range:

(*a*) Welding Research Council Bulletin #95/April 1969, "PVRC Interpretive Report of Pressure Vessel Research: Section I Design Considerations," B. F. Langer

(*b*) ASME Paper No. 55 - PET - 1, "Yield and Bursting Characteristics of Heavy-Wall Cylinders," J. H. Faupel

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Interpretation: 1-69

Subject: Table 331.3.1, Requirements for Heat Treatment

Date Issued: June 9, 1982

File: 1593

Question (1): Does ANSI/ASME B31.3 require specific heating rates when performing heat treatment?

Reply (1): No.

Question (2): Does the cooling rate at the bottom of Table 331.3.1 apply only to P-No. 11A, Group No. 1 materials?

Reply (2): Yes.

Interpretation: 1-70

Subject: 304, Pressure Design

Date Issued: June 9, 1982

File: 1594

Question (1): What is the correct value of D for calculating the required pressure design thickness of an externally reinforced extruded header by Eq. (3a)?

Reply (1): The correct value D is the outside diameter of the header (see Fig. 304.3.4). The Committee will give consideration to future revision of these diagrams.

Question (2): Is it permissible to calculate the required pressure design thickness of an externally reinforced extruded header on the basis of the inside diameter?

Reply (2): Yes. The following equation is equivalent to Eq. (3a) for an externally reinforced extruded header using inside diameter d:

$$t = \frac{P(d + 2c)}{2[SE - P(1 - Y)]}$$

where nomenclature is as defined in 304.1.1 of ANSI/ASME B31.3a-1981.

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Interpretation: 1-71

Subject: Appendix D, Flexibility and Stress Intensification Factors

Date Issued: July 13, 1982

File: 1597

Question: Are the stress intensification factors for tees given in Appendix D applicable to both the branch as well as the run or header?

Reply: Yes, the stress intensification factors for tees given in Appendix D are applicable to both the branch and run or header. The computation of stress using those stress intensification factors must be based on the appropriate section modulus. Equation 21 gives the appropriate formula for the "effective section modulus of the branch."

Interpretation: 1-72

Subject: 337, Pressure Tests

Date Issued: July 16, 1982

File: 1609

Question: What are the requirements for pressure testing of discharge piping in ANSI/ASME B31.3?

Reply: ANSI/ASME B31.3 requires discharge piping to be tested in accordance with 337 unless excluded from Code coverage by 300.1.3.

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Interpretation: 1-73

Subject: Category M Fluid Service

Date Issued: September 8, 1982

File: 1596

Question: Is a "Category M Fluid" in ANSI/ASME B31.3 the same as a "lethal substance" in the ASME BPV Code Section VIII?

Reply: The Committee points out that the term used in ANSI/ASME B31.3 is "Category M Fluid Service," not "Category M Fluid." This distinction is very important in understanding the intent of ANSI/ASME B31.3. "Fluid Service" is much broader in concept in that it encompasses the complete handling and control of the fluid. It takes into consideration not only the fluid properties (such as flammability, toxicity, etc.) but also the service conditions (such as pressure, temperature, quantity, location, etc.) as they affect all aspects of the piping system.

Finally, in developing "Category M Fluid Service," it was not the intent of ANSI/ASME B31.3 to parallel the "lethal substance" reference in the ASME BPV Code Section VIII, Division 1.

Interpretation: 1-74

Subject: 327.4.4, Welded Branch Connections

Date Issued: October 26, 1982

File: 1598

Question (1): For branch connections, 327.4.4(c) requires a cover fillet weld with a minimum throat dimension of t_c. Figure 327.4.4D shows t_c in the longitudinal plane of the header (run) which bisects the branch. When the branch and header (run) are the same nominal pipe size, (a) what is the required cover fillet at the transverse plane of the header (run) which bisects the branch; and (b) in those branch bisecting planes moving from the transverse of the header (run) toward the longitudinal of the header (run)?

Reply (1):

(*a*) A fillet weld is not applicable as the weld, in that plane, is a groove butt joint.

(*b*) The Code does not define fillet weld size at this location of the joint, but weld geometry should provide a smooth transition between the weld and the groove weld with added fillet weld.

Question (2): What is the required cover fillet weld at the longitudinal plane of the header (run) which bisects the branch when beta [see 304.3.3 (a)] is less than 90 deg. (angular branch)?

Reply (2): The Code does not define fillet weld size required for this joint configuration, but weld geometry should provide a smooth transition between the branch and header (run) surfaces.

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Interpretation: 1-75

Subject: Definition of t_h in 304.3.4(d)

Date Issued: October 26, 1982

File: 1613

Question: In 304.3.4(d), is t_h the nominal wall thickness?

Reply: No, t_h is the pressure design thickness of the header. Refer to Appendix J for nomenclature and 304.3.3(a) for determination of t_h for reinforcement calculation.

Interpretation: 1-76

Subject: Impact Testing

Date Issued: October 26, 1982

File: 1615

Question (1):

(*a*) Does ANSI B31.3-1976 including Addenda through ANSI/ASME B31.3e-1980 require the fabricator and assembler to perform impact testing of the deposited weld metal and heat affected zone in accordance with 323.3 when the material is either carbon steel, low alloy steel, intermediate alloy steel, or high alloy (ferritic or martensitic) steel, and the Engineering Design specifies a design temperature below -20°F (-29°C)?

(*b*) Note 2 of Table 323.2.2 of ANSI B31.3-1976 including Addenda through ANSI/ASME B31.3e-1980 allows an exclusion from impact testing. For one to take advantage of this exclusion, is permission required from the Design Engineer?

Reply (1):

(*a*) Yes.

(*b*) Yes, the design engineer is responsible for evaluating the piping system and authorizing the exclusion.

Question (2): Does ANSI B31.3-1976 including Addenda through ANSI/ASME B31.3e-1980 require the fabricator and assembler to perform impact testing of the deposited weld metal in accordance with 323.3 when the material is austenitic stainless steel and the Engineering Design specifies a design temperature below -20°F (-29°C)?

Reply (2): Yes.

Question (3): Is specification of a design temperature below -20°F (-29°C) for the above materials sufficient [see 327.5.1(d)] to require the impact testing of weld specimens in qualifying weld procedure specifications?

Reply (3): Yes.

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Interpretation: 1-77

Subject: Note 30 of Appendix A

Date Issued: October 26, 1982

File: 1616

Question: Appendix A, Note 30 specifies a reduced tensile strength (70.0 ksi rather than 75.0 ksi) for pipe of NPS 8 and larger with wall thickness of schedule 140 or heavier. Is this Note correctly referenced in the stress tables for pipe made in conformance to ASTM A 312 and A 403 specifications?

Reply: No. These references are erroneous and will be corrected in future Addenda.

Interpretation: 1-78

Subject: Use of API 5L Grades A and B Double Submerged Arc Welded Pipe

Date Issued: November 23, 1982

File: 1623

Question (1): Is API 5L, Grades A and B double submerged arc welded (DSAW) pipe acceptable under ANSI/ASME B31.3?

Reply (1): Yes.

Question (2):

(*a*) Does this material fall under the "Electrical Fusion Welded Pipe" (straight seam) classification?

(*b*) In future Editions of ANSI/ASME B31.3, will API 5L DSAW pipe be formally listed with a DSAW classification and listing of allowable stresses?

Reply (2):

(*a*) Yes.

(*b*) There are no plans to include a separate DSAW classification. The reader is referred to Table 302.3.4, Nos. 3b and 4b, for additional E_j weld joint quality factors which can apply to this pipe specification.

Question (3):

(*a*) For API 5L DSAW pipe with wall thickness greater than ¾ in., does the manufacturer's weld require postweld heat treatment to meet the requirements of ANSI/ASME B31.3?

(*b*) Can hardness testing be substituted for stress relieving?

Reply (3):

(*a*) Yes, except as provided for in 331.1.1.

(*b*) No.

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Interpretations No. 2 to ANSI/ASME B31.3

(This supplement is not part of ANSI/ASME B31.3 or its Addenda and is included for information only.)

It has been agreed to publish Interpretations issued by the B31 Committee concerning B31.3 as part of the subscription service. This supplement includes Interpretations concerning B31.3 issued between January 1, 1983 and December 31, 1983. They have been assigned Interpretation numbers in chronological order. Each Interpretation applies to the latest Edition or Addenda at the time of issuance of the Interpretation or the Edition or Addenda stated in the reply. Subsequent revisions to the Code may have superseded the reply.

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the Interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply, bearing the original Interpretation Number with the suffix R, is presented.

ASME procedures provide for reconsideration of these Interpretations when or if additional information is available which the inquirer believes might affect the Interpretation. Further, persons aggrieved by an Interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

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Interpretation: 2-1

Subject: 323.1.1, Listed or Published Specifications

Date Issued: January 27, 1983

File: 1624

Question (1): Does 323.1.1 permit the use of seamless pipe manufactured to ASTM A 537 for ANSI/ASME B31.3 applications using the allowable stresses as given in Appendix A, Table 1?

Reply (1): No. ASTM A 537 is a plate specification, not a pipe specification.

Question (2): Why is ASTM A 537 Class 2 not listed in Table 1 of Appendix A?

Reply (2): Materials are listed only after it has been shown that there is sufficient general use of the material in piping. The Committee does not believe that there is sufficient need for this material to merit its inclusion in Appendix A. Provision is made in the Code for the qualification of unlisted materials in 323.1.1.

Interpretation: 2-2

Subject: P-No. 1 Materials

Date Issued: January 27, 1983

File: 1625

Question (1): Please refer to 329.3(a) and 330.2 of ANSI/ASME B31.3. Is postbend heat treatment required for P-No. 1 materials?

Reply (1): No. Postheat treatment is not required for any thickness of P-No. 1 materials after hot bending or hot forming.

Question (2): Does ANSI/ASME B31.3 require hardness tests and have hardness limitations for P-No. 1 after the heat treatment of bends and welds?

Reply (2): No, provided the weld metal analysis A-Number is 1.

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Interpretation: 2-3

Subject: Selection of Design Conditions

Date Issued: January 27, 1983

File: 1626

Question: What are the ANSI/ASME B31.3 design conditions for a piping system in which the required pipe wall thickness is determined by one set of coincident pressure–temperature conditions, and the required component rating, for components with established ratings in accordance with component standards listed in Table 326.1, is determined by another set of coincident pressure–temperature conditions?

Reply: The design condition for any component in a piping system is the most severe condition of coincident pressure and temperature which results in the greatest required thickness and the highest required rating. It is possible, under some circumstances such as in the example in the inquiry, to have more than one set of design conditions which apply to the same piping system.

Interpretation: 2-4

Subject: Radiographic Examination of Welds

Date Issued: January 27, 1983

File: 1627

Question: If the engineering design specifies radiographic examination of welds in API 5L Grade B and API 5LX Grade X52 pipe, does ANSI/ASME B31.3 require such examination to be performed before or after completion of any heat treatment?

Reply: ANSI/ASME B31.3 has no requirements as to whether the radiographic examination of welds in API 5L Grade B or API 5LX Grade X52 pipe is performed before or after the completion of any heat treatment.

Interpretation: 2-5

Subject: Use of Washers

Date Issued: January 27, 1983

File: 1628

Question: Does ANSI/ASME B31.3 require the use of washers when bolting metallic flanges?

Reply: No.

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Interpretation: 2-6

Subject: 337.3, Test Preparation

Date Issued: January 27, 1983

File: 1631

Question: Paragraph 337.3 of ANSI/ASME B31.3 states, "All joints, including welds, are to be left uninsulated and exposed for examination during the test . . ." May the joints be primed and painted prior to hydrotest?

Reply: Yes.

Interpretation: 2-7

Subject: Stress Intensification Factors

Date Issued: January 27, 1983

File: 1632

Question: When determining stress intensification factors for branch connections in piping systems constructed in accordance with ANSI/ASME B31.3, may the thickness and diameter of the branch be used in the equations in Appendix D for determining the stress intensification factor for the branch?

Reply: No. Stress intensification factors are a function of the header (run) thickness, and the thickness of the reinforcing, if any. Any change in wall thickness of the run pipe or change in reinforcing pad or saddle thickness will result in a change in the computed flexibility characteristic h as shown in Table 319.3.6. A change in h will cause a change in the intensification factor.

The inquirer is referred to Eqs. 19 and 20 in 319.4.4(c). The values for i_o and i_i would be the same for both the branch and the header (run). The resulting bending stress will be a function of the remaining variables.

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Interpretation: 2-8

Subject: Table 327.4.1A

Date Issued: May 11, 1983

File: 1663 (B31 83-016)

Question (1): Table 327.4.1A of ANSI/ASME B31.3 limits undercutting for girth and miter joint butt welds to the lesser of 1/32 in. (0.8 mm) or $\overline{T}w/4$. When components with different thicknesses are joined by welding, what thickness is used for *Tw*?

Reply (1): *Tw* is the nominal wall thickness of the thinner component (see Appendix J, Nomenclature).

Question (2): Does the Code describe evaluation of undercutting, revealed on a radiograph, by use of the film density differential?

Reply (2): No.

Interpretation: 2-9

Subject: Charpy Impact Absorbed Energy Data

Date Issued: May 19, 1983

File: 1633

Question: Under the rules of ANSI/ASME B31.3, may Charpy impact absorbed energy data be substituted for the lateral expansion criteria of 0.015 in.?

Reply: No.

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Interpretation: 2-10

Subject: 327.4.4, Welded Branch Connections

Date Issued: May 25, 1983

File: 1639

Question: Figure 127.4.8(F) of ANSI/ASME B31.1 shows a "Typical Partial Penetration Weld Branch Connection for 2 in. NPS and Smaller Fitting," and 127.4.8(C) allows its use by taking exception to the requirement for full penetration groove welds. Paragraph 327.4.4(c) of ANSI/ASME B 31.3 does not contain this exception. However, 327.4.4(a) states, "No attempt has been made to show all acceptable types of construction . . ." Does 327.4.4(a) allow partial penetration types of branch construction?

Reply: No. Only full penetration groove weld types of branch construction are allowed. The Committee will consider Fig. 127.4.8(F) of ANSI/ASME B31.1 for inclusion in ANSI/ASME B31.3.

Interpretation: 2-11

Subject: 304.1.2, Straight Pipe Under Internal Pressure

Date Issued: May 31, 1983

File: 1640

Question: For the pressure design of straight pipe under internal pressure, in accordance with 304.1.2 of ANSI/ASME B31.3, what equations apply when t is less than $D/6$ and when t is equal to or greater than $D/6$?

Reply: When t is less than $D/6$, the minimum wall thickness for pressure design shall be based on Eq. 3a, 3b, or 3c.

When t is equal to or greater than $D/6$, the Code does not require that a specific equation be used in design. If Eq. 3a is used for design, the correct value for Y is $d/(d + D)$. As stated in 304.1.2(b), the design of high pressure heavy wall pipe requires special considerations, and the final design is the responsibility of the designer.

Interpretation: 2-12

Subject: Random Radiography

Date Issued: June 8, 1983

File: 1650 (B31 83-003)

Question: What is the recommended or preferred practice for administration of random radiography as required by 336.4.5, 336.5, and 336.5.1(b) of ANSI/ASME B31.3?

Reply: The Code does not set forth administrative practices.

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Interpretation: 2-13

Subject: Limitations on Tubing Size in Category M Fluid Service

Date Issued: June 8, 1983

File: 1652 (B31 83-005)

Question: Does ANSI/ASME B31.3 prohibit the use of tubing ¾ in. through 2 in. O.D. with proprietary fittings from use in Category M fluid service?

Reply: No; however, there are limitations on tubing size for instrument piping in M322.3. Also, proprietary fittings must meet the requirements of M326.

Interpretation: 2-14

Subject: 302.3.5(d), Allowable Displacement Stress Range

Date Issued: June 8, 1983

File: 1658 (B31 83-011)

Question: Is it a correct interpretation of ANSI/ASME B31.3 to apply the allowances for occasional pressure and temperature variations contained in 302.2.4 to the allowable displacement stress range S_A of 302.3.5(d)?

Reply: No.

Interpretation: 2-15

Subject: 302.3.5(c), Longitudinal Stresses

Date Issued: June 8, 1983

File: 1659 (B31 83-012)

Question: In accordance with 302.3.5(c), the longitudinal stresses due to pressure and weight are computed, assuming the pipe to be in the corroded condition. Is it a correct interpretation of ANSI/ASME B31.3 to also calculate stresses from occasional loads, such as wind and earthquake, assuming the pipe to be in the corroded condition?

Reply: Yes.

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Interpretation: 2-16

Subject: 302.3.6, Limits of Calculated Stresses Due to Occasional Loads

Date Issued: June 8, 1983

File: 1660 (B31 83-013)

Question: Paragraph 302.3.6(a) concerning stresses due to occasional loads states, "Where the allowable stress value exceeds 2/3 of yield strength at temperature, the allowable stress value must be reduced as specified in Note (3) in 302.3.2." Is it a correct interpretation of ANSI/ASME B31.3 to assume that the above sentence is only concerned with potential leakage rather than reduction of the life of the piping system due to creep?

Reply: No.

Interpretation: 2-17

Subject: Seismic Loads

Date Issued: June 8, 1983

File: 1661 (B31 83-014)

Question: How shall stresses in a piping system due to restraint deflections from seismic motions, and those due to seismic inertial loadings, be applied in accordance with ANSI/ASME B31.3?

Reply: It is the intent of 302.3.6 that the inertial loads from earthquake be included in the calculations of stresses due to occasional loads. The effects of displacement of restraints due to earthquake may be treated as an externally imposed displacement in accordance with 319.2.1(c).

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Interpretation: 2-18

Subject: Weld Repair Requirements

Date Issued: June 21, 1983

File: 1651 (B31 83-004)

Question (1): In lieu of repairs to weld defects which exceed Code limitations, does ANSI/ASME B31.3 permit the application of analysis methods, such as fracture mechanics, in the evaluation of said defects with a "fitness for purpose" concept?

Reply (1): No.

Question (2): Will the Committee take under consideration the principles set forth in such documents as BSI PD6493 as possible alternative rules to existing Code rules?

Reply (2): Yes. The Committee continually considers relevant information and is currently in receipt of the documents referenced by the inquirer.

Question (3): Will the Committee consider any further relaxation of weld defect limitations in view of current research publications, such as WRC or BSI, on this subject?

Reply (3): Yes. The Committee continually considers relevant information and is currently in receipt of the documents referenced by the inquirer.

Interpretation: 2-19

Subject: Table 323.2.2

Date Issued: June 23, 1983

File: 1638

Question: When welding ASTM B 241 Grade 6061-T6 seamless aluminum pipe for service temperature of $-320°F$ using a filler wire designated 5356 or 4043, does the filler metal being "outside the range of composition for the base metal" require testing in accordance with Column B, box 5, Table 323.2.2 of ANSI/ASME B31.3?

Reply: No, since filler wire designated 5356 or 4043 is in the range of composition for welding ASTM B 241 Grade 6061-T6.

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Interpretation: 2-20

Subject: Factor E in Appendix A

Date Issued: August 2, 1983

File: 1670 (B31 83-023)

Question (1): Does ANSI/ASME B31.3 permit the use of an E value of 1.0 for A 234 fittings, Grades WPB and WPC, for both seamless and welded construction?

Reply (1): Yes.

Question (2): A 312 pipe is listed as having E values of 0.8 and 0.85. Is it correct to assume that these values are taken from Table 302.3.4 and depend on whether the pipe has a single butt weld (3a) or a double butt weld (3b)?

Reply (2): Yes.

Question (3): Fittings to A 403 are listed as having E values of 1.0, 0.85, and 0.80. Is it correct to assume the following, and that reference to Note (14) is irrelevant?

Factor	Description of Fitting
1.0	Class WP-WX
0.85	Class WP-W manufactured from A 312 pipe, double butt weld
0.80	Class WP-W manufactured from A 312 pipe, single butt weld

Reply (3): Yes.

Interpretation: 2-21

Subject: Pressure Relief Devices

Date Issued: August 2, 1983

File: 1671 (B31 83-024)

Question: Does ANSI/ASME B31.3 have wording similar to UG-126(a) and UG-125(h) of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, which defines a pressure relieving device more precisely, or which defines the types of devices or systems that do not meet the requirements of the Code?

Reply: No.

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Interpretation: 2-22

Subject: Notch Sensitive Materials

Date Issued: August 3, 1983

File: 1641

Question (1): Will the Committee identify which materials are notch sensitive for proper application of 314.2.1?

Reply (1): No.

Question (2): What is the meaning of the term "notch sensitive" as used in 314.2.1?

Reply (2): The definition of "notch sensitive" is given in 300.2.

Interpretation: 2-23

Subject: Minimum Hydrostatic Test Pressure

Date Issued: September 7, 1983

File: 1676 (B31 83-029)

Question: When the minimum hydrostatic test pressure of internally pressured metallic piping, as calculated in accordance with Eq. 24 of ANSI/ASME B31.3-1980, exceeds the hydrostatic test pressures listed in Table 3 of ANSI B16.5-1981, may the minimum hydrostatic test pressure be reduced to those listed in ANSI B16.5?

Reply: No, except as allowed by 337.4.1(c).

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Interpretation: 2-24

Subject: Flexibility Characteristics and Stress Intensification Factors

Date Issued: September 7, 1983

File: 1677 (B31 83-030)

Question (1): What is the correct equation in Appendix D of ANSI/ASME B31.3 for flexibility characteristic h for a welding tee in accordance with ANSI B16.9 and the following geometry characteristics: $T_c \geq 1.5\overline{T}$ and $r_x < \frac{1}{8}D_b$?

Reply (1): The Code does not give a specific flexibility characteristic for a welding tee with the geometry described. The inquirer is directed to 319.3.6 which addresses piping components not covered in Appendix D.

Question (2): Should the same stress intensification factors, calculated from the appropriate equations in Appendix D for the header (legs 1 and 2 in Fig. 319.4.4B), be applied to the branch (leg 3) in Equation 20?

Reply (2): Yes. Equation 21 for effective section modulus of the branch accounts for the geometric differences.

Question (3): What is the correct value of wall thickness $\overline{T}$ to be used in calculating the flexibility characteristic h for bends or tees in Appendix D: the nominal wall thickness of the fitting or the matching pipe?

Reply (3): In accordance with Note (2), Appendix D of ANSI/ASME B31.3, the correct value of the wall thickness $\overline{T}$ is the nominal wall thickness of the fitting for elbows and miter bends or the nominal wall thickness of the matching pipe for tees.

Question (4): A fitting is provided with a short length of pipe with nominal wall thickness equal to that of the fitting on each end to be joined to the header, attached to the fitting by welding or integral with the fitting. May the nominal wall thickness of the short length of matching pipe be used in the determination of flexibility characteristic h for tees in Appendix D?

Reply (4): Yes. The determination of sufficient length is the responsibility of the designer.

Question (5): In accordance with 302.3.5, what is the correct allowable stress to be compared with the longitudinal stresses resulting from the restraint of the soil on the thermal movement of buried pipe?

Reply (5): The stresses resulting from the restraint of the soil on thermal movement of buried pipe are displacement stresses rather than sustained longitudinal stresses. Accordingly, the correct allowable stress is S_A, the allowable displacement stress range, in 302.3.5(d).

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Interpretation: 2-25

Subject: Radiographic Examination

Date Issued: September 8, 1983

File: 1667 (B31 83-020)

Question (1): A certain piping system has 100 welds made by the same welder and welding procedure. Ten percent radiography was required. Ten welds were radiographed, of which one was defective. The subsequent second and third progression groups also had defective welds. Does 336.5 of ANSI/ASME B31.3 require radiographic examination, repair, and radiographic reexamination of all the welds other than the 9 found acceptable or of the 10 welds represented by the one original defective weld?

Reply (1): The first alternative is correct if the lot size has been established as 100 and the selection is truly random. The second is correct if the lot size has been established as 10 and each is represented by 1 of the 10 welds radiographed at random.

Question (2): What is intended by "all comparable items" as used in 336.5?

Reply (2): Comparable items contained in a designated lot.

Interpretation: 2-26

Subject: Synfuel Plant Piping

Date Issued: October 26, 1983

File: 1541R

Question: What section of the ASME Code for Pressure Piping, B31, may be used for materials, design, fabrication, assembly, erection, examination, inspection, and test of piping within coal based synfuels plants for the production of electric power and/or industrial steam primarily for use within the plant?

Reply: ANSI/ASME B31.1 applies to piping associated with power boilers and subject to the ASME Boiler and Pressure Vessel Code, Section I, inspection and stamping. [See B31.1, 100.1 and Fig. 100.1.2(A) and (B).]

Either ANSI/ASME B31.1 or B31.3 is applicable to other piping associated with the production or distribution of industrial steam or production of electric power primarily for use within the plant. (See B31.3, Fig. 300.1.1.)

ANSI/ASME B31.3 applies to all other piping primarily for use within the plant.

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Interpretation: 2-27

Subject: Area of Reinforcement for Contoured Integrally Reinforced Branch Connections

Date Issued: October 26, 1983

File: 1681 (B31 83-034)

Question: Do the rules for extruded outlets apply to contoured integrally reinforced fittings? If not, what are the correct equations, indicated in ANSI/ASME B31.1, B31.2, B31.3, B31.4, and B31.8, to be used in determining the limits of area reinforcement for contoured integrally reinforced branch connecting fittings (e.g., Weldolet) and extruded outlets?

Reply: The contoured integrally reinforced fitting is not an extruded outlet. The equations set forth in the B31 Codes for determining the reinforcing limits of an extruded outlet do not apply in determining the reinforcing limits of a contoured integrally reinforced fitting.

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Interpretation: 2-28

Subject: 336.4.2, Visual Examination

Date Issued: December 2, 1983

File: 1682 (B31 83-035)

Question (1): 336.5.1(a) of ANSI/ASME B31.3-1980 Edition requires visual examination in accordance with 336.4.2. Is it intended that 336.4.2(c), In-Process Examination, be included as part of this visual examination?

Reply (1): No. This was clarified in ANSI/ASME B31.3b-1982 by changing 336.4.2(c) to 336.4.7.

Question (2): M336.5.1(a)(1) of ANSI/ASME B31.3-1980 Edition requires that all fabrication, including the welds, be visually examined.

(a) Is this visual examination required for welds which are radiographed as required by M336.5.1(b)?

(b) Is this visual examination required if in-process examination as allowed by M336.5.1(c) is substituted for required radiography?

Reply (2): *(a)* Yes. *(b)* Yes. The visual examination is included in the in-process examination.

Question (3): Does ANSI/ASME B31.3-1980 Edition require written procedures for visual examination?

Reply (3): Yes. Refer to 336.4.1(c).

Question (4): Does ANSI/ASME B31.3-1980 Edition require a record of the visual examination results by individual weld?

Reply (4): No.

Question (5): Does ANSI/ASME B31.3-1980 Edition allow production workmen to perform the visual examination?

Reply (5): Refer to T-940(b), Article 9, Section V of the ASME Boiler and Pressure Vessel Code, which states, "Where impractical to use specialized visual examination personnel, knowledgeable production workmen may be used to perform the examination and to sign the report forms."

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Interpretation: 2-29

Subject: 301.2.1, Required Pressure Containment or Relief

Date Issued: December 20, 1983

File: 1687 (B31 83-040)

Question: Does any device or system, such as pressure reducing valves or similar mechanical or electrical interlocks and/or control instruments, satisfy the requirements of ANSI/ASME B31.3, 301.-2.1, to safely relieve any excess pressures?

Reply: The Code requires that provision be made to contain or safely relieve excessive pressure, but does not address acceptable types of pressure relieving devices.

Interpretation: 2-30

Subject: Use of Term "Owner"

Date Issued: December 20, 1983

File: 1688 (B31 83-041)

Question (1): Is the final owner always the "owner" referred to in ANSI/ASME B31.3?

Reply (1): Yes.

Question (2): Is the engineering construction contractor the "owner" until the piping is erected, mechanically complete, tested, and subsequently "sold" to the final owner?

Reply (2): No.

Question (3): Who is responsible for determining pressure test methods and media on jobs where the engineering and construction are performed by different contractors?

Reply (3): The owner is responsible.

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Interpretation: 2-31

Subject: 337, Pressure Tests

Date Issued: December 20, 1983

File: 1691 (B31 83-044)

Question: Since ANSI/ASME B31.3b-1982 does not exclude piping systems designed for internal gage pressures at or above 0 psi if the fluid handled is flammable, toxic, or damaging to human tissue, nor does it exclude any fluid outside the design temperature range of from −20°F through 366°F, must the following piping systems be pressure tested in accordance with 337?

(a) Discharge piping for pressure-relieving safety devices designed for steam at a design temperature of 375°F and a design pressure of 0 psi, discharging directly to atmosphere.

(b) Drain piping handling a toxic fluid at a design temperature of 80°F and a design pressure of 0 psi discharging directly to atmosphere (e.g., an atmospheric pressure holding tank).

Reply: The minimum hydrostatic test gage pressure is as calculated by Eq. 24, which for 0 psi, design pressure is 0. Note that a pressure differential is required for fluid flow.

Interpretation: 2-32

Subject: Random Examination Requirements

Date Issued: December 20, 1983

File: 1693 (B31 83-046)

Question (1): Are "same kind" groups of items which are represented by an acceptable randomly selected and examined item (or which are represented by the acceptable completion of the progression of examinations as a result of an unacceptable randomly selected and examined item) considered acceptable by ANSI/ASME B31.3?

Reply (1): Yes.

Question (2): Is the selection and examination of additional items from "same kind" groups previously accepted by random examination (in compliance with the Code and engineering design) considered as being beyond ANSI/ASME B31.3 requirements for random examinations?

Reply (2): Yes, provided the minimum quantities of examination have been performed and found acceptable.

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Cases
Code for Pressure Piping — B31.3

(The Cases are not part of ANSI/ASME B31.3 or its Addenda and are included for information only.)

A "Case" is the official method of handling a reply to an Inquiry when study indicates that the Code wording needs clarification, or when the reply modifies the existing requirements of the Code, or grants permission to use new materials or alternate constructions.

It has been agreed to publish Cases issued by the B31 Committee concerning B31.3 as part of the subscription service to B31.3. Following this title sheet are all of the currently active Code Cases concerning B31.3. They include:

134
137
141
142

The text of proposed new and revised Cases will appear in *Mechanical Engineering* for public review. A notice will also appear in *Mechanical Engineering* when new and revised Cases are approved. The Cases will then appear with the next regularly scheduled Addenda to B31.3.

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CASE 134
April 1980

This case shall expire on December 31, 1986, unless previously ommitted or reaffirmed.

CASES
CODE FOR PRESSURE PIPING – B31

Case 134 – **Nuclear Fuel Reprocessing Plant Piping**

Inquiry: Which section of the ANSI/ASME B31 Code for Pressure Piping covers piping for nonradioactive fluids in nuclear fuel reprocessing plants?

Reply: It is the opinion of the Committee that ANSI/ASME B31.3 Chemical Plant and Petroleum Piping may be used for nonradioactive fluids in nuclear fuel reprocessing plants.

The Committee wishes to emphasize that no currently active ANSI/ASME B31 Code section covers piping for radioactive fluids and that there are no plans to cover such piping.

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CASE 137
September 1981

This case shall expire on December 31, 1986, unless previously annulled or reaffirmed.

CASES
CODE FOR PRESSURE PIPING – B31

Case 137 – **Piping Not Covered by Any ANSI/ASME B31 Code Section**

Inquiry: When no Section of the ASME Code for Pressure Piping, B31, specifically covers a piping system, which Section should be used for materials, design, fabrication, assembly, erection, examination, inspection, and testing of this system?

Reply: At his discretion, the user may select any Section determined to be generally applicable. However, it is cautioned that supplementary requirements to the Section chosen may be necessary to provide for a safe piping system for the intended application. Technical limitations of the various Sections, legal requirements, and possible applicability of other codes or standards are some of the factors to be considered by the user in determining the applicability of any Section of this Code.

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Case 141
December 1983

This Case shall expire on December 31, 1986, unless previously annulled or reaffirmed.

CASES
CODE FOR PRESSURE PIPING – B31

Case 141 – Rules for the Use of Aluminum Alloy Flanges in ANSI/ASME B31.3 Piping

Inquiry: What pressure-temperature ratings may be used for forged aluminum alloy flanges in ANSI/ASME B31.3 applications?

Reply: It is the opinion of the Committee that , for applications under ANSI/ASME B31.3, ratings for flanges may be determined in accordance with 304.5.1(b); and ratings for blind flanges may be determined in accordance with 304.5.2(b).

Alternatively, until an ANSI/ASME B16 standard on this subject is published, the pressure-temperature ratings limited to the pressure and temperature in Table 1 may be used for forged aluminum alloy flanges and blind flanges conforming to ASTM B 247, Grades 3003-H112 and 6061-T6, provided all of the following requirements are met:

(1) Dimensions and tolerances shall be in accordance with ANSI B16.5-1981.

(2) Flange facing and flange facing finish shall be in accordance with ANSI B16.5-1981, Para. 6.3, except that small male and female facings (on ends of pipe) shall not be used.

(3) Marking of flanges shall be in accordance with ANSI B16.5-1981, Para. 4.1, with the following exceptions:

(a) Only the markings for forged flanges are applicable;

(b) The designation "B16" shall not be applied.

(4) The maximum rating below -20°F (-29°C) shall be the rating shown for -20 to 100°F (-29 to 38°C).

(5) The maximum rating of slip-on and socket-welding flanges ASTM Grade 6061-T6 shall be two-thirds of the ratings in Table 1 (because welding these types of flanges decreases their strength).

(6) Provisions of ANSI B16.5-1981 and of ANSI/ASME B31.3 for bolting and gaskets shall be observed. Use of Group II and Group III Gaskets in Appendix E of B16.5 is not recommended.

(7) Rating considerations in Paras. 2.2, 2.3, and 2.4 of ANSI B16.5-1981 are applicable in general to aluminum alloy flanges and joints.

(8) No coverage of fittings or valves is intended.

TABLE I PRESSURE-TEMPERATURE RATINGS

Service Temperature °F	Working Pressures by Classes, psig[1]							
	ASTM B 247, Grade 3003-H112				ASTM B 247, Grade 6061-T6			
	150	300	400	600	150	300	400	600
– 20 to 100	40	105	135	205	275	720	960	1440
150	40	100	130	200	270	710	945	1420
200	35	95	130	195	265	700	930	1400
250	35	95	125	185	260	675	900	1355

NOTE:

(1) Extracted from ANSI B16.31-1971, Non-Ferrous Pipe Flanges

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CASE 142
July 1984

This Case shall expire on July 31, 1987 unless previously annulled or reaffirmed.

CASES
CODE FOR PRESSURE PIPING – B31

Case 142 Capacitor Discharge Method of Welding

Inquiry: May the capacitor discharge method of welding be used to temporarily attach thermocouples to pressure parts to measure metal temperature either when preheating or during postweld heat treatment, or both, of piping components for B31 construction and may this be done without performance and procedure qualification?

Reply: It is the opinion of the Committee that the capacitor discharge method of welding may be used for B31 construction to temporarily attach thermocouples directly to the pressure parts to measure metal temperature either when preheating or during postweld heat treatment, or both, of piping components provided the thermocouple is removed and the area is visually examined in accordance with the applicable ANSI/ASME B31 Code requirements. Performance and procedure qualifications are not required.

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Interpretations No. 3 to ANSI/ASME B31.3

(This supplement is not part of ANSI/ASME B31.3 or its Addenda and is included for information only.)

It has been agreed to publish Interpretations issued by the B31 Committee concerning B31.3 as part of the subscription service. This supplement includes Interpretations concerning B31.3 issued between January 1, 1984 and December 31, 1984. They have been assigned Interpretation numbers in chronological order. Each Interpretation applies to the latest Edition or Addenda at the time of issuance of the Interpretation or the Edition or Addenda stated in the reply. Subsequent revisions to the Code may have superseded the reply.

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the Interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply, bearing the original Interpretation Number with the suffix R, is presented.

ASME procedures provide for reconsideration of these Interpretations when or if additional information is available which the inquirer believes might affect the Interpretation. Further, persons aggrieved by an Interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

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Interpretation: 3-1

Subject: Scope of the B31 Codes

Date Issued: February 21, 1984

File: 1607

Question: What ANSI/ASME B31 Code is the applicable Code for a steam line transferring steam from a power house to the interior of a tobacco plant?

Reply: ANSI/ASME B31.1 is applicable to all power and auxiliary service piping in the power plant.

The applicable Code for the transfer line and any distribution within the tobacco plant depends upon its purpose. If used to generate power, ANSI/ASME B31.1 applies. If used as building services, ANSI/ASME B31.9 applies. If used as part of a chemical process, ANSI/ASME B31.3 applies.

If the piping is clearly not within the scope of these or other B31 Codes, B31 Case 137 permits the user to select any B31 Code System determined to be generally applicable.

Interpretation: 3-2

Subject: Pressure-Tight Structures of Noncircular Cross Section

Date Issued: May 29, 1984

File: B31-84-001

Question: Does the scope of ANSI/ASME B31.3 include pressure-tight structures of noncircular cross section which may be used to convey a fluid or transmit a fluid pressure?

Reply: Yes, unless otherwise excluded by 300.1.3. See also 300(c)(3), (4), and (5); and 304.7.2.

Interpretation: 3-3

Subject: 337 Pressure Tests

Date Issued: May 29, 1984

File: B31-84-003

Question: In a piping system connecting two pieces of equipment and consisting of pipe with flanges on each end, must this piping be pressure tested in accordance with 337 of ANSI/ASME B31.3 when the two pieces of equipment are required to be blanked off from any pressure test?

Reply: Yes.

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Interpretation: 3-4

Subject: Design Conditions and Criteria

Date Issued: May 29, 1984

File: B31-84-005

Question (1): For the pressure design of piping in accordance with ANSI/ASME B31.3, is a stress value equal to S_h (in 302.3.5) the correct allowable stress to be used for elevated temperature design, independent of the time of exposure?

Reply (1): Yes, except as permitted in 302.2.4. Also, see 300(c)(3).

Question (2): In accordance with 301.7.2 of ANSI/ASME B31.3, how should the loads due to thermal gradients be evaluated in the design of piping and piping components?

Reply (2): ANSI/ASME B31.3 does not give specific requirements for the evaluation of thermal gradient effects. See the Introduction and 300(c)(3).

Question (3): Since the ASME formula for flange design only considers axisymmetrical loads, can these formulas be modified to account for nonaxisymmetrical loads, such as moment, torsion, and shear force?

Reply (3): ANSI/ASME B31.3 does not give specific guidance concerning modification of flange design formulas.

Interpretation: 3-5

Subject: Progressive Examination

Date Issued: May 29, 1984

File: B31-84-009

Question: In applying the ANSI/ASME B31.3 requirements for progressive examination in 336.-5.4, random radiography is specified within "a designated lot" of piping. Is it permissible to include piping from more than one owner in "a designated lot"?

Reply: No.

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Interpretation: 3-6

Subject: Use of Flared, Flareless, and Compression Fittings

Date Issued: October 1, 1984

File: 1683 (B31-83-036)

Question: Does ANSI/ASME B31.3 have any limitations on tubing sizes on which flared, flareless, and compression type fittings may be used?

Reply: The only limitations on tubing sizes on which flared, flareless, and compression type fittings may be used under ANSI/ASME B31.3 are in Category M fluid service where tubing size is limited to 5/8 in. outside diameter (see M335.5, M335.6, and M322.3). In all fluid services such joints must conform to 315.2 or 315.3.

Interpretation: 3-7

Subject: 336.5.1(c) Certification and Records for Components and Materials

Date Issued: October 1, 1984

File: B31-84-007

Question (1): Does visual examination of the manufacturers's markings in accordance with the listed standard satisfy the "other evidence" requirement of 336.5.1(c) for the following standard pressure parts?

(a) pipe
(b) pipe fittings
(c) flanges
(d) valves

Reply (1): Yes, provided that mill test reports, certificates of compliance, or evidence of heat treatment, examination, and testing are not required.

Question (2): Same question for Category M fluid service?

Reply (2): Yes, provided that mill test reports, certificates of compliance, or evidence of heat treatment, examination, and testing are not required and that the material in question is not reclaimed material (see M323.1.3).

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Interpretation: 3-8

Subject: Use of ASTM A 658

Date Issued: October 1, 1984

File: B31-84-008

Question (1): Does ANSI/ASME B31.3 Code permit the use of ASTM A 658 (36% Ni) plate for the fabrication of pipe?

Reply (1): Yes, provided all applicable requirements of ANSI/ASME B31.3 are met.

Question (2): What material category in Table 323.2.2 is applicable to ASTM A 658?

Reply (2): ASTM A 658 is an austenitic material.

Interpretation: 3-9

Subject: Use of API 5L Spiral Welded Pipe

Date Issued: October 1, 1984

File: B31-84-011

Question (1): May API 5L Grade B Spiral Welded Pipe be used for Category D fluid service in accordance with ANSI/ASME B31.3?

Reply (1): The 33rd Ed. of API 5L, which includes spiral welded pipe, is not yet recognized by the Code. However, the Code recognized the 12th Ed. of API 5LS. API 5LS Grade B Spiral Welded Pipe may be used for Category D fluid service.

Question (2): May API 5LS Grade B Spiral Welded Pipe be used for services other than Category D fluid service, which are not subject to severe cyclic conditions?

Reply (2): Yes.

Question (3): What are the limitations on the use of API 5LS Grade B Spiral Welded Pipe in ANSI/ASME B31.3?

Reply (3): See 305.2 and 323.2.

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Interpretation: 3-10

Subject: 337.3 Test Preparation

Date Issued: October 1, 1984

File: B31-84-013

Question: In ANSI/ASME B31.3, 337.3 states "all joints, including welds and bonds, are to be left uninsulated and exposed for examination. . . ." Does this mean that the joints must be left unpainted and unprimed?

Reply: No, except when a sensitive leak test (337.6) is to be performed.

Interpretation: 3-11

Subject: Table 302.3.4, Straight and Spiral Longitudinal Weld Joint Quality Factor E_j

Date Issued: October 1, 1984

File: B31-84-015

Question: Under what conditions can the weld joint quality factor E_j for the longitudinal welds in API 5L ERW pipe exceed 0.85 for usage under the rules of ANSI/ASME B31.3?

Reply: None. Refer to Table 302.3.4 and the Note following the table.

Interpretation: 3-12

Subject: 336.6.1, Spot Radiographs for Metals

Date Issued: October 1, 1984

File: B31-84-016

Question (1): May spot radiography of girth welds in accordance with 336.6.1 of ANSI/ASME B31.3 be substituted for required 5% random radiography or 100% radiography?

Reply (1): No.

Question (2): Under what conditions is spot radiography of girth welds allowed?

Reply (2): Spot radiography of girth welds is allowed only as a supplement (see 336.6) to the examination required by 336.5.

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Interpretation: 3-13

Subject: Allowable Stresses

Date Issued: October 1, 1984

File: B31-84-019

Question: May the allowable stresses for austenitic stainless steel in excess of two-thirds of the specified minimum yield strength listed in Appendix A of ANSI/ASME B31.3 be used as tabulated for establishing pipe wall thickness?

Reply: Yes. However, the designer is responsible for assuring that slight amounts of deformation are acceptable [see Note (3) of 302.3.2].

Interpretation: 3-14

Subject: 336.4.7 In-Process Examination

Date Issued: October 1, 1984

File: B31-84-020

Question: 336.5.1(b) of ANSI/ASME B31.3 states: "In-process examination as provided in 336.4.7 may be substituted for all or part of the radiographic or ultrasonic examination on a weld-for-weld basis if specified in the engineering design, regardless of temperature or pressure." Does this mean each weld must be in-process examined or is the percentage (5%) applicable?

Reply: The percentage is applicable.

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ANSI/ASME B31.3
Interpretations No. 4

(This supplement is not part of ANSI/ASME B31.3 or its Addenda and is included for information only.)

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the subscription service. This supplement includes interpretations concerning B31.3 issued between January 1, 1985 and August 31, 1986. They have been assigned interpretation numbers in chronological order. Each interpretation applies to the latest Edition or Addenda at the time of issuance of the interpretation or the Edition or Addenda stated in the reply. Subsequent revisions to the Code may have superseded the reply.

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity, In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply, bearing the original interpretation number with the suffix R, is presented.

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B31.3

Subject	Interpretation	File No.
300(b) Responsibility for Categorizing Fluid Services	4-08	B31-85-003
301.5.3	4-07	B31-84-037
302.2.4(f)(1) and 301.3.2(b)(4)	4-11	B31-85-001
304.3.2	4-05	B31-84-033
Table 323.2.2	4-01	B31-84-028
Table 323.2.2	4-15	B31-85-022
327.4.4(d)(2)	4-03	B31-84-031
327.5.1(d) and 327.5.2	4-17	B31-85-031
329	4-02	B31-84-029
331.3.6(b)	4-06	B31-84-035
337.4	4-04	B31-84-032
337.5.1(b)(1)(b)	4-09	B31-85-008
Allowable Stresses	4-12	B31-85-002
Branch Connection	4-14	B31-85-021
Flexibility and Stress Intensity Factors	4-16	B31-85-024
Limitations on Temperature and Materials for Category D Fluid Services	4-13	B31-85-011
Longitudinal Stresses, 302.3.5(c), and Corrosion	4-10	B31-84-038
Scope, Hot Oil Heating System Piping	4-19	B31-86-007
Welding of ASTM B 337	4-18	B31-85-033

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Interpretation: 4-01

Subject: Table 323.2.2

Date Issued: January 11, 1985

File: B31-84-028

Question: In Table 323.2.2, Column B, Box 2 of ANSI/ASME B31.3, does "material" in the first paragraph refer to base metal?

Reply: Yes.

Interpretation: 4-02

Subject: 329

Date Issued: January 11, 1985

File: B31-84-029

Question: When piping which otherwise does not require heat treatment is straightened by heating, do the requirements for bending in 329 of ANSI/ASME B31.3 apply?

Reply: Yes.

Interpretation: 4-03

Subject: 327.4.4(d)(2)

Date Issued: January 11, 1985

File: B31-84-031

Question: 327.4.4(d)(2) of ANSI/ASME B31.3 states: "If the weld joining the added reinforcement to the branch is a fillet weld, the throat dimension shall not be less than $0.7t_{min}$ [see Fig. 327.4.4D sketch (5)]." If the reinforcement is shaped as in Fig. 327.4.4D sketch (3) rather than the Fig. 327.4.4D sketch (5) referenced, and is attached to the branch by a fillet weld only, is the $0.7t_{min}$ throat applicable?

Reply: Yes, provided that the requirements of 304.3.3, including proper attachment, are satisfied.

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Interpretation: 4-04

Subject: 337.4

Date Issued: January 11, 1985

File: B31-84-032

Question (1): Is it required to consider the static head pressure of the fluid when determining the reduction of the minimum hydrostatic gage pressure required by 337.4.1(b) of ANSI/ASME B31.3 to the maximum pressure that will not exceed the yield strength as allowed by 337.4.1(c)?

Reply (1): Yes.

Question (2): If the combined pressure of static head of the test fluid during pressure testing and the test pressure will produce a stress in excess of the yield strength of the material being pressure tested, may the piping system be excluded from pressure testing?

Reply (2): No (see 337.1).

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Interpretation: 4-05

Subject: 304.3.2

Date Issued: January 11, 1985

File: B31-84-033

Question (1): What does the ANSI/ASME B31.3 Code mean by the term "integrally reinforced branch connection fitting"?

Reply (1): An integrally reinforced branch connection fitting is a fitting in which the pressure retaining strength of the branch connection assembly is provided by the material within the fitting itself and when attached as recommended by the manufacturer.

Question (2): How does one ascertain if a commercially available welding outlet fitting meets the above description of an integrally reinforced branch connection fitting?

Reply (2): It is the designer's responsibility to determine the adequacy of the manufacturer's component based on the rules of the Code.

Question (3): Does an integrally reinforced branch connection fitting as described in 304.3.2(c) also include fittings with flanged outlets?

Reply (3): Such fittings are permitted provided that the reinforcement and other design features meet the requirements of the Code.

Question (4): Who is responsible for assuring compliance with the testing provisions of 304.3.2 of ANSI/ASME B31.3 when required?

Reply (4): The designer is responsible to the owner for assurance that the engineering design of the piping complies with the requirements of this Code. See 300(b)(2).

Question (5): Can it be assumed, without calculation, that a long weldneck flange has adequate pressure strength as described in 304.3.2?

Reply (5): No. Calculations are required by 304.7.2 to qualify the design in accordance with 304.3.2(c). However, once the design has been qualified in accordance with 304.7.2, calculations need not be made for every branch connection. As stated in 304.7.2 "reasonable interpolations between sizes, pressure classes, and wall thickness and reasonable analogies among related materials, are permitted."

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Interpretation: 4-06

Subject: 331.3.6(b)

Date Issued: January 11, 1985

File: B31-84-035

Question: Is it permissible to apply the exclusions in 331.3.6(b) of ANSI/ASME B31.3 to nonpressure attachment welds other than fillet welds?

Reply: No.

Interpretation: 4-07

Subject: 301.5.3

Date Issued: April 9, 1985

File: B31-84-037

Question: Does 301.5.3 of ANSI/ASME B31.3 require that all piping systems be designed for earthquake induced horizontal forces?

Reply: Yes.

Interpretation: 4-08

Subject: 300(b) Responsibility for Categorizing Fluid Services

Date Issued: April 9, 1985

File: B31-85-003

Question: As defined in ANSI/ASME B31.3, is it the responsibility of the designer to classify fluid services as Category D or Category M?

Reply: No, the designer can recommend to the owner but the ultimate responsibility for identifying these fluid services rests with the owner. See 300(b)(1).

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Interpretation: 4-09

Subject: 337.5.1(b)(1)(b)

Date Issued: April 9, 1985

File: B31-85-008

Question: Does 337.5.1(b)(1)(b) of ANSI/ASME B31.3 require liquid penetrant or magnetic particle examination of butt welds which have been 100% radiographed in accordance with 337.5.1(b)(1)(a)?

Reply: Yes.

Interpretation: 4-10

Subject: Longitudinal Stresses, 302.3.5(c), and Corrosion

Date Issued: May 8, 1985

File: B31-84-038

Question (1): In 302.3.5(c) of ANSI/ASME B31.3, does longitudinal stress include sustained stresses due to axial loads?

Reply (1): Yes.

Question (2): When computing longitudinal stress in accordance with 302.3.5(c), is it required to base the applied pipe weight on the nominal wall thickness and stress on the corroded thickness of the pipe?

Reply (2): No; however, 300(c)(3) states in part that the Code generally employs a simplified approach and 300(c)(5) requires unusual service requirements to be specified in the engineering design.

Question (3): For thermal flexibility analysis in accordance with 319, is it required to determine stresses by applying the forces and moments produced by pipe of nominal wall thickness to the pipe section in the corroded condition?

Reply (3): No. Nominal wall thickness shall be used in flexibility calculations. Refer to 319.3.5, 300(c)(3), and 300(c)(5).

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Interpretation: 4-11

Subject: 302.2.4(f)(1) and 301.3.2(b)(4)

Date Issued: May 8, 1985

File: B31-85-001

Question (1): For occasional variations in pressure or temperature above operating levels, is it permissible to exceed the pressure rating or the allowable stress for pressure design at the temperature of the increased condition by up to 33%, provided that all of the requirements of 302.2.4 of ANSI/ASME B31.3 are met?

Reply (1): Yes.

Question (2): Do the percentage temperature reduction provisions in 301.3.2 apply to the absolute temperature scales as well as the Fahrenheit and Celsius scales?

Reply (2): No. The percent temperature reductions only apply to the Fahrenheit and Celsius scales.

Interpretation: 4-12

Subject: Allowable Stresses

Date Issued: May 8, 1985

File: B31-85-002

Question (1): For the pressure design of longitudinal or spiral welded pipe under internal pressure, a value for *SE* is required. Is the correct value of *SE* to be used in 304.1.2 of ANSI/ASME B31.3 that value listed in Appendix A, Table A-1, under the pipe material specification and grade?

Reply (1): Yes.

Question (2): For the determination of the allowable longitudinal stress for circumferential welds in accordance with 302.3.5, is it required to apply a weld joint quality factor?

Reply (2): No.

Question (3): Do the random examination percentages required by ANSI/ASME B31.3 apply to each fabricator, manufacturer, and erector individually?

Reply (3): Yes.

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Interpretation: 4-13

Subject: Limitations on Temperature and Materials for Category D Fluid Service

Date Issued: May 8, 1985

File: B31-85-011

Question (1): In accordance with ANSI/ASME B31.3, what is the upper temperature limitation of ASTM A 671, Grade CB70 pipe with stiffener rings manufactured from ASTM A 36 plate?

Reply (1): It is 750°F for the ASTM A 36 stiffener rings.

Question (2): Is the material combination limited to Category D fluid service?

Reply (2): No.

Interpretation: 4-14

Subject: Branch Connection

Date Issued: August 29, 1985

File: B31-85-021

Question: May a welded branch connection fitting of the design illustrated in Fig. 127.4.8(F) of ANSI/ASME B31.1 be used in ANSI/ASME B31.3 construction?

Reply: Yes, provided t_w meets the requirements for reinforcement in ANSI/ASME B31.1. The weld shown in Fig. 127.4.8(F) is considered to be a full penetration weld with integral backing.

Interpretation: 4-15

Subject: Table 323.2.2

Date Issued: October 25, 1985

File: B31-85-022

Question: When ASTM A 193 Gr B7 bolting material is furnished in the quenched and tempered condition and is to be used at temperatures below −20°F through −50°F, is it required that the material be impact tested?

Reply: No.

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Interpretation: 4-16

Subject: Flexibility and Stress Intensity Factors

Date Issued: January 29, 1986

File: B31-85-024

Question (1): Table D-1 of ANSI/ASME B31.3 gives flexibility and stress intensification factors for an unreinforced fabricated tee. Are these flexibility and stress intensification factors applicable to both a "stub-in" unreinforced fabricated tee as illustrated in Fig. 327.4.4D sketch (2) and a "stub-in" tee as illustrated in Fig. 327.4.4D sketch (1)?

Reply (1): Yes.

Question (2): Table D-1 gives flexibility and stress intensification factors for a reinforced fabricated tee with pad or saddle. Are these flexibility and stress intensification factors applicable to both a "stub-in" reinforced fabricated tee with pad or saddle as illustrated in Fig. 327.4.4D sketch (4) and a "stub-on" tee as illustrated in Fig. 327.4.4D sketch (3)?

Reply (2): Yes.

Interpretation: 4-17

Subject: 327.5.1(d) and 327.5.2

Date Issued: January 29, 1986

File: B31-85-031

Question (1): When qualifying welding procedures which require impact testing, is the basic qualified thickness range $\frac{1}{2}t$ to $t + \frac{1}{4}$ in. rather than the range given in Section IX of the ASME Boiler and Pressure Vessel Code of the lesser of $\frac{5}{8}$ in., and t to $2t$ as in QW-403.6 (where t is thickness of test coupon)?

Reply (1): Yes.

Question (2): Is the fact that P-Numbers in Appendix A are not further divided into Group Numbers, similar to Section IX, QW-422, to be interpretated that the Group Numbers of Section IX need not be considered when qualifying welding procedures to Section IX for impact tested materials?

Reply (2): No. (See Column A of Table 323.3.1.)

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Interpretation: 4-18

Subject: Welding of ASTM B 337

Date Issued: January 29, 1986

File: B31-85-033

Question (1): In Table A-1 of ANSI/ASME B31.3, Note (17) is referenced for ASTM B 337 unalloyed titanium pipe. Is it intended to require welding without use of filler metal for all sizes and wall thicknesses of pipe?

Reply (1): Yes.

Question (2): Will the Committee consider revising Note (17) to permit use of filler metal in the larger sizes and wall thicknesses of ASTM B 337 pipe?

Reply (2): No, unless ASTM revises B 337 to require welding procedures and welders or welding operators to be qualified in accordance with Section IX of the ASME Boiler and Pressure Vessel Code.

Interpretation: 4-19

Subject: Scope, Hot Oil Heating System Piping

Date Issued: June 19, 1986

File: B31-86-007

Question: Which B31 Code Section is applicable to a hot oil distribution system used to provide heat to vinyl manufacturing equipment?

Reply: ANSI/ASME B31.3 is the applicable Code.

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ASME/ANSI B31.3
Interpretations No. 5

(This supplement is not part of ASME/ANSI B31.3 or its Addenda.)

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the subscription service. This supplement includes interpretations concerning B31.3 issued between September 1, 1986, and June 30, 1987. They have been assigned interpretation numbers in chronological order. Each interpretation applies to the latest Edition or Addenda at the time of issuance of the interpretation or the Edition or Addenda stated in the reply. Subsequent revisions to the Code may have superseded the reply.

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply, bearing the original intrepretation number with the suffix R, is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

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B31.3

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Interpretation: 5-01

Subject: ANSI/ASME B31.8, Paras. 831.41 and 831.6 and Table E-1 and ANSI/ASME B31.3, Para. 304.3 and Table D-1; Flexibility Factor and Stress Intensification Factor Tables

Date Issued: October 17, 1986

File: B31-85-030

Question (1): What is the difference between a "welding tee per ANSI B16.9" and an "extruded welding tee" as stated in Appendix D, Table D-1 of ANSI/ASME B31.3 and Appendix E, Table E-1 of ANSI/ASME B31.8?

Reply (1): A "welding tee per ANSI B16.9" complies with all requirements of ANSI B16.9. An "extruded welding tee" complies with the requirements of para. 304.3 of ANSI/ASME B31.3 or paras. 831.41 and 831.6 of ANSI/ASME B31.8.

Question (2): Is the difference related to ANSI B16.9 dimensions as defined by ANSI/ASME B31.3 and ANSI/ASME B31.8?

Reply (2): No.

Question (3): Is the difference related to manufacturing?

Reply (3): ANSI B16.9 does not specify manufacturing methods.

Question (4): When a "welding tee per ANSI B16.9" does not meet the radius and thickness limits specified in Appendix D, Table D-1 of ANSI/ASME B31.3 or Appendix E, Table E-1 of ANSI/ASME B31.8, is it permissible to use the flexibility characteristic h for an "extruded welding tee" provided r_x, is greater than or equal to $0.05D_b$ and T_c is less than $1.5T$?

Reply (4): Yes, provided the tee is formed by an extrusion process; otherwise it is the responsibility of the designer to determine the proper flexibility characteristic.

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Interpretation: 5-02

Subject: ANSI/ASME B31.3-1984 Edition with the ANSI/ASME B31.3a-1984 Addenda, Para. 337.3, Hydrostatic Test.

Date Issued: November 13, 1986

File: B31-85-017

Question: The piping for a project is fabricated in sections having several circumferential welds. If these sections are then pressure tested in accordance with the requirements of ANSI/ASME B31.3, do these previously tested joints, which have met the requirements of the Code, have to be left uninsulated and exposed during the hydrostatic test required before the initial operation of the piping system?

Reply: No, see para. 337.3.

Interpretation: 5-03

Subject: ANSI/ASME B31.3, Para. 300.2, Category D Fluid Service

Date Issued: November 13, 1986

File: B31-85-018

Question: As defined in ANSI/ASME B31.3, para. 300.2 for Category D fluid service, is damage to human tissue caused by leakage of a fluid having a design temperature not over 366°F, considered to be "reversible" when the fluid is otherwise innocuous to skin, eyes, and exposed mucous membranes?

Reply: Yes. It should be noted that contact by persons with fluid contained in the piping under design conditions is not possible because the expansion and dilution of leaking fluids reduces both pressure and temperature. It should also be noted that the owner is responsible for identifying Category D fluid service [see para. 300(b)(1)].

Interpretation: 5-04

Subject: ANSI/ASME B31.3-1984 Edition with the ANSI/ASME B31.3a-1984 Addenda, Table 327.4.1A, Definition of $\bar{T}_w$

Date Issued: November 13, 1986

File: B31-85-036

Question: What is the definition of $\bar{T}_w$ as used in Table 327.4.1A of ANSI/ASME B31.3?

Reply: $\bar{T}_w$ is defined in ANSI/ASME B31.3 as the nominal wall thickness of the thinner of the components joined by a butt weld. The definitions for all symbols used in ANSI/ASME B31.3 are in Appendix J Nomenclature.

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Interpretation: 5-05

Subject: ANSI/ASME B31.3, Para. 304.7.2, Pressure–Temperature Ratings of Socket Weld and Threaded Steel Valves

Date Issued: November 13, 1986

File: B31-86-001

Question (1): May API 602-1985 be used for selecting socket weld or threaded valves in piping subject to the requirements of ANSI/ASME B31.3?

Reply (1): Yes, provided that the requirements of para. 304.7.2 are satisfied.

Question (2): May MSS-SP-84 be used for selecting socket weld and threaded valves in piping subject to the requirements of ANSI/ASME B31.3?

Reply (2): Yes, provided that the requirements of para. 304.7.2 are satisfied.

Interpretation: 5-06

Subject: ANSI/ASME B31.3-1984 Edition with the ANSI/ASME B31.3a-1984 Addenda, Table 331.3.1 and Para. 331.3.6, PWHT—Branch Connection Welds

Date Issued: December 2, 1986

File: B31-85-037

Question: Is postweld heat treatment required by ANSI/ASME B31.3, Para. 331.3.6 for branch connection welds when the thickness of the components at the joint is greater than the nominal thickness listed in Table 331.3.1, but the thickness through the weld in any plane is less than two times the nominal wall thickness listed?

Reply: No, see para. 331.3.6(a).

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Interpretation: 5-07

Subject: ANSI/ASME B31.3-1984 Edition with the ANSI/ASME B31.3a-1984 Addenda, Para. 337.5.1, Special Alternative Tests

Date Issued: December 2, 1986

File: B31-86-005

Question (1): Is it permissible under the rules of ANSI/ASME B31.3 to apply the requirements of para. 337.5.1(b) even though the conditions of para. 337.5.1(a) are not met?

Reply (1): No.

Question (2): In accordance with ANSI/ASME B31.3, may the owner waive the requirement of meeting the condition of para. 337.5.1(a)?

Reply (2): No.

Interpretation: 5-08

Subject: ANSI/ASME B31.3-1984 Edition, Paras. 331.1.2 and 331.3.4, Temperature Monitoring of Stress Relieving of Pipe Welds In Series

Date Issued: December 2, 1986

File: B31-86-009

Question (1): When local heat treatment of welds is performed in accordance with ANSI/ASME B31.3, para. 331.3.7, does each weld require temperature measurement?

Reply (1): Yes.

Question (2): Several identical welds are separately locally heat treated using electrical resistance heaters in series. Is temperature measurement of each weld required to ensure that the required temperature range exists over the complete circumference?

Reply (2): Yes.

Question (3): Do temperature measurements taken in accordance with para. 331.3.4 to ensure the required heat cycle have to be documented?

Reply (3): No.

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Interpretation: 5-09

Subject: ANSI/ASME B31.3-1984 Edition, Paras. 327.4 and 336.4, Weld Imperfections — Radiographic Examination

Date Issued: December 2, 1986

File: B31-86-016

Question (1): Do limitations on imperfections for 100% radiography apply when 100% radiographic examination is not required by the Code, but is required by the engineering design?

Reply (1): Yes, unless the engineering design states otherwise.

Question (2): Do the blackened areas in Figs. 327.4.1A and 327.4.1B depict lack of fusion?

Reply (2): Yes.

Interpretation: 5-10

Subject: ANSI/ASME B31.3-1984 Edition With the ANSI/ASME B31.3a-1984 Addenda, Para. 336.5.1 and Appendix E, Material Manufacturer's Certifications — Specification Dates

Date Issued: December 2, 1986

File: B31-86-017

Question (1): Is it a requirement of ANSI/ASME B31.3 that material manufacturer's certifications must be supplied with pressure-retaining materials and components?

Reply (1): No, see para. 336.5.1(c).

Question (2): Is it a requirement of ANSI/ASME B31.3 that a material manufacturer's certification shall show the edition date of the standard to which the material or component is manufactured?

Reply (2): No.

Question (3): How are materials and components verified as complying with the edition dates listed in Appendix E?

Reply (3): The Code does not specify a means for verification.

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Interpretation: 5-11

Subject: ANSI/ASME B31.3-1984, Paras. 304.2.3 and 304.7.2; Use of Fillet Welded Circumferential Reinforcement Bands; Miter Bends

Date Issued: December 2, 1986

File: B31-86-018

Question (1): Does ANSI/ASME B31.3 prohibit the use of fillet welded circumferential reinforcement bands to join piping in Category D fluid service, in lieu of butt welding?

Reply (1): No, provided that the requirements of para. 304.7.2 are met, considering all applicable loadings. See also para. 301.

Question (2): In accordance with ANSI/ASME B31.3 what is the method (equation) for calculating minimum wall thickness for piping using miter bends?

Reply (2): Pressure design of miter bends is covered in para. 304.2.3.

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Interpretation: 5-12

Subject: ANSI/ASME B31.3-1984 Edition, With the ANSI/ASME B31.3a-1984 Addenda, Paras. 308.2.1 and 308.2.4; Use of Slip-On Flanges; Cyclic Loading

Date Issued: December 2, 1986

File: B31-86-020

Question (1): Does ANSI/ASME B31.3 permit the use of slip-on flanges in services where cyclic loading is caused by pressure variations?

Reply (1): Yes.

Question (2): Does ANSI/ASME B31.3 permit the use of slip-on flanges under severe cyclic conditions, if safeguarded?

Reply (2): Yes.

Question (3): What is meant by safeguarding, and how is it achieved when a flange is subjected to cyclic loading due to pressure variations?

Reply (3): See Appendix G.

Question (4): Does ANSI/ASME B31.3 permit the use of welding methods other than those in Fig. 327.4.2B for services not listed in para. 308.2.1?

Reply (4): Yes, see para. 327.4.2(b).

Question (5): What is the difference between cyclic loading and severe cyclic conditions?

Reply (5): Severe cyclic conditions are defined in para. 300.2. Cyclic loading refers to any type of cyclic service other than severe cyclic conditions.

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Interpretation: 5-13

Subject: ANSI/ASME B31.3-1984 Edition, With the ANSI/ASME B31.3a-1984 Addenda, Table 327.4.1A, Limitations on Imperfections in Welds—Internal Porosity

Date Issued: December 2, 1986

File: B31-86-021

Question (1): In ANSI/ASME B31.3, Table 327.4.1A, under internal porosity for fillet, socket, seal and reinforcement attachment welds, the wording NA (not applicable) is indicated. Does this mean that radiographic examination is not required for this type of joint configuration?

Reply (1): Yes.

Question (2): What limitations on imperfections for porosity are specified by the Code if the engineering design requires radiographic examination of socket welds but does not specify limitations for porosity as required by para. 336.6, Supplementary Examination?

Reply (2): None.

Interpretation: 5-14

Subject: ANSI/ASME B31.3-1984 Edition With the ANSI/ASME B31.3a-1984 Addenda, Para. 323.3 and Table 323.3.5, Impact Testing Methods—Specific Limitations

Date Issued: December 2, 1986

File: B31-86-022

Question (1): In accordance with ANSI/ASME B31.3, is −20°F an acceptable design temperature for A 53 and A 106 materials without impact testing?

Reply (1): Yes.

Question (2): In accordance with ANSI/ASME B31.3, is there a minimum thickness limitation within which carbon steel materials can be used without impact testing?

Reply (2): No.

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Interpretation: 5-15

Subject: ANSI/ASME B31.3-1984 Edition With Addenda through ANSI/ASME B31.3b-1986, Para. 319.3.6, Table D-1, Flexibility Factor and Stress Intensification Factor

Date Issued: December 2, 1986

File: B31-86-032

Question: What flexibility or stress intensification factors should be used for reinforced or unreinforced branch connections intersecting the run at less than 90 deg.?

Reply: The determination of the flexibility or stress intensification factors for component geometries not included in Appendix D is the responsibility of the designer (see also para. 319.3.6).

Interpretation: 5-16

Subject: ANSI/ASME B31.3-1984 Edition With the ANSI/ASME B31.3a-1984 Addenda, Table 327.4.1A, Porosity Limitations

Date Issued: May 5, 1987

File: B31-85-036B

Question: In ANSI/ASME B31.3, Table 327.4.1A, Note (3) specifies porosity limits using $\bar{T}_w$. When evaluating the limitations on a radiographic image, is $\bar{T}_w$ used, or is the thickness t used as defined in BPV Code, Section VIII, Division 1, Appendix 4?

Reply: The thickness t is used. $\bar{T}_w$ in Note (3) is used to define a division of limitations.

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Interpretation: 5-17

Subject: ANSI/ASME B31.3-1984 Edition, Para. 327.4.1 and Table 327.4.1A, Acceptance Criteria for Tungsten Inclusions

Date Issued: May 5, 1987

File: B31-86-010

Question (1): In accordance with ANSI/ASME B31.3, Table 327.4.1A, are elongated tungsten inclusions evaluated as an elongated indication?

Reply (1): Yes.

Question (2): In accordance with ANSI/ASME B31.3, Table 327.4.1A, what acceptance criteria are used to evaluate tungsten inclusions which are not elongated?

Reply (2): ANSI/ASME B31.3 does not address tungsten inclusions which are not elongated. Consideration will be given for the development of criteria.

Interpretation: 5-18

Subject: ANSI/ASME B31.3-1984 Edition With the ANSI/ASME B31.3a-1984 Addenda, Table 327.4.1A, Requirements For Unexamined Girth Butt Welds

Date Issued: May 5, 1987

File: B31-86-023

Question (1): Is it a requirement of ANSI/ASME B31.3 that girth butt welds which have not been visually examined or radiographed, in a designated lot which required only the Code's minimum 5% radiography, be capable of complying with the limitations on imperfections as specified in Table 327.4.1A?

Reply (1): Yes.

Question (2): Assuming the Engineering Design requires fabrication to ANSI/ASME B31.3, requiring the minimum 5% visual examination and random radiography of girth butt welds, what is the minimum weld quality required by the Code for butt welds which have not been individually examined, but were represented by a successful random visual and radiographic examination?

Reply (2): See Question (1) and Reply (1). The Code accepts such welds subject to leak testing. Note: The Code assumes that the 5% which were required to be examined will be representative of the entire lot, but a guarantee of such is a contractual matter to be specified by the engineering design. See Note (1), Table 327.4.1B.

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Interpretation: 5-19

Subject: ANSI/ASME B31.3-1984 Edition With Addenda Through ANSI/ASME B31.3b-1986, Table 323.2.2, Toughness Test Requirements — Required Heat Treatment

Date Issued: May 5, 1987

File: B31-86-044

Question: In accordance with ANSI/ASME B31.3, Table 323.2.2, when the conditions of Note (2) are met, may the material be furnished in any heat treated condition that conforms to the material specification?

Reply: Yes.

Interpretation: 5-20

Subject: ANSI/ASME B31.3-1984 Edition With the ANSI/ASME B31.3a-1984 Addenda, Table 327.4.1A, Acceptance Criteria for Welds

Date Issued: May 5, 1987

File: B31-86-045

Question (1): In accordance with ANSI/ASME B31.3, Table 327.4.1A, for surface porosity and exposed slag inclusion (3/16 in. nominal wall thickness and less) imperfections, should there be something listed under "When Required Examination Is:"

Reply (1): No. See the requirements in para. 336.5.

Question (2): In ANSI/ASME B31.3, Table 327.4.1A, for surface porosity and exposed slag inclusion (3/16 in. nominal wall thickness and less) imperfections, listed under each weld type are the words "None permitted." Is this requirement excessively stringent?

Reply (2): No, considering the limitations of the required examination methods. (Please note that Table 327.4.1A has been relocated and revised as Table 341.3.2A in Addenda b of ANSI/ASME B31.3.)

Question (3): In accordance with ANSI/ASME B31.3, what acceptance criteria should be applied to surface porosity for wall thickness greater than 3/16 in.?

Reply (3): ANSI/ASME B31.3 does not address acceptance criteria for surface porosity for wall thickness greater than 3/16 in.

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Interpretation: 5-21

Subject: ANSI/ASME B31.3-1984 Edition With the ANSI/ASME B31.3a-1984 Addenda, Table 323.2.2, Lower Temperature Limitations

Date Issued: May 5, 1987

File: B31-87-007

Question: Is it the intent of ANSI/ASME B31.3, Table 323.2.2, Note (2), to apply to deposited weld metal and heat affected zone in Column B, Box 2?

Reply: Yes.

Interpretation: 5-22

Subject: ANSI/ASME B31.3-1984 Edition With the ANSI/ASME B31.3a-1984 Addenda, Introduction and Para. 337.1, Scope and Applicability of Code

Date Issued: May 5, 1987

File: B31-87-011

Question (1): Are current ANSI/ASME B31.3 requirements applicable to new construction and to revisions and replacements of piping in existing facilities?

Reply (1): Yes.

Question (2): When applied to revisions of piping in an existing facility, what is the intent of ANSI/ASME B31.3, para. 337.1 "Prior to initial operation . . ."?

Reply (2): It applies to the portion of a piping system on which work was performed.

Question (3): Is it intended that the current Edition of the ANSI/ASME B31.3 Code apply retroactively to piping in existing facilities?

Reply (3): No. See the Introduction.

Question (4): If it has been determined that the ANSI/ASME B31.3 Code Section is applicable, whose responsibility is it for compliance and for establishing the requirements for design, construction, examination, and testing of piping systems?

Reply (4): The owner's.

Question (5): What is required by OSHA standards in the examination and testing of piping?

Reply (5): ANSI/ASME B31.3 does not address the application of regulatory requirements.

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Interpretation: 5-23

Subject: ANSI/ASME B31, Hydrotest Preparation

Date Issued: June 11, 1987

File: B31-86-033

Question: May all joints, including welds, used in piping systems covered by ANSI/ASME B31.1, ANSI/ASME B31.3, ASME/ANSI B31.4, ANSI/ASME B31.8, ANSI/ASME B31.9, and ANSI/ASME B31.11 be primed and painted prior to hydrotest?

Reply: Yes.

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ASME/ANSI B31.3
Interpretations No. 6

Replies to Technical Inquiries
July 1, 1987, Through April 30, 1988

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the subscription service. The interpretations have been assigned numbers in chronological order. An interpretation applies to the Edition or Addenda stated in the interpretation or, if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **The interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply, bearing the original intrepretation number with the suffix R, is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparation of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Paras. 300.2 and 305.2, and Appendices A and M; Classification of Fluid Services, and Use of API 5L	6-01	B31-87-012
Paras. 302.3.5 and 321.1.1; Longitudinal Stresses, Support Configurations	6-07	B31-87-032
Paras. 304.3 and 304.7.2, Extruded Branch Connections	6-09	B31-87-026B
Para. 311.2.4 and Figs. 327.4.2B and C; Socket Welds, Gap Dimension	6-02	B31-87-013
Para. 311.2.4 and Figs. 327.4.2B and C; Use of Socket Welds	6-05	B31-87-024
Paras. 323.1.2 and 323.2.4; Use of API 5L	6-06	B31-87-031
Paras. 345.1, 345.5, 345.9 and M345.1; Category M, Alternative Leak Test	6-08	B31-87-034
Tables 341.3.2A and B; Acceptance Criteria	6-04	B31-87-023

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Interpretation: 6-01

Subject: ANSI/ASME B31.3-1984 Edition, Paras. 300.2 and 305.2, and Appendices A and M; Classification of Fluid Services, and Use of API 5L

Date Issued: December 14, 1987

File: B31-87-012

Question (1): In accordance with ANSI/ASME B31.3, para. 300.2, are there only two categories, namely, Categories D and M fluid services?

Reply (1): No. See the definitions for Categories D and M fluid services; and see para. 300.1.1(b), which states that only Categories D and M fluid services are segregated for special consideration. See also Appendix M.

Question (2): Should general hydrocarbon service be considered Category M?

Reply (2): No.

Question (3): In ANSI/ASME B31.3, what limitations are there on the use of API 5L Grade B ERW, EFW, and SAW pipe materials?

Reply (3): See para. 305.2.3 and applicable Notes referenced in Appendix A for these materials.

Interpretation: 6-02

Subject: ANSI/ASME B31.3-1984 Edition, with the ANSI/ASME B31.3a-1984 Addenda, Para. 311.2.4 and Figs. 327.4.2B and C; Socket Welds, Gap Dimension

Date Issued: December 14, 1987

File: B31-87-013

Question (1): In ANSI/ASME B31.3, para. 311.2.4(b)(2) states, "Weld dimensions shall not be less than those shown in Figs. 327.4.2B and C." In Figs. 327.4.2B and C, there is a dimension that reads "1/16 in. approx. before welding." Do the above words mean that the gap should be no larger than 1/16 in.?

Reply (1): No.

Question (2): If the response to Question (1) is no, how large a gap would be acceptable?

Reply (2): The "1/16 in." is not a "welding dimension." It is intended as an "approximate" dimension for nominal clearance.

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Interpretation: 6-03

Subject: ANSI/ASME B31.3-1984 Edition, Paras. 300(c)(5) and 302.3.5, and Appendix D; Longitudinal Stresses and Longitudinal Bending Stresses, Sustained Loads

Date Issued: December 14, 1987

File: B31-87-022

Question (1): In accordance with ANSI/ASME B31.3, para. 302.3.5(c), when calculating the longitudinal stresses due to pressure, weight, and other sustained loads, should the thickness of pipe used in calculating S_L be the nominal thickness minus mechanical, corrosion, and erosion allowances but not minus the manufacturer's mill tolerance?

Reply (1): Yes.

Question (2): In accordance with ANSI/ASME B31.3, para. 302.3.5(c) and Appendix D, when calculating the longitudinal bending stresses due to sustained loads, does ANSI/ASME B31.3 require that the stress intensification factors from Appendix D be applied?

Reply (2): No. However, see ANSI/ASME B31.3, para. 300(c)(5).

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Interpretation: 6-04

Subject: ANSI/ASME B31.3-1984 Edition With Addenda Through ANSI/ASME B31.3c-1986, Tables 341.3.2A and B; Acceptance Criteria

Date Issued: December 14, 1987

File: B31-87-023

Question (1): In accordance with ANSI/ASME B31.3, Table 341.3.2B, can an imperfection be evaluated by an examination method not marked with an "X," other than as a supplementary examination?

Reply (1): Yes. Table 341.3.2B does not state ANSI/ASME B31.3 requirements.

Question (2): In accordance with ANSI/ASME B31.3, Table 341.3.2B, concave root surface imperfections can be evaluated by visual, ultrasonic, or radiographic examination. Table 341.3.2A indicates concave root surface imperfections to be evaluated by visual examination only. What acceptance criteria are used for radiographic examination?

Reply (2): ANSI/ASME B31.3 does not address such criteria for radiographic examination.

Question (3): In accordance with ANSI/ASME B31.3, Table 341.3.2B, weld undercutting imperfections can be evaluated by visual examination. Table 341.3.2A indicates undercutting imperfections to be evaluated by visual or radiographic examination. In this case, are the radiographic examination acceptance criteria stated for use as a supplementary examination?

Reply (3): No.

Note: Consideration will be given to clarify Tables 341.3.2A and 341.3.2B.

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Interpretation: 6-05

Subject: ANSI/ASME B31.3-1984 Edition With ANSI/ASME B31.3a-1984 Addenda, Para. 311.2.4 and Figs. 327.4.2B and C; Use of Socket Welds

Date Issued: December 14, 1987

File: B31-87-024

Question (1): In accordance with ANSI/ASME B31.3, para. 311.2.4, is a weld strength calculation, including bending moments, required for each socket weld?

Reply (1): No.

Question (2): In accordance with ANSI/ASME B31.3, para. 303, are the ratings of socket welding components reduced in consideration of welded joint strength?

Reply (2): No.

Question (3): Is the use of socket welding connections prohibited for joints under pressure–temperature conditions in excess of the ratings for ANSI B16.5 Class 900?

Reply (3): No.

Interpretation: 6-06

Subject: ANSI/ASME B31.3-1984 Edition With Addenda Through ANSI/ASME B31.3c-1986, Paras. 323.1.2 and 323.2.4; Use of API 5L

Date Issued: December 14, 1987

File: B31-87-031

Question (1): Are there restrictions in ANSI/ASME B31.3 that would prohibit the use of seamless API 5L, Grade X-80?

Reply (1): No.

Question (2): Since API 5L, Grade X-80 is not listed in ANSI/ASME B31.3, Table A-1, is it acceptable to treat it as an unlisted material per para. 323.1.2 and use the rules of para. 323.2.4 for developing design limitations?

Reply (2): Yes. Note: The inquirer may wish to consider alternative rules for design of high pressure piping in Chapter IX of ANSI/ASME B31.3-1984 Edition with Addenda through ANSI/ASME B31.3c-1986.

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Interpretation: 6-07

Subject: ANSI/ASME B31.3-1984 Edition With Addenda Through ANSI/ASME B31.3c-1986, Paras. 302.3.5 and 321.1.1; Longitudinal Stresses, Support Configurations

Date Issued: December 14, 1987

File: B31-87-032

Question: Shall all support configurations be considered in the evaluation of longitudinal stress in accordance with ANSI/ASME B31.3, para. 302.3.5(c)?

Reply: Yes. See also ANSI/ASME B31.3, para. 321.1.1(7).

Interpretation: 6-08

Subject: ANSI/ASME B31.3-1984 Edition With Addenda Through ANSI/ASME B31.3c-1986, Paras. 345.1, 345.5, 345.9, and M345.1; Category M, Alternative Leak Test

Date Issued: December 14, 1987

File: B31-87-034

Question (1): ANSI/ASME B31.3, para. M345.1 refers to para. 345.1 for testing. If a hydrostatic test is not practical, does ANSI/ASME B31.3 intend for toxic gas service piping to be alternative leak tested in accordance with para. 345.9?

Reply (1): No. ANSI/ASME B31.3 provides the option of a pneumatic leak test in accordance with para. 345.5. See para. 345.1(b).

Question (2): Does ANSI/ASME B31.3 permit piping to be put into toxic gas service following the alternative leak test in accordance with para. 345.9?

Reply (2): Yes.

Interpretation: 6-09

Subject: ANSI/ASME B31.3-1984 Edition With Addenda Through ANSI/ASME B31.3c-1986, Paras. 304.3 and 304.7.2; Extruded Branch Connections

Date Issued: April 15, 1988

File: B31-87-026B

Question: Are the requirements of ANSI/ASME B31.3, para. 304.7.2 applicable to extruded branch connections to which the design formulas given in para. 304.3 cannot be applied?

Reply: Yes.

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(NOTE: Code references are based on ASME/ANSI B31.3-1987 Edition. References in brackets are to previous Editions and Addenda.)

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ASME/ANSI B31.3
Interpretations No. 7

Replies to Technical Inquiries
May 1, 1988, Through April 30, 1989

General Information

It has been agreed to publish interpretations issued by the B31 Committee concerning B31.3 as part of the subscription service. The interpretations have been assigned numbers in chronological order. An interpretation applies to the Edition or Addenda stated in the interpretation or, if none is stated, to the Edition or Addenda in effect on the date of issuance of the interpretation. Subsequent revisions to the Code may have superseded the reply. **The interpretations are not part of the Code or its Addenda.**

These replies are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised reply, bearing the original intrepretation number with the suffix R, is presented.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

For detailed instructions on preparation of technical inquiries to the B31 Committee, refer to Appendix Z.

Code Reference and Subject Indexes

Code Reference and Subject Indexes have been prepared to assist the user in locating interpretations by location or by subject matter in the Code. They cover interpretations issued from Volume 1 up to and including the present volume, and will be updated with each volume.

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B31.3

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Interpretation: 6-03R

Subject: ANSI/ASME B31.3-1984 Edition, Paras. 300(c)(3) and (5), and 302.3.5; Longitudinal Stresses and Longitudinal Bending Stresses—Sustained Loads

Date Issued: May 24, 1988

Item: B31-87-022*

Question (1): In accordance with ANSI/ASME B31.3, para. 302.3.5(c), when calculating the longitudinal stresses due to pressure, weight and other sustained loads, should the thickness of pipe used in calculating S_L be the nominal thickness minus mechanical, corrosion, and erosion allowances but not minus the manufacturer's mill tolerance?

Reply (1): Yes.

Question (2): In accordance with ANSI/ASME B31.3, para. 302.3.5(c) when calculating the longitudinal bending stresses due to sustained loads, what stress intensification factors should be applied?

Reply (2): ANSI/ASME B31.3 does not address the application of stress intensification factors for longitudinal stress due to sustained loads; but see ANSI/ASME B31.3, paras. 300(c)(3) and (5).

Interpretation: 7-01

Subject: ANSI/ASME B31.3-1984 Edition with Addenda through B31.3c-1986, Paras. 301.2, 302.2.4, and 322.6.3; Pressure Relief Device Set Pressure

Date Issued: May 24, 1988

File: B31-87-021

Question: In accordance with ANSI/ASME B31.3, paras. 301.2 and 322.6.3, may the set pressure of a single pressure relieving device for a piping system be chosen higher than the design pressure of the piping system provided para. 302.2.4 is satisfied for the maximum relieving pressure?

Reply: No.

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Interpretation: 7-02

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 304.3.3 and 328; Spacing of Welds

Date Issued: May 24, 1988

File: B31-87-039

Question: In accordance with ASME/ANSI B31.3, are there requirements or guidelines on the minimum distance between welds in a pipe?

Reply: No, except as provided in para. 304.3.3(e).

Interpretation: 7-03

Subject: ASME/ANSI B31.3-1987 Edition, Para. 305.2.3, and Tables A-1 and A-1B; Spiral Welded Pipe

Date Issued: May 24, 1988

File: B31-87-040

Question (1): In accordance with ASME/ANSI B31.3, Table A-1, does ASTM A 671 and A 672 as listed, apply for both straight welded pipes and spiral welded pipes?

Reply (1): No. ASTM A 671 and A 672 do not include spiral welded pipe. ASTM specifications covering spiral welded pipe include "spiral welding" in their scope. These include ASTM A 134, A 139 and A 211. API-5L also includes spiral welding. See ASME/ANSI B31.3, Table A-1B.

Question (2): In accordance with ASME/ANSI B31.3, para. 305.2.3, can carbon steel spiral welded pipe be used for severe cyclic service?

Reply (2): No.

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Interpretation: 7-04

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 302.2.4, 302.3.5, and 319.2.3; Allowable Stress—Calculating Displacement Stress Range

Date Issued: May 24, 1988

File: B31-87-041

Question (1): In accordance with ASME/ANSI B31.3, para. 302.3.5, should the basic allowable stress at maximum metal temperature S_h used for calculating the allowable displacement stress range, be for the normal upper temperature under operating conditions, and exclude all short-time excursions above such normal operating temperature?

Reply (1): No. In accordance with para. 319.2.3, the allowable displacement stress range is based on the maximum and minimum temperatures for the displacement cycle under analysis.

Question (2): Are the provisions of ASME/ANSI B31.3, para. 302.2.4 applicable for establishing the allowable displacement stress range for flexibility analysis?

Reply (2): No.

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Interpretation: 7-05

Subject: ANSI/ASME B31.3-1984 Edition with Addenda through B31.3c-1986, Paras. 300(c)(3), 302.3.5, 319.2.3 and 319.7; Piping Supports

Date Issued: May 24, 1988

File: B31-88-001

Question (1): When a pipe moves away from a support, should the longitudinal stresses for the pipe in the installed position, or the longitudinal stresses for the pipe in the operating position, or both, be compared to ANSI/ASME B31.3 allowable in accordance with para. 302.3.5(c)?

Reply (1): Both. See also para. 300(c)(3).

Question (2): Does ANSI/ASME B31.3 require the evaluation of the secondary effects of pressure, such as pressure expansion and elongation or the Bourdon effect with bends?

Reply (2): No. See also para. 300(c)(3).

Question (3): Does ANSI/ASME B31.3 address the stresses caused by axial forces in the displacement stress calculations?

Reply (3): No. See also paras. 300(c)(3) and 319.7.

Question (4): What is the ANSI/ASME B31.3 definition of "displacement stress range"?

Reply (4): The displacement stress range is defined in para. 319.2.3 as "the algebraic difference between the extreme displacement condition and the original (as installed) condition (or any anticipated condition with a greater differential effect)."

Interpretation: 7-06

Subject: ANSI/ASME B31.3-1984 Edition with the B31.3a-1984 Addenda, Table 327.4.1A; Weld Acceptance Criteria—Concavity and Convexity

Date Issued: May 24, 1988

File: B31-88-002

Question: Is it the intent of ANSI/ASME B31.3 to interpret concavity and convexity by radiography on welds required by B31.3 or the engineering design to be radiographed when this interpretation can not be made by visual examination?

Reply: For concavity, yes. ANSI/ASME B31.3 does not address convexity except as "internal protrusion" or "external reinforcement," neither of which is evaluated by radiography.

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Interpretation: 7-07

Subject: ASME/ANSI B31.3-1987 Edition, Paras. K315 and K322.3; Tubing Joints—Instrument Piping

Date Issued: May 24, 1988

File: B31-88-008

Question: Does ASME/ANSI B31.3, para. K315 apply to process control (instrument piping) tube fittings and tube joints?

Reply: Yes.

Interpretation: 7-08

Subject: ASME/ANSI B31.3-1987 Edition, Para. 328.5.4(f) and Fig. 328.5.4D; Branch Reinforcement

Date Issued: May 24, 1988

File: B31-88-009

Question: In accordance with ASME/ANSI B31.3, para. 328.5.4(f), is the attachment weld between the reinforcement member and the run pipe required for a full encirclement type reinforcement installation?

Reply: ASME/ANSI B31.3 does not specifically address full encirclement branch reinforcement. The Committee will be studying this item for possible future revisions.

Interpretation: 7-09

Subject: ANSI/ASME B31.3-1984 Edition, Para. A327.2.4; Qualification Test for CPVC Piping

Date Issued: December 8, 1988

Item: B31-88-021

Question: For CPVC plastic piping, is there a discrepancy between the hydrostatic test requirements in para. A327.2.4 for qualifying a bonding procedure specification (BPS) and the hydrostatic burst strength requirement for solvent cemented joints in ASTM F 493?

Reply: No. ANSI/ASME B31.3, para. A327.2.4 requires that a test assembly containing joints withstand a hydrostatic test pressure of four times the design pressure. ASTM F 493 qualifies the cement used in the joint.

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Interpretation: 7-10

Subject: ASME/ANSI B31.3-1987 Edition, Paras. 300, 300.1, and Fig. 300.1.1; Applicability

Date Issued: December 8, 1988

Item: B31-88-022

Question: Which section of the ASME/ANSI B31 Code for Pressure Piping covers piping for a transmission line between an oil terminal and a tank farm part of the piping being accessible to the public?

Reply: ASME/ANSI B31.3 and B31.4; see Fig. 300.1.1 of B31.3.

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