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 Subsequent revisions to the Code may have superseded the reply.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.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available which the inquirer belives 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.

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

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.

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).

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."

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).

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).

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.

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.

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.)

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.