ASME B31.4

INTERPRETATIONS NO. 5

Replies to Technical Inquiries
January 1, 1994, Through December 31, 1997

It has been agreed to publish intepretations issued by the B31 Committee concerning B31.4 as part of the update service to the Code. The interpretations have been asssigned numbers in chronological order. Each interpretation applies either 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 Subsequent revisions to the Code may have superseded the reply.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. In the case where an interpretation is corrected by Errata, the original interpretation number with the suffix E is used.

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 preparations of technical inquiries to the B31 Committee, refer to Appendix B.

Interpretations No. 1 was included with ANSI/ASME B31.4c-1986. Interpretations No. 2 was included with ASME B31.4a-1987. Interpretations No. 3 was included with ASME B31.4a-1991. Interpretations No. 4 was included with ASME B31.4a-1994.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS
Not for Resale

B31.4

Subject	Interpretation	File No.
401.2.2, Internal Design Pressure; 402.3, Allowable Stresses and Other Stress Limits; 404.1.2, Straight Pipe Under Internal Pressure	4-66	B31-97-011
401.6, Weight Effects; 402.3, Allowable Stresses and Other Stress Limits	4-56	B31-93-054
406.2.2, Mitered Bends	4-60	B31-97-007
419.7.3(b), Expansion and Flexibility Analysis; Fig. 419.6.4(c), Flexibility Factor *k* and Stress Intensification Factor *i*	4-61	B31-97-008
434.8.6(a), Butt Welds; Fig. 434.8.6(a)-(2), Acceptable Butt Welded Joint Design for Unequal Wall Thicknesses	4-57	B31-94-032
435.5, Auxiliary Liquid Petroleum, Liquid Anhydrous Ammonia, or Liquid Alcohol Piping	4-55	B31-93-056
451.6.2(a)(7), Disposition of Defects	4-65	B31-97-005
Certification of a Listed Material to Another Listed Material Specification	4-62	B31-94-035
Figure 434.8.6(a)-(2), Acceptable Butt Welded Joint Design for Unequal Wall Thicknesses, Note (1)	4-64	B31-95-051
Fully Welded Partial Encirclement Half Soles in an Oil Pipeline	4-59	B31-97-006
Mill Certificates; 402, Design Criteria; 436, Inspection	4-67	B31-97-023
Requirements for Re-converting a Steel Pipeline's Function	4-58	B31-94-054
Temperature Limitations for Underground Ethylene Pipelines	4-63	B31-94-047

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS
Not for Resale

Interpretation: 4-55

Subject: ASME B31.4-1992 Edition, Para. 435.5, Auxiliary Liquid Petroleum, Liquid Anhydrous Ammonia, or Liquid Alcohol Piping

Date Issued: May 31, 1994

File: B31-93-056

Question: In accordance with ASME B31.4, para. 434.5(a), does B31.4 prohibit a manufacturer of full-encirclement welded split tees from repairing notches, grooves, gouges, and blowouts by welding?

Reply: No.

Interpretation: 4-56

Subject: ASME B31.4-1992 Edition, Para. 401.6, Weight Effects, Para. 402.3, Allowable Stresses and Other Stress Limits

Date Issued: April 23, 1997

File: B31-93-054

Question: For an exposed submarine pipeline resting on the seafloor and where it can not be conclusively proven that hydrotesting has removed the longitudinal stresses due to pipeline route curvature, should the stress due to curvature be accounted for in the equivalent tensile stress calculation which is required to be less than 0.9SMYS in the restrained section [para. 402.3.2(c)] and less than 75% of the allowable stress value [para. 402.3.2(d)]?

Reply: Yes.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS
Not for Resale

STD.ASME B31.4 INT NO. 5-ENGL ■ 0759670 0609315 86T ■

Interpretation: 4-57

Subject: ASME B31.4-1992 Edition, Para. 434.8.6(a), Butt Welds, Fig. 434.8.6(a)-(2), Acceptable Butt Welded Joint Design for Unequal Wall Thickness

Date Issued: April 23, 1997

File: B31-94-032

Question (1): Is it permissible to butt weld a weld neck flange made from material with a specified minimum yield strength of 35 ksi (for example, A 105) directly to Grade X60 pipe as long as the pressure class rating of the flange meets the design requirements?

Reply (1): Yes. The inquirer is cautioned to review the requirements of para. 434.8.6 and Fig. 434.8.6(a)-(2).

Question (2): Is it permissible to weld a slip-on flange made from material with a specified minimum yield strength of 35 ksi (for example, A 105) directly to Grade X60 pipe as long as the pressure class rating of the fitting meets the design requirements?

Reply (2): Yes.

Question (3): Is it permissible to weld a fitting made from material with a specified minimum yield strength of 35 ksi (for example, A 105) directly to Grade X60 pipe for all other types of weld joints except butt welds (e.g., as a branch connection attached with a full penetration groove corner joint) as long as the pressure class rating of the fitting meets the design requirements?

Reply (3): Yes.

Interpretation: 4-58

Subject: ASME B31.4-1992 Edition, Requirements for Reconverting a Steel Pipeline's Function

Date Issued: April 23, 1997

File: B31-94-054

Question: Under ASME B31.4-1992 Edition, are there any requirements for reconverting a steel pipeline, originally used for liquid transportation, back to liquid transportation after being used for several years for gas transportation?

Reply: No, there is no requirement under B31.4-1992 Edition.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS
Not for Resale

STD.ASME B31.4 INT NO. 5-ENGL ■ 0759670 0609316 7T6 ■

Interpretation: 4-59

Subject: ASME B31.4-1986 Edition, Fully Welded Partial Encirclement Half Soles in an Oil Pipeline

Date Issued: April 23, 1997

File: B31-97-006

Question: Is the installation of half soles on an X-42 pipeline constructed in 1965 acceptable to ASME B31.4-1986?

Reply: No.

Interpretation: 4-60

Subject: ASME B31.4-1992 Edition, Para. 406.2.2, Mitered Bends

Date Issued: April 23, 1997

File: B31-97-007

Question (1): What is the basis of para. 406.2.2?

Reply (1): The inquirer is referred to para. 400 for the purpose and principles of the Code.

Question (2): Does the limitation of 20% of the yield apply even if a full analysis has been carried out?

Reply (2): Yes. Refer to para. 400(e).

Question (3): Would a successful finite element analysis of the pup piece be considered acceptable in lieu of compliance with para. 406.2.2?

Reply (3): Yes. Refer to para. 400.

Interpretation: 4-61

Subject: ASME B31.4-1992 Edition, Para. 419.7.3(b), Expansion and Flexibility Analysis, Fig. 419.6.4(c), Flexibility Factor k and Stress Intensification Factor i

Date Issued: April 23, 1997

File: B31-97-008

Question: Is the stress intensification factor calculation shown in Fig. 419.6.4(c) for welding tees applicable for extruder outlet headers?

Reply: Figure 419.6.4(c) does not address extruded outlet headers.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS Not for Resale

Interpretation: 4-62

Subject: ASME B31.4-1992 Edition, Certification of a Listed Material to Another Listed Material Specification

Date Issued: August 29, 1997

File: B31-94-035

Question: Is it permissible under the requirements of the above mentioned Code for a steel service center/ processor to certify a Listed Material to another Listed Material specification by using the chemical analysis performed by the material manufacturer (the mill) and physical test performed by the service center or the manufacturer and provided all test results, method and process of manufacture, heat treatment, and quality control meet the requirements of material specification in question and meet the requirements of this Code.

Reply: No.

Interpretation: 4-63

Subject: ASME B31.4-1992 Edition, Temperature Limitations for Underground Ethylene Pipelines

Date Issued: August 29, 1997

File: B31-94-047

Question (1a): Do the corresponding chapters (materials, welding, design, installation, and testing) of ASME B31.8 also apply to underground ethylene pipelines?

Reply (1a): No. ASME B31.4 is the appropriate Code for ethylene pipelines.

Question (1b): Except as specified in this Code, are there any extra regulations which should be followed for the safety considerations of ethylene transmission?

Reply (1b): The ASME B31.4/11 Section Committee cannot respond to questions concerning other regulations.

Question (2): Should cathodic protection measures be taken for underground ethylene pipelines in soil with low resistivity less than 10 Ω-m?

Reply (2): Yes. Refer to ASME B31.4, Chapter VIII.

Question (3): Does ASME B31.4 have temperature limitations for underground ethylene pipeline transmission?

Reply (3): No.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS Not for Resale

STD.ASME B31.4 INT NO. 5-ENGL ■ 0759670 0609318 579 ■

Interpretation: 4-64

Subject: ASME B31.4-1992 Edition, Fig. 434.8.6(a)-(2), Acceptable Butt Welded Joint Design for Unequal Wall Thicknesses, Note (1)

Date Issued: August 29, 1997

File: B31-95-051

Question (1): Is it the intent of the Code that the $^3/_{32}$ in. dimension shown in Fig. 434.8.6(a)-(2), sketch (a) is a nominal dimension?

Reply (1): Yes.

Question (2): Is the mismatch requirement of sketch (a) met when welding two adjoining pipe ends ordered to API 5L with the same diameter and nominal wall thickness as long as the difference between the maximum and minimum wall thickness does not exceed $^3/_{32}$ in.?

Reply (2): Yes.

Question (3): Is the mismatch requirement of sketch (a) met when welding two adjoining pipe ends ordered to API 5L having the same diameter and nominal wall thickness if the mismatch (difference between the maximum and minimum wall thickness) exceeds $^3/_{32}$ in.?

Reply (3): Yes.

Question (4): Is the mismatch requirement of sketch (a) met when welding two adjoining pipe ends ordered to API 5L, having the same nominal diameter but different nominal wall thickness (one pipe is nominally greater than $^3/_{32}$ in. thicker than the other)?

Reply (4): No. Correction in accordance with sketch (b), (c), or (d) is required.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS
Not for Resale

Interpretation: 4-65

Subject: ASME B31.4-1992 Edition, Para. 451.6.2(a)(7), Disposition of Defects

Date Issued: August 29, 1997

File: B31-97-005

Question (1): According to ASME B31.4-1992 Edition, para. 451.6.2(a)(7), is the significance of the depth of corrosion pits located in girth or longitudinal welds or related heat affected zones to be evaluated to the same criteria as corrosion pits in the base pipe (i.e., must be deep enough to reduce the wall thickness below the design thickness less the manufacturing tolerance in order to warrant repair, replacement, or operating pressure reduction)?

Reply (1): Corrosion pit depth in welds is not presently addressed in ASME B31.4-1992 Edition.

Question (2): According to ASME B31.4-1992 Edition, para. 451.6.2(a)(7), is the depth of a corrosion pit located in girth or longitudinal welds or related heat affected zones to be evaluated relative to the nominal pipe wall thickness (i.e., ignoring weld reinforcement)? If so, should the corrosion pit depth be measured from the top of the weld reinforcement or from the location where the corrosion pit intersects the extension of the plane of the surface of the pipe?

Reply (2): Corrosion pit depth in welds is not presently addressed in ASME B31.4-1992 Edition.

Question (3): According to ASME B31.4-1992 Edition, para. 451.6.2(a)(7), are corrosion pits of significant depth (i.e., deep enough to reduce the wall thickness below the design thickness less the manufacturing tolerance, but less than 80% of nominal wall thickness) that are located in girth or longitudinal welds or related heat affected zones, cause for line repair, replacement, or operation at reduced pressure regardless of their length?

Reply (3): Corrosion pit depth in welds is not presently addressed in ASME B31.4-1992 Edition.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS
Not for Resale

STD.ASME B31.4 INT NO. 5-ENGL 0759670 0609320 127

Interpretation: 4-66

Subject: ASME B31.4-1992 Edition, Para. 401.2.2, Internal Design Pressure, Para. 404.1.2, Straight Pipe Under Internal Pressure, Para. 402.3, Allowable Stresses and Other Stress Limits

Date Issued: August 29, 1997

File: B31-97-011

Question (1): Does the statement in para. 401.2.2, "Credit may be given for hydrostatic external pressure, in the appropriate manner, in modifying the internal design pressure for use in calculations involving the pressure design of piping components (see para. 404.1.3)," also apply to the formula in para. 404.1.2 for subsea systems?

Reply (1): Yes.

Question (2): May hydrostatic external pressure be accounted for in calculations involving the internal pressure design of piping components?

Reply (2): Yes.

Question (3): Is it possible to incorporate "Maximum Distortional Energy Theory (von Mises Combined Stress)" in para. 402.3?

Reply (3): No.

Interpretation: 4-67

Subject: ASME B31.4-1992 Edition, Mill Certificates, Para. 402, Design Criteria, Para. 436, Inspection

Date Issued: August 29, 1997

File: B31-97-023

Question: Does the Code require Mill (material) Certificates — chemical composition — for the line pipe and its components to be provided as part of the specification?

Reply: No.

Copyright ASME International
Provided by IHS under license with ASME
No reproduction or networking permitted without license from IHS
Not for Resale