

**ASME CODE FOR PRESSURE PIPING, B31
AN AMERICAN NATIONAL STANDARD**

ASME B31.11a-1991

ADDENDA

to

**ASME B31.11-1989 EDITION
SLURRY TRANSPORTATION
PIPING SYSTEMS**

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

United Engineering Center • 345 East 47th Street • New York, N.Y. 10017

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**ASME B31.11a-1991
Summary of Changes**

Revisions, additions, deletions, and errata to ASME B31.11-1989 Edition are published in loose-leaf, replacement-page format. The affected material is incorporated directly into the page on which it does, or should, appear; any excess material appears on a point page or, if space permits, on the following page.

This Addenda, ASME B31.11a-1991, is the first Addenda to be issued to ASME B31.11-1989 Edition. A margin designator, either an (a), or a bullet, •, is used to identify the affected material and corresponds to the items listed in the Summary of Changes pages. The margin designators will remain on the pages until the 1994 Edition of B31.11 is published.

<i>Page</i>	<i>Location</i>	<i>Change</i>
ii	Copyright page	First paragraph corrected by Errata
58	1151.5(a)	Corrected by Errata
71, 72	Appendix A	Entries indicated by bullets (•) revised, added, or deleted

NOTES:

- (1) The interpretations to ASME B31.11 issued from October 31, 1986, through September 30, 1990, follow the last page of this Addenda as a separate supplement, Interpretations No. 1. The supplement is not part of ASME B31.11 or the Addenda.
- (2) There is no cases supplement included after this Addenda. The cases are not part of ASME B31.11 or the Addenda.

AN AMERICAN NATIONAL STANDARD

ASME CODE FOR PRESSURE PIPING, B31

SLURRY TRANSPORTATION PIPING SYSTEMS

ASME B31.11-1989 EDITION



The American Society of
Mechanical Engineers

345 East 47th Street, New York, N.Y. 10017

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(a)

The 1989 Edition of this Code is being issued with an automatic update service that includes Addenda, Interpretations, and Cases. The next Edition is scheduled for publication in 1994.

The use of an Addenda allows revisions made in response to public review comments or committee actions to be published on a regular basis; revisions published in Addenda will become effective 6 months after the Date of Issuance of the Addenda.

ASME issues written replies to inquiries concerning interpretations of technical aspects of the Code. The Interpretations are not part of the Code or the Addenda and are published in a separate supplement.

Periodically certain actions of the ASME B31 Committee will be published as Cases. While these Cases do not constitute formal revisions of the Code, they may be used in specifications, or otherwise, as representing considered opinions of the Committee. The Cases are not part of the Code or the Addenda and are published in a separate supplement.

The user of the Code will note that metric equivalents of U.S. Customary units appear in many places in this Code. The values stated in U.S. Customary units are to be regarded as the standard, unless otherwise agreed between contracting parties.

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CHAPTER VII

OPERATION AND MAINTENANCE PROCEDURES

1150 OPERATION AND MAINTENANCE PROCEDURES AFFECTING THE SAFETY OF SLURRY TRANSPORTATION PIPING SYSTEMS

1150.1 General

(a) It is not possible to prescribe in this Code a detailed set of operating and maintenance procedures that will encompass all cases. It is possible, however, for each operating company to develop operating and maintenance procedures based on the provisions of this Code, and the company's experience and knowledge of its facilities and conditions under which they are operated. Such operating and maintenance procedures should be adequate from the standpoint of public and employee safety.

(b) The methods and procedures set forth herein serve as a general guide, but do not relieve the individual or operating company from the responsibility for prudent action that current particular circumstances make advisable.

(c) It must be recognized that local conditions (such as the effects of temperature, characteristics of the line contents, and topography) will have considerable bearing on the approach to any particular maintenance and repair job.

1150.2 Operation and Maintenance Plans and Procedures

Each operating company having a transportation piping system within the scope of this Code shall:

(a) have written plans and instructions for employees covering operating and maintenance procedures for the transportation piping system during normal operations and maintenance in accordance with the purpose of this Code (essential features recommended for inclusion in the plans for specific portions of the system are given in paras. 1151 and 1152);

(b) have a plan for external corrosion and internal corrosion-erosion control of new and existing piping systems, including requirements and procedures prescribed in Chapter VIII;

(c) have a written emergency plan as indicated in para. 1154 for implementation in the event of system failures, accidents, or other emergencies; acquaint appropriate operating and maintenance employees with the applicable portion of the plan; and establish liaison with appropriate public officials with respect to the plan;

(d) have a plan for reviewing changes in conditions affecting the integrity and safety of the piping system, including provisions for periodic patrolling and reporting of construction activity, and changes in conditions, especially in industrial, commercial, and residential areas, and at river, railroad, and highway crossings, in order to consider the possibility of providing additional protection to prevent damage to the pipeline in accordance with para. 1102.1;

(e) establish liaison with local authorities who issue construction permits in urban areas to prevent accidents caused by excavators;

(f) establish procedures to analyze all failures and accidents for the purpose of determining the cause and to minimize the possibility of recurrence;

(g) maintain necessary maps and records to properly administer the plans and procedures, including records listed in para. 1155;

(h) have abandonment procedures before abandoning piping systems;

(i) in establishing plans and procedures, give particular attention to those portions of the system that may present a hazard to the public or employees in the event of emergencies or because of construction or extraordinary maintenance requirements;

(j) operate and maintain its piping system in conformance with these plans and procedures;

(k) modify the plans and procedures from time to time as experience and conditions dictate.

1151 PIPELINE OPERATION AND MAINTENANCE

1151.1 Operating Pressure

(a) Care shall be exercised to assure that at any point in the piping system the maximum steady state operating pressure and static head pressure with the line in a static condition do not exceed at that point the internal design pressure and pressure ratings for the components used as specified in para. 1102.2.3, and that the level of pressure rise due to surges and other variations from normal operation does not exceed the internal design pressure at any point in the piping system and equipment by more than 10% as specified in para. 1102.2.4.

(b) A piping system shall be qualified for a higher operating pressure when the higher operating pressure will produce a hoop stress of more than 20% of the specified minimum yield strength of the pipe in accordance with para. 1156.

(c) If any part of a piping system is derated to a lower operating pressure in lieu of repair or replacement, the new maximum steady state operating pressure shall be determined in accordance with para. 1151.7.

1151.2 Communications

A communications facility shall be maintained to assure safe pipeline operations under both normal and emergency conditions.

1151.3 Markers

(a) Markers shall be installed to indicate the presence of each line on each side of a public road, railroad, and navigable water crossing to properly identify the system. Markers are not required for pipelines offshore.

(b) Pipeline markers at crossings, aerial markers when used, and other signs shall be maintained so as to indicate the presence of the line. These markers shall show the name of the operating company and, where possible, an emergency telephone contact. Additional pipeline markers shall be installed along the line in areas of development and growth to protect the system from encroachment. API RP 1109 may be used as guidance.

1151.4 Right of Way Maintenance

(a) The right of way should be maintained for clear visibility and to provide the maintenance crews reasonable access to the system.

(b) Access shall be maintained to valve locations.
(c) Diversion ditches or dikes shall be maintained where needed to protect against washouts of the line and erosion of the landowner's property.

1151.5 Patrolling

(a) Each operating company shall maintain a periodic pipeline patrol program to observe surface conditions on and adjacent to the pipeline right of way, indication of leaks, construction activity other than that performed by the company, and any other factors affecting the safety and operation of the pipeline. Special attention shall be given to such activities as road building, ditch cleanouts, excavations, and similar encroachments to the pipeline system. Patrols should be made at intervals not exceeding one per month.

(b) Underwater crossings shall be inspected periodically for sufficiency of cover, accumulation of debris, or for any other condition affecting the safety and security of the crossings, and at any time it is felt that the crossings are in danger as a result of floods, storms, or suspected mechanical damage.

1151.6 Pipeline Repairs

1151.6.1 General. Repairs shall be covered by a maintenance plan [see para. 1150.2(a)] and shall be performed under qualified supervision by trained personnel. The maintenance plan shall consider the appropriate information contained in API RP 1107 and API RP 1111. It is essential that all personnel working on pipeline repairs understand the need for careful planning of the job and be briefed as to the procedure to be followed in accomplishing the repairs.

1151.6.2 Permanent Repairs for Pipelines Operating at a Hoop Stress of More Than 20% of the Specified Minimum Yield Strength of the Pipe

(a) Limits and Dispositions of Imperfections

(1) Gouges and grooves having a depth greater than 12½% of the nominal wall thickness shall be removed or repaired.

(2) Dents meeting any of the following conditions shall be removed or repaired:

(a) dents which affect the pipe curvature at the pipe seam or at any girth weld;

(b) dents containing a scratch, gouge, or groove; or

(c) dents exceeding a depth of 7½% of the nominal pipe diameter.

(3) All arc burns shall be removed or repaired.

(4) All cracks shall be removed or repaired.

APPENDIX A

REFERENCED STANDARDS¹

Specific editions of standards incorporated in this Code by reference, and the names and addresses of the sponsoring organizations, are shown in this Appendix. It is not practical to refer to a specific edition of each standard throughout the Code text; instead, the specific edition reference dates are shown here. Appendix A will be revised at intervals as needed, and issued in Addenda to this Code. An asterisk (*) is used to indicate those standards that have been accepted as American National Standards by the American National Standards Institute (ANSI).

ASTM Specifications	ASTM Specifications (Cont'd)	NFPA Codes
<ul style="list-style-type: none"> • A 6/A 6M-88d • A 20/A 20M-89 • A 29/A 29M-88 • A 36/A 36M-88d • A 53-88a • A 105/A 105M-87a • A 106-88a [Note (2)] <ul style="list-style-type: none"> A 120-84 A 126-84 • A 134-85 • A 135-88 [Note (2)] • A 139-89a • A 181/A 181M-87 • A 182/A 182M-89 • A 193/A 193M-88 • A 194/A 194M-88 • A 211-75 (R-85) • A 216/A 216M-84b • A 217/A 217M-88 • A 225/A 225M-86 • A 234/A 234M-85 • A 242/A 242M-87 • A 283/A 283M-87 • A 285/A 285M-82 (R87) • A 307-88a • A 320/A 320M-88 • A 325-88a • A 350/A 350M-89a • A 354-88 • A 377-89 • A 381-88 • A 395-88 	<ul style="list-style-type: none"> • A 420/A 420M-88a • A 441/A 441M-85 • A 442/A 442M-86a • A 445-88 • A 449-88 • A 487/A 487M-89 • A 490-88a/A 490M-85 • A 505-87 • A 506-87 • A 507-87 • A 514/A 514M-87a • A 515/A 515M-82 (R87) • A 516/A 516M-86 • A 517/A 517M-87 • A 524-88 [Note (2)] • A 530/A 530M-88a • A 536-84 • A 572/A 572M-88c • A 573/A 573M-85 • A 575-86a • A 576-89a • A 633/A 633M-88b • A 663-88 • A 671-85 • A 672-81 (R88) • A 675/A 675M-88 • A 691-85a • A 694/A 694M-87 • A 707/A 707M-87 	<ul style="list-style-type: none"> •*30-1987 •*70-1990 <li style="text-align: center;">AWS Standards •*A3.0-1989 <li style="text-align: center;">NACE Standards • RP-01-69-83 • RP-01-75 • RP-01-77-83 • RP-06-75-88 <li style="text-align: center;">MSS Standard Practices • SP-6-1980 • SP-25-1978 (R83) • SP-44-1985 • SP-55-1985 •*SP-58-1983 • • • SP-69-1983 • SP-70-1984 • SP-71-1984 • SP-72-1987 • SP-75-1983 • SP-78-1977

REFERENCED STANDARDS¹ (CONT'D)

API Standards and Other Publications	API Standards and Other Publications (Cont'd)	ASME Codes and Standards (Cont'd)
• Std. 5B, 13th Ed., 1988	•	•*B1.1-1989
• Spec. 5L, 38th Ed., 1990 (Incorporates 5LS and 5LX)	•	*B1.20.1-1983
• Spec. 5LU, 3rd Ed., 1980	•	*B1.20.3-1976 (R1982)
• RP 5L1, 4th Ed., 1990	•*Std. 650, 8th Ed., 1988	• B16.1-1989
• RP 5L5, 1st Ed., 1975 & Supp. 1, 1977	RP 1102, 5th Ed., 1981	• B16.4-1985
• RP 5L6, 1st Ed., 1979	• Std. 1104, 17th Ed., 1988	•*B16.5-1988
•	RP 1107, 2nd Ed., 1978	•*B16.9-1986
• Spec. 6D, 19th Ed., 1988	RP 1109, 2nd Ed., 1985	*B16.10-1973
•	RP 1110, 2nd Ed., 1981	• B16.11-1980
• Spec. 12D, 9th Ed., 1982 & Supp. 2-1985	RP 1111, 1st Ed., 1976	*B16.20-1973
• Spec. 12F, 10th Ed., 1988	•	*B16.21-1978
•	•	•*B16.25-1986
•	•	•*B16.28-1986
•	•	• B16.34-1988
•	ASME Codes and Standards	*B36.10M-1985
•	•*ASME Boiler and Pressure Vessel Code, 1989 Ed. & Addenda	*B36.19M-1985

NOTES:

- (1) The issue date shown immediately following the number of the standard (e.g., A 53-84a, B1.1-1982, and SP-6-1980) is the effective date of issue (edition) of the standard.
- (2) Approved only if mill hydrostatic test is performed.

Specifications and standards of the following organizations appear in Appendix A:

ANSI	American National Standards Institute, Inc. 1430 Broadway New York, NY 10018 212 354-3473	AWS	American Welding Society P.O. Box 351040 550 N.W. LeJeune Road Miami, FL 33135 305 443-9353
API	American Petroleum Institute 1220 L Street, N.W. Washington, D.C. 20005 202 682-8000	MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. 127 Park Street, N.E. Vienna, VA 22180 703 281-6613
ASME	The American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017 212 705-7722 ASME Order Department 22 Law Drive Box 2300 Fairfield, NJ 07007-2300 201 882-1167	NACE	National Association of Corrosion Engineers P.O. Box 218340 Houston, TX 77218 713 492-0535
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103 215 299-5400	NFPA	National Fire Protection Association Batterymarch Park Quincy, MA 02269 617 770-3000