ASME B31.8S-2020
(Revision of ASME B31.8S-2018)

Managing System Integrity of Gas Pipelines

ASME Code for Pressure Piping, B31
Supplement to ASME B31.8

AN INTERNATIONAL PIPING CODE®

The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers
Two Park Avenue • New York, NY • 10016 USA

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The next edition of this Code is scheduled for publication in 2022.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Code. Interpretations are published on the Committee web page and under http://go.asme.org/Interpretations. Periodically certain actions of the ASME B31 Committee may be published as Cases. Cases are published on the ASME website under the B31 Committee Page at http://go.asme.org/B31committee as they are issued.

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FOREWORD

Pipeline system operators continuously work to improve the safety of their systems and operations. In the United States, both liquid and gas pipeline operators have been working with their regulators for several years to develop a more systematic approach to pipeline safety integrity management.

The gas pipeline industry needed to address many technical concerns before an integrity management standard could be written. A number of initiatives were undertaken by the industry to answer these questions; as a result of two years of intensive work by a number of technical experts in their fields, 21 reports were issued that provided the responses required to complete the 2001 edition of this Code. (The list of these reports is included in the reference section of this Code.)

This Code is nonmandatory and is designed to supplement ASME B31.8, Gas Transmission and Distribution Piping Systems. Not all operators or countries will decide to implement this Code. This Code becomes mandatory if and when pipeline regulators include it as a requirement in their regulations.

This Code is a process code that describes the process an operator may use to develop an integrity management program. It also provides two approaches for developing an integrity management program: a prescriptive approach and a performance- or risk-based approach. Pipeline operators in a number of countries are currently using risk-based or risk-management principles to improve the safety of their systems. Some of the international standards issued on this subject were used as resources for writing this Code. Particular recognition is given to API and their liquids integrity management standard, API RP 1160, which was used as a model for the format of this Code.

The intent of this Code is to provide a systematic, comprehensive, and integrated approach to managing the safety and integrity of pipeline systems. The task force that developed this Code hopes that it has achieved that intent.

The 2020 Edition of the Supplement is a compilation of the 2018 Edition and the revisions that have occurred since the issuance of the 2018 Edition. ASME B31.8S-2020 was approved by the American National Standards Institute on September 1, 2020.

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Code for Pressure Piping

(The following is the roster of the Committee at the time of approval of this Code.)

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Secretary, B31 Standards Committee
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Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Proposing Revisions. Revisions are made periodically to the Code to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Code. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Code. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Code and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Code to which the proposed Case applies.

Interpretations. Upon request, the B31 Standards Committee will render an interpretation of any requirement of the Code. Interpretations can only be rendered in response to a written request sent to the Secretary of the B31 Standards Committee.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the B31 Standards Committee at the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Code for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Code requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B31 Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the B31 Standards Committee.

ASME B31.8S-2020
SUMMARY OF CHANGES

Following approval by the ASME B16 Committee and ASME, and after public review, ASME B31.8S-2020 was approved by the American National Standards Institute on September 1, 2020.

ASME B31.8S-2020 includes the following changes identified by a margin note, **(20)**.

Page	*Location*	*Change*
ix	Correspondence With the B31 Committee	Added
1	1.1	First paragraph editorially revised
1	1.2	Fourth paragraph editorially revised
1	1.3	Third paragraph editorially revised
2	1.4	Added
2	2.1	Seventh paragraph revised
9	3.3	Subparagraph (g) editorially revised
10	Table 4.2.1-1	In Data column, third entry revised for "Attribute data"
14	5.6.2	Penultimate paragraph added
17	6.1	Sixth sentence added
20	6.3.2	In first paragraph, fourth sentence revised
30	Table 8.3.4-2	(1) "ERW Pipe" revised to "EW" pipe (2) "Joint factor" revised as "longitudinal weld joint quality factor"
35	12.2	Subparagraphs (b), (b)(1), and (b)(3) editorially revised
36	13	(1) Definitions of *arc weld*, *caliper tool*, *component*, *diameter*, *hydrostatic test*, *nondestructive examination (NDE)*, and *operator* revised. (2) Definitions of *double-submerged arc welded pipe (DSAW pipe)* and *electric-resistance-welded pipe (ERW pipe)* deleted (3) Definitions of *electric-induction welded pipe (EW)*, *longitudinal weld joint quality factor*, and *submerged arc welded (SAW) pipe* added (4) Terms *arc welding*, *geometry tool*, *hydrotest*, *nominal outside diameter*, *nondestructive testing (NDT)*, *operator*, *pipeline component*, and *system* listed separately
42	14	References updated
45	A-2.4	Editorially revised
48	A-3.4	Editorially revised
53	A-5.2	(1) Subparagraph (e) revised (2) Last sentence added to Note
53	A-5.3	Second paragraph revised

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MANAGING SYSTEM INTEGRITY OF GAS PIPELINES

1 INTRODUCTION

(20) 1.1 Scope

This Code applies to onshore pipeline systems that are constructed with ferrous materials and transport gas. The principles and processes embodied in integrity management are applicable to all pipeline systems.

This Code is specifically designed to provide the operator (as defined in section 13) with the information necessary to develop and implement an effective integrity management program using proven industry practices and processes. The processes and approaches described within this Code are applicable to the entire pipeline.

(20) 1.2 Purpose and Objectives

Managing the integrity of a gas pipeline system is the primary goal of every pipeline system operator. Operators want to continue providing safe and reliable delivery of natural gas to their customers without adverse effects on employees, the public, customers, or the environment. Incident-free operation has been and continues to be the gas pipeline industry's goal. The use of this Code as a supplement to ASME B31.8 will allow pipeline operators to move closer to that goal.

A comprehensive, systematic, and integrated integrity management program provides the means to improve the safety of pipeline systems. Such an integrity management program provides the information for an operator to effectively allocate resources for appropriate prevention, detection, and mitigation activities that will result in improved safety and a reduction in the number of incidents.

This Code describes a process that an operator of a pipeline system can use to assess and mitigate risks to reduce both the likelihood and the consequences of incidents. It covers both a prescriptive-based and a performance-based integrity management program.

The prescriptive process, when followed explicitly, will provide all the inspection, prevention, detection, and mitigation activities necessary to produce a satisfactory integrity management program. This does not preclude conformance with the requirements of ASME B31.8. The performance-based integrity management program alternative uses more data and more extensive risk analyses, which enable the operator to achieve a greater degree of flexibility to meet or exceed the requirements of this Code, specifically in the areas of inspection intervals and tools and mitigation techniques used. An operator cannot proceed with the performance-based integrity program until adequate inspections are performed that provide the information on the pipeline condition required by the prescriptive-based program. The level of assurance of a performance-based program or an alternative international standard must meet or exceed that of a prescriptive program.

The requirements for prescriptive-based and performance-based integrity management programs are provided in each of the sections in this Code. In addition, Nonmandatory Appendix A provides specific activities by threat categories that an operator shall follow to produce a satisfactory prescriptive integrity management program.

This Code is intended for use by individuals and teams charged with planning, implementing, and improving a pipeline integrity management program. Typically, a team will include managers, engineers, operating personnel, technicians, and/or specialists with specific expertise in prevention, detection, and mitigation activities.

1.3 Integrity Management Principles (20)

A set of principles is the basis for the intent and specific details of this Code. They are enumerated here so that the user of this Code can understand the breadth and depth to which integrity shall be an integral and continuing part of the safe operation of a pipeline system.

Functional requirements for integrity management shall be engineered into new pipeline systems from initial planning, design, material selection, and construction. Integrity management of a pipeline starts with sound design, material selection, and construction of the pipeline. Guidance for these activities is primarily provided in ASME B31.8. There are also a number of consensus standards that may be used, as well as pipeline jurisdictional safety regulations. If a new line is to become a part of an integrity management program, the functional requirements for the line, including prevention, detection, and mitigation activities, shall be considered to meet this Code. Complete records of material, design, and construction for the pipeline are essential for the initiation of a good integrity management program.

System integrity requires commitment by all operating personnel using comprehensive, systematic, and integrated processes to safely operate and maintain pipeline systems. To have an effective integrity management program, the program shall address the operator's organization and processes and the physical system.