

GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS

2003 EDITON

ADDENDUM NO. 8, April 2007

The changes in this addendum are marked by wide vertical lines inserted to the left of modified text, overwriting the left border of most tables, and use of a block symbol (■) where needed. The Federal Regulations were changed by two amendment actions that affected nine sections of the Guide. Four transactions affected five sections of the Guide.

Editorial updates include application of the Editorial Guidelines, updating reference titles, adjustments to page numbering, and adjustment of text on pages. While only significant editorial updates are marked, all affected pages carry the current addendum footnote. Editorial updates affected 23 sections of the Guide.

The following table shows the affected sections, the pages to be removed, and their replacement pages.

FS Amendment - Amdt. Number
New or Updated GM - TR Number
GM Under Review - GMUR
Editorial Update - EU

Guide Section	Reason For Change	Pages to be Removed	Replacement Pages
Title Page	EU	i/ii	i/ii
Table of Contents	EU	vii/viii	vii/viii
Historical Reconstruction of Part 192	EU, Amdts 192-103 [Amended], 192-104	xxiii/xxiv thru xxx(a)/xxx(b)	xxiii/xxiv thru xxx(a)/xxx(b)
Historical Record of Amendments to Part 192	Amdts 192-103 [Amended], 192-104	xlix/l thru lix/lx	xlix/l thru lix/lx
Membership List	EU		
Subpart A 192.1	EU, Amdt 192-103 [Amended]	11/12 thru 21/22 & 25/26	11/12 thru 21/22 & 25/26
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192.7	EU, Amdt 192-103 [Amended]		
192.10	EU	28(a)/28(b)	28(a)/28(b)
192.11	EU		
Subpart C 192.121	EU	43/44	43/44
Subpart D 192.141	EU	49/50 thru 53/54	49/50 thru 53/54
192.143	EU, Amdt 192-104		
192.147	EU		
Subpart E 192.227	Amdt 192-103 [Amended]	89/90	89/90
Subpart I 192.471	EU	157/158 thru 166(a)/166(b)	157/158 thru 166(c)/166(d)
192.475	EU, TR03-17		
192.476	Amdt 192-104		
192.485	EU		
Subpart J 192.505	EU, TR04-20	169/170	169/170
Subpart M 192.727	EU, Amdt 192-103 [Amended], TR06-18	237/238 thru 241/242	237/238 thru 241/242
192.736	EU		
Subpart O 192.903	EU, Amdt 192-103 [Amended]	262(i)/262(j) & 262(k)/262(l)	262(i)/262(j) & 262(k)/262(l)
192.939	EU	262(am)/262(an) thru 262(au)/262(av)	262(am)/262(an) thru 262(au)/262(av)
192.945	TR04-54		
192.949	Amdt 192-103 [Amended]		
192.951	Amdt 192-103 [Amended]		
GMA G-191-3	EU	PHMSA form dated 03/05 for Distribution System Annual Report	PHMSA form dated 12/05 for Distribution System Annual Report
GMA G-192-1	EU, TR03-17, TR04-54	313/314 thru 326(d-1)/326(d-2)	313/314 thru 326(d-1)/326(d-2)

Guide for Gas Transmission and Distribution Piping Systems

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PLEASE NOTE

Addenda to this Guide will also be issued in loose-leaf format so that users will be able to keep the Guide up-to-date by replacing the pages that have been revised with the new pages. It is advisable, however, that pages which have been revised be retained so that the chronological development of the Federal Regulations and the Guide is maintained.

CAUTION

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(Complete through Amendment 192-104)

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Amdt 192-	Subject	Vol FR Pg#	Published Date	Docket No.	Effective Date	Affected Sections 192.
102	Gas Gathering Line Definition	71 FR 13289	03/15/06	RIN 2137-AB15	04/14/06	1, 7, 8, 9, 13, 452, 619
103	Update of Regulatory References to Technical Standards	71 FR 33402	06/09/06	RIN 2138-AD68	07/10/06	7, 121, 123, 145, 225, 227, 229, 241, 283, 616, 619, Header before 761, Subpart O Header, 903, 907, 911, 913, 917, 921, 923, 925, 927, 929, 931, 933, 935, 937, 939, 945, App. B
103 [Amended]	Update of Regulatory References to Technical Standards [Amending that published [06/09/06]	72 FR 4655	02/01/07	RIN 2137-AD68	03/05/07	1, 7, 227, 727, 903, 949, 951
[104]	Design and Construction Standards to Reduce Internal Corrosion in Gas Transmission Pipelines	72 FR 20055	04/23/07	RIN 2137-AE09	05/23/07	143, 476
* Issued as a Direct Final Rule (DFR).						

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GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

Abbreviations: Chairperson: Chair First Vice Chairperson: 1 st V Chair Second Vice Chairperson: 2 nd V Chair Secretary: Sec Damage Prevention - Emergency Response: DP/ER Operation and Maintenance: O&M	Main Body	DIVISIONS			TASK GROUPS					SECTIONS			
		Distribution	Manufacturers	Transmission	Design	DP/ER	IMP/Corrosion	O&M/OQ	Plastic Pipe	Regulations	Editorial	Executive	Liaison
Abraham, Richard A. National Grid USA, Providence, RI	X	X				X					X		
Affonso, Joaquin J. Consumers Energy, Jackson, MI	X			X		X	X						
Alexander, Thomas D. Willbros Engineers, Inc., Tulsa, OK	X			X	X								
Arita, Richard Pacific Gas & Electric Co., Walnut Creek, CA		X			X			X					
Armstrong, Glen F. EN Engineering, Woodridge, IL	X	Chair				X	X		X	X		X	
Ashcraft, Nicholas Kiefner & Associates, Worthington, OH		X					X						
Barkei, David E. We Engeries, Milwaukee, WI		X			X		X						
Batten, Charles H. Batten & Associates., Inc., Locust Grove, VA	X	X				X		X					
Beaver, Brett Advantica, Mechanicsburg, PA		X			X		X						
Becken, Robert C. Energy Experts International, Pleasant Hill, CA	X			X	X			X			X		
Benedict, Andrew G. Opvantek, Inc., Newtown, PA		X						X					
Bennett, Frank M. PPL Gas Utilities Corp., Lancaster, PA		X				X	X						

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

(Continued)

Abbreviations: Chairperson: Chair First Vice Chairperson: 1 st V Chair Second Vice Chairperson: 2 nd V Chair Secretary: Sec Damage Prevention - Emergency Response: DP/ER Operation and Maintenance: O&M	Main Body	DIVISIONS			TASK GROUPS					SECTIONS			
		Distribution	Manufacturers	Transmission	Design	DP/ER	IMP/Corrosion	O&M/OQ	Plastic Pipe	Regulations	Editorial	Executive	Liaison
Blaney, Steven D. NY State Dept. of Public Service, Albany, NY	X	X				X	X				X		
Booth, Lloyd E. Southern Cross Corp., Coppell, TX			X		X			X					
Boros, Stephen Plastics Pipe Institute, Washington, DC			X						X				
Borski, Lawrence W. Williams Gas Pipeline, Houston, TX				X				X					
Breaux, David Broen, Inc., Metairie, LA			X		X			X					
Brown, Charles E. TRC, Jackson, MI		X				X		X					
Bull, David E. ViaData LP, Tobyhanna, PA	X	X				SEC		X					
Cabot, Paul W. American Gas Association, Washington, DC	SEC											SEC	
Cadorin, Robert J. Great Lakes Gas Trmn. Co., Troy, MI	X			SEC				X					
Carey, Willard S. Public Service Elec. & Gas Co., Newark, NJ	X	X				X		Chair				X	
Chin, John S. TransCanada Corp., Farmington Hills, MI	X			X	X	X	Chair			X		X	

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

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Clarke, Allan M. Spectra Energy Corp., Houston, TX				X	X	X	X						
Cody, Leo T. KeySpan Energy Delivery, Waltham, MA		X				X		X					
Craig, Jim M. McElroy Manufacturing, Inc., Tulsa, OK			X					X	X				
Del Buono, Amerigo J. Steel Forgings, Inc., League City, TX	X		X										
DeVore, James C. Consultant, Green Valley, AZ	X		X		X		X		X				
Dockweiler, Kenneth D. Kinder Morgan Inc., Casper, WY	X			X		X		X					
Dolezal, Denise L. Metropolitan Utilities District, Omaha, NE		X			X		X						
Erickson, John P. American Public Gas Association, Washington, DC		X						X					
Fleet, F. Roy F. Roy Fleet, Inc., Westmont, IL	X			X		X					X		
Frantz, John H. Consultant, Philadelphia, PA	X											X	Chair
Frederick, Victor M., III Utility Line Services, Conshohocken, PA		X						X	X				

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

(Continued)

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Friend, Mary S. Columbia Gas Trmn. Corp., Charleston, WV				X		X		X					
Fuller, William R. Xcel Energy Inc., Denver, CO	X	X			X		X		X				
Galante, Julie Washington Gas Light Co., Springfield, VA		X					X						
Gilchrist, Hart Intermountain Gas Co., Pocatello , ID		X						X					
Goble, Greg H. R. W. Lyall & Co., Corona, CA			X		X				X				
Groeber, Steve A. Philadelphia Gas Works, Philadelphia, PA		X				X		X	X		X		
Gunther, Karl M. NTSB, Washington, DC	X	X							X				
Hansen, James P. Perfection Corp., Madison, OH			X				X						
Hart, Thomas L. NSTAR Electric & Gas Corp., Westwood, MA		X				X		X					
Hazelden, Glyn Gas Technology Institute, Des Plaines, IL		X				X		X					
Heintz, James R. UGI Utilities, Inc., Reading, PA	X	X				X	X		X	X		Chair	

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

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Henningsgaard, David R. CenterPoint Energy, Minneapolis, MN		X			X	X		X					
Henry, Jill A. Ohio PUC, Columbus, OH	X	X				X			X				
Hotinger, James M. VA State Corp. Comm., Richmond, VA		X				X	X						
Humes, Dennis W. Mueller Co.- Gas Products Div., Decatur, IL	X		X							X			
Hurbanek, Stephen F. Pennsylvania PUC, Harrisburg, PA		X				X							
Huriaux, Richard D. PHMSA - OPS, Washington, DC	X			X			X						
Kottwitz, John D. MO Public Service Comm., Jefferson City, MO	X	X				Chair		X			X	X	
Krummert, Lawrence M. Columbia Gas of PA, Inc., New Castle, PA		X						X					
Lathrap, Philip A. Consultant, Lafayette, CA	X	X			X	X		X					
Lewis, Raymond D. Rosen USA, Houston, TX	X			X			X						

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

(Continued)

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		Distribution	Manufacturers	Transmission	Design	DP/ER	IMP/Corrosion	O&M/OQ	Plastic Pipe	Regulations	Editorial	Executive	Liaison
Loker, Jon O. Pipeline Safety Consultant, Saint Albans, WV	X			X							Chair	X	
Lomax, George S. Heath Consultants Inc., Montoursville, PA	X		X			X		X					
Lopez, Paul Colorado Interstate Gas Co., Colorado Springs, CO				X				X					
Lueders, John D. DTE Energy - MichCon, Grand Rapids, MI		X				X		X					
Mackay-Smith, Seth UMAC Inc., Malvern, PA	X		X		X	X							
Marek, Marti Southwest Gas Corp., Las Vegas, NV	Chair											X	
Mason, James F. Arkema Inc., Philadelphia, PA			X						X				
McKenzie, James E. Atmos Energy Corp., Jackson, MS		X					X						
McMaine Jeffrey B. Texas Gas Trmn., LLC, Owensboro, KY				X	X		X						
Miller, D. Lane Transportation Safety Inst., Oklahoma City, OK	X	X					X		X		Sec		

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

(Continued)

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Naper, Robert C. KeySpan Energy Delivery, Waltham, MA		X				X							
Oleksa, Paul E. Oleksa & Assoc., Akron, OH	X	X			X		X				X		
Palermo, Eugene F. Palermo Plastics Pipe Consulting, Friendsville, TN	X		X		X				X				
Peters, Kenneth C. El Paso Corp. Pipeline Group, Birmingham, AL	X			Chair		X		SEC				X	
Pioli, Christopher A. Jacobs Consultancy, Pasadena, CA		X			X	X	X						
Quezada, Leticia Nicor Gas, Naperville, IL	X	X				X			X	Chair		X	
Reynolds, Donald Lee NiSource Inc., Columbus, OH		X			Chair		X					X	
Roberson, Edwin H. Natural Gas Odorizing, Inc., Katy, TX			X					X					
Robertson, Joseph P. Williams Gas Pipeline-NW, Salt Lake City, UT				X		X	X						
Schmidt, Robert A. Hackney Ladish Inc., Russellville, AR	X		Chair		X							X	

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

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Scott, Edward W. AmerenIP, Pawnee, IL		X					X		X				
Seamands, Patrick A. Laclede Gas Co., Saint Louis, MO		X				X			X		X		
Sher, Philip CT Dept. Public Utility Control, New Britain, CT	2 nd V Chair											X	
Siedlecki, Walter AEGIS Insurance Services, Inc., East Rutherford, NJ		X						X					
Slagle, Richard Vectren Energy Delivery, Evansville, IN	X	SEC				X			Chair				
Sprenger, Roger W. San Diego Gas & Elec. Co., San Diego, CA		X				X		X					
Strohm, Billy J. George Fischer Sloane, Little Rock, AR			X						X				
Themig, Jerome S. Ameren Services Co., Pawnee, IL		X				X		X					
Torbin, Robert N. Cutting Edge Solutions LLC, Framingham, MA		X					X						

GAS PIPING TECHNOLOGY COMMITTEE MEMBERSHIP LIST

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		Distribution	Manufacturers	Transmission	Design	DP/ER	IMP/Corrosion	O&M/OQ	Plastic Pipe	Regulations	Editorial	Executive	Liaison
Troch, Steven J. Baltimore Gas & Electric Co., Baltimore, MD		X					X						
Ulanday, Alfredo S. Peoples Energy Corp., Chicago, IL		X				X		X					
Veerapaneni, Ram DTE Energy – MichCon, Detroit, MI		X				X	X				X		
Volgstadt, Frank R. Volgstadt & Associates, Madison, OH	X		SEC						SEC				
Weber, David E. Consultant Engineer, Barnstable, MA	X	X							X		X		
White, Gary R. PI Confluence, Inc., Houston, TX		X					X						
Wilkes, Al L. Performance Pipe, Plano, TX			X		X				X				
Wolf, Brian D. Iroquois Pipeline Operating Co., Shelton, CT				X	X	X	X						
Zapalac, Daniel P. R.W. Lyall & Co., Inc., Corona, CA			X						X				

Reserved

PART 192

MINIMUM FEDERAL SAFETY STANDARDS

Authority: 49 U.S.C. 5103, 60102, 60104, 60108, 60109, 60110, 60113, and 60118; and 49 CFR 1.53.

Source: 35 FR 13257, Aug. 19, 1970, unless otherwise noted.

SUBPART A GENERAL

§192.1

What is the scope of this part?

[Effective Date: 3-05-07]

(a) This part prescribes minimum safety requirements for pipeline facilities and the transportation of gas, including pipeline facilities and the transportation of gas within the limits of the outer continental shelf as that term is defined in the Outer Continental Shelf Lands Act (43 U.S.C. 1331).

(b) This part does not apply to—

(1) Offshore gathering of gas in State waters upstream from the outlet flange of each facility where hydrocarbons are produced or where produced hydrocarbons are first separated, dehydrated, or otherwise processed, whichever facility is farther downstream;

(2) Pipelines on the Outer Continental Shelf (OCS) that are producer-operated and cross into State waters without first connecting to a transporting operator's facility on the OCS, upstream (generally seaward) of the last valve on the last production facility on the OCS. Safety equipment protecting PHMSA-regulated pipeline segments is not excluded. Producing operators for those pipeline segments upstream of the last valve of the last production facility on the OCS may petition the Administrator, or designee, for approval to operate under PHMSA regulations governing pipeline design, construction, operation, and maintenance under 49 CFR 190.9;

(3) Pipelines on the Outer Continental Shelf upstream of the point at which operating responsibility transfers from a producing operator to a transporting operator;

(4) Onshore gathering of gas—

(i) Through a pipeline that operates at less than 0 psig (0 kPa);

(ii) Through a pipeline that is not a regulated onshore gathering line (as determined in §192.8); and

(iii) Within inlets of the Gulf of Mexico, except for the requirements in §192.612; or

(5) Any pipeline system that transports only petroleum gas or petroleum gas/air mixtures to—

(i) Fewer than 10 customers, if no portion of the system is located in a public place; or

(ii) A single customer, if the system is located entirely on the customer's premises (no matter if a portion of the system is located in a public place).

[Amdt. 192-27, 41 FR 34598, Aug. 16, 1976; Amdt. 192-67, 56 FR 63764, Dec. 5, 1991; Amdt. 192-78, 61 FR 28770, June 6, 1996 with Amdt. 192-78 Correction, 61 FR 30824, June 18, 1996; Amdt. 192-81, 62 FR 61692, Nov. 19, 1997 with Amdt. 192-81 Confirmation, 63 FR 12659, Mar. 16, 1998; Amdt. 192-92, 68 FR 46109, Aug. 5, 2003; RIN 2137-AD77, 70 FR 11135, Mar. 8, 2005; Amdt. 192-102, 71 FR 13289, Mar. 15, 2006; Amdt. 192-103, 72 FR 4655, Feb. 1, 2007]

GUIDE MATERIAL

This guide material is under review following Amendment 192-102.

- (a) The guide material presented in this Guide includes information and some acceptable methods to assist the operator in complying with the Minimum Federal Safety Standards. The recommendations contained in the Guide are based on sound engineering principles, developed by a committee balanced in accordance with accepted committee procedures, and must be applied by the use of sound and competent engineering judgment. The guide material is advisory in nature and should not restrict the operator from using other methods of complying. In addition, the operator is cautioned that the guide material may not be adequate under all conditions encountered.
- (b) While this Guide is intended principally to serve natural gas pipelines, it is a valuable reference for other pipelines covered by Part 192. The user is cautioned that the unique properties and characteristics associated with other gases (e.g., density, corrosivity, and temperature extremes) may require special engineering considerations.
- (c) As used in the Guide, the terms Personnel, Employees, and Workers refer to operator employees and, unless specifically noted otherwise, include other personnel used by operators to perform Part 192 functions.
- (d) The operator is responsible for the work of a contractor performing tasks covered under Part 192. The operator should ensure that contract personnel are familiar with applicable procedures prior to the start of work.
- (e) A reference for hydrogen pipelines is OPS Report No. DOT.RSPA/DMT-10-85-1, "Safety Criteria for the Operation of Gaseous Hydrogen Pipelines," (Discontinued).
- (f) For offshore pipelines, responsibilities have been assigned to the Department of Transportation and the Department of the Interior in accordance with their Memorandum of Understanding dated December 10, 1996 (Implemented per Federal Register, Vol. 62, No. 223, November 19, 1997). See Guide Material Appendix G-192-19.
- (g) Additional state requirements may exist for intrastate facilities.

§192.3

Definitions.

[Effective Date: 5-6-05]

As used in this part:

Abandoned means permanently removed from service.

Administrator means the Administrator, Pipeline and Hazardous Materials Safety Administration or his or her delegate.

Customer meter means the meter that measures the transfer of gas from an operator to a consumer.

Distribution line means a pipeline other than a gathering or transmission line.

Exposed underwater pipeline means an underwater pipeline where the top of the pipe protrudes above the underwater natural bottom (as determined by recognized and generally accepted practices) in waters less than 15 feet (4.6 meters) deep, as measured from mean low water.

Gas means natural gas, flammable gas, or gas which is toxic or corrosive.

Gathering line means a pipeline that transports gas from a current production facility to a transmission line or main.

Gulf of Mexico and its inlets means the waters from the mean high water mark of the coast of the Gulf of Mexico and its inlets open to the sea (excluding rivers, tidal marshes, lakes and canals).

seaward to include the territorial sea and Outer Continental Shelf to a depth of 15 feet (4.6 meters), as measured from the mean low water.

Hazard to navigation means, for the purposes of this part, a pipeline where the top of the pipe is less than 12 inches (305 millimeters) below the underwater natural bottom (as determined by recognized and generally accepted practices) in waters less than 15 feet (4.6 meters) deep, as measured from the mean low water.

High pressure distribution system means a distribution system in which the gas pressure in the main is higher than the pressure provided to the customer.

Line section means a continuous run of transmission line between adjacent compressor stations, between a compressor station and storage facilities, between a compressor station and a block valve, or between adjacent block valves.

Listed specification means a specification listed in section I of Appendix B of this part.

Low-pressure distribution system means a distribution system in which the gas pressure in the main is substantially the same as the pressure provided to the customer.

Main means a distribution line that serves as a common source of supply for more than one service line.

Maximum actual operating pressure means the maximum pressure that occurs during normal operations over a period of 1 year.

Maximum allowable operating pressure (MAOP) means the maximum pressure at which a pipeline or segment of a pipeline may be operated under this part.

Municipality means a city, county, or any other political subdivision of a state.

Offshore means beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

Operator means a person who engages in the transportation of gas.

Outer Continental Shelf means all submerged lands lying seaward and outside the area of lands beneath navigable waters as defined in Section 2 of the Submerged Lands Act (43 U.S.C. 1301) and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control.

Person means any individual, firm, joint venture, partnership, corporation, association, state, municipality, cooperative association, or joint stock association, and including any trustee, receiver, assignee, or personal representative thereof.

Petroleum gas means propane, propylene, butane, (normal butane or isobutanes), and butylene (including isomers), or mixtures composed predominantly of these gases, having a vapor pressure not exceeding 208 psi (1434 kPa) gage at 100 °F (38 °C).

Pipe means any pipe or tubing used in the transportation of gas, including pipe-type holders.

Pipeline means all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies.

Pipeline facility means new and existing pipelines, rights-of-way, and any equipment, facility, or building used in the transportation of gas or in the treatment of gas during the course of transportation.

Service line means a distribution line that transports gas from a common source of supply to an individual customer, to two adjacent or adjoining residential or small commercial customers, or to multiple residential or small commercial customers served through a meter header or manifold. A service line ends at the outlet of the customer meter or at the connection to a customer's piping, whichever is further downstream, or at the connection to customer piping if there is no meter.

Service regulator means the device on a service line that controls the pressure of gas delivered from a higher pressure to the pressure provided to the customer. A service regulator may serve one customer or multiple customers through a meter header or manifold.

SMYS means specified minimum yield strength is:

(1) For steel pipe manufactured in accordance with a listed specification, the yield strength specified as a minimum in that specification; or

(2) For steel pipe manufactured in accordance with an unknown or unlisted specification, the yield strength determined in accordance with §192.107(b).

State means each of the several states, the District of Columbia, and the Commonwealth of Puerto Rico.

Transmission line means a pipeline, other than a gathering line, that: (1) Transports gas from a gathering line or storage facility to a distribution center, storage facility, or large volume customer that is not down-stream from a distribution center; (2) operates at a hoop stress of 20 percent or more of SMYS; or (3) transports gas within a storage field.

Note: A large volume customer may receive similar volumes of gas as a distribution center, and includes factories, power plants, and institutional users of gas.

Transportation of gas means the gathering, transmission, or distribution of gas by pipeline or the storage of gas, in or affecting interstate or foreign commerce.

[Amdt. 192-13, 38 FR 9083, Apr. 10, 1973; Amdt. 192-27, 41 FR 34598, Aug. 16, 1976; Amdt. 192-58, 53 FR 1633, Jan. 21, 1988; Amdt. 192-67, 56 FR 63764, Dec. 5, 1991; Amdt. 192-72, 59 FR 17275, Apr. 12, 1994 with Amdt. 192-72 Ext., 59 FR 49896, Sept. 30, 1994, Amdt. 192-72 Ext. Correction, 59 FR 52863, Oct. 19, 1994 and Amdt. 192-72 Ext., 60 FR 7133, Feb. 7, 1995; Amdt. 192-78, 61 FR 28770, June 6, 1996 with Amdt. 192-78 Correction, 61 FR 30824, June 18, 1996; Amdt. 192-81, 62 FR 61692, Nov. 19, 1997 with Amdt. 192-81 Confirmation, 63 FR 12659, Mar. 16, 1998; Amdt. 192-85, 63 FR 37500, July 13, 1998; Amdt. 192-89, 65 FR 54440, Sept. 8, 2000; RIN 2137-AD43, 68 FR 11748, Mar. 12, 2003; Amdt. 192-93, 68 FR 53895, Sept. 15, 2003; Amdt. 192-94, 69 FR 32886, June 14, 2004 with Amdt. 192-94 Correction, 69 FR 54591, Sept. 9, 2004 and Amdt. 192-94 DFR [Correction], 70 FR 3147, Jan. 21, 2005; Amdt. 192-98, 69 FR 48400, Aug. 10, 2004; RIN 2137-AD77, 70 FR 11135, Mar. 8, 2005]

GUIDE MATERIAL

Glossary of Commonly Used Terms

(For Glossary of Commonly Used Abbreviations, see Table 192.3i below.)

This guide material is under review following Amendment 192-98.

Abandoned pipeline is a pipeline that is physically separated from its source of gas and is no longer maintained under Part 192.

Abandonment is the process of abandoning a pipeline.

Adhesive joint is a joint made in thermosetting plastic piping by the use of an adhesive substance that forms a bond between the mating surfaces without dissolving either one of them.

Ambient temperature is the temperature of the surrounding medium, usually used to refer to the temperature of the air in which a structure is situated or a device operates. See also *Ground Temperature and Temperature*.

Bell-welded pipe is furnace-welded pipe that has a longitudinal butt joint that is forge-welded by the mechanical pressure developed in drawing the furnace-heated skelp through a cone-shaped die. The die, commonly known as a "welding bell," serves as a combined forming and welding die. This type of pipe is produced in individual lengths from cut-length skelp. Typical specifications: ASTM A53, API Spec 5L. See also *Furnace-butt-welded pipe and Pipe manufacturing processes*.

Bottle is a gastight structure which is (1) completely fabricated by the manufacturer from pipe with integral drawn, forged, or spun end closures; and (2) tested in the manufacturer's plant. See also *Bottle-type holder*.

Bottle-type holder is any bottle or group of interconnected bottles installed in one location, and used for the sole purpose of storing gas. See also *Bottle*.

Carbon steel. By common custom, steel is considered to be carbon steel where (i) no minimum content is specified or required for aluminum, boron, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, vanadium, zirconium, or any other element added to obtain a desired alloying effect; (ii) the specified minimum content for copper does not exceed 0.40 percent; or (iii) the specified maximum content does not exceed 1.65 percent for manganese, 0.60 percent for silicon or 0.60 percent for copper.

All carbon steels may contain small quantities of unspecified residual elements unavoidably retained from raw materials. These elements (copper, nickel, molybdenum, chromium, etc.) are considered incidental and are not normally determined or reported.

Cast iron. The unqualified term cast iron applies to gray-cast iron that is a cast ferrous material in which a major part of the carbon content occurs as free carbon in the form of flakes interspersed through the metal.

Cold-expanded pipe is seamless or welded pipe which is formed and then, expanded in the pipe mill while cold, so that the circumference is permanently increased by at least 0.50 percent.

Continuous-welded pipe is furnace-welded pipe which has a longitudinal butt joint that is forge-welded by the mechanical pressure developed in rolling the hot-formed skelp through a set of round pass welding rolls. It is produced in continuous lengths from coiled skelp and subsequently cut into individual lengths. Typical specifications: ASTM A53, API Spec 5L. See also *Furnace-butt-welded pipe and Pipe manufacturing processes*.

Control piping is pipe, valves, and fittings used to interconnect air, gas, or hydraulically operated control apparatus.

Curb valve is a valve installed for the purpose of shutting off the gas supply to a building. It is installed below grade in a service line, at or near the property line. It is operated by use of a removable key or wrench, through a curb box or standpipe.

Customer meter is a device that measures gas delivered to a customer for consumption on its premises.

Deactivation (Inactivation) is the process of making the pipeline inactive.

District regulator station or district pressure regulating station is a pressure regulating station that controls pressure to a high- or low-pressure distribution main. It does not include pressure regulation whose sole function is to control pressure to a manifold serving multiple customers.

Double submerged-arc-welded pipe is a pipe having longitudinal or spiral butt joints. The joints are produced by at least two passes, including at least one each on the inside and on the outside of the pipe. Coalescence is produced by heating with an electric arc or arcs between the bare metal electrode or electrodes and the work. The welding is shielded by a blanket or granular, fusible material on the work. Pressure is not used and filler metal for the inside and outside welds is obtained from the electrode or electrodes. Typical specifications: ASTM A381, API Spec 5L. See also *Pipe manufacturing processes*.

Ductile iron (sometimes called nodular iron) is a cast ferrous material in which the free graphite present is in a spheroidal form rather than a flake form. The desirable properties of ductile iron are achieved by means of chemistry and a ferritizing heat treatment of the castings.

Electric-flash-welded pipe is pipe having a longitudinal butt joint wherein coalescence is produced, simultaneously over the entire area of abutting surfaces, by the heat obtained from resistance to the flow of electric current between the two surfaces, and by the application of pressure after heating is substantially completed. Flashing and upsetting are accompanied by the expulsion of metal from the joint. Typical specification: API Spec 5L. See also *Pipe manufacturing processes*.

Electric-fusion-welded pipe is pipe having a longitudinal butt joint wherein coalescence is produced in the preformed tube by manual or automatic electric-arc welding. The weld may be single or double and may be made with or without the use of filler metal. Typical specifications: ASTM A134, ASTM A139: Single or double weld is permitted with or without the use of filler metal. ASTM A671, ASTM A672, ASTM A691, and API Spec 5L: Requires both inside and outside welds and use of filler metal.

Spiral-welded pipe is also made by the electric-fusion-welded process with either a butt joint, a lap joint or a lock-seam joint. Typical specifications: ASTM A134, ASTM A139, and API Spec 5L: Butt joint. ASTM A211: Butt joint, lap joint, or lock-seam joint. See also *Pipe manufacturing processes*.

Electric-resistance-welded pipe is pipe, which has a longitudinal butt joint wherein coalescence, is produced by the application of pressure and by the heat obtained from the resistance of the pipe to the flow of an electric current in a circuit of which the pipe is a part. It is produced in individual lengths or in continuous lengths from coiled skelp and subsequently cut into individual lengths. Typical specifications: ASTM A53, ASTM A135, and API Spec 5L. See also *Pipe manufacturing processes*.

Excess Flow Valve (EFV) is a device installed in a gas pipeline to automatically restrict or shut off the gas flow through the line when the flow exceeds a predetermined limit.

Excess Flow Valve-Bypass (EFVB) is an EFV that is designed to limit the flow of gas upon closure to a small, predetermined level. EFVBs reset automatically once the line downstream is made gastight and pressure is equalized across the valve.

Excess Flow Valve-Non-Bypass (EFVNB) is an EFV that is designed to stop the flow of gas upon closure. EFVNBs must be manually reset.

Furnace-butt-welded pipe. There are two such types of pipe defined in this glossary: *Bell-welded pipe* and *Continuous-welded pipe*. See also *Pipe manufacturing processes*.

Furnace-lap-welded pipe is pipe that has a longitudinal lap joint that is produced by the forge welding process. In this process, coalescence is produced by heating a preformed tube to welding temperature and then passing it over a mandrel. The mandrel is located between the two welding rolls that compress and weld the overlapping edges. Typical specification: API Spec 5L. The manufacture of this type of pipe was discontinued, and the process was deleted from API Spec 5L in 1962. See also *Pipe manufacturing processes*.

Gas control is a person or persons who acquire and maintain data to remotely monitor and direct the flow of gas to meet design and contractual obligations, and to assist in detecting pipeline emergencies and initiating response.

Ground temperature is the temperature of the earth at pipe depth. See also *Ambient temperature and Temperature*.

Heat fusion joint is a joint made in thermoplastic piping by heating the parts sufficiently to permit fusion of the materials when the parts are pressed together.

Hoop stress is the stress in a pipe wall, acting circumferentially in a plane perpendicular to the longitudinal axis of the pipe, produced by the pressure of the fluid in the pipe. In this Guide, hoop stress in steel pipe is calculated by the formula:

$$S_h = \frac{PD}{2t}$$

Where:

- S_h = hoop stress, psi
- P = internal pressure, psig
- D = nominal outside diameter of pipe, inches
- t = nominal wall thickness, inches

See also *Maximum allowable hoop stress*.

Hot taps are connections made to transmission lines, mains, or other facilities while they are in operation.

The connecting and tapping is done while the facility is under gas pressure.

Hydrostatic Design Basis (HDB) is one of a series of established stress values specified in ASTM D2837, "Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products," for a plastic compound, obtained by categorizing the long-term hydrostatic strength as determined in accordance with ASTM D2837.

Inactive pipeline is a pipeline that is being maintained under Part 192 but is not presently being used to transport gas.

Instrument piping is pipe, valves, and fittings used to connect instruments to main piping, to other instruments and apparatus, or to measuring equipment.

Iron. See *Cast iron, Ductile iron, and Malleable iron*.

Joint. See *Length*.

Leakage surveys are systematic inspections made for the purpose of finding leaks in a gas piping system.

The types of inspections commonly made are described in Guide Material Appendix G-192-11 "Gas Leakage Control Guidelines for Natural Gas Systems" and Guide Material Appendix G-192-11A "Gas Leakage Control Guidelines for Petroleum Gas Systems."

Length is a piece of pipe as delivered from the mill. Each piece is called a length regardless of its actual longitudinal dimension. While this is sometimes called a "joint," the term "length" is preferred.

Light surface oxide is a non-damaging form of corrosion.

Long-term hydrostatic strength of plastic pipe is the estimated hoop stress, in psi, that would result in a failure of the pipe if the pipe were subjected to 100,000 hours of hydrostatic pressure.

Lower Explosive Limit (LEL) is the lower limit of flammability for a gas expressed as a percent, by volume, of gas in air.

Malleable iron is a mixture of iron and carbon, including small amounts of silicon, manganese, phosphorous and sulfur which, after being cast, is converted structurally by heat treatment into primarily a matrix of ferrite containing nodules of tempered carbon.