

220 CMR: DEPARTMENT OF PUBLIC UTILITIES

220 CMR 100.00: MASSACHUSETTS ~~GAS CODE FOR STORAGE,~~
~~TRANSPORTATION, AND DISTRIBUTION CODE OF GAS~~

SECTION

100.01: Purpose

100.02: Applicability

100.01: Purpose

The provisions of 220 CMR 101.00 through 115.00 are designed to ensure safe operating practices for persons engaged in the storage, transportation, and distribution of gas.

100.02: Applicability

Notwithstanding any language to the contrary, the provisions of 220 CMR 101.00 through 115.00 shall apply to any persons engaged in the storage, transportation, or distribution of gas and, unless the context so requires, shall not be limited to gas corporations, gas companies, or municipal gas departments.- Each such provision shall apply to all new construction and new installations made subsequent to the effective date of said provision and shall not apply retroactively to installations existing on the effective date of the provision.

REGULATORY AUTHORITY

220 CMR 100.00: M.G.L. c. 164, §§ 66, 76, 76C, and 105A.

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220 CMR 101.00: ~~—~~ MASSACHUSETTS NATURAL GAS PIPELINE SAFETY CODE

Section

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101.01: Compliance with MFS Standards

Every gas ~~pipng system~~pipeline facility and liquefied petroleum gas plant in Massachusetts shall be designed, constructed, operated, and maintained, except as otherwise provided in 220 CMR 101.00, in compliance with federal pipeline safety standards as set forth in 49 CFR Part 192 -- *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards* (MFS Standards). Every liquefied petroleum gas plant shall also be designed, constructed, operated, and maintained according to the requirements of National Fire Protection Association 59-Utility LP--Gas Plant Code (2004) (NFPA 59).

In addition, each operator of pipeline facilities used for the transportation of natural gas or hazardous liquids and each operator of liquefied petroleum gas facilities shall comply with the provisions of 49 CFR Parts 40 and 199.

To the extent that any provision of 220 CMR 101.00 conflicts with any provision of the MFS Standards, the more stringent provision prevails.

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101.02: Definitions

Except as otherwise specified in 220 CMR 101.00, all words are as defined in 49 CFR ~~Part 192, MFS Standards, § 192.3.~~

~~Contractor: A person directly or indirectly contracted with an operator to provide labor, materials, or equipment for the performance of gas work. This includes any subcontractor or any third party designated to provide services.~~

~~Department~~: Department of Public Utilities, Commonwealth of Massachusetts.

~~Distribution Line~~: A pipeline other than a gathering or transmission line.

~~Gas~~: Natural gas, flammable gas, or gas that is toxic or corrosive.

~~Gathering Line~~: A pipeline that transports gas from a current production facility to a transmission line or main.

~~Listed Specification~~: A specification listed in 49 CFR Part 192, Appendix B, § I.

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

~~Division~~: Pipeline Safety Division of the Department.

~~Gas Work~~: Any activity covered by applicable state and federal pipeline safety standards that the Department has the authority to enforce, including but not limited to the following: 220 CMR 99.00, 220 CMR 101.00 through 115.00, and all federal pipeline safety standards as set forth in 49 CFR Part 192; federal safety standards for liquefied natural gas (LNG) as set forth in 49 CFR Part 193.

~~Hoop Stress~~: The tensile stress, usually in pounds per square inch gauge (psig), acting on the pipe along the circumferential direction of the pipe wall when the pipe contains gas or liquid under pressure.

~~Incident~~: An event as defined in 49 CFR 191.3. For the purposes of 49 CFR 191.3(1)(ii), the estimated property damage shall be \$50,000 or more.

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Pressure Limiting Station. ~~Equipment that under abnormal conditions will act to reduce, restrict, or shut off the supply of gas flowing into a system to prevent the gas pressure from exceeding a predetermined value. Pressure Limiting Station includes pipe and auxiliary devices such as valves, control instruments, control lines, the enclosure, and ventilating equipment, installed in accordance with the pertinent requirements of 220 CMR 101.00.~~

Pressure Regulating Station. ~~Equipment installed for automatically reducing and regulating the gas pressure in the downstream pipeline, main, holder, pressure vessel or compressor station pipe to which it is connected. Pressure Regulating Station includes pipe and auxiliary devices such as valves, control instruments, control lines, the enclosure, and ventilation equipment.~~

Underground Structure. ~~A manmade facility, the majority or entirety of which is located below grade.~~

Uprating. ~~Increasing the Maximum Allowable OperatingOperation Pressure (“MAOP”). ~~The maximum pressure at which a pipeline or segment”) of a pipeline may be operated under 220 CMR 101.00.~~~~

Municipality. ~~A city, county, or any other political subdivision of a State.~~

Operator. ~~A person who engages in the transportation of gas.~~

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

Pipe. ~~Any pipe or tubing used in the transportation of gas, including pipe type holders.~~

Pipeline. ~~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.~~

Secretary. ~~The U.S. Secretary of Transportation or any person to whom he or she has delegated authority in the matter concerned.~~

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~~Service Line. 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:~~

- ~~(a) — at the outlet of the customer meter or at the connection to a customer's piping, whichever is further downstream; or~~
- ~~(b) — at the connection to customer piping if there is no meter.~~

~~SMYS (Specified Minimum Yield Strength).~~

- ~~(a) — For steel pipe manufactured in accordance with a listed specification, the yield strength specified as a minimum in that specification; or~~
- ~~(b) — For steel pipe manufactured in accordance with an unknown or unlisted specification, the yield strength determined in accordance with 49 CFR 49 CFR Part 192.107(b), Subpart K.~~

~~State. Each of the several states, the District of Columbia, and the Commonwealth of Puerto Rico.~~

~~Transmission Line. A pipeline, other than a gathering line, that:~~

- ~~(a) — Transports gas from a gathering line or storage facility to a distribution center or storage facility;~~
- ~~(b) — Operates at a hoop stress of 20% or more of SMYS; or~~
- ~~(c) — Transports gas within a storage field.~~

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

101.03: Applications for Exceptions and Waivers from Provisions of 220 CMR 101.00

(1) Any person engaged in the construction, maintenance, operation of a natural gas or liquefied petroleum gas facility may make a written request to the Department for an exception to the provisions of 220 CMR 101.00, in whole or in part. The request shall justify why the exception should be granted and shall demonstrate why the exception does not derogate from the safety objectives of 220 CMR 101.00. The request shall include details on the need for the exception, specific information on the circumstances surrounding the exception, the provisions of ~~the regulations~~220 CMR 101.00 from which exception is sought, and a description of any safety consequences that might result from the exception. Documentation in support of the request shall also be submitted.

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The Department may, after consideration and the payment of the appropriate fee, issue a written decision denying the exception or granting the exception as requested or as modified by the Department and subject to conditions. An exception may be granted or denied in writing by the Director of the ~~Pipeline Safety~~ Division, or by the Director's functional successor in the event of an internal reorganization of the Department. Any person aggrieved by a decision of the Director may appeal the decision to the Department. Any appeal shall be in writing and shall be made not later than ten business days following issuance of the written decision.

In an emergency, a verbal request for an exception may be granted by the Department or the Director, provided that the verbal request is subsequently confirmed in writing within seven days of the exception being granted.

(2) Pursuant to 49 U.S.C. 60118(d), the Department may waive compliance with a federal safety standard to which the Department's 49 U.S.C. 60105 certification applies, provided that the Department gives notice of such waiver to the Secretary at least 60 days before the waiver becomes effective.

101.04: Notice of Proposed Construction

~~At least 48 hours prior to the start of Notice of proposed construction of pipeline installations, notice shall be filed with the Department in accordance with at least 14 days prior to the start of any of the requirements listed in 220 CMR 101.04(1) through (3):~~

~~(1) (1) Pipeline installation following projects of 5000 feet or more in length: (a) All such projects.~~

~~(2) Pipeline new pipeline installation projects of 25001,000 feet to 5000 feet or more in length: 25% of such projects, or a maximum of three of the projects in a calendar year.~~

~~(3) If no (b) All new pipeline installation projects where the pipeline will have an MAOP of 125 psig or more.~~

~~(c) All Uprating projects.~~

~~(1)(2) If no construction projects in a calendar year meet the requirements of 220 CMR 101.04(1) and (2), then there then no less than three projects irrespective of~~

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length or MAOP shall be reported to the Department ~~no less than three pipeline installations irrespective of the length~~, provided ~~this number or more~~ that at least three projects are undertaken.

101.05: Preservation of Records

Nothing contained in 220 CMR 101.00 shall conflict with 220 CMR 75.00:
The Preservation of Records of Electric, Gas, and Water Utilities.

101.06: ~~Additional~~ Rules or Modifications Related to 49 CFR Part 192

Notwithstanding any provision of the MFS Standards which may allow less stringent requirements, the following additional rules or modifications shall apply.

(1) ~~Low pressure Distribution System. (Section 192.3 Class Locations. (MFS Standards.) § 192.5).-~~ For the purpose of 220 ~~CMR 101.06~~, a ~~low pressure distribution system shall be defined as any system in which the gas pressure in the main is equal to or less than two pounds per square inch gauge (psig).~~

~~(2) — Intermediate pressure Distribution System. (Section 192.3 MFS Standards.) For the purpose of 220 CMR 101.06, an intermediate pressure distribution system shall be defined as any system in which the gas pressure in the main is greater than two psig but equal to or less than 60 psig.~~

~~(3) — High pressure Distribution System. (Section 192.3 MFS Standards.) For the purpose of 220 CMR 101.06, a high pressure distribution system shall be defined as a system in which the pressure in the main is greater than 60 psig, but equal to or less than 200 psig.~~

~~(4) — Class Locations. (Section 192.5 MFS Standards.) For the purpose of 220 CMR 101.00, every gas ~~pipng system~~ pipeline facility shall be designed, constructed, tested, operated, and maintained using a class ~~Class~~ 3 location as a minimum class location designation.~~

~~(5) — Design Limitations for Plastic Pipe. (Section 192.123-(2) Overpressure Protection. (MFS Standards.) §§ 192.195, 192.201, 192.741).-~~

~~(a) Operators shall take steps to protect their distribution systems from overpressure events. In addition to complying with 49 CFR Part 192,~~

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operators shall implement the following additional requirements within two years of the effective date of this regulation 220 CMR 101.00, operators shall:

1. Install one of the following:
 - a. a “slam shut” device in the station including in applications where there is only worker-monitor pressure control, or
 - b. a third regulator;
 - c. a full-capacity relief valve immediately downstream of the station only where a slam shut or third-regulator are not practicable.
2. Install and employ telemetered pressure recordings at Pressure Limiting and Regulating Stations in order to signal failures immediately to operators at control centers. The telemetering pressure gauge shall be installed at the outlet of each Pressure Regulating Station;
3. Completely and accurately locate, map, and document the location of all control (i.e., sensing) lines within the system. The control line mapping shall include, but not be limited to, the line size, depth, length, material and distance of each line from reference points;
4. Ensure that all underground control lines not contained within the safety of a Pressure Regulating Station vault or pit are plated to protect from possible damage. The location, depth and size of the plates shall be mapped and documented as specified in 220 CMR 101.06(2)(a)(3);
5. Ensure that all aboveground control lines are secured by the installation of a fence or protective enclosure.
6. Ensure that all overpressure protection is set below MAOP of the downstream system, with the exception of the devices mandated by 220 CMR 101.06(2)(a)(1) which may be set at MAOP;
7. Establish procedures requiring the isolation of overpressure protection devices if MAOP could be exceeded during maintenance or testing;
8. Ensure that all steel control lines are cathodically protected in compliance with 49 CFR 192.463;
9. Maintain a list of critical valves and Pressure Limiting and Regulating Station isolations. The list shall be readily available for all personnel that would need to operate these valves. The list shall contain the number of turns needed to operate each valve and the direction the valve must be rotated to close it;

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10. Establish a procedure for checking the operability of critical valves in the operator's system. The procedure shall require that critical valves be checked once every calendar year at intervals not exceeding 15 months;

11. Visually inspect and document Pressure Limiting and Regulating Stations four times per year at intervals not to exceed four months. This inspection is to verify the physical condition of all equipment and structures;

12. Review and verify that no section of the distribution system is operating above 90% of its maximum capacity. Operators shall contact the Division if any section is found to exceed 90% of its maximum capacity; and

13. Establish or update procedures to require that personnel immediately respond to the location of any overpressure protection (OPP) activation.

(b) All maintenance activities on Pressure Limiting and Regulating Stations shall include the following:

1. Any underground control lines undergoing maintenance shall be relocated to the safety of a Pressure Regulating Station vault or pit. If the relocation of the control lines is not possible, the operator shall repair or replace the leaking segment of a control line and ensure that all control lines are plated as specified by 220 CMR 101.06(2)(a)(4).

2. If any major maintenance (i.e., valve replacement) is to take place, the Pressure Regulating Station is to be updated to comply with 220 CMR 101.06(2)(a).

(c) All future construction activities for new Pressure Limiting and Regulating Stations shall comply with all existing guidelines and shall:

1. Be designed in a worker-monitor style;

2. Include a third level of overpressure protection such as a "slam shut" or additional monitor regulator;

3. Include a filter installed upstream of each individual pressure limiting or regulating pipe run;

4. Be designed and installed with a redundant parallel regulator piping run;

5. Have all control lines contained within the Pressure Limiting or Regulating Station vault or pit;

6. Include a flooding indicator that alerts in the operator's control centers;

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- 7. Include a gas sensor that monitors for general leaks that alerts in the operator's control centers; and
- 8. Include a telemetering pressure gauge installed at the outlet of each regulating station.

- ~~(3) (a) — The wall thickness for thermoplastic pipe may not be less than 0.090 inches.~~
- ~~(b) — The Department may approve the use of reinforced thermosetting plastic pipe having a wall thickness not less than that listed in the following table:~~

Normal Size in Inches	Minimum Wall Thickness in Inches
2	0.060
3	0.060
4	0.070
6	0.100

~~(3)~~

~~(6) — Distribution Line Valves. (Section 192.181 MFS Standards.) Each high-pressure and intermediate pressure distribution system must have valves spaced so as to reduce the time to shut down a section of main in an emergency. The valve spacing is determined by the operating pressure, the size of mains, and the local physical conditions.~~

~~(7) — Control of the Pressure of Gas Delivered from High pressure Distribution Systems. (Section 192.197 MFS Standards.) For the purpose of 220 CMR 101.00, § 192.197 of the MFS Standards shall be entitled: *Control of the Pressure of Gas Delivered from Welders and Welding Operators Qualified Pursuant to 49 CFR 192.227(a).*~~

~~(MFS Standards § 192.229(c)).~~

~~(a) Requalification of Welders. At least twice each calendar year, at intervals not exceeding 7 ½ months, each welder who is qualified in accordance with 49 CFR 192.227(a) shall make one production weld or test weld and have it successfully tested in accordance with API 1104, "Qualification of Welders" and "Acceptance Standards for Nondestructive Testing," as incorporated by reference in 49 CFR Part 192.~~

~~(b) Records. The operator shall keep records showing that each welder has:~~

- 1. Qualified with the process and the procedure to be used;
- 2. Used the process within the last six calendar months; and

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3. Had at least one production weld or test weld successfully tested in accordance with 220 CMR 101.06(3)(a), above.

~~(4) Mains Operating at Higher Pressures than the Pressure Provided to the Customer.~~

~~(8) — Required Capacity of Pressure Relieving and Limiting Stations. (Section 192.201 MFS Standards.) Relief valves or other pressure limiting devices must be installed at or near each regular station controlling the pressure to a system operating at a pressure that is substantially the same as the pressure provided to the customer, with a capacity to limit the maximum pressure in the main to a pressure that will not exceed the safe operating pressure for any connected and properly adjusted gas utilization equipment.~~

~~(9) Inspection and Test of Welds. (Section (MFS Standards § 192.241 MFS Standards.), 192.243).~~

(a) Notwithstanding the requirements of 220 CMR 101.06(94)(b), not less than 10% of the welds randomly sampled over the length of at least three of the installations of which notice of construction is required under 220 CMR 101.04 shall be radiographically examined and available to the Department. If less than three installation projects are undertaken by any company, at least 10% of the welds shall be radiographically examined and available to the Department.

(b) The Department may at any time visually inspect any welding and if it is considered faulty, order the operating company to subject the weld to a destructive test as outlined in MFS Standards, Appendix C, paragraph I or to a radiographic examination.

~~(10) Protection from Hazards. (Section 192.317 (MFS Standards) § 192.317).~~

(a) The method of protecting all new pipingspipeline on trestles and bridges (including culverts at least 10 feet in length) shall be subject to the pre-approval of the Department. For each such bridge crossing, the operator shall submit a written request for approval and a detailed installation plan to the Department that includes the following items:

1. The proposed nominal pipe diameter, wall thickness, (minimum wall thickness 0.237"), and the Specified Minimum Yield Strength (SMYS).

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~~22.~~ The maximum operating pressure of the pipeline and the test pressure. The maximum operating pressure for new pipelines on bridges shall not exceed 200 psig.

~~3.~~ For nominal pipe diameters 12" or greater, a calculation of the hoop stress (H) in accordance with the following formula:

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

~~H~~ = Hoop stress in pounds per square inch

~~P~~ = Maximum Operating Pressure in pounds per square inch gauge

~~D~~ = The specified outer diameter in inches

~~t~~ = Specified wall thickness in inches (not less than 0.237").

~~3.~~ ~~Method~~4. The method of providing for expansion or contraction of the bridge, if necessary.

~~45.~~ Pipe support details, number of supports, and distances between supports.

~~5.~~ ~~The plan shall indicate~~6. An indication that valves are provided on both sides of the bridge and their approximate location.

~~7.~~ The means for shutting off the flow of gas in the pipeline across the bridge.

~~8.~~ The corrosion protection provided for the pipeline and metallic supports.

(b) For bridges under the care and control of the Massachusetts Department of Transportation (MassDOT), the procedure for a MassDOT permit shall be as follows:

1. On new bridges, a preliminary design plan will be submitted by MassDOT to the pertinent utility company notifying it of the proposed construction and suggested location of pipe on or in the bridge structure. (A copy of this letter will be forwarded to the Director of the ~~Pipeline Safety Division of the Department~~).

2. The utility company will submit a plan to the Department within 30 days of the receipt of the afore described design plan if any construction is proposed on the particular bridge.

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3. No permit for the installation of gas facilities on bridges will be considered unless MassDOT has received from the Department a letter approving the design.
4. All requests for permits for gas facilities on new bridges shall be directed to the Highway and Structures Engineer at the Highway Division of MassDOT.
5. All requests for new gas facilities on existing bridges shall be directed to the Maintenance Engineer at the Highway Division of MassDOT.

~~(11) Casing. (Reserved)~~

~~(126) Cover. (Section 192.327 (MFS Standards) § 192.327).-~~

- (a) Except as provided in 220 CMR 101.06~~(12)(e6)(b)~~, each buried transmission line or main must be installed with a minimum cover from the top of the pipe to the surface of the road as follows:

TABLE I		
Location	Normal Soil Inches	Consolidated Rock Inches
Class 3 and 4 locations <u>Transmission lines</u>	36"	24"
Mains Drainage and ditches of public roads and railroad crossings	36 24"	24"
<u>Mains installed in highways under MassDOT control</u>	36"	36"

- ~~(b) Gas mains to be installed in highways under the jurisdiction and control of the MassDOT shall be laid with a minimum cover of 36 inches from the top of the main to the used surface of the road.~~
- ~~(c) Except as provided in 220 CMR 101.06(12)(d) and (e), each buried main must be installed with at least 24 inches of cover.~~
- ~~(d)(b) Where an underground structure prevents the installation of a transmission line or main with the minimum cover, the transmission line or main may be installed with less cover if it is provided with additional protection to withstand anticipated external loads.;~~
- ~~(e) The main may be installed with less than 24 inches of cover providing:~~

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1. ~~1. Adequate transmission line is provided with additional protection to withstand anticipated external loads and adequate measures are taken to prevent damage to the pipe by external forces;~~

~~2. That the maximum allowable operating pressure The operator follows written procedures regarding the additional protection;~~

~~3. The operator maintains a map or record of the location and the original depth of cover of the installation for the life of the installation;~~

~~2.4. For mains, the MAOP will produce a stress level of less than 20% of SMYS; and~~

~~3.5. 3. That The operator immediately notifies the Department approves by telephone upon discovery of the structure and submits the following information to the Department for approval prior to completing the installation;~~

~~a. (13) The location and description of the underground structure;~~

~~b. Details regarding the installation, including the pipeline segment diameter and material, depth of cover, and MAOP;~~

~~c. The footage of the pipeline segment with less cover;~~

~~d. The distance between the top of the structure and final grade;~~

~~e. A profile sketch of the installation;~~

~~f. The reason for the shallow main installation; and~~

~~g. A statement regarding the measures to be taken to prevent damage to the main by external forces.~~

~~(7) Meters and Regulators. (MFS Standards § 192.353).;~~

~~(a) Meters and regulators shall be installed so as to protect them from anticipated or potential dangers, including but not limited to vehicles, falling ice and snow, flooding, or corrosion.~~

~~(b) Service Regulators:~~

~~1. Operators shall not install or operate a service regulator located within ten feet of a source of ignition or an air intake into a building. Utilities shall not install or operate a service regulator located within three feet from an opening into a building or any electrical source not intrinsically safe.~~

~~a. The distance shall be measured from the vent or source of release (discharge port), not from the physical location of the meter set assembly; and~~

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- b. If the operator learns of a regulator that fails to meet the three- or ten-foot minimum distance requirement, it shall resolve the problem by extending the regulator vent to meet the requirement within 60 days of discovery.
 - 2. All service gas regulator records shall be kept for at least ten years.
 - 3. Each operator shall develop and implement a seven-year service regulator maintenance program. All service regulators shall be inspected during statutory meter changes every seven years, including a lock-up and run test, and maintained in accordance with manufacturers' specifications.
 - 4. Service regulators on service lines without an excess flow valve (EFV) shall be replaced with meter replacement not to exceed seven years from installation.
- (8) Service Lines: - Valve Requirements. (Section and Locations. (MFS Standards §§ 192.363 MFS Standards.), 192.365, 192.383, 192.385).:
- (a) Each service line valve on an intermediate to a school, synagogue, church, mosque, hospital, nursing home, rehabilitation center with overnight patient facilities, theater, arena, or factory shall have a manually operated, underground valve within a covered, durable valve box that allows ready operation of the valve, is supported independently of the service line, and is located in proximity to the source of supply or the property line of the building served.
 - (b) Each service line with an outside service riser pipe or meter assembly shall have at least one manually operated, aboveground valve located in a readily accessible location, provided that:

 - 1. The service line is operated at low pressure; or
 - 2. The service line contains a properly designed and installed excess flow valve, and the aboveground valve is installed upstream of the service regulator.
 - (c) Each service line that does not meet the criteria of 220 CMR 101.06(8)(a) or (b) shall have two manually operated valves located as follows:

 - 1. One valve at the service riser or meter assembly; and
 - 2. One underground service line valve within a covered, durable valve box that allows ready operation of the valve, is

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supported independently of the service line, and is located in proximity to the source of supply or the property line of the building served.

(d) For any branched service line installed without an excess flow valve, the requirements of 220 CMR 101.06(8)(b) and (c) shall apply to each individual service line.

(e) When the state or a municipality repairs streets, roads, or sidewalks, the operator shall provide for the maintenance and improvement of gate boxes located therein, so that the gate boxes are easily and immediately accessible.

~~(9-high-)~~ Corrosion Control/Cathodic Protection - Remedial Actions Timeframe. (MFS Standards § 192.465(d), 192.457(b)).-

(a) Whenever annual electrical testing reveals that the pipeline or segment thereof does not meet adequate cathodic protection criteria, or upon discovery of any deficiencies indicated by monitoring, corrective action must be taken to reestablish cathodic protection to the required level within one calendar year or replace the section of pipeline within two calendar years. Operators shall document the reason for any remedial actions not taken within the specified timeframe.

(b) Whenever active corrosion is discovered in pipelines installed before August 1, 1971, corrective action must be taken to establish cathodic protection to the required level within one calendar year or replace the section of pipeline within two calendar years. Operators shall document the reason for any remedial actions not taken within the specified timeframe.

(10) General Pipeline Pressure Test Requirements. (MFS Standards § 192.503).-

(a) The operator shall use a procedure for each pressure service line installed above ground or in an area where the blowing of gas would be test that will ensure discovery of all potentially hazardous, must be designed and constructed to minimize leaks in the possibility of segment being tested. Pressure loss due to leakage during the removal of the core of the valve test period is not permitted.

(b) Tie-in joints to a pipeline pressurized with other gas shall be leak-tested at not less than specialized tools the pipeline's operating pressure (e.g., soap-bubble tested).

~~(14) Service Lines: Location of Valves. (Section 192.365 MFS Standards.) All intermediate and high pressure services and all services two inches in diameter~~

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~~or larger shall be equipped with an underground curb shut off located in proximity to the property line, except that whenever gas is supplied to a theatre, church, school, factory, or other buildings where large numbers of persons assemble, an outside shut off in such case will be required regardless of the size of the service or of the service pressure. All underground curb shut offs shall be readily identifiable and available for easy access by gas company personnel.~~

- ~~(15) Test Requirements for Pipelines to Operate at a Hoop Stress Less than 30% of SMYS and Above 100 psig. (Section 192.507 MFS Standards.) Except for service lines and plastic pipelines, each segment of a pipeline that is to be operated at a hoop stress less than 30% of SMYS and above 100 psig must be tested in accordance with the following:~~
- ~~(a) The pipeline operator(c) The types of tie-in joints that must be tested shall be designated in the operator's written procedures.~~
 - ~~(d) The test medium selected by the operator for pressure tests herein shall be air, inert gas, natural gas, or water.~~
 - ~~(e) All pressure tests for pipelines shall be measured or recorded by instruments calibrated in accordance with manufacturers' specifications and the records kept for the life of the pipeline segment that was tested.~~
 - ~~(f) Operators must use a test procedure that will ensure discovery of all potentially hazardous leaks in the segment being tested. -However, loss of pressure due to leakage during the test period is not permitted. If feasible, the service line connection to the main must be included in the test. If not feasible, it must be given a leakage test at the operating pressure when placed in service.~~
 - ~~(b) If, during the g) Except for tie-in sections, pipelines shall be tested after installation and prior to being brought into service to ensure discovery of all potentially hazardous leaks in the segment being tested.~~
 - ~~(h) Pre-tested pipe may be used only on mains, subject to the following conditions:
 - ~~1. Pre-tested pipe sections shall be no more than 12 feet in length.~~
 - ~~2. Pre-tested pipe sections shall be labeled with the date of the pre-test, the segment is to be pre-test pressure, duration of the pre-test, and the name of the person who conducted the pretest.~~
 - ~~3. A record of the date of the pre-test, the pre-test pressure, duration of the pre-test, the name of the person who conducted the pre-test, the installation date and location shall be kept for the service life of the pipe.~~~~

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4. The pre-test must have been conducted no earlier than one year of the date of installation.
5. The pre-test pressure must be at least 90 psig or 1.5 times the MAOP of the main, whichever is greater.
6. Tie-in joints shall be soap- or leak-tested at the operating pressure of the main.
7. The pipe shall be visually inspected for damage at the time of installation.
8. No intermediate joints are permitted.

(11) Pressure Test Requirements for Pipelines to Operate at a Hoop Stress of Less Than 30% of SMYS and at or Above 100 psig. (MFS Standards § 192.507).- Except for service lines and plastic pipelines, each segment of a pipeline to be operated at a hoop stress of less than 30% of SMYS and at or above 100 psig must be pressure tested in accordance with the following:

(a) If a pipeline is being stressed to 20% or more of SMYS and natural gas during a pressure test using air, inert gas, or air is the test medium: natural gas (i.e., pneumatic testing):

1. A leak test ~~must~~shall be made at a pressure between 100 psig and the pressure required to produce a hoop stress of 20% of SMYS; or
2. The ~~line must~~pipeline shall be walked to check for leaks while the hoop stress is held at approximately 20% of SMYS.

~~(e) — Steel gas mains~~(b) If a pipeline is being stressed to be operated at pressures from 100 psig to 150 psig 20% or more of SMYS during a pressure test using a liquid (i.e., hydrostatic testing), the provisions in 220 CMR 101.06(11)(a)(1) and 101.06(11)(a)(2) do not apply.

(c) The pipeline shall be air or hydrostatically pressure tested for tightness to 1.5 times the maximum allowable operating pressure for at least not less than one hour.

~~(d) — Steel gas mains to be operated at pressures in excess of 150 psig shall be air or hydrostatically tested for tightness to 1.5 times the maximum operating pressure for at least four hours and may be witnessed by the Department. Calibrated recording instruments shall be verified by dead weight instruments and the recording submitted to the Department for certification that the steel gas main as defined may be operated at a pressure which is equal to the test pressure divided by a factor of 1.5.~~

~~(16)~~

- ~~(12) Pressure Test Requirements for Pipelines to Operate at or Below 100 psig. (Section 192.509 (MFS Standards) § 192.509). Except for service lines and plastic pipelines, each segment of a pipeline that is to be operated at or below 100 psig must be leak tested in accordance with the following:~~
- ~~(a) The pipeline operator must use a test procedure that will ensure discovery of all potentially hazardous leaks in the segment being tested. However, loss of pressure due to leakage during the test period is not permitted.~~
 - ~~(b) At a test pressure of at least 90 psig for at least not less than one hour.~~
 - ~~(c) The tie in joints to the live gas main, cast iron or steel, shall be tested using the soap bubble test.~~

~~(17)~~

- ~~(13) Pressure Test Requirements for Service Lines. (Section 192.511 (MFS Standards) § 192.511). Except for plastic service lines, all service lines must be pressure tested in accordance with the following:~~
- ~~(a) Each segment of a service line (other than plastic) must be leak tested in accordance with 220 CMR 101.06 before being placed in service. Each segment of a service line. If feasible, the service line connection to the main must be included in the test. If not feasible, it must be given a leakage test at the operating pressure when placed in service.~~
 - ~~(a) (b) Each segment of a service line (other than plastic) to operate at not more than 100 psig shall be tested after construction and before being placed into service to at least 90 psig for not less than 15 minutes. Pressure loss due to leakage during the test period is not permitted.~~
 - ~~(b) (c) Each segment of a service line (other than plastic) to operate at pressures in excess of 100 psig must be tested in accordance with 49 CFR 192.507 of the MFS Standards.~~

~~(18) (14) Pressure Test Requirements for Plastic Mains and Services. (Section 192.513 Pipelines. (MFS Standards) § 192.513).~~

- ~~(a) The test procedure must ensure discovery of all potentially hazardous leaks in the segment being tested. However, loss of pressure due to leakage during the test period is not permitted.~~
- ~~(a) (b) Plastic pipelines to be operated at an MAOP not greater than 60 psig shall be pressure tested to at least 90 psig.~~

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~~(b) Plastic pipelines to be operated at an MAOP greater than 60 psig shall be pressure shall be tested at least 150% of 1.5 times the maximum operating MAOP.~~

~~(c) Plastic service lines shall be pressure or 90 psig whichever is the greater, tested for at least not less than 15 minutes.~~

~~(a)(d) Plastic mains shall be pressure tested for services, or not less than one hour for mains. However, the maximum test pressure may not be more than three times the design pressure of the pipe.~~

~~1. (15)~~

~~(19) Maximum Allowable Operating Pressures for Low-Pressure, Intermediate-pressure and High-pressure Distribution Systems. (Section 192.621 (MFS Standards).) No person may operate a segment of an intermediate-pressure or high § 192.623).~~

~~(a) Maximum allowable operating pressure. The MAOP of low-pressure distribution system at a pressure that exceeds the lowest of the applicable pressures shown in 49 CFR 192.621(a)(1) through (5) and (b) of the MFS Standards, systems shall be 14 inches water column.~~

~~(b) Minimum operating pressure. The pressure at the outlet of any customer's service meter shall not normally be less than one-half of the normal pressure at the outlet as recorded during the course of the year.~~

~~2.1. (16)~~

~~(20) Odorization of Gas. (Section (MFS Standards § 192.625 MFS Standards).)~~

~~(a) A combustible gas in a distribution line shall have a distinctive odor of sufficient intensity so that a concentration of 0.15% gas in the air is readily perceptible to the normal or average olfactory senses of a person coming from fresh uncontaminated air into a closed room containing one part of the gas in 666 parts of air.~~

~~(b) In the concentrations in which it is used, the odorant in combustible gases must comply with the following:~~

~~1. The odorant may not be deleterious to persons, material, or pipe.~~

~~2. The products of combustion from the odorant may not be toxic when breathed nor may they be corrosive or harmful to those materials to which the products of combustion will be exposed.~~

~~(c) The odorant may not be soluble in water to an extent greater than 2.5 parts to 100 parts by weight.~~

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- (d) Equipment for odorization must introduce the odorant without wide variations in the level of odorant.
- (e) Equipment and facilities for handling the odorant shall be located so as to minimize the effect of an escape of odorant.
- (f) Each operator shall conduct ~~periodic samplings~~ monthly sampling of the ~~combustible gases~~ odorized gas at points it determines, including the extremities of the distribution system, to assure the proper concentration of odorant in accordance with 220 CMR 101.06-~~(16)~~.

~~(24)(g) The operator shall take prompt remedial action to correct conditions that result in detection at concentrations exceeding 0.15% gas in air.~~

~~(h) Equipment and facilities for handling the odorant shall be designed and operated to minimize the effect of an escape of odorant.~~

~~(17) Distribution Systems: Leakage Surveys and Procedures.—(Section 192.723 (MFS Standards) § 192.723).—~~ Each operator having a gas distribution system shall conduct leakage surveys, as frequently as experience and technology indicates they are necessary, but in no event shall such leakage surveys be less than the following minimum standards:

(a) Business Districts. A ~~gas~~ leakage survey with leak detector ~~survey~~ equipment must be conducted in business districts including tests of the atmosphere in gas, electric, telephone, sewer and water system manholes, at cracks in pavement and sidewalks, and at other locations providing an opportunity for finding gas leaks, at intervals not exceeding 15 months but at least once ~~in every consecutive 12-month period~~ each calendar year. In areas where an effectively prescribed and supervised survey of electric or other manholes and vaults is conducted and offers more frequent coverage than the previous, such a survey procedure may be substituted. Business districts are defined as areas with pavement from building wall to building wall ~~and/or~~ where the principal commercial activity of the city or town takes place. ~~Such areas~~ The operator shall be outlined on ~~define~~ a map and maintained ~~business district~~ by the operator ~~maps or other documents~~.

(b) Distribution System Areas Not Included in the Principal Business District. Leakage surveys shall be made of the area not included in the principal business district at least once in every consecutive 24- ~~month~~ period.

(c) Type of Survey. Leakage surveys for 220 CMR 101.06~~(2117)~~(a) and (b) shall ~~include~~ be conducted using one or more of the following:

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1. Gas detector surveys using combustible gas indicators, flame ionization equipment, infra-red equipment or other industry accepted testing equipment;
2. Bar tests;
3. Vegetation surveys; ~~and~~
4. Pressure ~~drop~~ tests.

(d) Other Surveys. In addition to the requirements of 220 CMR 101.06(2117)(a) and (b), a survey of ~~schools, churches, hospitals, theatres~~each school, synagogue, church, mosque, hospital, nursing home, rehabilitation center with overnight patient facilities, theater, and arenas shall be conducted at intervals not exceeding 15 months, but at least once annually each calendar year. The survey shall include ~~tests~~a test for gas leakage and visual inspection of the operator's gas facilities in the immediate area of the point of entry of each underground service entrance.

(e) Hazardous Conditions Repaired. All disclosed conditions of a nature hazardous to persons or property shall be promptly made safe and permanent repairs instituted.

(f) Leakage Survey Records. ~~Records of the leakage surveys required under 220 CMR 101.06 shall be maintained for a period of time not less than the interim between successive surveys.~~

~~(22)~~ 1. Records of the leakage surveys required under 220 CMR 101.06(17) shall be maintained for a period of time not less than seven years.

2. An operator who uses leak survey records instead of electrical surveys for monitoring corrosion protection, in accordance with 49 CFR 193.465(e), shall retain those leak survey records for the life of the pipeline.

(18) Pressure Test Requirements for Reinstating Service Lines. ~~(Section 192.725 (MFS Standards) § 192.725).~~

~~(a) For the purpose of 220 CMR 101.06(22), each service line, temporarily disconnected from the main and to be operated at a pressure not in excess of one psig, shall be tested at a pressure of at least ten psig for not less than 15 minutes. Pressure loss due to leakage during the test period is not permitted.~~

~~(b)~~(a) The operator shall make and retain a record of each pressure test required under 49 CFR 192.725 MFS Standards.

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(b) Except as provided in 220 CMR 101.18(c), each service line that is disconnected for abandonment shall be tested from the point of disconnection to the end of the service line in the same manner as a new service line before being reinstated (see 220 CMR 101.06(10) through 101.06(14)).

(c) Each service line temporarily disconnected from the main shall be tested from the point of disconnection to the service line valve at the riser or the meter assembly in the same manner as a new service line, before reconnecting (in accordance with 220 CMR 101.06(10) through 101.06(14)). However, if provisions are made to maintain continuous service, such as by installation of a bypass, any part of the original service line used to maintain continuous service need not be tested.

(19) Operator Qualifications. (MFS Standards § 192.805).-

(a) By one year from effective date of 220 CMR 101.00, all operator written qualification programs (OQ) shall list all covered tasks and include specific abnormal operating conditions for each task.

(b) All OQ covered tasks shall be cross-referenced with applicable construction standards or specifications or applicable operation and maintenance activities including emergency response.

(c) All individuals who perform OQ covered tasks shall be qualified in all the OQ covered tasks that they perform.

(d) Individuals who are responsible for inspection or supervision of those performing OQ covered tasks shall be qualified in all the OQ covered tasks for which they are responsible.

(20)

) Identifying Threats and Ranking Risk. (MFS Standards § 192.1007).-

(a) Threat of Overpressurization. Operators shall consider the single points of failure that could lead to an over-pressurization of a distribution system as a threat and to review and adjust their Distribution Integrity Management Plan (DIMP) accordingly. If the threat of over-pressurization of distribution systems is not considered an existing threat by an operator, justification for the elimination of this threat from consideration shall be documented in the operators DIMP.

(b) Threat of Reaching or Exceeding Maximum Capacity. Operators shall consider the vulnerability of a distribution system to reach or exceed maximum capacity as a whole or in part. The threat of reaching or exceeding maximum capacity shall be evaluated and added to the DIMP accordingly. If the threat of reaching or exceed maximum capacity of a distribution systems is not

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considered an existing threat by an operator, justification for the elimination of this threat from consideration shall be documented in the operators DIMP.

(21) Remote Read Meter. When an electronic/encoder receiver transmitter meter (ERT) or other remote meter read device has been installed with a meter, the operator shall verify the accuracy of the remote read device whenever the meter is removed from service in accordance with G.L. c. 164, § 115A.

(22) MAOP. MAOP shall be posted at gate and district regulator stations as well as service regulators.

(23) Abandonment of Valves. Operators must develop and implement procedures to remove or abandon all associated valve boxes in the course of abandoning a main. Abandonment procedures shall include the following:

(a) Remove valve cover, breaking collar if possible;

(b) Fill valve box with crushed stone; and

(c) If valve is located on a paved street, top with concrete or patch.

101.07: Oversight of Contractors.

(1) Contractors who wish to be eligible to receive contracts with operators to perform

gas work shall be required to register annually with the Department. Contractors must provide documentation, in a manner specified by the Department, and certify:

(a) That the contractor is in good standing with the Department, including, but not limited to being in compliance with:

1. all penalties; and

2. all consent order items.

(b) That the contractor is in compliance with:

1. 49 CFR Part 192 subpart N;

2. 49 CFR Part 193 subpart H (if applicable); and

3. 49 CFR Parts 199 and 40.

(c) The contractor shall comply with any other requirements set forth by the Department.

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- (2) Operators who utilize contractors to perform gas work shall be required to:
- (a) Ensure that the contractor is registered with the Department; and
 - (b) Maintain a ratio of no greater than two contractor crews to every one qualified inspector within its service territory.
- (3) Operators who utilize contractors to perform gas work shall be required to evaluate contractor qualifications by:
- (a) Ensuring that all contractors follow the operator's written qualification program;
 - (b) Ensuring that all personnel performing covered tasks are qualified;
 - (c) Maintaining complete and accurate OQ training and certification records for all contractors.
 - (d) Reviewing and monitoring compliance with the contractor's Drug and Alcohol plan.

101.08: Distribution Maps and Records.

- (1) Operators shall establish and maintain maps of the operator's service area which -identify the operator's intrastate gas pipeline facilities. Each operator shall establish and -follow procedures to ensure that maps and records are:
- (a) Accurate, complete, and shall contain the location of all active pipes, including but not limited to mains, services, and service stubs;
 - (b) Updated within 30 days of the completion of construction, maintenance, or discovery of a main or service;
 - (c) Kept and maintained at a secure location; and
 - (d) Available to all operating personnel.
- (2) Facilities that are under active construction or maintenance must be identified in the Operator's maps and records and be available to operating personnel.
- (3) Operators shall establish a training for all construction and maintenance staff, including contractors, on its maps and records procedures.
- (4) Operators shall conduct annual inspections of its maps and records to identify inaccuracies.
- (5) Operators shall comply with all guidelines set by the Division regarding -service equality metrics.

101.09: Additional Reporting Requirements.

(1) Single-Feed System. Each operator with a single-feed distribution system (i.e., a system with one confirmed source such as a single district regulator supplying gas downstream of the regulator) shall measure the gas pressure in the system at all times over the course of the year and report the results to the Department by March 15th of each year in a format to be determined by the Department, in accordance with the following:

(a) Prior to January 1, 2025, operators may use telemetering or recording pressure gauges as may be required.

(b) As of January 1, 2025, telemetering shall be the sole method used to measure the gas pressure at all times for each single-feed distribution system.

(c) In addition to the annual report, operators shall report to the Department any abnormal pressure variations within 72 hours of discovery.

(2) Winter Surveillance and Patrol Procedures. -No later than November 1st of each year, each operator shall provide the Department with a copy of its Winter Surveillance and Patrol program/procedures for cast-iron pipelines. In addition, each operator must notify the Division by email when its winter patrols begin and when its winter patrols cease.

(3) Street Restoration Standards.

(a) Each operator shall comply with the “Standards to be Employed by Public Utility Operators When Restoring any of the Streets, Lanes and Highways in Municipalities” (Street Restoration Standards) issued in Street Restoration Standards, D.T.E. 98-22 (1999).

(b) No later than May 1st of each year, each operator shall file with the Department, in a format specified by the Department, a written statement or policy designed to ensure that managers, supervisors, and other distribution personnel are aware of and held accountable to the Street Restoration Standards. The statement shall include details and records as specified by the Department.

(4) Gate Box Reports. (G.L. c. 164, § 116B). No later than March 31st of each year, operators must file an annual report documenting all instances of inadequate notice of paving projects that resulted in gate boxes being paved over during the prior calendar year. The report, in a format to be determined by the Department, must include information, as specified by the Department, on paved-over gate boxes discovered since the prior year’s report.

(5) Mechanical Fitting Failures. All operators must report each mechanical fitting failure no later than 15 days after determining a mechanical fitting failure using a form to be determined by the Department.

(6) Telephonic Incident Reporting Requirements. Operators are required to notify the Department by telephone of certain specific events, as specified by the Department, in a format approved by the Department. Operators must make the notification promptly but no more than two hours following discovery.

101.10: Master Meter System.

No operator shall provide gas service to any Master Meter System, as defined in 49 CFR 191.3, constructed after December 31, 2022, without written approval from the Department. The Department may approve such service only if the service is found to be consistent with safe and reliable service requirements and the associated rates and charges for such service are found to be just and reasonable.

101.11: Calibration.

(1) Operators shall ensure the periodic inspection and calibration of all equipment used in construction, operations, and maintenance activities where improper calibration or failure to inspect could impact the equipment's performance. Equipment calibrations shall be in accordance with the frequencies defined in the manufacturers' procedures and specifications.

(2) Operators shall have the means to verify date of calibration and expiration date of all such equipment covered under (a) above in the field upon the request of the Division.

(3) Calibration procedures shall be included in the Operating and Maintenance manual and readily available in the field or at the work location.

101.12: Directional Drilling.

Within one year of the effective date of 220 CMR 101.00, operators shall ensure that their written construction procedures include specific provisions for directional drilling and other trenchless technology installation methods that minimize the potential damage to gas pipelines and other underground facilities, including electric, communications, water, sewer, and steam.

101.13: Construction Quality Assurance Plans.

Construction quality assurance plans shall be maintained in writing and shall require that:

- (1) Each operator shall inspect any new construction by outside contractors that is or will be incorporated into the operator's system to verify that the resulting installation meets operator specifications;
- (2) A representative number of field verification audits shall be conducted after field work is completed for specific installation tasks; and
- (3) Performance audits shall be conducted to evaluate a representative sample of various tasks during the actual time that the work is being performed by the employee or contractor.

101.14: Operator Procedures Manual.

Each Operator shall incorporate procedures for all requirements of 220 CMR 101.00 into its written procedures under 49 CFR Part 192 as applicable, to ensure compliance with M.G.L. c. 164, §§ 105A and 220 CMR 101.00.

REGULATORY AUTHORITY

220 CMR 101.00: M.G.L. c. 164, §§ 66, 76, 76C₂, ~~and~~ 105A, and 116B.