Pipeline Safety Regulatory Update
Nebraska State Fire Marshal
Pipeline Safety Seminar
February 4-5, 2025

FINAL RULE

- DEPARTMENT OF TRANSPORTATION
- Pipeline and Hazardous Materials Safety Administration
- 49 CFR Part 192
- [Docket No. PHMSA-2014-0098: Amdt. No. 192-124] RIN 2137-AE93
- Pipeline Safety: Plastic Pipe Rule

SUMMARY

- PHMSA amended the Federal Pipeline Safety Regulations that govern the use of plastic piping systems in the transportation of natural and other gas. These amendments are necessary to enhance pipeline safety, adopt innovative technologies and best practices, and respond to petitions from stakeholders.

SUMMARY

- The changes included increasing the design factor of polyethylene pipe;
- Increasing the maximum pressure and diameter for Polyamide-11 pipe and components;
- Allowing the use of Polyamide-12 pipe and components;
- New standards for risers,
- More stringent standards for plastic fittings and joints;

SUMMARY

- Stronger mechanical fitting requirements;
- The incorporation by reference of certain new or updated consensus standards for pipe, fittings, and other components;
- The qualification of procedures and personnel for joining plastic pipe;
- The installation of plastic pipe; and a number of general provisions.

SUMMARY

- DATES: The effective date of these amendments was January 22, 2019. The incorporation by reference of certain publications listed in the rule was approved by the Director of the Federal Register as of January 22, 2019.

FINAL RULE PROVISIONS

§ 192.3 Definitions.

* * * * *

Weak link means a device or method used when pulling polyethylene pipe, typically through methods such as horizontal directional drilling, to ensure that damage will not occur to the pipeline by exceeding the maximum tensile stresses allowed.

FINAL RULE PROVISIONS

§ 192.7 What documents are incorporated by reference partly or wholly in this part?

3. Amend § 192.7 as follows:

a. Redesignate paragraphs (c)(3) through (c)(9) as paragraphs (c)(4) through (c)(10);

b. Add new paragraph (c)(3);

c. Revise paragraphs (d)(11) through (d)(15);

d. Add paragraphs (d)(16) through (d)(24); and

e. Revise paragraph (j)(1) and add paragraph (j)(2).

FINAL RULE PROVISIONS

§ 192.9 What requirements apply to gathering lines?

* * * * *

(d) *Type B lines.* An operator of a Type B regulated onshore gathering line must comply with the following requirements:

(1) If a line is new, replaced, relocated, or otherwise changed, the design, installation, construction, initial inspection, and initial testing must be in accordance with requirements of this part applicable to transmission lines;

(2) If the pipeline is metallic, control corrosion according to requirements of subpart I of this part applicable to transmission lines;

(3) If the pipeline contains plastic pipe or components, the operator must comply with all applicable requirements of this part for plastic pipe components;

FINAL RULE PROVISIONS

§ 192.9 What requirements apply to gathering lines?

* * * * * (Continued)

(4) Carry out a damage prevention program under § 192.614;

(5) Establish a public education program under § 192.616;

(6) Establish the MAOP of the line under § 192.619;

(7) Install and maintain line markers according to the requirements for transmission lines in § 192.707; and

(8) Conduct leakage surveys in accordance with the requirements for transmission lines in § 192.706, using leak-detection equipment, and promptly repair hazardous leaks in accordance with § 192.703(c).

FINAL RULE PROVISIONS

5. Amend § 192.59 as follows:

a. Revise paragraphs (a)(1) and (a)(2); b. Add paragraph (a)(3): and

c. Revise paragraph (b)(3).

The revisions and addition read as follows:

§ 192.59 Plastic pipe.

(a) * * *

(1) It is manufactured in accordance with a listed specification;

(2) It is resistant to chemicals with which contact may be anticipated; and

(3) It is free of visible defects.

(b) * * *

(3) It has been used only in gas service;

* * * * *

FINAL RULE PROVISIONS

6. Amend § 192.63 by revising paragraph (a) and adding paragraph (e) to read as follows:

§ 192.63 Marking of materials.

(a) Except as provided in paragraph (d) and (e) of this section, each valve, fitting, length of pipe, and other component must be marked as prescribed in the specification or standard to which it was manufactured.

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FINAL RULE PROVISIONS

6. Amend § 192.63 by revising paragraph (a) and adding paragraph (e) to read as follows: (continued)

(e) All plastic pipe and components must also meet the following requirements:

(1) All markings on plastic pipe prescribed in the listed specification and the requirements of paragraph (e)(2) of this section must be repeated at intervals not exceeding two feet.

(2) Plastic pipe and components manufactured after December 31, 2019 must be marked in accordance with the listed specification.

(3) All physical markings on plastic pipelines prescribed in the listed specification and paragraph (e)(2) of this section must be legible until the time of installation.

FINAL RULE PROVISIONS

Add § 192.67 to subpart B to read as follows:

§ 192.67 Storage and handling of plastic pipe and associated components.

Each operator must have and follow written procedures for the storage and handling of plastic pipe and associated components that meet the applicable listed specifications.

FINAL RULE PROVISIONS

Section 192.121 has been amended to specify the design requirements for newly installed plastic tubing made of PE, PA-11, and PA-12.

- In response to petitions, PHMSA has revised the maximum specifications for PE pipe and permitted the use of PA-12 in gas service.
- New and replaced PE pipe may now operate with a design factor of 0.40 (previously 0.32), limited to a minimum wall thickness of 0.090 inches.
- New and replaced PA-11 pipe may now be operated with a design factor of 0.40, a maximum pressure up to 250 psig (previously 200) and a maximum diameter of 6 inches (previously 4).

FINAL RULE PROVISIONS

Section 192.121 has been amended to specify the design requirements for newly installed plastic tubing made of PE, PA-11, and PA-12. (continued)

- Operators are now permitted to install PA-12 with a design factor of 0.40, a maximum pressure up to 250 psig, and a maximum diameter of 6 inches.
- The design limitations which were previously located in § 192.123 have been merged into this section.

FINAL RULE PROVISIONS

- § 192.123 [Removed and Reserved]

FINAL RULE PROVISIONS

§ 192.143 General requirements.

* * * * *

(c) Except for excess flow valves, each plastic pipeline component installed after January 22, 2019 must be able to withstand operating pressures and other anticipated loads in accordance with a listed specification.

FINAL RULE PROVISIONS

§ 192.145 Valves.

* * * * *

(f) Except for excess flow valves, plastic valves installed after January 22, 2019, must meet the minimum requirements of a listed specification. A valve may not be used under operating conditions that exceed the applicable pressure and temperature ratings contained in the listed specification.

FINAL RULE PROVISIONS

§ 192.149 Standard fittings.

* * * * *

(c) Plastic fittings installed after January 22, 2019, must meet a listed specification.

FINAL RULE PROVISIONS

Section 192.191 Design Pressure of Plastic Fittings [Removed and Reserved]

FINAL RULE PROVISIONS

Add § 192.204 to subpart D to read as follows:

§ 192.204 Risers installed after January 22, 2019.

(a) Riser designs must be tested to ensure safe performance under anticipated external and internal loads acting on the assembly.

(b) Factory assembled anodeless risers must be designed and tested in accordance with ASTM F1973–13

(incorporated by reference, see § 192.7).

FINAL RULE PROVISIONS

Add § 192.204 to subpart D to read as follows:

§ 192.204 Risers installed after January 22, 2019.

(c) All risers used to connect regulator stations to plastic mains must be rigid and designed to provide adequate support and resist lateral movement.

Anodeless risers used in accordance with this paragraph must have a rigid riser casing.

FINAL RULE PROVISIONS

Amend § 192.281 by revising paragraphs (b)(2), (b)(3), and (c) and adding paragraphs (e)(3) and (e)(4) to read as follows:

§ 192.281 Plastic pipe.

* * * * *

(b) * * *

(2) The solvent cement must conform to ASTM D2564-12 for PVC (incorporated by reference, see § 192.7).

(3) The joint may not be heated or cooled to accelerate the setting of the cement.

FINAL RULE PROVISIONS

Amend § 192.281 continued:

- (c) *Heat-fusion joints*. Each heat fusion joint on a PE pipe or component, except for electrofusion joints, must comply with ASTM F2620-12 (incorporated by reference in § 192.7) and the following:
- (1) A butt heat-fusion joint must be joined by a device that holds the heater element square to the ends of the pipe or component, compresses the heated ends together, and holds the pipe in proper alignment in accordance with the appropriate procedure qualified under § 192.283.

FINAL RULE PROVISIONS

Amend § 192.281 continued:

(c) *Heat-fusion joints.*

(2) A socket heat-fusion joint must be joined by a device that heats the mating surfaces of the pipe or component, uniformly and simultaneously, to establish the same temperature. The device used must be the same device specified in the operator's joining procedure for socket fusion.

FINAL RULE PROVISIONS

Amend § 192.281 continued:

(c) *Heat-fusion joints.*

(3) An electrofusion joint must be made using the equipment and techniques prescribed by the fitting manufacturer, or using equipment and techniques shown, by testing joints to the requirements of § 192.283(a)(1)(iii), to be equivalent to or better than the requirements of the fitting manufacturer.

(4) Heat may not be applied with a torch or other open flame.

FINAL RULE PROVISIONS

Amend § 192.281 continued:

(e) * * *

(3) All mechanical fittings must meet a listed specification based upon the applicable material.

(4) All mechanical joints or fittings installed after January 22, 2019, must be Category 1 as defined by a listed specification for the applicable material, providing a seal plus resistance to a force on the pipe joint equal to or greater than that which will cause no less than 25% elongation of pipe, or the pipe fails outside the joint area if tested in accordance with the applicable standard.

FINAL RULE PROVISIONS

Revise § 192.283 to read as follows:

§ 192.283 Plastic pipe: Qualifying joining procedures.

(a) *Heat fusion, solvent cement, and adhesive joints*. Before any written procedure established under § 192.273(b) is used for making plastic pipe joints by a heat fusion, solvent cement, or adhesive method, the procedure must be qualified by subjecting specimen joints that are made according to the procedure to the following tests, as applicable:

FINAL RULE PROVISIONS

Revise § 192.283 to read as follows: (continued)

(1) The test requirements of--

(i) In the case of thermoplastic pipe, based on the pipe material, the Sustained Pressure Test or the Minimum Hydrostatic Burst Test per the listed specification requirements. Additionally, for electrofusion joints, based on the pipe material, the Tensile Strength Test or the Joint Integrity Test per the listed specification.

(ii) In the case of thermosetting plastic pipe, paragraph 8.5 (Minimum Hydrostatic Burst Pressure) or paragraph 8.9 (Sustained Static Pressure Test) of ASTM D2517- 00 (incorporated by reference, see § 192.7).

FINAL RULE PROVISIONS

Revise § 192.283 to read as follows:

(1) The test requirements of– (continued)

(iii) In the case of electrofusion fittings for polyethylene (PE) pipe and tubing, paragraph 9.1 (Minimum Hydraulic Burst Pressure Test), paragraph 9.2 (Sustained Pressure Test), paragraph 9.3 (Tensile Strength Test), or paragraph 9.4 (Joint Integrity Tests) of ASTM F1055- 98(2006) (incorporated by reference, see § 192.7).

(2) For procedures intended for lateral pipe connections, subject a specimen joint made from pipe sections joined at right angles according to the procedure to a force on the lateral pipe until failure occurs in the specimen. If failure initiates outside the joint area, the procedure qualifies for use.

FINAL RULE PROVISIONS

Revise § 192.283 to read as follows:

(1) The test requirements of-- (continued)

(3) For procedures intended for non-lateral pipe connections, perform testing in accordance with a listed specification. If the test specimen elongates no more than 25% or failure initiates outside the joint area, the procedure qualifies for use.

(b) *Mechanical joints*. Before any written procedure established under § 192.273(b) is used for making mechanical plastic pipe joints, the procedure must be qualified in accordance with a listed specification based upon the pipe material.

(c) A copy of each written procedure being used for joining plastic pipe must be available to the persons making and inspecting joints.

FINAL RULE PROVISIONS

- In § 192.285, revise paragraph (b)(2)(i) to read as follows:
- § 192.285 Plastic pipe: Qualifying persons to make joints.
- * * * * *
- (b) * * *
- (2) * * *
- (i) Tested under any one of the test methods listed under § 192.283(a), or for PE heat fusion joints (except for electrofusion joints) visually inspected and tested in accordance with ASTM F2620-12 (incorporated by reference, see § 192.7) applicable to the type of joint and material being tested;
- * * * * *

FINAL RULE PROVISIONS

- In § 192.313, add paragraph (d) to read as follows:
- § 192.313 Bends and elbows.
- * * * * *
- (d) An operator may not install plastic pipe with a bend radius that is less than the minimum bend radius specified by the manufacturer for the diameter of the pipe being installed.

FINAL RULE PROVISIONS

Amend § 192.321 by revising paragraphs (a), (d), (f), and (h)(3) and adding paragraph (i) to read as follows:

§ 192.321 Installation of plastic pipelines.

(a) Plastic pipe must be installed below ground level except as provided in paragraphs (g), (h), and (i) of this section.

* * * * *

(d) Plastic pipe must have a minimum wall thickness in accordance with § 192.121.

* * * * *

FINAL RULE PROVISIONS

§ 192.321 Installation of plastic pipelines. (continued)

(f) Plastic pipe that is being encased must be inserted into the casing pipe in a manner that will protect the plastic. Plastic pipe that is being encased must be protected from damage at all entrance and all exit points of the casing. The leading end of the plastic must be closed before insertion.

* * * * *

(h) * * *

(3) Not allowed to exceed the pipe temperature limits specified in § 192.121.

FINAL RULE PROVISIONS

§ 192.321 Installation of plastic pipelines.

(h) * * *

(3) Not allowed to exceed the pipe temperature limits specified in § 192.121.

(i) Plastic mains may terminate above ground level provided they comply with the following:

(1) The above-ground level part of the plastic main is protected against deterioration and external damage.

(2) The plastic main is not used to support external loads.

(3) Installations of risers at regulator stations must meet the design requirements of § 192.204.

FINAL RULE PROVISIONS

Add § 192.329 to subpart G to read as follows:

§ 192.329 Installation of plastic pipelines by trenchless excavation.

Plastic pipelines installed by trenchless excavation must comply with the following:

(a) Each operator must take practicable steps to provide sufficient clearance for installation and maintenance activities from other underground utilities and/or structures at the time of installation.

(b) For each pipeline section, plastic pipe and components that are pulled through the ground must use a weak link, as defined by § 192.3, to ensure the pipeline will not be damaged by any excessive forces during the pulling process.

FINAL RULE PROVISIONS

Amend § 192.367 by revising paragraphs (b)(1) and (b)(2) and adding paragraph (b)(3) to read as follows:

§ 192.367 Service lines: General requirements for connections to main piping.

* * * * *

(b) * * *

(1) Be designed and installed to effectively sustain the longitudinal pull-out or thrust forces caused by contraction or expansion of the piping, or by anticipated external or internal loading;

(2) If gaskets are used in connecting the service line to the main connection fitting, have gaskets that are compatible with the kind of gas in the system; and

FINAL RULE PROVISIONS

- Amend § 192.367 by revising paragraphs (b)(1) and (b)(2) and adding paragraph (b)(3) to read as follows:
- § 192.367 Service lines: General requirements for connections to main piping.
- * * * * *
- (b) * * * (Continued)
- (3) If used on pipelines comprised of plastic, be a Category 1 connection as defined by a listed specification for the applicable material, providing a seal plus resistance to a force on the pipe joint equal to or greater than that which will cause no less than 25% elongation of pipe, or the pipe fails outside the joint area if tested in accordance with the applicable standard.

FINAL RULE PROVISIONS

In § 192.375, revise paragraph (a)(2) to read as follows:

§ 192.375 Service lines: Plastic.

(a) * * *

(2) It may terminate above ground level and outside the building, if--

(i) The above ground level part of the plastic service line is protected against deterioration and external damage;

(ii) The plastic service line is not used to support external loads; and

(iii) The riser portion of the service line meets the design requirements of § 192.204.

* * * * *

FINAL RULE PROVISIONS

Add § 192.376 to read as follows:

§ 192.376 Installation of plastic service lines by trenchless excavation.

Plastic service lines installed by trenchless excavation must comply with the following:

(a) Each operator shall take practicable steps to provide sufficient clearance for installation and maintenance activities from other underground utilities and structures at the time of installation.

(b) For each pipeline section, plastic pipe and components that are pulled through the ground must use a weak link, as defined by § 192.3, to ensure the pipeline will not be damaged by any excessive forces during the pulling process.

FINAL RULE PROVISIONS

Amend § 192.455 by revising paragraph (a) introductory text and adding paragraph (g) to read as follows:

§ 192.455 External corrosion control: Buried or submerged pipelines installed after July 31, 1971.

(a) Except as provided in paragraphs (b), (c), (f), and (g) of this section, each buried or submerged pipeline installed after July 31, 1971, must be protected against external corrosion, including the following:

* * * * *

(g) Electrically isolated metal alloy fittings installed after January 22, 2019, that do not meet the requirements of paragraph (f) must be cathodically protected, and must be maintained in accordance with the operator's integrity management plan.

FINAL RULE PROVISIONS

In § 192.513, revise paragraph (c) to read as follows:

§ 192.513 Test requirements for plastic pipelines.

* * * * *

(c) The test pressure must be at least 150% of the maximum operating pressure or 50 psi (345 kPa) gauge, whichever is greater. However, the maximum test pressure may not be more than 2.5 times the pressure determined under § 192.121 at a temperature not less than the pipe temperature during the test.

* * * * *

FINAL RULE PROVISIONS

Add § 192.720 to read as follows:

§ 192.720 Distribution systems: Leak repair.

Mechanical leak repair clamps installed after January 22, 2019 may not be used as a permanent repair method for plastic pipe.

FINAL RULE PROVISIONS

- Add § 192.756 to subpart M to read as follows:
- § 192.756 Joining plastic pipe by heat fusion; equipment maintenance and calibration.
- Each operator must maintain equipment used in joining plastic pipe in accordance with the manufacturer's recommended practices or with written procedures that have been proven by test and experience to produce acceptable joints.

FINAL RULE PROVISIONS

In Appendix B to Part 192, revise the appendix heading and the list under "I." to read as follows:

Appendix B to Part 192--Qualification of Pipe and Components

I. List of Specifications

ANNOUNCEMENT

- DEPARTMENT OF TRANSPORTATION
- PHMSA
- 49 CFR Part 192
- [Docket ID: PHMSA-2018-0086]
- Pipeline Safety: Exercise of Enforcement Discretion Regarding Farm Taps
- DATES: This action is effective March 26, 2019.

SUMMARY

- PHMSA will not take enforcement action against operators who forego the new maintenance and inspection requirements established in March 2017 and instead mitigate any future risk associated with farm taps through compliance with the existing Distribution Integrity Management Program (DIMP) regulations. This will provide regulatory flexibility to pipeline operators while at the same time maintaining an equivalent level of safety.

NOTICE

- DEPARTMENT OF TRANSPORTATION
- PHMSA
- 49 CFR Part 192 & Part 195
- [Docket ID: PHMSA-2018-0086]
- Subject: Notice of Exercise of Enforcement Discretion with Respect to API Specification 5L, 45th edition
- ISSUED: May 1, 2019.

NOTICE

PHMSA does not intend to take any enforcement action relating to the requirements in 49 C.F.R. §§ 192.7(b)(7), 192.55(e), 192.112(a)-(b), (d)-(e), 192.113; Item I, Appendix B to Part 192; and 49 C.F.R. §§ 195.3(b)(13), 195.106(b), (e) concerning the use of American Petroleum Institute (API) Specification 5L (Spec 5L), "Specification for Line Pipe," 45th edition, December 2012, if an operator can demonstrate compliance with the more stringent provisions of API Spec 5L, 46th edition, April 2018, including Errata 1 (May 2018).

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