TR 21-13 – Amdt 192-128 - Joiner Qualification

Primary Reference	192.285
Purpose	Review and revise as required by Amdt 192-128
Origin/Rationale	Allows for *visual inspection only of tested joints under ASTM F2620* but also now allows for the actual destructive testing under methods in 192.283(a) or to conform to equivalent written procedure that will allow for an equivalent or increased level of safety. Also codifies requirements that have been used in the past for the bending test, ultrasonic testing, etc.
Assigned to	Plastic

Section 192.285

1 OBSERVATION AND ~~CERTIFICATION~~ QUALIFICATION OF JOINER

(a) Persons qualifying to make joints in plastic piping should be observed and ~~certified~~ qualified by a qualified joiner while demonstrating ~~their~~ the ability to make satisfactory joints using the correct procedure. See AGA XR0603, "Plastic Pipe Manual for Gas Service."

(b) Confirmation of the ability to make a satisfactory joint requires a visual examination of the specimen joint (see 5 below) and one of the following joint examination options.
- (1) Ultrasonic inspection (see 3 below).
- (2) Destructive testing using methods identified in §192.283(a) (see 4 below).
- (3) Destructive testing as described in §192.285(b)(2)(iii).

2 ~~CERTIFICATION~~ QUALIFICATION RECORDS

Records or qualification cards or both, which show the extent of the individual's qualifications, including the method of specimen testing, should be maintained for the qualification interval or as needed for OQ compliance purposes.

For transmission pipe projects installed after July 1, 2021, joiner qualification records must be maintained for five years following construction (§192.285(e)).

3 ULTRASONIC INSPECTION OF FUSION JOINTS FOR QUALIFYING JOINERS

Ultrasonic inspection equipment should be capable of inspecting the internal bead for proper formation as well as detecting flaws that would cause failure in the fusion zone. Each manufacturer ~~is a source of~~ provides procedures for its equipment as well as training or certification for interpreting results. ~~The criteria for establishing an acceptable fusion joint must be~~ are ~~verified by a destructive test and are be repeatable.~~ Each procedure should include the following.

(a) Cleaning the inspection area on both sides of the fusion joint.
(b) Using an appropriate manufacturer-approved couplant to couple the transducer to the pipe.
(c) Inspecting the entire pipe circumference on both sides of the fusion joint.

4 DESTRUCTIVE TESTING OF FUSION JOINTS FOR QUALIFYING JOINERS

Testing methodologies for destructive testing of fusion joints made during qualification of joiners include the following.

(a) ASTM D638 – Standard Test Method for Tensile Properties of Plastics (see §192.7 for IBR for §192.283).

(b) ASTM D2517 – Standard Specification for Reinforced Epoxy Resin Gas Pressure Pipe and Fittings (see §192.7 for IBR for §192.283).

(c) ASTM F1055 – Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing (see §192.7 for IBR for §192.283).

(d) ASTM F2620 - Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings (see §192.7 for IBR).

5 VISUAL INSPECTION FOR PE HEAT FUSION JOINTS FOR QUALIFYING JOINERS

(a) ASTM F2620-20, Heat Fusion Joining of Polyethylene Pipe and Fittings, provides visual examples of successful joints for socket, butt, and saddle fusions. See figures 4 through 6, respectively.

(b) An operator may choose to write its own procedures for qualifying joiners in lieu of using ASTM F2620 (§192.285(b)(2)). The procedures should include the basis for the qualification process and a demonstration that the testing employed provides an equivalent or superior level of safety.

*{**Editorial Note**: No additions to GMA G-192-1 since above added standards are IBR for §192.283 or §192.285; previously added parenthetical references in 4 above consistent with practice developed by Editorial in TR 19-31.}*