

PRIMARY: 192.303

PURPOSE: Delete existing note “No guide material necessary” and develop GM for this section.

ORIGIN/RATIONALE: Philip Sher

I have trouble accepting that no GM is necessary for Guide users for this section.

§192.303 Compliance with specifications or standards. [Effective Date: 11/12/70]

Each transmission line or main must be constructed in accordance with comprehensive written specifications or standards that are consistent with this part.

Note: Revisions are shown in **yellow highlight** and **red font**.

Section 192.303

~~No guide material necessary.~~

[Editorial Note: All new guide material below and therefore not underlined in red font.]

1 GENERAL

- (a) Comprehensive written specifications or standards for constructing transmission **lines, and Type A, B and C gathering** lines, or mains may consist of a general procedural manual and other documents (e.g., drawings, information related to contracting information) that the operator may apply generally to all construction or apply only to specific projects.
- (b) The manual for construction specifications or standards should include a written statement, procedure, or other document addressing the applicable construction requirements of Part 192 (see 2 below).
- (c) The manual can consist of multiple binders or documents with relevant sections kept at appropriate locations. Applicable sections of other documents may be referenced instead of being included, but the referenced documents should be present or available electronically at the construction location.
- (d) The length and complexity of a manual can vary depending upon the individual operator's size, locale, policies, types of construction projects, and the amount of material included in its entirety or cross-referenced, including manufacturers' instructions where appropriate.
- (e) Periodic reviews of the manual should be conducted to ensure the specifications and standards reflect current regulations and construction practices.

2 RELEVANT REQUIREMENTS

An operator should confirm that its construction specifications or standards are consistent with the specific requirements of the applicable subparts in Part 192 including associated guide material under the following subparts:

- (a) Subpart B - Materials.
- (b) Subpart C - Pipe Design.
- (c) Subpart D - Design of Pipeline Components.
- (d) Subpart E - Welding of Steel Pipelines.
- (e) Subpart F - Joining of Materials Other than by Welding.
- (f) Subpart G - Construction Requirements for Transmission Lines and Mains.
- (g) Subpart I - Requirements for Corrosion Control.
- (h) Subpart J - Test Requirements.

3 TRAINING

~~The operator should establish a training program that provides personnel with~~ **Personnel performing construction operations should have** a basic understanding of the elements of the

construction manual that are relevant to the tasks assigned. **This might include the need to establish a training program.**

4 LOCATION OF SUBSTRUCTURES

For guidance on **one-call and** locating substructures, see guide material under §192.614.

5 EXCAVATIONS

(a) ~~The operator should ensure~~ **Construction specifications or standards should address** the following.

(1) Excavations, pavement cuts, and bores ~~are~~ **should be** no larger than necessary for proper pipe installation.

~~(b) Undercutting of pavement is permitted only when authorized or requested by the responsible agency, and only when it can be done safely.~~

(2) Excavations are shored or sloped as required **by the operator's procedures.** OSHA information may be helpful.

(3) ~~Excavate~~ **Excavations are performed** in a manner to support the pipe in direct burial excavations on undisturbed or well-compacted soil, which is rock and debris free, to provide firm support under the pipe, and to prevent excess stress during backfill.

(4) ~~Provide~~ Proper clearance of substructures **is provided** to enable future maintenance and reduce the potential for damage by other facility operators.

(5) ~~Exercise~~ Caution **is exercised** during excavating to avoid personal injuries that could be caused by contact with other buried facilities.

(6) **Excavation must be performed in accordance with permits. Additional transmission construction requirements may be addressed with individual permits provided by various agencies such as US Forest Service or Coast Guard.**

(7) **Transmission excavation is substantially different than distribution excavation. It is often cross-country in defined rights-of-way, with specific widths.**

(8) **FERC-approved transmission construction may have some specific requirements for placement of spoil piles.**

~~(9) Additional transmission construction requirements may be addressed with individual permits provided by various agencies such as US Forest Service or Coast Guard.~~

(b) For additional information on excavations, see guide material under §192.614.

6 BORING AND DIRECTIONAL DRILLING

See Guide Material Appendices G-192-15A and G-192-15B.

7 STRINGING AND STOCKPILING

Construction specifications or standards should address the following.

~~6.1~~ **Stringing.**

(a) Material laid out along the route of the pipeline should be placed in such a manner that streets, roads, sidewalks, and driveways are left open **whenever practicable.**

(b) The pipe may be laid on the ground or **in the** spoil bank that might damage the coating or plastic pipe. If the soil, **on the ground**, or spoil bank is not suitable:

(1) **Coated steel pipe should be supported clear of the spoil by skids located at the bare ends of the pipe or by devices placed under the pipe coating that will not damage the coating, or**

(2) **Plastic pipe should be separated from the ground or spoil bank by appropriate means to minimize damage to the pipe.**

~~6.2~~ **Stockpiling.**

If coated pipe is stockpiled, it may be nested, provided that the contact between coated sections is substantially along the full length of the pipe sections and contact does not impair the coating's effectiveness.

8 JOINING (SUBPARTS E AND F)

Construction specifications or standards should include procedures that address joining of pipe and components.

8.1 *Welding.*

- (a) For establishing qualified welding procedures and weld preparation, see guide material under §§192.225 and 192.235.
- (b) For welding inspection, testing, and repair or removal of defects, see guide material under §§192.241, 192.243, and 192.245.

8.2 *Fusion and Mechanical Joining.*

(a) For establishing qualified mechanical joining and fusion procedures, see guide material under §§192.273 and 192.281.

(b) Threaded joints should not be used on new steel mains and services that are larger than 4 inches in diameter.

9 GENERAL CONSTRUCTION (SUBPART G)

The specifications or standards for constructing transmission lines or mains should include procedures addressing the following.

9.1 *Inspection of Materials.*

- (a) Section 192.307 requires that each length of pipe and each other component must be visually inspected at the job site to ensure that it has not sustained any visually determinable detrimental damage that could impair its serviceability. The inspection should be performed by a qualified knowledgeable representative of the operator.
- (b) Persons performing visual inspections should be alert for damages, including the following.
 - (1) Dents.
 - (2) Gouges.
 - (3) Pitting.
 - (4) Kinks.
 - (5) Out of roundness.
 - (6) Material defects.
 - (7) Lacerations of the protective coating.
- (c) The operator should have a qualified representative review. The pipe and fitting markings should be reviewed to ensure that all items match those specified in the construction drawings or other documents.
- (d) All repairs and replacements should be inspected before being shaded and backfilled. Shading is the rock-free backfill that is placed around the sides and top of pipe to prevent damage from rocky, surrounding backfill.
- (e) Field inspections for damage should be done during the lowering, shading, and backfill operations.
 - (1) Pipe lowered into trenches should be handled with fabric slings or other approved techniques and at proper angles to prevent damage to protective coating and to prevent kinks in the pipe.
 - (2) Damage sustained by lowering operations should be corrected repaired and re-inspected before shading and backfilling the pipeline.
 - (3) Inspection of welds should be made by qualified personnel using visual and nondestructive methods approved by the operator's authorized representative.

- (4) Coating material for steel pipelines **should must** be visually inspected **and tested with a holiday detector just** prior to lowering the pipeline into the trench **and backfilling, and any damage detrimental to effective corrosion control must be repaired (§192.461(c)). A holiday detector should be used, and each holiday** found should be repaired using approved materials **and procedures**.

9.2 *Repair of steel pipe.*

For estimating dent depth and assessing the repair of arc burns, see guide material under §192.309.

9.3 *Repair of plastic pipe.*

For the repair of plastic pipe, see guide material under §192.311.

9.4 *Bends and elbows.*

- (a) Changes of pipe direction may be made using the following methods.
 - (1) Laying the pipe along the contour of the trench (i.e., roping) if the bending radius is greater than the minimum elastic bending radius allowed. **Roping of PE pipe may be limited by the manufacturer's recommendations.**
 - (2) **Bending plastic pipe, but an operator shall 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. (§192.313(d))**
 - (3) Approved machine bending if the minimum bending requirements are met.
 - (4) **Installing weld fittings or portions of weld fittings if the requirements for welding are met.**
 - (5) **Installing other fittings, where appropriate.**
- (b) Bends and elbows on steel **transmission** pipe **should must** be designed to accommodate in-line inspection (ILI) tools **(§192.150). This requirement does not apply to gathering lines.** See Guide Material Appendix G-192-14.
- (c) Bends on steel pipe should be coated prior to backfilling using protective coatings approved by the operator.
- (d) Field bends in steel pipe must have a smooth contour and be free from buckling, cracks, or other mechanical damage (§192.313(a)(2)). On pipe containing a longitudinal weld, the longitudinal weld must be as near as practicable to the neutral axis of the bend, unless the bend is made with an internal bending mandrel or the pipe is 12 inches or less in outside diameter or has a diameter to wall thickness ratio less than 70 (§192.313(a)(3)).
- (e) Each circumferential weld of steel pipe located where the stress during bending causes a permanent deformation in the pipe must be nondestructively tested either before or after the bending process (§192.313(b)).
- (f) See §192.313(c) for limitations on changes of directions using wrought-steel welding elbows and transverse segments of these elbows.
- (g) Field bends on steel pipe should be inspected and coating damage should be repaired.

9.5 *Wrinkle bends in steel pipe.*

The use of wrinkle bends in constructing new steel pipelines may be prohibited (see §192.315) and should be avoided.

9.6 *Protection from hazards.*

The operator's authorized representative should be contacted if **during construction**, any of the following conditions are found along a new pipeline's alignment.

- (a) Existing parallel pipelines that have been exposed due to erosion.
- (b) The pipeline will cross areas that are normally under water or vulnerable to flooding (such as lakes, bays, swamps, and river crossings) and might require anchorage to prevent flotation.
- (c) The pipeline is being installed in an unstable bank or bed location.
- (d) An aboveground pipeline that might be vulnerable to accidental damage by vehicular traffic or other hazards.

- (e) A pipeline or pipe riser on a platform located offshore or in inland navigable waters that might be vulnerable to accidental damage by vessels.
- (f) Other unique conditions that could reasonably pose a hazard to the pipeline. For protection from hazards, see guide material under §192.317.

9.7 *Installation of pipe in a ditch.*

For installation of pipe in a ditch or trench and trenchless installation methods such as horizontal directional drilling, see guide material under §192.319.

9.8 *Installation of plastic pipe.*

For installation of plastic pipe, see guide material under §192.321.

9.9 *Casing.*

For the use of casing, see guide material under §192.323.

9.10 *Underground clearance.*

For clearance between underground transmission lines or mains and other objects, see guide material under §192.325.

9.11 *Cover.*

For considerations when additional cover above §192.327 minimums should be provided, see Guide Material Appendix G-192-13.

9.12 *Construction requirements for steel pipe using alternative maximum allowable operating pressure.*

For additional construction requirements to be eligible to operate at the alternative maximum allowable operating pressure calculated under §192.620, see guide material under §192.328.

9.13 *Miter joints.*

Miter joints are not recommended for steel pipelines (see §192.233 for requirements). Deflections caused by misalignment up to three degrees are generally not considered to be miters.

9.14 *Dead ends.*

End closures for transmission pipelines should be made using weld caps or blind flanges. See §192.153 for additional limitations on end closures.

9.15 *Blasting operations near pipelines.*

Pipelines should be protected from nearby blasting operations (see Guide Material Appendix G-192-16). If blasting is required near gas pipelines, the operator's authorized representative should be contacted.

10 CORROSION CONTROL (SUBPART I)

The specifications or standards for construction of steel pipelines should include written procedures for the installation of corrosion control materials and equipment. See guide material under Subpart I for establishing corrosion control procedures. Personnel responsible for directing installation of an operator's corrosion control systems should have knowledge of and practical experience in the following, as appropriate.

- (a) Pipeline coatings.
- (b) Galvanic and impressed current cathodic protection (CP) systems.
- (c) Stray current interference.
- (d) Electrical isolation.
- (e) Survey methods and evaluation techniques.

11 PRESSURE TESTING AND PURGING (SUBPART J)

The specifications or standards for construction should include instructions for pressure testing and purging of new pipelines. See guide material under Subpart J for guidance on pressure testing and purging procedures.

12 DEVIATIONS

Deviations from the operator's written construction standards and specifications should be approved in advance by the operator's authorized representative.

13 RECORDS

- (a) Construction specifications or standards should include recordkeeping requirements for newly installed pipelines. Those requirements might relate to construction specifications, drawings, logs, charts, tracking and traceability information, and other data pertinent to the newly constructed pipeline.
- (b) Additional guidance on recordkeeping is provided in the guide material under §§192.243, 192.305, 192.321, 192.328, 192.476, and 192.517 and Guide Material Appendix G-192-17. If construction is performed as part of a maintenance project, records must be maintained in accordance with §192.807(b).

14 REFERENCES

Additional references might be used in developing construction standards and specifications, including the following.

- (a) APWA – American Public Works Association.
- (b) CSI – Construction Specifications Institute.
- (c) ASTM Construction Standards (includes both building and roadway).
- (d) National Highway Specifications.
- (e) OSHA Standards for Trenching and Excavation.
- (f) NACE – National Association of Corrosion Engineers.
- (g) ASCE - American Society of Civil Engineers.
- (h) Manufacturer specifications or instructions.