

<b>TR Number</b>	<b>2022-23</b>
<b>Primary</b>	192, Subpart D
<b>Secondary</b>	192, Subpart G
<b>Purpose</b>	Review and revise GM to address design and construction requirements for composite material (i.e. - Flexsteel, Fiberspar) Type C lines
<b>Origin/Rationale</b>	There is currently no guidance regarding the use of composite pipe. While some items such as valve spacing or depth of cover do not need to be addressed, language may need to be added regarding joining, protecting pipe, and perhaps design.
<b>Assigned To</b>	Design TG

### Section 192.149

~~This guide material is under review following Amendment 192-124. {TR 19-02}~~

- (a) Steel butt-welding fittings should comply with either ASME B16.9 or MSS SP-75 and should have pressure and temperature ratings based on stresses for pipe of the same or equivalent material.
- (b) Steel induction bends should comply with ASME B16.49 and should have pressure and temperature ratings based on stresses for pipe of the same or equivalent material.
- (c) Threaded fittings should comply with ASME B16.3, ASME B16.4, ASME B16.11, ASME B16.14, ASME B16.15, ASTM A733, MSS SP-83, or equivalent as appropriate.
- (d) Socket welding fittings should comply with ASME B16.11, MSS SP-79, or MSS SP-83 or equivalent as appropriate.
- (e) For plastic fittings and components, see guide material under §192.143.
- (f) When the use of using proprietary fittings supplied by a manufacturer of composite pipe is permitted (e.g., Type C gathering lines), the operator should ensure that the pressure-temperature rating, installation procedure and service restrictions have been established in accordance with sound engineering principles. The fittings should be used only in accordance with the manufacturer's recommendations. Specifications related to the fitting should be included with other information supplied in the Notification required by §192.9(h)(2)(iii).

### Section 192.273

#### 7 MECHANICAL JOINTS IN COMPOSITE PIPELINES

When the use of using proprietary fittings supplied by a manufacturer of composite pipe is permitted (e.g., Type C gathering lines), the operator should ensure that the manufacturer can provide engineering analysis and test data demonstrating that, when followed, the completed joint will provide pull-out resistance induced by the following.

- (a) Contraction or expansion due to temperature effects, especially near a transition to aboveground piping (e.g., bridge crossing).
- (b) Fluctuations in internal operating pressures.
- (c) External loading, such as compaction, ground settlement, buoyancy in water, or frost heaving.
- (d) Expected tensile load (due to internal pressure and external loading).

(e) Manufacturer's pressure rating of the fitting compared to MAOP.

## **7-8 INSPECTION OF JOINTS-Inspection of Joints**

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### **Section 192.307**

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- (f) Since plastic and composite piping and other components are susceptible to mishandling damage, special attention should be given during the installation site inspection to detect cuts, gouges, scratches, kinks, and similar imperfections

### **Section 192.311**

## **1 GENERAL**

1.1 *Personnel qualification.* ...

1.2 *Procedure qualification.* ...

1.3 *Manufacturer's recommendations.*

(a) ...

(b) Give special consideration to the extent of fiber damage in the case of thermosetting plastic or fiber-reinforced composite pipe materials.

(c) ...

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### **Section 192.313**

~~This guide material is under review following Amendment 192-124. {TR 19-02}~~

(a) ...

(b) ...

(c) Each operator planning to use composite pipe material should obtain from the manufacturer's minimum bend radius information for the nominal pressure rating of the pipe to be used and include in the construction specifications.

### **Section 192.319**

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## **5 ALTERNATIVE INSTALLATION METHODS**

5.1 *Horizontal directional drilling.*

(a) For damage prevention considerations while performing directional drilling or using other trenchless technologies, see Guide Material Appendix G-192-6.

(b) For additional considerations for horizontal directional drilling to install steel pipelines or plastic and composite pipelines, see Guide Material Appendices G-192-15A and G-192-15B, respectively.

### **Section 192.321**

## 1 GENERAL PRECAUTIONS

### 1.1 Handling.

For guidance to protect pipe during handling, see guide material under §192.69.

### 1.2 Considerations to minimize damage by outside forces.

See Guide Material Appendix G-192-13.

### 1.3 Composite materials.

Most of the guidance provided for plastic pipe may be applicable for many composite materials, with the manufacturer's recommendations prevailing. No composite pipe materials currently manufactured may be subjected to squeeze-off processes or hot taps.

## 2 DIRECT BURIAL OF PLASTIC PIPE

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### Section 192.329

#### **GENERAL REQUIREMENTS**

- (a) See Substructure Damage Prevention Guidelines for Directional Drilling and Other Trenchless Technologies under Guide Material Appendix G-192-6.
- (b) See weak link guide material under Guide Material Appendix G-192-15B, Section 5.
- (c) Guide material for trenchless installation may be applicable to composite materials (see Guide Material Appendices G-192-15A and G-192-15B).

#### **GUIDE MATERIAL APPENDIX G-192-15B**

(See guide material under §§192.319, 192.329, 192.361, 192.376, and Guide Material Appendix G-192-6)

#### **HORIZONTAL DIRECTIONAL DRILLING (HDD) FOR PLASTIC PIPE**

##### Notes:

- (1) Guide material for HDD using steel pipe is in Guide Material Appendix G-192-15A. Some of the material therein is applicable to plastic and composite pipe.
- (2) Guide material under this appendix may be applicable to composite materials.

## 1 SCOPE

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