

# Chapter 2 - Materials

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### **1.0 SCOPE**

The purpose of this chapter is to identify the materials selection process for *pipe*, components, and materials used in the design, installation, construction, operation, and maintenance of DENC and DESC *gas pipelines*.

All documents in Chapter 2 - Materials are for guidance and reference.

### **2.0 REGULATORY REFERENCES**

49 CFR Part 192 §§ [192.51](#), [192.53](#), [192.55](#), [192.59](#), [192.63](#), [192.67](#), [192.103](#), [192.105](#), [192.127](#), [192.205](#), [192.517](#), [192.607](#), [192.619](#), [192.624](#)

### **3.0 MATERIALS APPROVAL**

DENC and DESC has established a joint Materials Standards Committee to review new materials and standardization between DENC and DESC gas operating systems. The chair of the committee and/or the Manager of the Integrity Management and Compliance department has the responsibility of approving new materials and written specifications.

#### [3.1 Materials Use](#)

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### **3.1 Materials Use**

(a) Only materials that have been approved and have a DENC and DESC ID# *should* be used on the pipeline system unless by approved exception.

- (b) All substitutions or variances from the standard should be approved by the Manager of the Integrity Management and Compliance department and/or the project Engineer.

### 3.2 Verifying Materials

All material *shall* be verified that it is the correct material and what was ordered for the job before installation. All documentation shall be reviewed and verified that the correct material that was installed is correctly recorded.

#### State Specific: South Carolina

[Design and Installation Manual \(DESC\)](#) (online manual)

See the following:

- [D&I 1040 - STEEL PIPE AND FITTINGS](#)
- [D&I 3010 - GENERAL PROCEDURES](#)

### 3.3 Material Verification Methodology [[192.607](#)]

The material verification process shall be initiated for opportunistic sampling when the Engineering design process is initiated for pre-planned and emergency scheduled Transmission pipeline projects. These opportunities include but may not be limited to:

- a. Construction/Engineering projects
- b. Excavations for Integrity Assessments
- c. Emergency/unplanned Operations excavations for repairs

Note: In the event on an unplanned/emergency excavation, material data should be collected when practical and after the area is made safe.

In order to gather needed material and component attributes on an opportunistic basis, the Tiered Project Planning and Design Review Process shall be used to ensure Material Verification methodology is considered and incorporated into the design and installation project.

The Material Verification procedure prescribes range of destructive and non-destructive methodologies to provide flexibility in accommodating the varying field conditions, test locations, and material properties which may be encountered across the different piping and components within the transmission pipeline system.

Approved material verification methods shall be performed in accordance with [192.607](#) and the Material Verification procedures in [Section 7.0](#).

#### State Specific: South Carolina

[Design and Installation Manual \(DESC\)](#) (online manual)

- [D&I 1005 – Tiered Engineering Design Review Process](#)

## 4.0 TRAINING/QUALIFICATIONS

None at this time.

## 5.0 DOCUMENTATION/FORMS [[192.67](#)] [[192.103](#)] [[192.105](#)] [[192.127](#)] [[192.205](#)] [[192.517](#)] [[192.607](#)]

- Item Approval Requisition (IAR) form (Form 2-1) ([PDF file](#))

Additional documentation is listed in the applicable manuals and design and construction standards for each operating system.

### [5.1 Records Requirements for Steel Pipeline Systems Operating as Transmission](#)

### [5.2 MAOP Reconfirmation](#) [[192.67](#)] [[192.517](#)] [[192.619](#)] [[192.624](#)]

#### 5.1 Records Requirements for Steel Pipeline Systems Operating as Transmission

- (a) All records that will be produced for new installations and those that exist for current in-service transmission pipelines that document physical characteristics of the pipeline (including fittings and valves) shall be retained for the life of the pipe, all new pipe and components designed *must* also be *TVC*.
- (b) For Steel Transmission pipelines, pipe and components installed on or before July 1, 2020, existing documentation and records regarding the following items, must be retained for the life of the pipeline:

(1) Design Documentation:

If DESC has pipe design and the *determination* of design pressure in accordance with [192.103](#) and [192.105](#), these records must be retained for the life of the pipeline

(2) Pipe documentation:

Tests, inspections, and attributes required by manufacturing specifications applicable at the time the pipe was manufactured or installed including:

- Diameter
- Yield Strength
- Ultimate Tensile Strength
- Wall Thickness
- Seam Type
- Chemical composition (in accordance with §[192.53](#) and §[192.55](#))

(3) Component Documentation:

Manufacturing standard and pressure rating of:

- Valves
- Flanges
- Fittings
- Branch connections
- Extruded outlets
- Anchor forgings
- Other components with strength grades of 42,000 psi (X42) or greater with nominal diameters greater than 2"

## 5.2 MAOP Reconfirmation [[192.67](#)] [[192.517](#)] [[192.619](#)] [[192.624](#)]

Effective July 1, 2020, for pipelines that do not have *TVC* records for documenting the design of the pipe, *MAOP* reconfirmation shall be performed in accordance with [192.624](#), per GD-OM-L-060-001, [MAOP Reconfirmation](#).

## 6.0 RELATED DOCUMENTS

None at this time.

## 7.0 APPENDICES

- [Material Verification Procedure](#) (PDF file)
- [Field Procedure for Chemical Analysis using Portable Analyzers](#) (PDF file)
- [Metallurgical Replication Procedure](#) (PDF file)
- [Field Hardness Testing Procedure](#) (PDF file)
- [Field Procedure for the Collection of Metal Shavings](#) (PDF file)

### State Specific: South Carolina

- [Design and Installation Manual \(DESC\)](#) (online manual)

(UNCONTROLLED IF PRINTED)