

# VIII. Inspection and Testing

DENC and DESC Welding Manual - Version 2019.1 May 1, 2019

## [A. Requirement](#)

## [B. Nondestructive Testing](#)

### **A. Requirement**

All welds shall be visually inspected by the welder(s) making the weld. The welds on a pipeline to be operated at a pressure that produces a hoop stress of 20% or more of SMYS shall be nondestructively tested, except for welds that are visually inspected and approved by a qualified welding inspector need not be nondestructively tested for:

1. Pipe with a nominal diameter less than 6 inches; or
2. Pipelines to be operated at a pressure that produces a hoop stress of less than 40% of SMYS and the welds are so limited in number that nondestructive testing is impractical.

All inspection and testing of production welds shall be as described in *Inspection and Testing of Production Welds* in API-1104, Section 8. The edition of API 1104 shall be as referenced by 49 CFR [Part 192](#) in §[192.7](#).

### **B. Nondestructive Testing**

All nondestructive testing will be performed in accordance with *Procedures for Nondestructive Testing* in API-1104, Section 11 by qualified personnel. The welds shall meet the standards provided in Section 9, API-1104 for production welds and Appendix B, API-1104 for maintenance welds. The edition of API 1104 shall be as referenced by 49 CFR [Part 192](#) in §[192.7](#).

All welds shall be visually inspected by the welder(s) making the weld. If the pipeline is to operate at a pressure that produces a hoop stress of 20% or more of SMYS, the following percentages of each day's butt joint groove welds, to include sample work from each welder or welding operator, shall be nondestructively tested over the entire circumference of the weld:

1. In Class 1 locations, at least 10%
2. In Class 2 locations, at least 20%
3. In Class 3 and Class 4 locations, at crossings of major or navigable rivers, and within railroad or public highway right-of-way, including tunnels, bridges, and overhead road crossings, 100% unless impracticable, in which case at least 90%. Nondestructive testing must be impracticable for each girth weld not tested.
4. At pipeline tie-ins, 100%.

(UNCONTROLLED IF PRINTED)