

# II. Qualification of Welding Procedures

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

## [A. Procedure Qualification](#)

## [B. Procedure Specification](#)

### **A. Procedure Qualification**

All Company welding procedure specifications used in joining steel piping shall be established and tested in accordance with the appropriate section of the current edition of API 1104 and shall be qualified by or under the direction of the Company's engineering department. Procedures shall demonstrate that welds can be made with suitable mechanical properties for each application. A record shall be maintained for each procedure including the complete testing results for as long as the procedure is in use.

### **B. Procedure Specification**

All qualified procedure specifications shall include the following items where applicable. Those items denoted by an asterisk are identified as essential variables for downhill cellulosic procedure qualifications as defined by API-1104.

- \*Process
- \*Pipe and Fitting Materials
- Outside Diameters
- \*Wall Thicknesses
- \*Joint Design
- \*Filler Metal
- Number of Beads
- \*Electrical Characteristics
- Flame Characteristics and Orifice Sizes
- \*Position
- \*Direction of Welding
- Number of Welders
- \*Time between Passes
- Type and Removal of Lineup Clamp
- Sequence of Beads
- Cleaning and/or Grinding

- \*Pre-and Post-Heat Treatment
- \*Shielding Gas and Flow Rate
- \*Shielding Flux
- \*Speed of Travel

Qualifications of welding WPSs shall be documented and placed in permanent files at the Company's Engineering Offices.

Qualified Welding Procedure Specifications can be found in [Section IX](#).

(UNCONTROLLED IF PRINTED)