

**WELDING PROCEDURE SPECIFICATION (WPS)**  
**PREQUALIFIED  QUALIFIED BY TESTING**   
**or PROCEDURE QUALIFICATION RECORDS (PQR) Yes**   
**AASHTO/AWS D1.5 Qualification Type 5.12.1  - 5.12.2  - 5.12.4**

Contractor/ Organization Boretech, LLC  
 Welding Process(es) SMAW  
 Type: Manual  Semiautomatic   
 Mechanized  Automatic   
 Tandem  Parallel

Single V Groove  
**JOINT DESIGN USED**  
 Single  Double Weld   
 Backing: Yes  No  Material NA  
 Root Opening 1/8" Root Face Dimension 1/8"  
 Groove Angle 30 Radius (J-U) NA  
 Backgouging: Yes  No  Method Bevel done at Fabricator  
 Root Treatment Remove grease and oil with solvent.  
Surface will be cleaned with wire brush and grinder. Joint shall be dry prior to welding.

**BASE METALS**  
 Material Spec. Pipe - ASTM A252  
 Type or Grade Grade 3 Spiral Weld Steel Pipe  
 Thickness: Groove 3/4" Fillet \_\_\_\_\_  
 Diameter (Pipe) 72

**FILLER METALS**  
 AWS Specification AWS A5/A5.1M  
 AWS Classification Pass 1 E6010 / Pass 2+ E7018  
 Manufacturer Trade Name NA

**SHIELDING**  
 Flux NA Mfg. Trade Name NA  
 Electrode-Flux (Class) NA  
 Gas Composition NA  
 Flow Rate NA Gas Cup Size NA

Identification WPS 1 - Full Penetration Field Welding of Pipe Sections  
 Revision NA Date NA By NA  
 Authorized by Boretech, LLC Date 4/26/17  
 Supporting PQR No.(s) NA

**POSITION**  
 Position of Groove All Fillet NA  
 Vertical Progression: Up  Down

**ELECTRICAL CHARACTERISTICS**  
 Transfer Mode (GMAW): Globular  Spray   
 Current: AC  DCEP  DCEN  Pulsed   
 Electrical Stick Out NA  
 Other NA

**TECHNIQUE**  
 Stringer or Weave Bead Either  
 Multi-pass or Single Pass (per side) Either  
 Number of Electrodes 1  
 Electrode Spacing: Longitudinal NA  
 Lateral \_\_\_\_\_ Angle \_\_\_\_\_  
 Interpass Cleaning Clean slag with chipping hammer and wire brush

**PREHEAT**  
 Preheat Temp., Min. 50 degrees F  
 Interpass Temp., Min. 50 degrees F  
 Interpass Temp., Max. 500 degree F

**POSTWELD HEAT TREATMENT**  
 Temp. None Hold Time NA  
 Heating/Cooling Rate 15 minutes minimum

**HEAT INPUT**  
 Calculated Heat Input Value: kJ/in  kJ/mm   
 Max. Heat Input NA Min. Heat Input NA

**WELDING PROCEDURE**

Pass or Weld Layer(s)	Process	Filler Metals		Current		Volts	Travel Speed
		Diam.	Type & Polarity	Amps or Wire Feed Speed			
1	SMAW	1/8" E6010	DCEP	115	21-25	4-8 ipm	
2+	SMAW	1/8" E7018	DCEP	115	21-25	4-8 ipm	
		Max Layer Thickness will be 3/16"					

Form N-2

WELD TO FILL ENTIRE GROOVE, CONTINUOUS AROUND ENTIRE PIPE  
 3/4" THK ROLLED PLATE (BOTH SIDES)

Form N-2—Sample Welding Procedure Specification