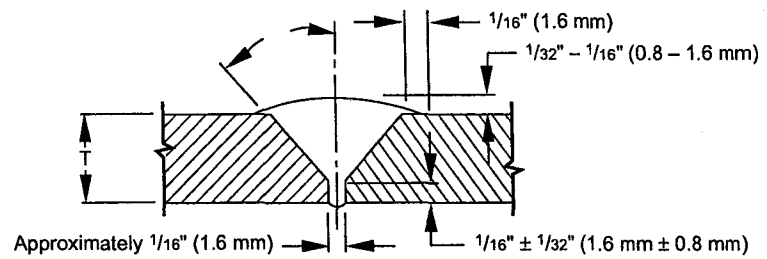
Appendix A 1/1

Reference: API Standard 1104, 5.2

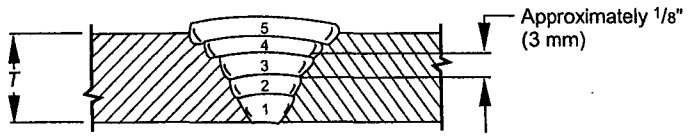
PROCEDURE SPECIFICATION NO. _____

For _____ Welding of _____ Pipe and fittings
Process _____
Material _____
Diameter and wall thickness _____
Joint design _____
Filler metal and no. of beads _____
Electrical or flame characteristics _____
Position _____
Direction of welding _____
No. of welders _____
Time lapse between passes _____
Type and removal of lineup clamp _____
Cleaning and/or grinding _____
Preheat/stress relief _____
Shielding gas and flow rate _____
Shielding flux _____
Speed of travel _____
Plasma gas composition _____ Plasma gas flow rate _____
Plasma gas orifice size _____
Sketches and tabulations attached _____

Tested _____ Welder _____
Approved _____ Welding supervisor _____
Adopted _____ Chief engineer _____



Standard V-Bevel Butt Joint



Sequence of Beads

Note: Dimensions are for example only.

ELECTRODE SIZE AND NUMBER OF BEADS

Bead Number	Electrode Size and Type	Voltage	Amperage and Polarity	Speed

Figure 1—Sample Procedure Specification Form

Appendix A 2/2

COUPON TEST REPORT

Date _____ Test No. _____
Location _____
State _____ Weld Position: Roll ☐ Fixed ☐
Welder _____ Mark _____
Welding time _____ Time of day _____
Mean temperature _____ Wind break used _____
Weather conditions _____
Voltage _____ Amperage _____
Welding machine type _____ Welding machine size _____
Filler metal _____
Reinforcement size _____
Pipe type and grade _____
Wall thickness _____ Outside diameter _____

	1	2	3	4	5	6	7
Coupon stenciled							
Original specimen dimensions							
Original specimen area							
Maximum load							
Tensile strength							
Fracture location							

☐ Procedure ☐ Qualifying test ☐ Qualified
☐ Welder ☐ Line test ☐ Disqualified

Maximum tensile _____ Minimum tensile _____ Average tensile _____
Remarks on tensile-strength tests _____
1. _____
2. _____
3. _____
4. _____
Remarks on bend tests _____
1. _____
2. _____
3. _____
4. _____
Remarks on nick-break tests _____
1. _____
2. _____
3. _____
4. _____

Test made at _____ Date _____
Tested by _____ Supervised by _____

Note: Use back for additional remarks. This form can be used to report either a procedure qualification test or a welder qualification test.

Figure 2—Sample Coupon Test Report

Appendix B 1/4

QW-482 SUGGESTED FORMAT FOR WELDING PROCEDURE SPECIFICATIONS (WPS)
(See QW-200.1, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name _____ By _____

Welding Procedure Specification No. _____ Date _____ Supporting PQR No.(s) _____

Revision No. _____ Date _____

Welding Process(es) _____ Type(s) _____
(Automatic, Manual, Machine, or Semi-Automatic)

JOINTS (QW-402) Details

Joint Design _____

Backing: Yes _____ No _____

Backing Material (Type) _____
(Refer to both backing and retainers)

☐ Metal ☐ Nonfusing Metal

☐ Nonmetallic ☐ Other

Sketches, Production Drawings, Weld Symbols, or Written Description should show the general arrangement of the parts to be welded. Where applicable, the root spacing and the details of weld groove may be specified.

[At the option of the Manufacturer, sketches may be attached to illustrate joint design, weld layers, and bead sequence (e.g., for notch toughness procedures, for multiple process procedures, etc.)]

*BASE METALS (QW-403)

P-No. _____ Group No. _____ to P-No. _____ Group No. _____

OR

Specification Type and Grade _____

to Specification Type and Grade _____

OR

Chem. Analysis and Mech. Prop. _____

to Chem. Analysis and Mech. Prop. _____

Thickness Range:

Base Metal: Groove _____ Fillet _____

Other _____

*FILLER METALS (QW-404)		
Spec. No. (SFA)		
AWS No. (Class)		
F-No.		
A-No.		
Size of Filler Metals		
Weld Metal		
Thickness Range:		
Groove		
Fillet		
Electrode-Flux (Class)		
Flux Trade Name		
Consumable Insert		
Other		

*Each base metal-filler metal combination should be recorded individually.

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QW-482 (Back)

WPS No. _____ Rev. _____

POSITIONS (QW-405)
Position(s) of Groove _____
Welding Progression: Up _____ Down _____
Position(s) of Fillet _____

POSTWELD HEAT TREATMENT (QW-407)
Temperature Range _____
Time Range _____

PREHEAT (QW-406)
Preheat Temperature, Minimum _____
Interpass Temperature, Maximim _____
Preheat Maintenance _____
(Continuous or special heating, where applicable, should be recorded)

GAS (QW-408)

	Percent Composition		
	Gas(es)	(Mixture)	Flow Rate
Shielding			
Trailing			
Backing			

ELECTRICAL CHARACTERISTICS (QW-409)
Current AC or DC _____ Polarity _____
Amps (Range) _____ Volts (Range) _____
(Amps and volts range should be recorded for each electrode size, position, and thickness, etc. This information may be listed in a tabular form similar to that shown below.)

Tungsten Electrode Size and Type _____
(Pure Tungsten, 2% Thoriated, etc.)

Mode of Metal Transfer for GMAW _____
(Spray Arc, Short Circuiting Arc, etc.)

Electrode Wire Feed Speed Range _____

TECHNIQUE (QW-410)
String or Weave Bead _____
Orifice or Gas Cup Size _____
Initial and Interpass Cleaning (Brushing, Grinding, etc.) _____
_____
Method of Back Gouging _____
Oscillation _____
Contact Tube to Work Distance _____
Multiple or Single Pass (Per Side) _____
Multiple or Single Electrodes _____
Travel Speed (Range) _____
Peening _____
Other _____
_____
_____

Weld Layer(s)	Process	Filler Metal		Current		Volt Range	Travel Speed Range	Other (e.g., Remarks, Comments, Hot Wire Addition, Technique, Torch Angle, etc.)
		Class	Diameter	Type/ Polarity	Amp Range			

(11/06)

QW-483 SUGGESTED FORMAT FOR PROCEDURE QUALIFICATION RECORDS (PQR)
(See QW-200.2, Section IX, ASME Boiler and Pressure Vessel Code)
Record Actual Conditions Used to Weld Test Coupon

Company Name _____
Procedure Qualification Record No. _____ Date _____
WPS No. _____
Welding Process(es) _____
Types (Manual, Automatic, Semi-Automatic) _____

JOINTS (QW-402)

Groove Design of Test Coupon
(For combination qualifications, the deposited weld metal thickness shall be recorded for each filler metal or process used.)

BASE METALS (QW-403)
Material Spec. _____
Type or Grade _____
P-No. _____ to P-No. _____
Thickness of Test Coupon _____
Diameter of Test Coupon _____
Other _____

POSTWELD HEAT TREATMENT (QW-407)
Temperature _____
Time _____
Other _____

GAS (QW-408)

	Gas(es)	Percent Composition (Mixture)	Flow Rate
Shielding			
Trailing			
Backing			

FILLER METALS (QW-404)
SFA Specification _____
AWS Classification _____
Filler Metal F-No. _____
Weld Metal Analysis A-No. _____
Size of Filler Metal _____
Other _____
Weld Metal Thickness _____

ELECTRICAL CHARACTERISTICS (QW-409)
Current _____
Polarity _____
Amps. _____ Volts _____
Tungsten Electrode Size _____
Other _____

POSITION (QW-405)
Position of Groove _____
Weld Progression (Uphill, Downhill) _____
Other _____

PREHEAT (QW-406)
Preheat Temperature _____
Interpass Temperature _____
Other _____

TECHNIQUE (QW-410)
Travel Speed _____
String or Weave Bead _____
Oscillation _____
Multipass or Single Pass (Per Side) _____
Single or Multiple Electrodes _____
Other _____

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QW-483 (Back)

PQR No. _____

Tensile Test (QW-150)

Specimen No.	Width	Thickness	Area	Ultimate Total Load, lb	Ultimate Unit Stress, psi	Type of Failure and Location

Guided-Bend Tests (QW-160)

Type and Figure No.	Result

Toughness Tests (QW-170)

Specimen No.	Notch Location	Specimen Size	Test Temperature	Impact Values			Drop Weight Break (Y/N)
				ft-lb	% Shear	Mils	

Comments _____

Fillet-Weld Test (QW-180)

Result — Satisfactory: Yes _____ No _____ Penetration into Parent Metal: Yes _____ No _____

Macro — Results _____

Other Tests

Type of Test _____

Deposit Analysis _____

Other _____

Welder's Name _____ Clock No. _____ Stamp No. _____

Tests Conducted by _____ Laboratory Test No. _____

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME BOILER AND PRESSURE VESSEL CODE.

Manufacturer _____

Date _____ By _____

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code.)

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