PROCEDURE QUALIFICATION RECORD

PQR No. FERMI CS-1

ASME Section IX 2007 (Year) Addendum July 07 (Season Year) and/or other spec AWD D1.1-06

Procedure Qualification Record FERMI CS-1 Date 4/17/08

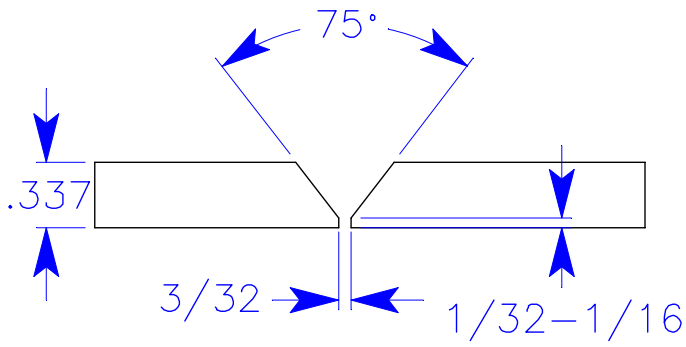
WPS No. CS-1

Welding Process(es) 1) GTAW Type 1) Manual

2) _____ (Manual, Auto, Semi) 2) _____

JOINTS (QW-402)

(Actual)



POSITION (QW-405)

Position of Groove 1G Rolled

Weld Progression (Uphill, Downhill) n/a

Other _____

PREHEAT (QW-406)

Preheat Temperature Ambient 75 F

Interpass Temperature not measured

Other _____

POSTWELD HEAT TREATMENT (QW-407)

Temperature none

Time _____

Other _____

GAS (QW-408)

Percent Composition

	Gas(es)	Mixture	Flow Rate
Shielding	Argon	99.9%	15-20CFH
Trailing	none		
Backing	Argon	99.9%	3-5 CFH

BASE METALS (QW-403)

Material SA106 Typ/Grd _____

To Material SA106 Typ/Grd _____

P No. 1 Group 1 To P No. 1 Group 1

Thickness(es) 0.337 inches

Diameter 4 inch NPS

Other _____

FILLER METALS (QW-404)

Weld Metal Analysis(es) 1) 1 2) _____

Size(s) of Electrode(s) 3/32

Filler Metal F No. 1) 6 2) _____

SFA Specification(s) 5.18

AWS Classification(s) ER70S-2

Electrode Flux (Class) n/a

Flux Trade Name n/a

Consumable Insert ☐ Yes ☒ No

A5.30 Classification _____

Class _____ Style _____

Other _____

ELECTRICAL CHARACTERISTICS (QW-409)

Current 1) Direct 2) _____

Polarity 1) Straight non-pulsing 2) _____

Amps 1) 124 Volts 1) _____

2) 11.9 Volts 2) _____

Tungsten Electrode Size 3/32

Other EWTH2 Tungsten Electrode

TECHNIQUE (QW-410)

Travel Speed 1) not measured 2) _____

String or Weave Bead 1) String and weave 2) _____

Oscillation 1 _____ 2) _____

Multipass or Single Pass (per side) Multiple

Single or Multiple Electrodes Single

Other pass thickness approximately 1/16 thick

PQR No. FERMI CS-1

Weld Layers	Process	Filler Metal		Current		Volt Range	Travel Speed Range	Other (Power Source)	Comments
		Class	Diameter	Type Polar.	Amp. Range				
1-final	GTAW	ER70S-2	3/32	DCSP	124	11.9	manual		

Tensile Test (QW-150)

Specimen No.	Width	Thickness	Area	Ultimate Total Load (lb)	Ultimate Unit Stress (psi)	Character of Failure and Location
1	0.750	0.295	0.2213	16,728	75,706	fracture in base metal
2	0.750	0.290	0.2175	16,879	77,605	fraacture in base metal

505 Specimen

Specimen No.	Dia.	Area	Gauge Length	Yield Load (lb)	Yield Point (psi)	Ultimate Total Load (lb)	Ultimate Stress (psi)	Character of Failure and Location

Guided Bend Tests (QN-160)

Figure No.	Figure Type	Result	Figure No.	Figure Type	Result
1	Face Bend	Satisfactory	2	Face Bend	Satisfactory
1	Root Bend	Satisfactory	2	Root Bend	Satisfactory

Toughness Tests (QW-170)

Specimen No.	Notch Location	Notch Type	Test Temperature	Impact Values	Lateral Exp.		Drop Weight	
					% Shear	Mils	Break	No. Break

Fillet Weld Tests (QW-180)

Results – Satisfactory: ☐ Yes ☐ No Penetration into Parent Metal: ☐ Yes ☐ No

Macro – Results

Other Tests

Type of Test Visual Test Satisfactory

Deposit Analysis

Other Radiography Satisfactory Report number 08K094 Magnetic Inspection Lab. R..E. Wahlen Level II

Welder's Name Mike Reynolds Clock No. 03993 Stamp No. W9

Test Conducted by Bodycote and MIL Laboratory Test No. Bodycote: 0403-011 MIL: 080K94

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 Code July 2007 and AWS D1.1-06

Signed: Jamie Blowers Dated: 17-Apr-2008