WELDING PROCEDURE SPECIFICATION

WPS- 3004-11B	**REV. NO.:** 0	**DATE:** 9/1/2004	****APPLICABILITY****		
WELDING PROCESS/ES GMAW-	**and** GMAW-		**ASME:**	**AWS:** X	
SUPPORTING PQ P-2-GMP-5-1G	PQR-304-11B	304-11B-100/517	**OTHER:**		
304-11B-100/100	304-11B-100/80		304-11B-100/80		

JOINT **This WPS shall be used in conjunction with the General Welding Standards (GWS) and Welding Fabrication Procedure (WFP) sections and criteria for joint details, repairs, NDE, inspection etc.**

Weld Joint Type	Butt/Fillet	**Class:**	Full or Partial Penetration
See GWS 1-06 for details		**Preparation:**	Thermal/Mechanical
Root Opening:	0" to .375	**Backing:**	With
Backgrind root:	Double side welds	**Backing Mat.:**	Metal
Bkgrd Method:	Arc gouge and or grind	**GTAW Flux:** No	**Backing Retainer:** No

FILLER METALS: **Class:** ER1xxS-x **and** ER1xxS-x

A No:	10	**SFA Class:**	5.28	**and**	5.28	**F No:**	6	**and**	6	**Size:**	1/16 1/16 1/16 1/16

Insert: N **Insert Desc.:** N/A **Weld Metal Thickness Range:**

Flux: Type: NA **Size:** 0 **AWS:** 0.125 **thru** 99.999

Filler Metal Note: **ASME:** 0.062 **thru** 2.000

BASE MATERIAL **P No.** 11B **Gr No.** N/A **to: P No.** 11B **Gr No.** N/A

Spec. ASTM A-517 **Grade:** All **to: Spec.** HSLA-100 **Grade:** All

Pipe Dia Range: **Groove >** 0

Thickness Range: Groove : **AWS:** 0.125 **thru** 99.999 **ASME:** 0.062 **thru** 2.000

QUALIFIED POSITIONS 1G, 1F, 2F **Vertical Progression:**

Preheat Min. Temp.:	50 **F**	**GAS: Shielding:**	A/HE/CO2 **or**
Interpass Max. Temp.	400 **F**	**Gas Composition:**	71 **%** 25 **%** 4 **%**
Preheat Maintinance:	50 **F**	**Gas Flow Rate cfh**	25 **to** 50
		Backing Gas/Comp:	None **%**
PWHT: Time @ F Temp.	0	**Backing Gas Flow cfh**	0 **to** 0
Temp. Range:	0 **F to** 0 **F**	**Trailing Gas/Comp:**	N/A **%**

PREPARED BY Kelly Bingham **DATE:** 3/30/2004
Signature on file at FWO-DECS

APPROVED BY Tobin Oruch **DATE:** 9/1/2004
Signature on file at FWO-DECS

Note:For SC/SS/ML-1/ML-2 work, this WPS requires independent review.

WPS NO: 3004-11B

WELDING CHARACTERISTICS:

Current: DCEP **and** DCEP **Tungsten type:** N/A **Transfer Mode:** Spary

Ranges: Amps 280 **to** 310 **Pulsing Cycle:** 0 **to** 0

Volts 26 **to** 30 **Background Current:** 0

Fuel Gas: N/A **Flame:** N/A **Braze temp. F** 0 **to** 0

WELDING TECHNIQUE: **For cleaning, grinding, and inspection criteria refer to Volume 2, Welding Fabrication Procedures**

Technique: Manual **Cleaning Method:** Wire Brush, File, Grind

Single Pass of Multi Pass: M **Stringer or Weave bead (S/W):** S **Oscillation:** N

GMAW Gun Angle °: 5 **to** 15 **Forehand or Backhand for GMAW (F/B):** F

Maximum K/J Heat Input 36 **Travel speed/ipm:** 8 - 16 **Gas Cup Size:** 3/4"

PROCEDURE QUALIFIED FOR:

Charpy "V" Notch: N **Nil-Ductil Transition Temperature:** **Dynamic Tear:** Y

Comments:

Weld Layer	Manual Process	Filler Metals	Size	Amp Range		Volt Range		Travel ipm		Nozzel Angle	Other
1	GMAW-	ER1xxS-x	1/16	280	310	26	30	8	16	5	
2	GMAW-	ER1xxS-x	1/16	280	310	26	30	8	16	15	
3			1/16								
4			1/16								
5											
6											
7											
8											

REM. * Weld layers are representative only - actual number of passes and layer sequence may vary due to variations in joint design, thickness and fitup.