WELDING PROCEDURE SPECIFICATION

WPS - 3012-8 **REV. NO.:** 0 **DATE:** 9/8/2004 ****APPLICABILITY****

WELDING PROCESS/ES: GMAW **and** GMAW **ASME:** X **AWS:** X

SUPPORTING PQR: 3011-8 **OTHER:**

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 joint details **Preparation:** Thermal or Mechanical

Root Opening: 0 - 1/16 **Backing:** Gas

Backgrind root: N/A **Backing Mat.:** Argon

Bkgrd Method: N/A **GTAW Flux:** N/A **Backing Retainer:** N/A

FILLER METALS: **Class:** ER308L **and** ER308L

A No: 8 **SFA Class:** 5.9 **and** 5.9 **F No:** 6 **and** 6 **Size:** .035 .035

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

Flux: Type: N/A **Size:** N/A **AWS:** 0.125 **thru** 0.375

Filler Metal Note: **ASME:** 0.625 **thru** 0.375

BASE MATERIALS: **P No.** 8 **Gr No.** all **to: P No.** 8 **Gr No.** all

Spec. ASTM A-240 **Grade:** 304 **to: Spec.** ASTM A-240 **Grade:** 304

Qualified Pipe Dia Range: = : 0

Qualified Thickness Range: **AWS:** 0.125 **thru** 0.375 **ASME:** 0.063 **thru** 0.375

QUALIFIED POSITIONS: 1G **Vertical Progression:** N/A

Preheat Min. Temp.: 50 **°F** **GAS: Shielding:** Ar/CO2/O2 **or** Ar/CO2/O2

Interpass Max. Temp.: **°F** **Gas Composition:** 75 **%** 20 **%** 5 **%**

Preheat Maintinance: 50 **°F** **Gas Flow Rate cfh:** 20 **to** 25

Backing Gas/Comp: Argon 100 **%**

PWHT: Time @ °F Temp. 0 **Backing Gas Flow cfh:** 1 **to** 10

Temp. Range: 0 **°F** **to** 0 **°F** **Trailing Gas/Comp:** N/A **%**

PREPARED BY: Kelly Bingham **DATE:** 9/8/2004

Signature on file at FWO-DECS

APPROVED BY: Tobin Oruch **DATE:** 9/8/2004

Signature on file at FWO-DECS

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

WPS NO: 3012-8

WELDING CHARACTERISTICS:

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

Ranges: Amps 85 **to** 110 **Pulsing Cycle:** 0 **to** 0

Volts 15 **to** 17 **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: Semi-Auto **Cleaning Method:** Wire Brush or grinder

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

GMAW Gun Angle °: 0 **to** 15 **Forehand or Backhand for GMAW (F/B):** B

GMAW/FCAW Tube to work distance:

Maximum K/J Heat Input: **Travel speed:** **Gas Cup Size:** .5 - .75

No single pass shall deposit greater than 1/2" thickness of material.

PROCEDURE QUALIFIED FOR:

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

Comments: This procedure still needs volumetric inspection to meet AWS requirements

Weld Layer	Manual Process	Filler Metals	Size	Amp Range	Volt Range	Travel/ipm	Nozzel Angle	Other
1	GMAW	ER308L	.035	85 **to** 110	15 **to** 17	9 **to** 12	0 - 15	
2	GMAW	ER308L	.035	85 **to** 110	15 **to** 17	**to**		
3	GMAW	ER308L		**to**	**to**	**to**		
4								
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.**

Use of LANL Welding Procedures and Welder Qualifications for non-LANL work shall be at the sole risk and responsibility of the Subcontractor, and the Subcontractor shall indemnify and save LANL and the Government harmless from any and all claims, demands, actions or causes of action, and for any expense or loss by reason of Subcontractor's and their employees posession and use of LANL procedures and qualifications.