



WELDING PROCEDURE SPECIFICATION

WPS - 2010-xxxx-8-A **REV. NO.:** 1 **DATE:** 4/28/2009 ****APPLICABILITY****
WELDING PROCESS: GTAW-A **and** GTAW-A **ASME:** X **AWS:** **OTHER:**
SUPPORTING PQR: 2010-8-A-1 2010-8-A-2

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: Square butt	Class:	Full penetration
See GWS 1-06 and WFP's for joint details	Preparation:	Machined
Root Opening: 0"	Backing:	Gas
Backgrind root: N/A	Backing Mat.:	N/A
Bkgrd Method: N/A	GTAW Flux: N/A	Backing Retainer: N/A

FILLER METALS:	Class:	N/A	and	N/A
A No: N/A SFA Class: N/A an N/A F No: N/A an N/A Size: --- --- --- ---				
Insert: N/A Insert Desc.: N/A				Weld Metal Thickness Ranges:
Flux: Type: N/A Size: N/A		AWS Root Pass:	0 thru	0
Filler Metal Note: See note in comments section.		AWS Balance:	0 thru	0
		ASME Root Pass:	0.00 thru	0.000
		ASME Balance:	0.02 thru	0.180

BASE MATERIAL	P/S No. 8	Gr No. 1	to: P/S No. 8	Gr No. 1
Spec. A-213/249 SS- Pipe & tube	Grade: All	to: Spec. A-213/249 SS- Pipe & tube	Grade: All	
Qualified Pipe Dia. Range: ≥ AWS: 0 ASME: 0.125				
Qualified Thickness Range: AWS: 0.000 thru 0.000 ASME: 0.020 thru 0.180				

QUALIFIED POSITIONS: AWS: N/A ASME: All **Vert. Prog.:** Up/Dn

Preheat Min. Temp.: 70 °F	GAS: Shielding: Argon*	or	
Interpass Max. Temp.: 350 °F	Gas Composition: 100 / / %	/ / %	
Preheat Maintenance: N/A °F	Gas Flow Rate cfh: 10 to 20	to	
PWHT: Time @ °F Temp. N/A	Backing Gas/Comp: Argon**	100 %	
Temp. Range: 0 °F	Backing Gas Flow cfh: 5 to 10		
to 0 °F	Trailing Gas/Comp: N/A	0 %	

APPROVAL: Signatures on file at ENG **DATE:** 4/28/2009

WELDING CHARACTERISTICS:

Current: DCEN and DCEN **Tungsten Type:** EWTh-2 **Transfer Mode:** N/A
Ranges: Amps 21 to 0 **Tungsten Dia.:** 0.04 **Pulsing Cycle:** 22 to 46
 Volts 7 to **Background Current:** N/A
Fuel Gas: N/A **Flame:** N/A **Braze temp. °F** N/A to N/A

WELDING TECHNIQUE: For fabrication specific requirements such as fittup, cleaning, grinding, PWHT and inspection criteria refer to Volume 2, Welding Fabrication Procedures

Technique: Automatic **Cleaning Method:** SS Wool/Abrasive cloth
Single Pass or Multi Pass: S **Stringer or Weave bead (S/W):** S or **Oscillation:** N/A
GMAW Gun Angle °: 0 to 0 **Forehand or Backhand for GMAW (F/B):** N/A
No Pass >1/2": **GMAW/FCAW Tube to work distance:** N/A
Maximum K/J Heat Input: N/A **Travel speed:** **Gas Cup Size:** N/A

PROCEDURE QUALIFIED FOR:

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

Comments: *Pre-purge time out = 20 - 30 sec.
 ** Post-purge time out = 20 - 30 sec.
 Note from Filler Notes: Fittings or tube ends that exhibit a machined provision for additional metal for "filler metal" are also included in this WPS.

Weld Layer	Manual Process	Filler Metals	Size	Amp Range	Volt Range	Travel/ipm	Nozzle Angle	Other
1	GTAW-A	N/A	---	21 to 46	7 to 8.2	15 to 17	0 to 0	
2	GTAW-A	N/A	---	21 to 46	7 to 8.2	15 to 17		
3	GTAW-A	N/A	---	0 to 0	0 to 0	15 to 17		
4	GTAW-A	N/A	---	0 to 0	to	to		

REM. * Weld layers are representative only - actual number of passes and layer sequence may vary.

ML-1/2 projects or jobs must determine if the supporting documentation for this WPS complies with quality requirements of the project/job.

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 possession and use of LANL procedures and qualifications.