



WELDING PROCEDURE SPECIFICATION

WPS: 3503xxxx--8

REV. NO.: 0

DATE: 9/1/2004

APPLICABILITY

WELDING PROCESS: FCAW and FCAW

CODE: ASME IX

OTHER:

SUPPORTING PQR: 353-8

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 & Partial Penetration & Fillets**See GWS 1-06 and WFP's for joint details.****Preparation:** Mechanical**Root Opening:****Backing:** With/Without**Backgrind Root:** on double sided joints**Backing Mat.:** Metal**Bkgrd Method:****GTAW Flux:** N/A**Backing Retainer:** N/A**FILLER METALS:****Class:** E308LT-1**A No:** 8**SFA Class:** 5.22 and 5.22**F No:** 6 and 6**Size:** 1/16 1/16 1/16**Insert:** N**Insert Type:** N/A**Weld Metal Thickness Ranges:****Flux:** Type: N/A**Size:** N/A**AWS Root Pass:****AWS Balance:****ASME Root Pass:****ASME Balance:** 0.187 thru 2**Filler Material Note:****BASE MATERIAL:****Spec.:** A-240 SS- Plate, sheet & strip**P No:** 8**Gr No.:** 1**to P No.:** 8**Gr No.:** 1**Qualified Pipe Dia. Range:** >=**Grade:** 304**to Spec.:** A-240 SS- Plate, sheet & strip**Grade:** 304**Qualified Thickness Range:****AWS:****ASME:** 4**AWS:****ASME:** 0.187 thru 2**QUALIFIED POSITIONS:****AWS:****ASME:** All**Vert. Prog.:** Up**Preheat Min. Temp.:** 50**GAS: Shielding:** Ar/CO2**or****Interpass Max. Temp.:** 350 °F**Gas Composition:** 75 / 25 / 0 %**/ / %****Preheat Maintenance:** 50 °F**Gas Flow Rate cfh:** 25 to 50**PWHT: Time @ °F Temp.:** N/A**Backing Gas/Comp:****Temperature Range:** N/A °F to N/A °F**Backing Gas Flow cfh:** 0 to 0**Trailing Gas/Comp:****WELDING CHARACTERISTICS:****Current:** DCEP and DCEP**Tungsten Type:** N/A**Transfer Mode:** Globular**Ranges:** Amps: 250**Tungsten Dia.:****Pulsing Cycle:** 0 to 0**Volts:** 24**Background Current:** 0**Fuel Gas:** N/A**Flame:** N/A**Braze Temp °F:** N/A to N/A

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

Technique: Manual**Cleaning Method:** Wire brush chip or grind**Single or Multi Pass:** M**Stringer or Weave Bead (S/W):** S**Oscillation:** N/A**GMAW Gun Angle:** 5 ° to 15 °**Forehand or Backhand for GMAW:** FH/BH**No Pass > 1/2":****GMAW/FCAW Tube to Work Distance (in):****Maximum K/J Heat Input:** 50000 KJ/in**Travel Speed:****Gas Cup Size:****PROCEDURE QUALIFIED FOR:****Charpy "V" Notch:** N**Nil-Ductile Transition Temperature:** N**Dynamic Tear:** N

Comments: No comments.

Weld Layer	Manual Process	Filler Metals	Size	Amp Range	Volt Range	Travel/ipm	Nozzle Angle	Other
1	FCAW	E308LT-1	1/16	250 to 280	24 to 28	10 to 15	5 to 15	
2	FCAW		1/16	250 to 280	24 to 28	10 to 15		
3	FCAW		1/16					
4	FCAW							

REM. * Weld layers are representative only - actual number pf 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 the reason of Subcontractor's and their employees posession and use of LANL procedures and qualifications.

APPROVAL: Signatures on file at ES-FE

DATE: 9/1/2004