



WELDING PROCEDURE SPECIFICATION

WPS: 1000-XXXX-1grp3

REV. NO.: 0

DATE: 2/18/2020 ****APPLICABILITY****

WELDING PROCESS: SMAW and SMAW

CODE: ASME IX and Sec. VIII Div 3

OTHER:

SUPPORTING PQR: 1000-XXXX-1grp3

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: Groove & Fillet

Class: Full Penetration & Fillet Welds

See GWS 1-06 and WFP's for joint details.

Preparation: Clean and prep per manufacturer's instructions

Root Opening: N/A

Backing: Metal

Backgrind Root: Double sided joints

Backing Mat.: Metal

Bkgrd Method: Gouge, Chip, Grind

GTAW Flux: N/A

Backing Retainer: No

FILLER METALS:

Class: E8018 and E8018

A No: 3

SFA Class: 5.5 and 5.5

F No: 4 and 4

Size: 3/32 1/8 3/32 1/8

Insert: No

Insert Type: N/A

Weld Metal Thickness Ranges:

Flux: Type: N/A

Size: N/A

AWS Root Pass:

Filler Material Note:

AWS Balance: 0.125 thru 8.00

ASME Root Pass:

ASME Balance: 0.187 thru 8.00

BASE MATERIAL:

Spec.: A-537 Class 2

P No: 1

Gr No.: 3

to P No.: 1

Gr No.: 3

Qualified Pipe Dia. Range: >=

Grade: 3

to Spec.: A-537 Class 2

Grade: 3

Qualified Thickness Range:

AWS: 24

ASME: 1

AWS: 0.125 thru 8

ASME: 0.187 thru 8

QUALIFIED POSITIONS:

AWS: 1G, 2G, 3G

ASME: All

Vert. Prog.: Up

Preheat Min. Temp.: 275

GAS: Shielding: N/A or N/A

Interpass Max. Temp.: 400 °F

Gas Composition: N/A / N/A / N/A % N/A / N/A / N/A %

Preheat Maintenance: 275 °F

Gas Flow Rate cfh: 0 to 0

0 to 0

PWHT: Time @ °F Temp.: N/A

Backing Gas/Comp: N/A

N/A %

Temperature Range: N/A °F to N/A °F

Backing Gas Flow cfh: 0 to 0

Trailing Gas/Comp: N/A

N/A %

WELDING CHARACTERISTICS:

Current: DCEP and DCEP

Tungsten Type: N/A

Transfer Mode: N/A

Ranges: Amps: 70 to 160

Tungsten Dia.: N/A to N/A

Pulsing Cycle: N/A to N/A

Volts: 16 to 20

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 fitup, cleaning, grinding, PWHT and inspection criteria, refer to Volume 2, Welding Fabrication Procedures.

Technique: Manual

Cleaning Method: Chip/grind/file/wire brush

Single or Multi Pass: S or M

Stringer or Weave Bead (S/W): S/W or S/W

Oscillation: 2X

GMAW Gun Angle:

Forehand or Backhand for GMAW: N/A

No Pass > 1/2": Yes

GMAW/FCAW Tube to Work Distance (in): N/A

Maximum KJ Heat Input: 45 KJ/in

Travel Speed:

Gas Cup Size: N/A

PROCEDURE QUALIFIED FOR:

Charpy "V" Notch: Yes

Nil-Ductile Transition Temperature: No

Dynamic Tear: No

Comments: Charpy qualified for 33 ftlbs @ -40 F

Weld Layer	Manual Process	Filler Metals	Size	Amp Range	Volt Range	Travel/ipm	Nozzle Angle	Other
1	SMAW	E8018	3/32	70 to 100	16 to 19	3 to 8		
2	SMAW	E8018	1/8	90 to 160	16 to 20	3 to 8		
3	SMAW	E8018	3/32	70 to 100	16 to 19	3 to 8		
4	SMAW	E8018	1/8	90 to 160	16 to 20	3 to 8		

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 the reason of Subcontractor's and their employees possession and use of LANL procedures and qualifications.

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