WELDING PROCEDURE
SPECIFICATION

WPS - 1000-xxxx-HY80/HSLA100  REV. NO.: 0  DATE: 5/26/2009  **APPLICABILITY**

WELDING PROCESS: SMAW  and  SMAW  ASME: X  AWS:  OTHER:

SUPPORTING PQR: 1000-HY80/HSLA100

**APPLICABILITY**

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.

JOINT: Groove & Fillet  Full/Partial Penetration  See GWS 1-06 and WFP's for joint details

Root Opening: N/A  Backing: Thermal or mechanical cut

Backgrind root: on double sided joints  Backing Mat.: Metal

Bkgrd Method: Machine, grind or gouge  GTAW Flux: N/A  Backing Retainer: N/A

FILLER METALS:

A No: N/A  SFA Class: N/A and N/A  F No: N/A and N/A  Size: 1/8 and 1/8  AWS Root Pass: thru and thru

Weld Metal Thickness Ranges:

ASME Root Pass: 0.187 and 0.250

ASME Balance: 0.187 and 8

BASE MATERIAL:

Spec. HY 80  P/S No. N/A  Gr No. N/A  to: P/S No. N/A  Gr No. N/A

Qualified Pipe Dia. Range: ≥ AWS: 0  ASME: 2

Qualified Thickness Range: AWS: thru  ASME: 0.187 thru 8.000

QUALIFIED POSITIONS:

AWS: ASME: All  Vert. Prog.: Vert-Up

Preheat Min. Temp.: 225 °F  GAS: Shielding: N/A or N/A

Interpass Max. Temp.: 300 °F  Gas Composition: / / % / / %

Preheat Maintenance: 225 °F  Gas Flow Rate cfm: to to

PWHT: Time @ °F Temp. N/A  Backing Gas/Comp: N/A  N/A %

Temp. Range: N/A °F to N/A °F  Backing Gas Flow cfm: to to

N/A °F  Trailing Gas/Comp: N/A  0 %

APPROVAL: Signatures on file at ENG  DATE: 5/26/2009

WPS NO: 1000-xxxx-HY80/HSLA100

WELDING CHARACTERISTICS:
Current: DCEP and DCEP  
Ranges: Amps 100 to 180  
Volts 18 to 24  
Tungsten Type: N/A  
Tungsten Dia.: N/A  
Transfer Mode: N/A  
Pulsing Cycle: N/A to N/A  
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

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<tbody>
<tr>
<td>GMAM Gun Angle °:</td>
<td>Forehand or Backhand for GMAW (F/B): N/A</td>
<td>GMAW/FCAW Tube to work distance: N/A</td>
<td>Travel speed: to meet ≤ 62 kj</td>
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<tr>
<td>No Pass &gt;1/2&quot;:</td>
<td>GMAW/FCAW to work distance: N/A</td>
<td>Gas Cup Size: N/A</td>
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<td>Maximum K/J Heat Input: 62</td>
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PROCEDURE QUALIFIED FOR:

Charpy "V" Notch: Yes  
Nil-Ductil Transition Temperature: No  
Dynamic Tear: Yes

Comments: This WPS is qualified for use with a MOT of +30 F for the vessel repair welds (E11018-M) and the Nozzles. Charp and DT's were done at several different temperatures to establish a useful curve.

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.

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