**WELDING PROCEDURE SPECIFICATION**

**WPS - 2010-FOSC-8-A**

**DATE:** 4/22/2010

**REV. NO.:** 0

**SUPPORTING PQR:** FCS-4 AR

### 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

#### Preparation:
Faced square and cleaned

#### Root Opening:
N/A

#### Backing:
Gas

#### Backing root:
N/A

#### Backing Mat.:
Gas

#### Bkgrd Method:
N/A

#### GTAW Flux:
N/A

#### Backing Retainer:
N/A

<table>
<thead>
<tr>
<th>BASE MATERIAL</th>
<th>P/S No.</th>
<th>Gr No.</th>
<th>to: P/S No.</th>
<th>Gr No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spec.</td>
<td>ASTM A312 Type 316L</td>
<td>1</td>
<td>to:</td>
<td>ASTM A312 Type 316L</td>
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<tr>
<td>Grade:</td>
<td></td>
<td>0</td>
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<td></td>
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<tr>
<td>Qualified Pipe Dia. Range:</td>
<td>≥</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualified Thickness Range:</td>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>QUALIFIED POSITIONS:</th>
<th>AWS:</th>
<th>ASME:</th>
<th>Vert. Prog.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>All</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preheat Min. Temp.:</th>
<th>50°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpass Max. Temp.:</td>
<td>N/A°F</td>
</tr>
<tr>
<td>Gas Flow Rate cfh:</td>
<td>25 to 30</td>
</tr>
<tr>
<td>Backing Gas/Comp:</td>
<td>Helium</td>
</tr>
<tr>
<td>N/A°F</td>
<td>100 %</td>
</tr>
<tr>
<td>N/A°F</td>
<td>1 to 1</td>
</tr>
<tr>
<td>Trailing Gas/Comp:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**APPROVAL:** Signatures on file at ENG

**DATE:** 4/22/2010
WELDING CHARACTERISTICS:

Current: DCEN and

Ranges: Amps 50 to 160

Volts 10 to 13

Tungsten Type: EWTh-2

Tungsten Dia.: 0.093

Transfer Mode: N/A

Pulsing Cycle: 1.2 to 13

Background Current: 40%

N/A

N/A

N/A

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: Wipe with solvent

Single Pass or Multi Pass: S

Stringer or Weave bead (S/W): N/A

Oscillation: N

GMAW Gun Angle °: to

Forehand or Backhand for GMAW (F/B): N/A

No Pass >1/2": True

GMAW/FCAW Tube to work distance: N/A

Maximum K/J Heat Input: N/A

Travel speed: 6 ipm

Gas Cup Size: N/A

PROCEDURE QUALIFIED FOR:

Charpy "V" Notch: N/A

Nil-Ductil Transition Temperature: N/A

Dynamic Tear: N/A

Comments: This WPS was qualified for Pu Oxide Storage containers in a Glovebox.

Weld Layer Manual Process Filler Metals Size Amp Range Volt Range Travel/ipm Nozzle Angle Other

1 GTAW-P-A N/A 50 to 150 10 to 13 4 to 6 to

2 N/A to to N/A to

3 N/A to to N/A to

4 N/A to to N/A to

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

Monday, June 07, 2010