NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENCASEMENT PIPE
WELDING PROCEDURE SPECIFICATION (WPS) AWS D1.1

Specifications & Codes: NCDOT Standard Specifications/AASHTO/AWS D1.1, Sections 2 thru 6


Filler Metal Specification: AWS A5.1 Classification: E-7018

Manufacturer: NCDOT Approved

Welding Current: DC Polarity: Positive Progression: N/A

Root Treatment: N/A

Preheat Temp: 100° minimum Interpass: 450° maximum Post Heat: N/A

<table>
<thead>
<tr>
<th>Pass Num.</th>
<th>Electrode Size</th>
<th>Welding Current</th>
<th>Travel Speed</th>
<th>Joint Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>1/8” 5/32”</td>
<td>90-150 120-200</td>
<td>20-23 21-24 6-9 ipm 6-10 ipm</td>
<td>SEE ATTACHMENT</td>
</tr>
</tbody>
</table>

PREHEAT

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Min. Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3/4”</td>
<td>100°</td>
</tr>
<tr>
<td>Over 3/4” to 1 1/2”</td>
<td>100°</td>
</tr>
<tr>
<td>Over 1 1/2” to 2 1/2”</td>
<td>150°</td>
</tr>
<tr>
<td>Over 2 1/2”</td>
<td>225°</td>
</tr>
</tbody>
</table>

COMMENTS:
Remove all coating, rust, dirt and mill scale within one inch of the area to be welded prior to fit-up. Remove all slag, spatter and weld discontinuities between passes. Clean the completed weld of all debris, slag and spatter.

Written By: Randy Dempsey, CWI/CWE, TT IV
Signature: [Signature]

Authorized By: Steve Walton, Metals Engineer
Signature: [Signature]

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)
ENCASEMENT-PIPE SPLICE DETAILS

Weld Symbol definitions per AWS A2.4:2007

- BACKING BAR
- WELD ALL AROUND
- FIELD WELD SYMBOL
- BEVEL WELD, ARROW SIDE with BEVEL ANGLE
Illustrations for Encasement Pipe Welding

Unacceptable weld (interior of pipe not welded)

Acceptable weld (incomplete area cleaned and then welded)

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)