•	PROCEDUR
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. 4-107



## COLD BENDING OF AUSTENITIC STAINLESS STEEL PIPING

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SUBMITTED TO	EBASCO			•
FOR CONTRACT NO.	•		· · · · · · · · · · · · · · · · · · ·	<u> </u>
SF&W S.O. NO.				
SUPPLEMENT NO	•		•	
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## COLD BENDING OF AUSTENITIC STAINLESS STEEL PIPING

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- 1. Cold bending is defined as forming at temperatures below 800°F.
- 2. Pipe shall be selected so that the minimum wall thickness after bending will be not less than the calculated minimum wall thickness required for straight pipe.
- 3. Welded pipe shall have the longitudinal seam on the neutral axis of the bend.
- 4. The centerline radius of a bend will not normally be less than five (5) times the nominal pipe diameter and shall not be less than permitted by Fig. 2 in PFI Std ES-3.
- 5. Bending dies shall be used when they are available at Southwest Fabricating & Welding Co. Methods and controls shall be such that the difference between the maximum and minimum dismeter at any cross section of the bend shall not exceed 8% of the average measured outside diameter of the straight portion of the pipe.
- 6. Buckling shall be kept to an absolute minimum and shall not exceed the limits specified in PFI STD ES-3 and outlined below:
  - a) The maximum vertical height of any wave, measured from the average height of two adjoining crests to the valley, shall not exceed 3% of the nominal pipe size.
  - b) The minimum ratio of the distance between crests as compared to the height between crests and the included valley shall be 12 to 1.
  - c) Buckles exceeding the limits defined in a) and b) above shall not be repaired without approval of the Manager of Quality Assurance.
- 7. Where surface checking is evident, it shall be removed by grinding and the ground surface shall be examined using an approved liquid penetrant procedure.

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BY	1214						
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APPROVED	PZP						

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PROCEDURE NO: 4-107

COLD BENDING OF AUSTENITIC STAINLESS STEEL PIPE PAGE 1 OF 1

DATE 3-26-74

## Supplement #1

## S. O. 3301 thru 3304

Change Paragraph #1 to read:

1. Cold bending is defined as forming at temperatures below 700°F.

Change Paragraph \$4 to read:

4. The centerline radius of a bend shall not be less than five (5) times the nominal pipe diameter.

Change the second sentence in Paragraph 45 to read:

Methods and controls shall be such that the difference between the maximum and minimum diameter at any cross section of the bend shall not exceed 6% of the average measured outside diameter of the straight portion of the pipe or two inches (2") whichever is greater.

Change Paragraph 6 (a) to read:

6. a) The maximum vertical height of any wave, measured from the average height of two adjoining crests to the valley, shall not exceed 3/8" in depth over a 12" length.

Approved:

B & Boodwin

REVISION						
BY	DFH.					
DATE	3/28/12					