

Procedure 2: Weld Build-Up of Wasted Areas

A#	2542014	Facility	St Albert, Hobbema
CRN#	H 5754.2	LSD	12-09-044-24W4
S/N	L-8-297		
MAWP	75 PSIG	Vessel Description	Treater
Material	SA-516-70		
Shell Thickness	.375"	Scope of Work: Weld build up of pitted areas on firetube.	
Head Thickness	.688" FT end .520" cold end		

Scope

*Anthony Mack
Apr 2011*

1. The weld build up of wasted areas in a firetube constructed of P-I Group 1 or 2 materials.
2. Weld build up shall not exceed the lesser of one-half the vessel wall thickness or a maximum of 12.7 mm (1/2"). Pitting into the firetube parent metal deeper than above requires the replacement of that section of the firetube.

Procedure

Weld Preparation

1. Area to be welded to shall be cleaned to white metal for a distance of 10 mm beyond the expected weld area.

Hydrogen Bake out and Sulfur removal: (remove this section if this firetube is not in sour service)

2. Vessels that have been exposed to sour or sulfur bearing process streams shall required the weld attachment area to undergo a "Bake Out" procedure. This procedure shall consist of heating the weld attachment area and 10 cm on each side to 260 C (500 F) and holding that temperature for a minimum of 30 minutes. Bake out should be done prior to cutting out, if cutout is done thermally. Stipulate controls methods.
3. *Bake Out* is performed by either induction coil (use thermocouples as control instrumentation) or propane torch (use temperature-sensitive crayons – upper and lower temperature to be controlled). Oxyacetylene torches are **not** acceptable.
4. If induction coils are used, a 250 C (482 F) four-hours heat

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treatment may be substituted for the normal 450 C (842 F) one-hour heat treatment.

Preheat and Welding:

Non-Post Weld Heat Treated Equipment

5. Minimum pre-heat shall be 80 C (176 F) for a 100 mm band on both sides of the weld build-up area.



Note

The 80 C (176 F) pre-heat temperature has been selected for alignment with NB-23, Appendix B assuming the specific carbon content of the material is not known.

6. Welds shall be completed using new 2.4 mm (3/32") E 7018-1 electrodes.

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7. Maximum interpass temperature shall not exceed 230 C (450 F).

8. The Owner's Inspector, shall witness seal on the box being broken and ensure that once the box has been opened the electrodes are stored in an oven.

9. Use only stringer beads where the width of the weld weave is a maximum of 7 mm.

10. No down hand welding shall be used.

11. Once the welds are completed the weld area shall be wrapped with an insulating blanket and allowed to slow cool to 100 C (212 F). The cooling rate shall not exceed 260 C (500 F) / hour.

12. Once the finished weld has cooled below 100 C (212 F) grind off the cap of the weld smooth and contour to the original shape of the firetube.

Post Welding NDE:

13. Perform MT 12 hours after completion of the work

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14. No hydrotest is required.

Documentation:

15. Ensure Company Approved Contractor has completed QC documentation.

16. Sign off ABSA AB-40 and ensure one copy is submitted to ABSA and one is retained on file in the equipment inspection file.

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Section	Comments	Sign Off	Date
Scope		<i>Anthony Cook</i>	Apr 21/08
Procedure		<i>Anthony Cook</i>	Apr 21/08
Weld Preparation			
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Step 2			
Step 3			
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Preheat and Welding			
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