

F. Selection of Weld Overlay Coatings for Corrosion Protection in Boilers with Low NO_x Burners

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The operating conditions associated with Low NO_x staged combustion often promote accelerated wastage rates of boiler tubes. These high wastage rates can be promoted by the formation of a reducing gas in the combustion zone and/or the deposition of sulfur rich unburnt coal particles on the waterwalls. Chemical reactions between the combustion gas and sulfur rich deposits also play a key role in determining the corrosion mechanism and corresponding wastage rate. Commercially available austenitic alloys have been used to mitigate this problem with varying degrees of success and offer a short term solution. Although these alloys generally offer good protection, they have several drawbacks, including high costs and the presence of microsegregation that can lead to corrosion fatigue cracking. FeCrAl weld overlays are being investigated as a more efficient long term solution to this problem. This presentation will describe important factors which must be considered when selecting weld overlay coatings for corrosion control on boilers operating with Low NO_x burners. Information will be provided from both laboratory corrosion tests and field installations as a means of selecting alloys for the intended application.