

Application of Unifuse Overlay Tubes in the Convection Section of Waste-To-Energy Boilers

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ABSTRACT

The modern weld overlay applied by automatic gas-metal-arc welding (GMAW) process using Ni-Cr-Mo-Nb alloy 625 has been extremely successful in providing corrosion and erosion/corrosion protection for the waterwalls of waste-to-energy (WTE) boilers for over a decade. Without alloy 625 weld overlay protection, the carbon steel waterwall of a waste-to-energy boiler would be corroded through in a matter of months. The overlaid waterwalls for numerous WTE boilers have shown excellent performance results with services up to 10 years or more.

Welding Services Inc. has developed a patented process for manufacturing weld overlay bimetallic tubes involving GMAW/GTAW process. Unifuse® 625 overlay tubing with carbon steel substrate has been

successfully used as screen tubes, superheater tubes and generating banks in the convection section. The overlay tubes have successfully replaced such corrosion protection methods as stainless steel tube shields and refractories.

Unifuse is a registered trademark of Welding Services Inc.

INTRODUCTION

Municipal waste typically contains plastic materials, textile, leathers, batteries, food waste, and other miscellaneous materials. These constituents are the source of chlorine, sulfur, sodium, potassium, zinc, lead, and other heavy metals that form corrosive vapors of various chlorides and sulfates during combustion.