

**Comparison of Superheater Metal Wastage Rates
Utilizing Various Boiler Tube Alloys
in a Waste-to-Energy Facility**

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Abstract:

The SEMASS Resource Recovery Facility (SEMASS) is a processed refuse fuel (PRF) waste-to-energy plant serving Southeastern Massachusetts. The plant consists of three 1000 ton per day boilers that generate steam at 765 F and 650 psig for use in a steam turbine/generator set .

Over the past several years, metal wastage rates due to fire side corrosion of pressure containing components, have increased significantly in all three boilers. In an attempt to reduce overall maintenance costs and unscheduled down time due to tube failures, a test of various alloy tube materials was undertaken in the primary superheater section of boiler #1.

The materials tested were SA213-T22 (original spec.), SA213-TP310H, SB-423 Incoloy 825, and Inconel 625 spiral weld overlay of SA213-T22 base material.

This paper will discuss the results of the test after 9 months of service and any conclusions developed on the economic justification for upgrading tube materials in the remaining two boilers.