

Evaluation of Localized Metal Loss from a Reformer Waste Heat Boiler

The study evaluates the fitness for service (FFS) of a floating tube sheet found to have localized metal loss at the periphery of a 64 inch [1,626 mm] diameter x 14 inch [356 mm] thick tube-sheet, made of SA-182-F11 material with a mechanical design temperature of 850 °F [455 °C] but with a maximum process operating temperature of 1,865 °F [1,018 °C].

The primary concern was whether the tube-sheet was still within Code stress limits. Simplified finite element analyses were completed to assess the stress regime for the as-new exchanger tube sheet compared to the tube sheet with posed localized metal loss. A simplified approach was undertaken to meet schedule requirements and was considered adequate for the type of damage found.

Contact:

John Aumuller
Engineering Design & Analysis, Ltd.
Edmonton, Alberta

aumullerj@engineer.ca
www.engineer.ca