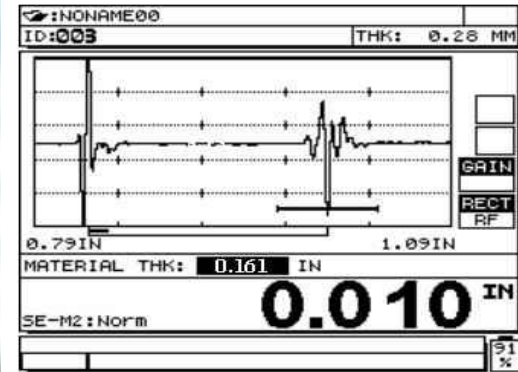


Internal oxide scale measurement of Boiler tubes

The very high temperatures found inside steam boilers (in excess of 1000⁰ F or 500⁰ C) can cause the formation of a brittle iron oxide called magnetite on the inside and outside surfaces of steel boiler tubing.



Steam side:

Water vapor will react with the Iron in the steel to form magnetite and hydrogen according to the formula:

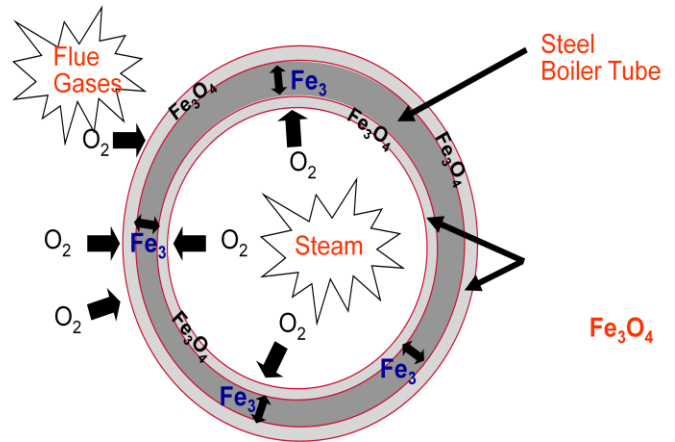


Fire Side:

Flue gases react with the Iron in steel to form Magnetite and Sulfides (External Scale)

Oxygen diffuses into the steel and Iron diffuses out of the steel to and combines to form magnetite

HEAT

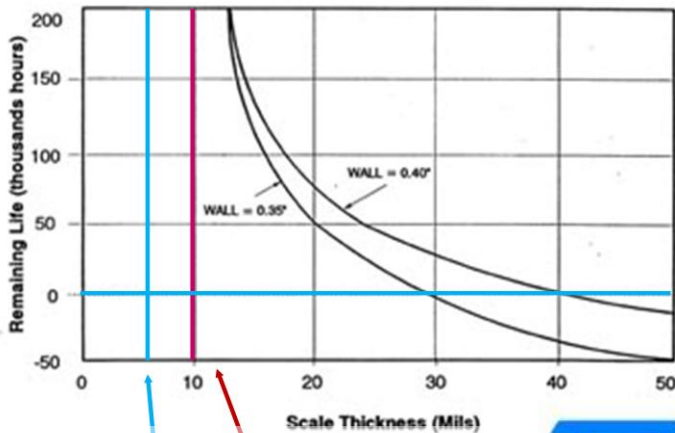


Thickness of Oxide helps predict tube life

As the internal oxide scale builds above .013"(0.33mm) it impedes the heat transfer between the tube metal and the steam

Transducers: - M2091 Normal Incident Shear 20 MHz (0.006" In. or 0.15 mm Min Internal Oxide)

Measures and displays Oxide and tube thickness at the same time



M2091 M2017

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