

# **INSPECTION OF BOILER WATER WALL TUBES USING ELECTROMAGNETIC INSPECTION TECHNIQUE YESTERDAY (MANUAL) AND TODAY (AUTOMATED)**

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Forced outages in Fossil fired power plants due to boiler tube failures continue to be the leading cause of loss in production. To get your boiler back on line and reduce or eliminate future forced outages due to tube failure, it is extremely important to determine and correct the root cause. For boiler reliability it is equally important to detect flaws before they cause failures. There are at least (6) other methods used for the inspection of Boiler Water walls. These methods are Visual, Spot Check UT, A-Scan UT, EMAT, Real-Time Radiography (RTR) and Scanning Thermography. Spot Check UT only gives thickness readings and achieves minimal coverage of the total surface area of the furnace water walls; the chances of finding I.D. flaw mechanisms using Spot Check UT are mostly luck at best. If Boiler Water walls have been sandblasted, A-Scan UT may be used to inspect larger areas of the furnace walls; in these cases, a steady flow of water is most often used as the couplant. The EMAT technique requires that any Boiler Water wall surfaces be sandblasted. For RTR, there are access and safety issues to overcome, and aligning the internal panel with the external radiation source. However, all of these techniques have strengths and weaknesses. This paper discusses theoretical and practical advantage of electromagnetic inspection techniques (manual & automated) that have been used to inspect boiler water walls from the outside of the tube. It also explains the quantitative nature of the inspection deliverables.