

# Boiler Water Wall Tube Inspection Without Scaffolding

The traditional method of inspecting boiler water wall tubes for loss of wall thickness is by taking many thousands of ultrasonic thickness readings spaced several feet apart in elevation. In order to do this the boiler must be scaffolded and the tubes must be cleaned to bare metal where the ultrasonic thickness readings are to be taken.



Scaffolding and cleaning costs often exceed \$100,000, and the ultrasonic inspection can cost the same amount again.

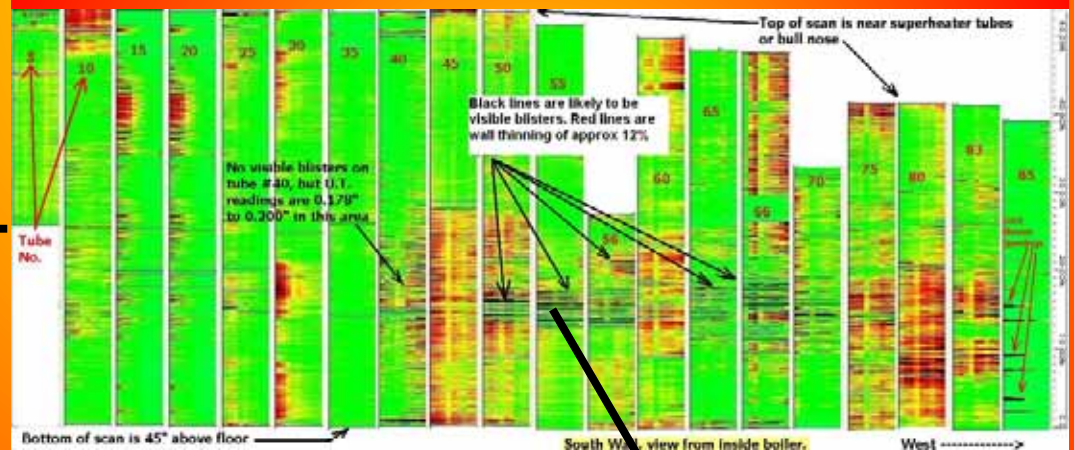


If the boiler will be scaffolded anyway, the tubes can be inspected rapidly with a hand-held scanning tool that delivers the equivalent of up to 2000 thickness readings per foot, at a scanning speed of up to 10 feet/minute.

For boilers that are not scaffolded, a magnetic "wall-crawler" can be used to carry the "E-PIT" probe up the water wall. The crawler can handle water walls up to 200' height and tube sizes from 1.5" to 3.5". Inspection speed is 10'/minute so an entire wall, 100' high and 100 tubes wide, can be inspected in less than 3-12 hour shifts. The E-PIT probe inspects the flame side of the tube to within 3/8" of each web, using 12 detection coils for high precision. Pits as small as 1/8" diameter can be detected.



The results are displayed as color maps (right), strip charts and voltage planes. In the image at right an entire water wall is mapped (every 5th tube)



In the sample at right, the internal defect detected was graphitization. Also detectable are: intenal pitting, thermal fatigue; soot blower erosion; blisters; flame erosion; hydrogen attack and chelant corrosion.

For more info: [www.russelltech-india.com](http://www.russelltech-india.com)

