

Digital Radiography Applications for Steam Boilers

Digital Radiography, using phosphor image plate technology, has emerged as an outstanding inspection method for use in steam boiler applications. This is particularly true for those applications that involve corrosion fatigue cracking and weld quality.

Corrosion Fatigue Cracking

Phosphor Storage Radiography provides an excellent method for the detection and evaluation of corrosion fatigue cracks in boiler waterwalls, riser tubes and associated link piping. Due to the outstanding dynamic range this technology provides, it is possible to perform many inspections without removing boiler lagging and insulation. Using the proper techniques and set-ups, it is possible to overcome the thickness variations presented by buckstays, scallop bars and other external attachment obstacles.

Weld Quality

With the issuance of the Summer 2005 Addendum of ASME Section V, Mandatory Appendix 8, the use of phosphor storage imaging became a fully compliant radiographic method for performing ASME Code inspections. Digital radiography using these phosphor image plates offers many significant advantages, as compared to traditional film, while maintaining the image quality requirements mandated for Code applications.

Dramatically smaller exclusion zones, significantly increased productivity, improved discontinuity evaluation, outstanding image storage and archiving are just a few of the many advantages that digital radiography inspection provides.

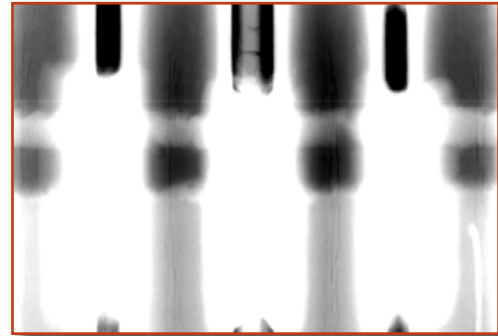


Figure 1— Illustration of “cold side” Corrosion Fatigue Cracking of Waterwalls at Lower Wind Box attachments.

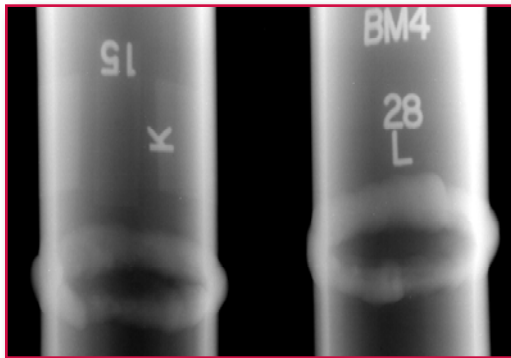


Figure 2— Digital radiograph of 2 inch diameter boiler tube shot using an elliptical technique.

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