



MISTRAS Services Produces “Unprecedented” Savings Using Digital RT

Digital Radiography, using phosphor image plate technology, has emerged as an outstanding inspection method for weld quality inspection in the Power industry. 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. This method offers many significant advantages as compared to traditional film, while maintaining the image quality requirements mandated for code acceptable applications. Dramatically smaller exclusion zones, significantly increased productivity, improved discontinuity evaluation and outstanding image storage and archiving are only a few examples of the advantages provided by Digital Radiography.



As the leader in NDT inspection, MISTRAS Services, a member of MISTRAS Group, Inc., has been intimately involved with various manufactures of Digital RT systems to aid in

the development of fully compliant image plates that will ensure the success of digital radiography for use in the Power industry, and others. As a result, Mistras has extensive experience utilizing the latest Kodak, VMI, FUJI, & AGFA Systems. For Weld Quality, several manufactures have issued us their latest Prototype image plates. Mistras is currently using the latest generation Kodak system for this application. We continually test image plate advancements prior to them being made commercially available, in order to “prove up” the improvements with actual field data. Each system has various advantages and disadvantages related to system portability, image plate quality, ease of processing and software options. Tremendous advances are being made in terms of plate durability and flexibility, system portability and especially image quality. The Kodak system easily produces weld quality images that were previously unattainable with any system.

In a recently completed outage for a large national utility, we evaluated over 15,000 welds of various diameters and thicknesses for weld quality and final code acceptance,



using the Kodak digital system in combination with the latest prototype imaging plates. The digital inspection strategy allowed us to operate multiple RT crews in a limited space. The digital RT also allowed the welding contractor to utilize another area in close proximity for production. This scenario would not have been possible using traditional radiography due to larger exclusion zones.



In addition to the Digital Radiography, Automated Ultrasonic Phased Array technology was also used. This comprehensive radiographic and ultrasonic strategic inspection plan allowed the utility to shorten the schedule by 14 full production days. This resulted in an estimated \$14M cost reduction. In another outage, over 5000 welds were inspected using the digital technology with similar completion savings. Code compliant Digital production continues on a daily basis with 21,000 1”-3” Welds, 300 plus 4”-6” heavy wall, 50 8”x 1.5” thick pipe welds and 1000 plus linear feet of plate weld on tanks and vessels completed. Firm schedules are in place in the Fall 2006 outage season to

inspect more than 12,500 welds with Digital technology.

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