



SAIW and SAIW Certification

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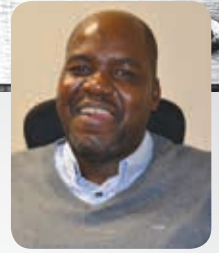
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Morris Maroga's message



At Eskom, we are busy with a programme to replace traditional radiographic testing (RT) with phased-array ultrasonic testing (PAUT) to validate the quality of the boiler tube welds at our power plants. During shutdowns, we do about 100 000 boiler tube repairs per year and every repair has to be inspected using NDT to ensure that the welding is of an acceptable quality.

We have been using radiography for testing welds but, for safety reasons, this involves site clearances and processing delays. So we are moving towards phased-array UT, which is far less intrusive and can be done quite quickly after welding without site clearance, helping the repair programme to advance more steadily.

The change will also give us better detection sensitivity, which some say will increase weld rejection and repair rates. But we have also implemented an FEA and modelling programme that enables us to much more accurately determine the acceptance criteria for indications. In many cases, we have found that we were repairing tubes unnecessarily, because pore indications on RT film, for example, tend to be larger than they are in real life. Phased-array inspection can more accurately size a flaw and, with the well-defined acceptance criteria we have now developed, it will help us to avoid wasting money on unnecessary repairs.

Many more technicians qualified in phased-array UT are going to be needed, however. We therefore welcome the inclusion of the new Level 2 Phased-Array UT course into the SAIW NDT Training programme and look forward to the day when all UT technicians are also able to perform phased-array UT inspections at our plants.

SAIW NDT Qualifications are widely respected and the training team, led by Mark Digby, is among the strongest in the country. The SAIW adopts a code-based training approach based on ISO 9712, which is the standard we use for power generation plant at Eskom, and ASME ASNT, which is preferred by the petrochemical and nuclear industries. This means that SAIW-trained NDT personnel can quickly become qualified to do the work required by industry.

Across the country, we are moving towards being more certain that our plants are safe and reliable and that they can operate reliably between planned maintenance intervals so that unscheduled shutdowns and outages become a thing of the past. The welding and fabrication industry have a significant role to play in this regard. It is a requirement of all manufacturing codes/health and safety standards that new materials and welded joints are subjected to non-destructive examination (NDE), and this must be carried out by experienced personnel following written procedures.

Koeberg nuclear power station has a steam generator replacement project coming up, which will require welding, fabrication and NDT skills on nuclear related materials. We will again be calling on our locally skilled people to work on this project. We may need to run special courses to prepare ourselves, however, if we are to avoid having to bring specialists in from overseas, which does nothing to help us to industrialise South Africa. Local welding, inspection and NDT personnel, together with SAIW, may need to refresh and expand their intellectual capacity and prepare themselves so as to be able to deliver the nuclear specific services required.

We have seen problems in the large projects we have undertaken in recent years, but the principle of localising those projects and using them to drive up the skills and living standards of South African people remains as important as ever. We have to continue to focus on high level skills to produce quality fabrications, both large and small. South Africa and Africa need the SAIW to help make this happen.