Stanley Inspection SA: a blue ocean service provider

This month's SAIW Member Profile comes from Stanley Inspection. *African Fusion* talks to Shaun Meerholz, the company's deputy general manager, about the company's modern inspection offering and the important role of inspection services in ensuring the integrity, safety, reliability and longevity of critical plant such as those in our power, petrochemical and mining industries.

Stanley Inspection is a worldwide leader in specialist inspection, non-destructive testing (NDT) and heat treatment services. The company provides a full range of modern services that can successfully take clients through design and engineering to resourcing, execution, long term maintenance and safe operation. Shown here is a team undertaking a phased-array lamination scan of the turbine blades of a wind turbine.

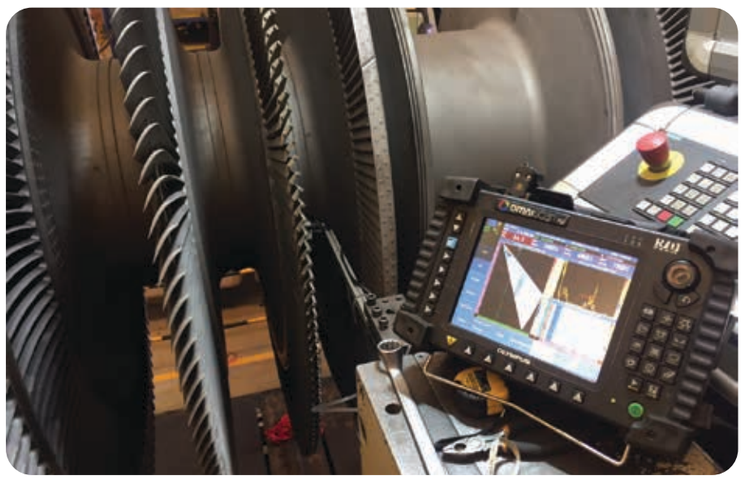
Stanley Inspection's history in South Africa has multiple strands. It first began back in 1978 during the construction of Sasol 2, which led to the incorporation of The Unit Inspection Company of South Africa in 1980. In 2007, Unit Inspection merged with another South African company, nuclear NDT specialist, De-Tect, which was itself founded by Yusef Patel in 1995. This merger formed one of the leading B-BBEE inspection specialists in Africa: De-Tect Unit Inspection.

A share in this company was then bought by CRC-Evans International, which was taken over by Stanley Black & Decker in 2018, which, in that same year, also bought industry leader, Sonartech CC, before adopting the current group name, Stanley Inspection South Africa (SISA).

Today, Stanley Inspection is a worldwide leader in specialist inspection, non-destructive testing (NDT) and heat treatment services. "We strive to provide a full range of modern services that can successfully take clients through design and engineering to resourcing, execution, long term maintenance and safe operation," Meerholz tells *African Fusion*.

The company has ISO 9001: 2000 certification and is a preferred supplier for major clients in South Africa's power generation, petrochemical and oil and gas industries including Sasol, Eskom, Chevron, Fluor, ArcellorMittal, Babcock and Rotek Engineering. "Also, as an international service provider, we have worked in Swaziland, Kenya, Sao Tome, Namibia, Ireland, Nigeria, Abu Dhabi, Brunei, Congo, Botswana, Cameroon, Mauritius, Seychelles, Turkey, the United Kingdom, and the United States," Meerholz says.

SISA has offices in Johannesburg, Richards Bay, Secunda, Vereeniging and Cape Town.



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SISA solutions

"We exist because we provide solutions to industry's current needs," Meerholz continues, adding that, "We can offer solutions and services that no other company can.

"Each of our services is delivered via a fully-qualified team that can come out to site to inspect the plant to ensure it can continue to operate safely, reliably and efficiently.

"Modern inspection requirements often demand complex investigative solutions from a qualified third-party. STANLEY Inspection engineering personnel work in conjunction with site-based project management teams to deliver innovative solutions using state-of-the-art inspection applications. Our proven expertise ensures integrity, safety, and efficiency throughout all phases of an operation and technicians are available for long and short-term project assignments as required," he says.

Areas of focus include piping, mechanical, electrical and overall project engineering – and SISA has expertise in almost all NDT techniques. Most notable among these are: compression, shear wave and wall thickness ultrasonic inspection; phased array, guided wave and time of flight (ToFD) ultrasonics – including TFM (total focus method); conventional x-ray and gamma ray radiography; computer/digital radiography (CT); fluorescent and visible dye penetrant and magnetic particle inspection; IRIS and eddy current tube inspection; laser profilometry; and many more.

Over the past two years, depending on individual power station requirements, SISA has been actively developing advanced tube inspection and phased array inspection techniques for South Africa's power industry. "We pioneered smallbore phased-array UT inspection on boiler tube with wall thicknesses of 3.4 mm and up, comparing the results to traditional X-ray techniques. We have also developed phased-array techniques for use on complex geometries such as turbine blades and discs in situ, eliminating the need for costly removal and refitting," Meerholz informs *African Fusion*.

For the petrochemical industry, SISA has been active in the detection of high temperature hydrogen attack (HTHA), which occurs in refinery equipment exposed to hydrogen at temperatures above 200 °C. At high temperatures under dry conditions, hydrogen gas dissociates into atomic hydrogen, which can then diffuse into the steel structures of vessels. "Using advanced ToFD along with total focusing method (TFM) phased array equipment, we are able to detect tiny HTHA defects that indicate the onset of potentially catastrophic HTHA-induced failure," he explains.

On the nuclear side, Meerholz cites the company's involvement with the PTR tank refurbishment project at Koeberg. These tanks store borated water for the reactor cavity and spent fuel pit cooling system. This was the first nuclear PRT tanks replacement project in the world, and was recently completed using SAIW-trained UT technicians with nuclear site training enabling them to complete the contract successfully," he adds.

SISA has been collaborating with the SAIW with respect to training for many years. "We were one of the first inspection companies to work with the SAIW and, over the years, we must have sent over 200 people on SAIW NDT and Inspection courses. Our heat treatment specialist, James Kirwan, wrote the training syllabus in conjunction with the SAIW to supply industry with qualified Heat Treatment technicians.

An ultrasonic examination of the rotor bores of a turbine.

"Currently, we are collaborating with Mark Digby and Harold Jansen to develop a training course encompassing eddy current, IRIS (internal rotary inspection system) and remote field techniques to certify technicians to ISO 9712 for tube inspections," Meerholz relates, adding that the first of these courses is planned for May.

STANLEY Inspection SA is a preferred NDT inspection provider on outages and maintenance for six of Eskom's 15 power stations. "We are now also picking up work in African mines and in petrochemical and nuclear plants in the Middle East, for example. We are specialists in high temperature phased array inspections, which can be done while a plant is still online, that is, before a shutdown. This enables operators to better plan for required maintenance during a shutdown, and this can minimise downtime.

"We have also developed a CR digital radiography technique that enables us to do online corrosion and thickness testing without having to remove the insulation from pipes

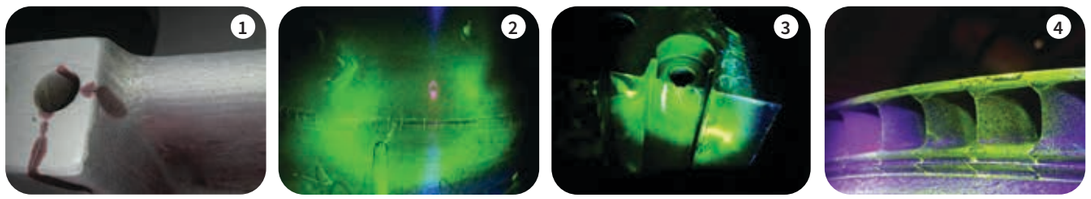
"Services such as ours are absolutely necessary, not only to ensure safe operation, but also for preventative maintenance. Big asset owners have routinely seen the cost-saving benefit. Our inspection work often prevents dangerously catastrophic and very expensive failures," he says, adding, "which, for the owner, is worth its weight in gold."

Turning attention to current developments, Meerholz says that, while SISA technicians understand data, the company is currently developing simpler and more user friendly NDT reporting packages to make it easier for engineers to understand results and their implications. "In collaboration with some US companies, we are working on a very visual reporting package that will help maintenance professionals to quickly assess the condition of their plant so that they can better direct their maintenance and shut down activities.

From an internal perspective, "We have new management improving the company culture and quality to drive our offering towards industry's real needs," he continues.

"We see ourselves as a blue oceans company that will never cut corner to compete. We are a speciality company that thrives on innovation and new technology and we are continually helping our NDT technicians to know and do more.

"We see modern and speciality inspection as an integral part of fabricating and operating safe, efficient and reliable modern plants. It raises quality levels, reduces failure risks, increases reliability and therefore benefits owners, operators, employees, customers and the broader society," Meerholz concludes.



Some examples of inspection methods and indications: 1: visible dye penetrant testing of a pump casing; 2: Fluorescent MPI of a mine pump shaft with multiple linear indications; 3: Fluorescent MPI of a turbine diaphragm with an indication on the bolt hole; 4: Fluorescent MPI of turbine rotor showing a linear indication on the exhaust side of the blade aerofoil.