

## **Babcock displays staying power during half-station shutdown**

Babcock recently completed a mammoth and highly successful half-station shutdown at a power station in the Free State. Meticulous risk management resulted in no lost-time injuries throughout the 1.7 million man-hours clocked on the project. Comprehensive planning ensured that the scope of work was completed within the tightly scheduled timeline.

Harold Meyer, operations manager for Babcock, says that the safe and successful completion of such a high-risk project is an outstanding achievement. The project comprised the concurrent overhaul of three of the six boiler units and had to be completed during the half-station shutdown. These shutdowns enable maintenance work to be undertaken on the cooling water circuit, which is a common system that requires at least three of the six units to be off load simultaneously.

During the five-month period, Babcock successfully managed over 2 100 employees and contractors on-site, executing more than 22 000 internal butt welds, as well as successfully replacing a modular economiser and turbine loop piping, something never attempted at this power station.

The immensely risky project required an average of 700 people per boiler working above and below each other at height, in dark, constrained areas with the removal of old equipment and installation of new equipment posing a very real risk of falling objects.

Advanced technology such as Babcock's 3D scanning system was employed to simulate the scope pertaining to the modular economiser replacement and the turbine loop piping. This work was performed ahead of the outage to mitigate risk through precise and detailed planning.

"Due to time constraints, we were on critical path from day one and therefore under immense pressure to deliver. However, throughout the project, the team worked together brilliantly and pulled off a great job," says Meyer.

He attributes much of this success to Babcock's commitment to supporting every team member and working towards a common goal, and says that everyone on the project was trusted to deliver their part, from top level management to the ground staff. While in-depth risk management planning and comprehensive training began months before the project commenced, Meyer says the strong presence of top management who sought to actively engage and empower the on-site workforce greatly contributed to the project's success.

A major consideration in the project's success was the logistics around resources and ensuring the availability of the right people for the job. Although other outages were taking place at the same time as the half-station shutdown which put a considerable drain on the availability of A-class welders, Babcock's resource management department worked tirelessly to get the right people for the project. Approximately 25% of the general and skilled labour was sourced from the local community, and a screening centre was established on site to screen for competence, particularly in welding, to meet the client's weld repair target for the project.

Despite numerous external obstacles and working over the Christmas and the year-end holiday period, detailed planning and cohesion within the entire project team saw the power plant upgrade

run smoothly and without any major incident. A massive total of 1 793 888 man hours worked resulted in zero lost-time incidents.

This exceptional safety record earned Babcock the Health and Safety Award at the SEIFSA Awards for Excellence held in Johannesburg in May this year. The Health and Safety Award Category seeks to reward an organisation with the lowest lost-time injury frequency rate and an effective system in place for managing risks. The judges found that not only did Babcock meet these criteria, but also displayed exceptional support for both employees and management for the duration of the half-station shutdown.

Besides been responsible for the refurbishment of the three boiler units, Babcock was also tasked with supplying all the on-site transportation, messing facilities and ablutions, as well as the transport and accommodation of over 1 500 locally employed contractors.

The power station generates approximately 8% of the nation's power, and comprises six 618 MW production units each with a boiler, turbine coupled to a generator-rotor and control and auxiliary support systems. The boilers are housed in rectangular blocks and stand 74 metres in height. They are of the radiant water-tube type, operating on a natural circulation principle. They consist essentially of a large tubular-walled furnace, a steam drum, an economiser, three superheaters and two re-heaters.

Babcock is the original equipment manufacturer of the six Carolina boilers at the power station, the first of which went into commercial operation in 1985, and is therefore particularly knowledgeable regarding their maintenance and modification. The company has been on site since the beginning of construction in the 1980s and a core Babcock crew remains permanently on site for any unscheduled maintenance problems that may arise.

Supported by best in class technology, Babcock's power business draws on many decades of knowledge and experience, enabling Babcock to provide safe, effective solutions for the entire lifecycle of a boiler project, from design and build, through operation and maintenance, to decommissioning and remediation.

Issued by: Serendipity Events, Promotions & Exhibitions

On behalf of: BABCOCK

Editorial contact: Loll Thomson (011) 467 2133

Mail to: [lol@sepe.co.za](mailto:lol@sepe.co.za)

Client contact: Harold Meyer

Mail to: [Harold.Meyer@babcock.co.za](mailto:Harold.Meyer@babcock.co.za)

Website:

Date: 13 June 2018