



Shaft Sinkers is sinking three deep shafts at Impala's No 17 Shaft complex. Seen here is the vent shaft, which will go to a depth of just over 1 700 m (photo: Alf Yssel).

SHAFT SINKERS BUOYED BY RECORD ORDER BOOK



Rob Schroder, COO of Shaft Sinkers Holdings (photo: Arthur Tussell).

Shaft Sinkers, which listed on the London Stock Exchange late last year, is performing strongly, with its revenues and pre-tax profit in the year to 31 December 2010 – announced in mid-April – up by 24 % and 34 % respectively over 2009 in pound sterling terms (a result assisted by the appreciation of the rand against sterling). According to Rob Schroder, COO of Shaft Sinkers Holdings, the group entered 2011 with a record order book of £488 million in place and is continuing to do well. He also says the group is continuing to pursue its strategy of geographical diversification.

While the bulk of Shaft Sinkers' business is still in South Africa, its stated policy – and part of the reason for the London listing – is to expand overseas, specifically in Russia, Central Asia and India. As Schroder says, "The geographical territories we're focusing on have high minerals potential but at the same time are characterised as having limited underground mining and shaft sinking skills – which makes them an ideal target for us. At this stage, we have two big contracts – one in Russia and the other in India – but we are very actively tendering for more work and this should result in additional contracts being secured in the near future."

He concedes that moving into Russia and India has

not been without its challenges but says Shaft Sinkers has proved itself in these countries and the next contracts it secures will be much easier to handle. "Apart from logistical challenges, one has to contend with regulatory environments and general business practices in both Russia and India that are very different to those in South Africa," he observes.

The single contract that Shaft Sinkers currently has in Russia is a significant project and a technically complex assignment. It involves sinking a 1 100 m deep shaft into a potash deposit in Kotelnikovo, 300 km from Volgograd (previously Stalingrad). "We've successfully completed the changeover from pre-sink to main sink and are going through water-bearing ground that requires extensive cementation," says Schroder.

In India, Shaft Sinkers is making good progress on its contract to sink two pressure shafts, each with a diameter of 5,4 m, to a depth of 730 m for the 1 200 MW Teesta III hydro-electric scheme. The first



The Styldrift site showing headgear erection using a 1 000-t lattice boom crane. Shaft Sinkers is sinking the main and vent shafts for Styldrift (photo: TWP).

shaft has been completed and the second will have holed through by the time this article is published. The entire contract will be completed by the end of the year. The project is located in a remote area of Sikkim Province in the foothills of the Himalayas and posed significant logistical challenges to Shaft Sinkers. Teesta is by no means the first civils-type contract to have been undertaken by the group but it is the first in recent years – and is currently Shaft Sinkers' only non-mining contract.

Although the Russian and Indian contracts have reduced Shaft Sinkers' traditional dependence on the South African market, South Africa still accounts for approximately 75 % of the company's revenues. In all, Shaft Sinkers has 11 major contracts in South Africa, the majority of them in the platinum mining sector. The most prominent are Impala's No 17 Shaft, a three-shaft complex going down to a maximum depth of nearly 2 000 m, and RBPlats' new Styldrift mine near Sun City, which involves the sinking of two medium-depth shafts. Shaft Sinkers is also working for Impala at No 16 Shaft and for Lonmin at its Hossy, Saffy and Karee 3 shafts.

Outside of platinum, Shaft Sinkers has contracts at AngloGold Ashanti's Moab Khotsoong mine near Klerksdorp and at Heric Ferrochrome's Bokfontein mine near Brits. At Moab Khotsoong – which was sunk by Shaft Sinkers in the 1990s – the company is developing tunnels at great depth leading to reef, with all supporting infrastructure and services, while at Heric Ferrochrome it is sinking a decline system and is

also responsible for all the associated underground development. The Moab Khotsoong contract was extended last year and is now due for completion in 2013.

There is virtually no toll mining element within



Early photo of the Russian contract showing a Herrenknecht shaft boring machine working on the presink of the 1 100 m deep shaft for client Eurochem. This photo also gives some idea of the weather conditions the Shaft Sinkers' team is having to contend with in winter (photo: Shaft Sinkers).

the contract line up in South Africa, which reflects a deliberate decision by Shaft Sinkers to limit its exposure to this highly competitive and more risky market. The group's policy is to take on work of this nature only for specific clients and only where the risks of cost escalation can be tightly controlled.

With the successful exit of Shaft Sinkers' BEE partners Mmakau Mining and Holgoun as a result of the listing, Shaft Sinkers, whilst still compliant in terms of the DTI scorecard, is working on the creation of a broad-based BEE structure in order to meet the BEE requirements of some of its South African clients.

Commenting on the award of the Styldrift contract, Schroder notes that this has added a new client to the customer base, which is always a welcome development. He also reveals that some safety innovations are being introduced on the contract. "Kibble handling has been identified as a major source of injuries in shaft sinking. We've therefore developed systems and equipment for Styldrift which will allow us to move and position the kibbles at shaft bottom mechanically and which will also allow mechanical tipping in the headgear, thereby minimising the need to man-handle the kibbles directly," he explains.

On safety, Schroder says the company applies the highest standard procedures: "Our Lost Time Injury Frequency Rate or LTIFR is consistent with what our

peers are achieving – although it declined slightly in 2010 compared to 2009," he relates. "As regards fatalities, we reached three million fatality-free shifts in July last year but have subsequently suffered two fatalities. These incidents have been the subject of intense investigation and we've once more renewed and reinvigorated our emphasis on safety."

Shaft Sinkers' total labour force is now up to about



Shaft Sinkers' contract for the Teesta III hydro-electric scheme has been complicated by difficult access to the site with trucks sometimes having to be offloaded and reloaded to allow them to negotiate rock overhangs on the route (photo: Shaft Sinkers).

Shaft Sinkers makes kibble handling safer

Shaft Sinkers has an extensive R&D programme designed to bring innovative designs and increased safety to shaft sinking operations. Particular attention has been paid by the company to reducing the injuries that occur in the shaft bottom when workers handle the chains on the kibbles or move the kibbles into position for loading and hoisting to surface.

Traditionally, the kibbles are physically man-handled and moved into position by the labour on the shaft bottom. Some 80% of injuries in the shaft bottom, during sinking, are related to this function.

To reduce or eliminate these injuries, Shaft Sinkers has developed a technique which utilises the lashing unit to move the kibbles at shaft bottom. A frame with rollers has been introduced on either side of the lashing unit that is positioned to suit the kibble rope centreline and is in full view of the lashing unit operator.

When the empty kibble comes down to the shaft bottom, it stops at a pre-determined

position below the sinking stage. The lashing unit is then released from its 'holding' position to 'fetch' the kibble by rotating to the kibble rope, engaging in the roller and, under controlled circumstances, rotating to the position that is required. The kibble is then lowered to the shaft bottom and positioned for loading.

The winding engine driver is then signalled to lower the rope which has the chains attached. The chains are 'layed/draped' over the kibble by the shaft bottom attendant in such a way that the chains do not lie in the kibble so as to avoid damage when loading. Part of this system is the introduction of a 'crane' type hook in place of a conventional rope socket so that the chains are attached to the kibble and released from the crane hook – which obviates the need for a worker having to climb onto the kibble to remove pins to release the chains.

Once the empty kibble and its chains are positioned and with the rope released, the rope is raised to a pre-determined position whilst still located in the roller. The lashing



Shaft Sinkers has developed a technique which utilises the lashing unit to move the kibbles at shaft bottom.

unit is rotated to the position where there is a loaded kibble and the rope is lowered and attached via the 'crane' hook to the chains by the attendant.

The signal is then given to the lashing unit operator to raise the kibble (bearing in mind that the rope is still located in the roller) under controlled lift. The kibble is then rotated to the kibble rope centreline position. Once the kibble is steadied, the lashing unit rotates to its 'safe' position and the kibble is hoisted to surface. The sequence is then repeated.

