

Murray & Roberts Cementation

World Class Mining Contractor

ISSUE No. 5 • AUGUST 2007



MURRAY & ROBERTS CEMENTATION PIONEERS NEW TECHNOLOGY AT PAARDEKRAAL

Murray & Roberts Cementation is pioneering new drilling technology at Anglo Platinum's R2-billion Paardekraal 2 (PK2) shaft near Rustenburg, which forms part of its Rustenburg Platinum Mines (RPM) operation.

The main sink on the ventilation shaft commenced at the end of May, while collar construction on the main shaft is on target for actual sinking to begin during August this year. It

is believed to be the biggest vertical shaft system in the Anglo Platinum group in more than a decade.

The PK2 project comprises a downcast vertical main shaft for personnel and material, with an adjacent matching vertical upcast ventilation shaft. The main shaft will be 8.7 metres in diameter and sunk to 1 180 metres below surface (33 Level), while the ventilation shaft will

be 6.5 metres in diameter and will be sunk to 1 034 metres below surface (31 Level). The main shaft will access the declines from Paardekraal 1 Shaft on 28, 32 and 33 Levels, and the ventilation shaft on 29 and 31 Levels.

The main shaft will be equipped with a steel A-frame headgear and a personnel/material winder

CONTINUES ON PAGE 2...

MURRAY & ROBERTS CEMENTATION PIONEERS NEW TECHNOLOGY AT PAARDEKRAAL CONTINUED...



Another view of the construction site

Construction of the collar



From left: Arie Nijhuis, Murray & Roberts Construction contracts manager, Johan Groenewald, Murray & Roberts Cementation master sinker and Bert du Plessis, Murray & Roberts Cementation contracts manager

as well as a service/emergency winder. Surface civils encompass a standard shaft bank layout, a dedicated refrigeration plant, offices and change houses, together with bulk services such as water and electricity. It also includes foundations for the winders and the winder houses.

Some 25 000 m³ of backfill has been completed to date in order to finish the terrace around the main shaft. About 510 tons of reinforcing has been placed with an estimated 6 000 m³ of concrete to cast.

Johan Groenewald, Murray & Roberts Cementation senior master sinker, explains that while conventional shaft sinking will be done, a major innovation on the PK2 project is the use of a new electro-hydraulic drill rig.

"This is not new in the mining industry in general, but its application in vertical shaft sinking is new." The drill rig was designed in conjunction with Anglo Platinum and Anglo American Technical Services, and built in Rustenburg.

The new drill rig allows both floor and sidewalls to be drilled simultaneously. The two drill rig units to be used on the ventilation shaft are equipped with three booms each, as does the one being used for the main shaft.

The main consideration for applying this technology to shaft sinking is safety, as the new drill rig limits the number of people at the bottom of the shaft during drilling operations to six, as opposed to 16 with traditional rigs.

FROM THE DESK OF HENRY LAAS

Murray & Roberts Cementation saw substantial growth during the financial year ending June 2007, which was an exceptionally good year for the company. We reported revenue growth of approximately 20% over the previous year. However profitability was lower than expected, primarily due to the unprotected industrial action we experienced during the second half of the financial year.

The good news is that our order book is strong and with opportunities that we are currently working on, we envisage that growth in the 2008 financial year will be in the order of between 20 to 25%. Of course this will present some challenges to the business - chiefly from a skills point of view.

Our operations are still mainly focused on South Africa and with all the local project opportunities, we do not expect that to change in the short to medium term. However, our target market remains the entire African continent. We currently do work in Tanzania, Ghana and Zambia and part of our strategy is to follow our major clients into Africa if they want us to do project work there.

The management team has identified seven challenges for the business to ensure sustainability of the business growth we are experiencing. I will comment on three of these.

The first is our commitment to Zero Harm; the second the Management and Skills Capacity in the business and the third Employee Relations.

As far as Zero Harm is concerned, as an organisation we have a commitment to this principle and as part of establishing this culture, we have run a number of safety initiatives for employees over the past twelve months. These will be further reinforced at the Safety Summit to be held during the 1st quarter of the new 2008 financial year.

As far as Murray & Roberts Cementation targets are concerned - these are all expressed in terms of million man hours. We have an LTIFR target of 2.5 and a RIFR target of 1.25. For the new financial year, we also do not want any project, or part of a project, to have an LTIFR of more than 10.

We acknowledge and understand that these targets are challenging, but this underlines our commitment to Zero Harm.

Looking at the previous financial year, we started with an LTIFR of 7.59 and ended with a rate of 6.45, measured on a twelve month rolling basis. This rate improvement shows that we are moving in the right direction but

we are still far from our target. Although the year ended at an LTIFR of 6.45, there was only one other mining company that achieved a better rate. Unfortunately we had four fatalities during the year.

One of the initiatives we are putting in place to improve the safety result will be a significant focus on training in the business. The board has approved capital of R15 million for the 2008 financial year to develop and upgrade the training facilities at the Murray & Roberts Cementation Training Academy at our Bentley Park complex.

The second challenge centres around management and skills capacity, which is not only a challenge for Murray & Roberts Cementation but for local industry as a whole. Murray & Roberts Cementation is investing 3.4% of its annual wage and salary bill in training and development, and this compares very favourably with the national average of 2.8%. We currently have 100 people on learnership programmes, seven managers in training, 30 people on the graduate development programme and 35 bursars.

In July we also launched a new management programme in association with the Wits Business School which includes a tertiary qualification at NQF Level 5 and 6.

If a company invests as heavily as we do in developing capacity in the business, it is important that we retain those skills. In that regard, we are making a concerted effort to develop a comprehens

ive employee value proposition (EVP) together with succession planning and career path development programmes.

Being an industry leader is an enormous challenge for any company and for this reason we have to be proactive and lead the way by developing people not only for our own business but for industry in general. Many of our competitors do not invest in the development of their people in the same way we do. We also believe that it is important to have a proper retention plan in place.

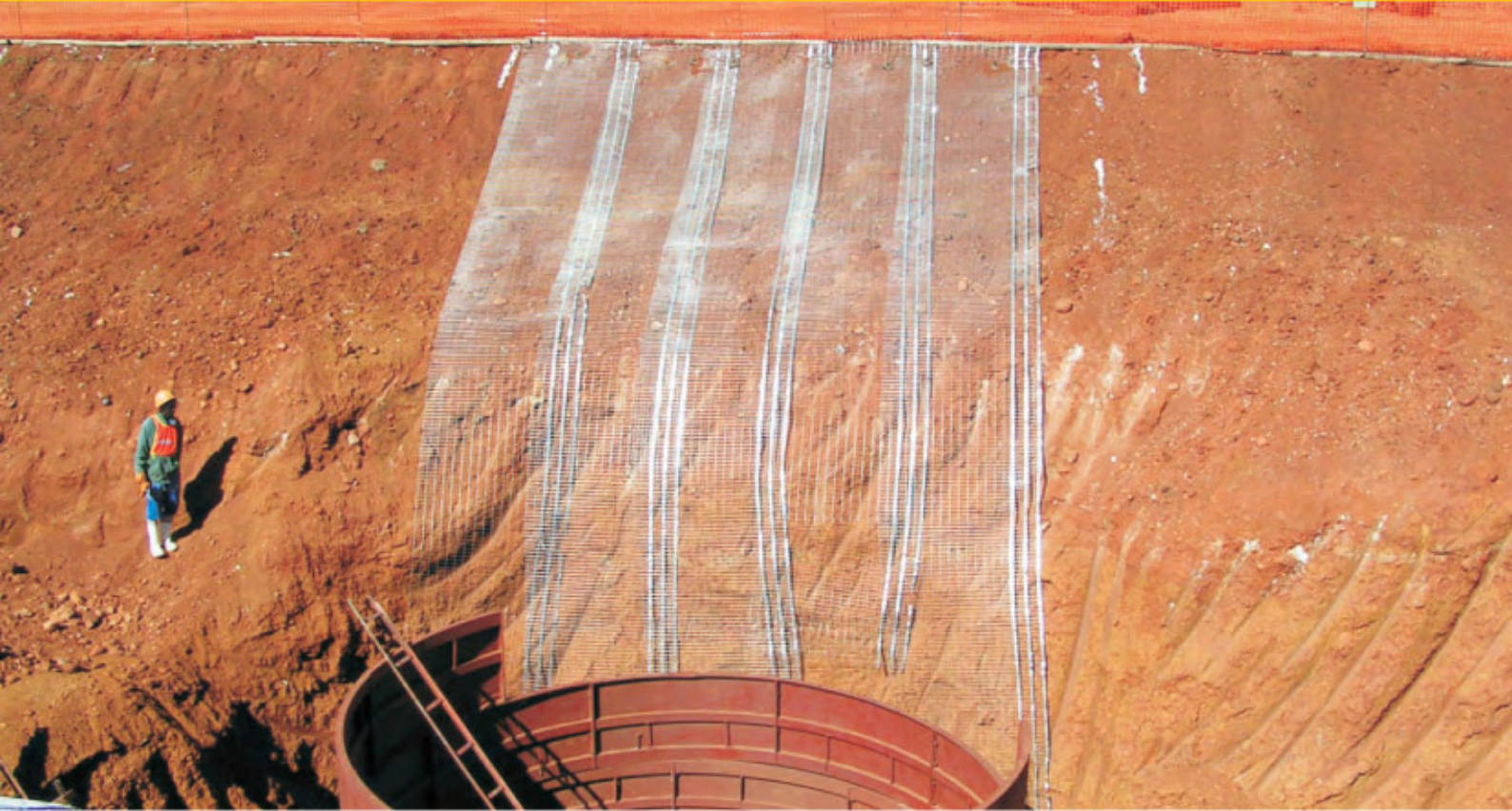
The third challenge is in the area of employee relations. Murray & Roberts Cementation currently employs 13 000 people and with the forecasted growth, we expect this number to increase fairly substantially. So with an increasing size in workforce, employee relations will become more and more important and it is the intention of Murray & Roberts Cementation to fundamentally change the relationship it has with all its employees. Development of the EVP will go a long way in achieving this objective.

Finally, I would like to thank all our people for their contribution during the previous financial year and look forward to their continued support as we jointly grow Murray & Roberts Cementation during the new financial year to June 2008, and beyond.

HENRY LAAS
MANAGING DIRECTOR



INNOVATIVE TRAINING FACILITY ESTABLISHED



Murray & Roberts Cementation is nearing completion of the first of two mock-up training facilities at the Murray & Roberts Cementation training academy at its Bentley Park complex near Carletonville.

"We took the decision to create a state-of-the-art facility in keeping with our commitment to attain world class performance and safety standards," explains Alan Kolesky, senior training manager, Murray & Roberts Cementation.

When completed, the mock-ups will simulate most mining activities, including conventional mining and shaft sinking activities.

"The fully controlled, life-like mining mock-ups will allow us to effectively transfer skills to our employees. Traditionally, training has been conducted under production conditions with associated pressures, which is not always ideal," he says.

It is possible to control the pace of learning according to the individual in the new simulated environment, which also allows experienced personnel to demonstrate best-practice methodology under model operating conditions. A further benefit is the fact that training will not be impacted by production targets or delays. This initiative is considered economically feasible because of the scale of numbers of employees involved. "The trend is to move away from migrant labour and hire personnel from local communities. These largely unskilled people need to learn the specialised tasks required by our company," Alan says.

Murray & Roberts Cementation plans to have 15 shaft sinking sites operational in southern Africa during the next five years. "We'll need four sinking mock-up sites to ensure adequate skills-testing throughput for this volume of work," he comments.

Two LHD simulators are also on order for delivery within the next six months. A typical simulator allows driving and operating within a three-dimensional environment under 'real' operating conditions and includes a portable cab with all the controls and gauges found in an LHD. "We have 120 LHDs in operation on our Kroondal contract alone, hence the decision to select this machine for training," Alan says.

Simulators have the advantage of allowing training 24/7, which means that more people will receive the skills more quickly. Training capacity can be tripled using the simulator, which is not regulated at the instructor's pace.



E-learning at Murray & Roberts Cementation's Bentley Park complex

Through a risk assessment programme, Murray & Roberts Cementation determined risks associated with handling mining equipment, and these have been built into the software program running the simulators.

There are currently 12 instructors at Bentley Park, with this number due to increase to 30 over the next 18 months. All training is outcomes-based, facilitated by an instructor, and each candidate is assessed by a registered assessor, 10% of all assessments are moderated to ensure consistent standards.

A locomotive on a tramping circuit



A development mock-up



LEADING CONTRACTOR SUPPORT

"The nature of mining contracting work necessitates a support infrastructure for plant and associated ancillary equipment," says international mining contractor Murray & Roberts' engineering services executive Neil Lane.

Neil says that the company's complex at Bentley Park has provided the solution and a competitive edge for Murray & Roberts Cementation to maintain its status as a major role player in the competitive environment in which it operates.

The company operates a plant store yard, in-house workshop and training facility at its operations at Bentley Park near Carletonville. The support includes a fabrication shop, a raise and exploration drilling machine repair workshop, general workshops for mining equipment rebuilds and repairs and plant and equipment storage facilities. The facility also offers an extensive mining training facility.

The Carletonville region was the centre of mining activities in the early 1970's, and Bentley Park was chosen as the location for Murray & Roberts Cementation's plant and equipment storage yard and repair facility. The intention of the company is to continue investing in the facility as its needs grow.

"In many instances our operations are highly specialised and we need to ensure our in-house competency in these markets," Neil explains.

Bentley Park is about 75 000m² in extent with about 4 000m² under roof and cranes. The largest overhead crane has a 30 t capacity. Shotblasting and painting is also done on site. The facility employs about 200 people.



Bentley Park comprises a plant store yard, in-house workshop and training facility at its operations

Neil says that the company has developed numerous manufacturing and repair skills that are unique to the industry. "This is the result of the level of expertise and experience within the company, coupled with a constant quest for innovation," Neil says.

He says that as an accredited ISO 9001: 2000, ISO 14001 and OHSAS 18001 supplier, it is important to support the credo of constant improvement. The company is also driven by safety, market requirements and is focused on customer service

Murray & Roberts Cementation is regarded as being one of the largest raisedrilling contractors globally with 27 raisedrilling machines in southern Africa alone. These machines can drill holes of up to 7,1 metres in diameter and to

depths of more than 1 100 metres. The company also supplies support for raisedrilling operations in Canada and Australia and other areas of the world from the Bentley Park complex. The company runs a similar workshop for its exploration drilling division.

The machines in the exploration drilling line are capable of drilling slim line exploration holes to depths of over 5 kilometres. The facility at Bentley Park is capable of rebuilding these machines, re-engineering, servicing and repair work in both raisedrilling and exploration drilling. Field maintenance activities are also covered from this facility.

The company is currently involved in the pre-rehabilitation of a shaft, in preparation of major works on one of the copper mine expansion projects in Zambia. This means that the company can supply equipment and expertise into all remote areas of the African continent. To facilitate this, the company used its engineering services, logistical services and expertise based at Bentley Park. A multi-skilled team from the company undertook the operation.

During the 2007/2008 period the company will have 55 apprentices from a variety of trades in training.

Murray & Roberts also manages the logistics of a fleet of 350 on road vehicles through the Bentley Park facility.

WORK PROGRESSING WELL AT CRM



Work on Murray & Roberts Cementation's contracts at Crocodile River Mine's (CRM's) Barplats Zandfontein section is progressing well. The two design-and-build contracts cover the vertical shaft and ore reserve development at the Zandfontein section, with a third for sinking of inclines.

Scope of work

The contract for the declines, awarded in June 2006 and which will run for 28 months, is scheduled for completion in November 2008. The second is the vertical shaft contract, a 17-month design-and-build programme awarded in November 2006. This comprises recommissioning of the surface structure, erection of the headgear, equipping the shaft, and blasting and establishing loading and water handling facilities. Number three is the sinking of inclines to open ore reserves and to feed the shaft with rock to hoist.

Mine history

Established in the late 1980s as a state-of-the-art operation, the mine was the first of its kind to be mechanised. The existing mine is between 1 Level and 3 Level, and operates using semi-mechanised methods. Stopping is by conventional methods, while development and tramming is mechanised. The future mine is being established from 3 Level below, which will use conventional mining methods.

The shaft was sunk initially by GFC Mining in 1988, and lay dormant from 1990 to date. It was flooded back to 60 metres below the collar. In April 2006 the shaft was dewatered down to 2 Level, where a holing into the shaft was

effected. This has enabled multi-blast conditions for the first time.

To date the shaft has been used for ventilation purposes. It is still in excellent condition, and will help fast-track the mine's expansion. Murray & Roberts Cementation will re-equip the existing 550-metre deep vertical shaft, and blast and equip a belt level and a pump chamber, as well as establish mine-water settling facilities.

Refurbishment of surface structure

The refurbishment of the surface structure

comprises removal of the headgear A-frame from Kennedy's Vale in Steelpoort, refurbishment and installation of this structure, and supply of the headgear centre tower. The contract covers erection of the headgear and winders at One Vertical Shaft, as well as reinstatement of the man winder and sourcing a rock winder.

Recycling the Kennedy's Vale headgear has translated into using 300 tons of structural steel for the CRM headgear. This is quite significant, as the huge demand for steel fabrication has resulted in extended lead times.



The stage being placed on wooden blocks by means of a 450 tonne crane

Because of this, it made sense to use the existing headgear with minor refurbishment in order to expedite ramp-up of the mine. It is envisaged that Barplats will ultimately be using 16 ton skips and ramping the shaft up to 140 000 to 160 000 tons a month. The vertical shaft will be fed by two incline shafts, which Murray & Roberts Cementation may begin working on this year.

Shaft rehabilitation

The first step in the shaft rehabilitation was to remove the stage followed by the next step, installation of the kibble and stage winders. Murray & Roberts Cementation will modify the stage in order to facilitate the equipping of the shaft. Once the stage has been installed in the shaft, the headgear will be erected after which the stage will be lowered and the shaft dewatered.

Initially, the guides for the shaft were on-site. However, these were sold to another mine, and hence new guides and buntons will be manufactured. These were delivered to site in June this year. "The shaft will be commissioned in mid 2008," Wynand Kukard, master vertical shaft sinker for Murray & Roberts Cementation, says.

Ore-handling facility

The shaft will handle material, men, rock and services into the mine. An overland conveyor will be installed from the shaft head to deposit rock onto an existing overland conveyor and stacker. The ore will be hoisted and deposited directly into the crusher without any additional tramping.

Decline contract

Murray & Roberts Cementation is also involved in a contract at the existing Decline No. 2, where the first task was to dewater the decline followed by rehabilitation. This included rebuilding the roadways and removing damaged and corroded ventilation pipes and replacing them with new 1 016 mm vent pipes. The contract also covers supporting the sidewalls and hanging walls using roof bolts, and reinstalling all services to the bottom.

In addition, Murray & Roberts Cementation installed water-handling facilities, including pump stations and pressure relief valves to ensure safe water handling. Electrical reticulation was also installed. "This rehabilitation is concurrent with normal development work," Francois van der Hoff, master decline sinker for Murray & Roberts Cementation, says.

Development work

Once the rehabilitation was completed to the bottom of the decline on 2 Level, development work began. Murray & Roberts Cementation is developing a 4 x 4 metre haulage going east to hole with No. 3 decline (west) on 2 Level.



Cage reinforcing

Development is being done using mechanised methods; the crew is drilling with mechanised double-boom drill rigs, with a four metre long drill steel. They then blast at the end of the shift, and clean-up using load haul dumpers and dump trucks.

Concurrent with this development, additional work is being done in No. 2 decline to extend it to 3 Level. There will be further decline development at No. 5 decline. "All this development work is being done to open up additional ore reserves. On 3 Level, mining will take place underneath the Crocodile River itself," Francois explains. The Crocodile River Mine is located in the eastern portion of the western limb of the Bushveld Complex, near the town of Brits in the North West Province.

Safety record

To date, the contract has achieved 197 days with no lost-time injuries (LTIs). "Our safety statistics are outstanding, and can be attributed to our overall management approach, as well as the input of all personnel, who are 100% committed to ensuring a safe working environment. In fact, our training officer for the contract

recently received a special award for the manner in which the groupwide STOP.THINK campaign has been implemented," Leon Munnik, business manager, Murray & Roberts Cementation comments.

In addition to the Murray & Roberts Cementation safety programme, Barplats has its own Kwena Rating Audit. The contract won an award for the best production sites at the mine, and was also awarded fifth place overall at the mine. This rating covers all contractors, suppliers and mine sections, both surface and underground, and is considered quite an accolade.

Leon Munnik, business manager, Murray & Roberts Cementation



AQUARIUS PLATINUM EXTENDS CONTRACT AT MARIKANA



Aquarius Platinum's Marikana Platinum Mine has extended its trial mining contract with Murray & Roberts Cementation at its No 1 Shaft and newly planned No 2 Shaft. The estimated annual revenue from the project is R45 million and the project will, at steady state, employ some 400 people. The contract was originally awarded in 2005.

The trial mining contract (now designated as No 1 Shaft) entailed sinking a 300 metre decline and the removal of reef to test viability of mining in the area. As this contract was concluded, mining operations continued, followed by the installation of ventilation and conveyor belt systems. This was done to enable removal of ore from underground by Murray & Roberts Cementation as mining progressed deeper.

This operation is relatively small compared to the other shafts operated by Murray & Roberts Cementation at its Marikana and Kroondal operations, and is planned to deliver a combined 50 000 tons per month from the two shafts. Management of the project will be undertaken by the Marikana No 4 Shaft management team.

Unique features of the project include:

- a) The decline at No 1 Shaft was started from the bottom of the open pit. The same planning has been done for No 2 Shaft, where the high wall was available

- b) The dip of the reef varies between 9 degrees and anything up to 25 degrees. The other shafts maintain a steady reef dip between 9 degrees and 12 degrees. This will necessitate that the mining method change from the current room and pillar method to a more hybrid system, where LHD's will only operate in the drives and a conventional panel mining layout will be adopted;
- c) Reef widths and intermediate waste in this area also varies and stoping widths have been recorded at between 1.8 metres and 4.0 metres. This is problematic in

attempting to determine a single mining method.

- d) The contract pricing has been structured so that crews and equipment can be moved between projects including the Marikana No 1, No 2 and No 4 shafts to create resource flexibility.
- e) Site establishment will be limited, since it is in the bottom of the pit. As with any similar operation, the rainy season poses its own challenges.

The official start date of the project was 22 September, 2006 and as with the other Kroondal and Marikana projects being undertaken by Murray & Roberts Cementation, this is a three-year rolling contract renewable annually.



An overview of the Marikana operation

Murray & Roberts Cementation

World Class Mining Contractor

Tel: +27 (011) 201-5000 • Fax: +27 (011) 201-5500 • Email: info.cementation@murrob.com

www.cementation.murrob.com