

**Murray & Roberts Cementation**

World Class Mining Contractor

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**FROM THE DESK OF HENRY LAAS**

During the past few months there has been a significant increase in project activity in the mining industry. This is true for a range of commodities, although platinum and gold are still dominating the mining project scene in South Africa. The platinum sector saw a number of new mine owners emerging, such as Blue Ridge Mining and Wesizwe, whilst Eastern Platinum (Barplats) also embarked on an impressive growth programme. Project activity in the established gold and platinum producers is also very high with several billion rand of mining projects to be awarded to the mining contracting industry during the first quarter of 2007. These include projects for Gold Fields Limited and Anglo Platinum Limited.

This growth is presenting new challenges to our industry which during the past decade and more became accustomed to operating in a declining market where rationalisation, retrenchment and cost cutting in several areas, including training and development, were common occurrences. Today, the industry is faced with capacity challenges and skills shortages which require management intervention to ensure that growth challenges are met.

In anticipation of this demand Murray & Roberts Cementation has, over time, introduced several initiatives. All in support of its ongoing commitment to its clients in the mining industry to deliver its value proposition of a strategic relationship and comprehensive service offering supported by operational excellence. Today, we have connectivity to all our project sites with a JDE Enterprise Resource Planning System which went live on October 01, 2006. Our business is supported by a Business Management System which includes standards, policies and procedures and risk management. The payroll system is being upgraded with the introduction of Symplexity which is to be rolled out as a comprehensive Human Capital System. We currently employ 12 000 people and this figure is expected to increase to 16 000 by the year 2010.

Significant effort is going into training and development. We currently have 30 bursary students at universities and technikons, employ 22 graduates on a graduate development

programme, and have 32 learner miners and 57 apprentices on a structured training programme. Technical skills training is being provided at the Murray & Roberts Training Academy, supported by the Gold Fields Training Academy. All these initiatives are necessary to ensure that we have the capacity to provide a sustainable world class service to mining companies.

Following the recent acquisition of Concor by Murray & Roberts, all Concor underground mining projects have been taken over by Murray & Roberts Cementation. The opencast mining business remains with Concor, and through Concor and Murray & Roberts Cementation, Murray & Roberts can now offer a combined opencast and underground mining contracting service. The company was recently selected as the preferred contractor for a platinum project starting off as an opencast mine and developing into an underground mine.

Innovation continues to be a priority in Murray & Roberts Cementation and the latest breakthrough was the development of an electro-hydraulic vertical shaft drill rig which can drill vertically as well as horizontally. This development was done with input from Anglo Platinum and the rig will initially be used at Anglo Platinum's Paardekraal 2 Shaft Project.

The main benefit to be obtained from this rig, apart from higher productivity,

is improved safety as fewer people will be required at the shaft bottom. This rig will also drill and install support.

Safety is an area where significant improvement is required in the South African mining industry and innovation to find less risky methodologies to perform certain work, or to as far as possible engineer risk out of the workplace, will remain a focus area.

Finally, considering all these developments, Murray & Roberts Cementation is indeed offering interesting employment opportunities and career paths to a wide spectrum of talented employees. Skilled people are fast becoming the scarcest

resource in our industry. We recognise

this and I wish to thank the many Murray & Roberts Cementation employees through whom we are achieving our successes on our project sites.



# GROUT PLANT SUCCESSFULLY CONSTRUCTED FOR UNION SECTION

The successful construction of a four-pump grout plant at Anglo Platinum Ltd's RPM Union Section by Murray & Roberts Cementation will meet the ongoing support needs for production on the mine's decline section.

Murray & Roberts Cementation was awarded the contract in January 2006, and the plant was commissioned in May 2006, well within budget and on schedule. This was accomplished through

teamwork, coupled with the necessary expertise and available resources. Johan van Zyl, engineering foreman-mining services for Murray & Roberts Cementation had a strong team and completed the work with no lost time accidents.

Designed to pump 100 m<sup>3</sup> in a single eight-hour shift, the custom-designed grout plant comprises two 100 ton silos for fly ash and cement, a slimes sand bay for classified tailings, a 600 litre high-

shear mixer, a 6000 litre storage tank and a fully automated batch weighing system. The silos are equipped with dust filtration units.

In some instances the automatically batched grout is pumped a distance of up to 4000 metres to the requisite working areas, where it is being used in pack filling for underground support. Prior to construction of the new grout plant, packed grout requirements were met using the existing



## STOP.THINK

Stop.Think is the message being communicated to all Murray & Roberts employees. It is an outreach campaign to improve safety awareness and strive for zero harm in the workplace.

"Because we care for our employees, we are urging them to stop and think before they begin a task or enter the workplace to focus their thoughts on doing it right the first time," explains Graham Pascoe, risk co-ordinator of behaviour interventions at Murray & Roberts Cementation.

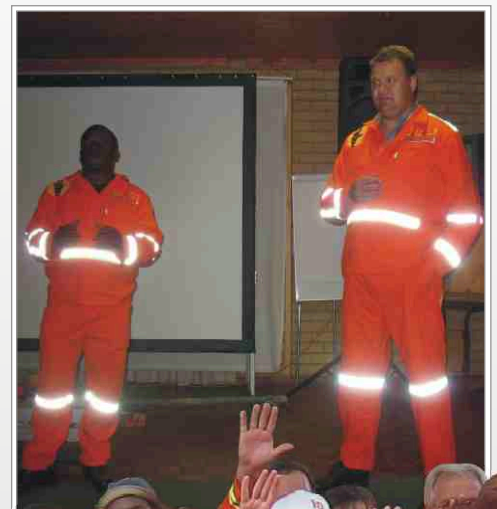
The campaign is being rolled out across all Murray & Roberts sites and contracts and is being done using industrial theatre with the concept of safety on the sports field as an analogy.

A vital component of the Stop.Think campaign is the use of hand signals, which allow workers to communicate vital safety messages to each other in noisy environments, over vast distances and at differing heights.

Each site/contract has a Stop.Think coach who is responsible for training all

workers to take responsibility for their own safety and that of their colleagues. In Murray & Roberts Cementation where a safety conscious culture already exists and procedures are advanced, behaviour change principles and practices are being introduced to correct at risk behaviour and reinforce safe behaviour.

A newly established Bill of Rights will commit Murray & Roberts to a safe and healthy working environment for its employees and visitors, and ensure that the workforce is empowered and committed to collectively striving for zero harm.



grout plants, with additional ranges feeding the decline section by operating the system with additional labour.

While construction was taking place, Murray & Roberts Cementation concurrently designed and erected a fully automated two-pump pilot plant to provide the interim grout requirements while the main plant was being built. This pilot plant was operational by mid March and took over the remote

pumping from existing plants. Now that the new grout plant is operational, the pilot plant will be decommissioned and relocated to a new site at Union Section for ongoing grout production.

It is Murray & Roberts Cementation's intention to grow the grout plant outsourcing portion of its business. Grout plants first became popular when this support technology was introduced into the market in the late 1970s when the significant

logistical benefits were realised. There is a growing trend for mines to outsource the design, installation and operation of grout plants because of the expertise and knowledge required for this type of plant.



# WE WELCOME FIRST YOUNG BLACK WOMAN TO OUR RANKS



The previously exclusively male domain of underground mining within Murray & Roberts Cementation has admitted its first black woman (and first woman) to its ranks with the appointment of Nomvuyo Mfundisi as a miner.

“Ever since I was a young girl my father, who worked on mines, told me how they work. At that time, there were no woman miners, but I knew that I wanted to become a miner. In 2004 a company was recruiting women as Learner Miners, so I decided to use that opportunity - I was one of the first four lady learner miners. I enjoy mining, and every day I go underground with a smile. I like the challenges in mining - and there are many. I learn something new every day. Mining is good only if you work as a team with your gangs and shift boss,” Nomvuyo explains.

Born in Mthatha in the Eastern Cape, Nomvuyo matriculated from Ngangeliswe Senior Secondary School in that city. She moved to Klerksdorp, attended Klerksdorp College and attained an N5.

Comments made by her superiors are a testament

to her aptitude for life underground “As a woman she views things differently. She has a high level of commitment to her work and is very confident. It is an absolute pleasure to work with her.”

Nomvuyo is involved in a contract awarded in April 2005 at BRMP's South D Shaft for mining 9000 m<sup>2</sup> of stoping and 250 metres of development per month. This is a fixed term contract and although scheduled to end in January 2008 the parties are in the process of extending the contract for a further year.

“We have an unusual arrangement with Anglo Platinum, where we share responsibilities with them. The shaft manager is an Anglo Platinum employee, and one mine overseer is from Murray & Roberts Cementation and the other from Anglo Platinum,” Johan du Preez, Murray & Roberts Cementation contracts manager responsible for BRMP South D Shaft, says.

A typical working day with Nomvuyo and her team includes washing the face and workings to eliminate dust at the start of the shift. The team then

installs temporary support to ensure a safe working environment and removes loose rocks from the hanging and side walls, known as barring. Once this is completed, the face is marked off.

Nomvuyo works with data received from the mine assay department and marks the face accordingly. Then the rig drill operators (RDOs) begin drilling using hand held and machines. During the drilling operation, the team installs permanent support to meet mine standards. During this drilling sequence, the remains of the blasted ore body is also removed and normal maintenance to winches and rigging appliances is carried out.

“Typically, drilling the face would take an entire shift or the best part of four to five hours. Then we will charge up the face,” Nomvuyo says. After charging up, she installs the ignitor cord in the holes on the face. Under her supervision, the team removes the temporary support and she installs and tests the blasting wires, after which they are connected. The crew leaves the area and after writing up a day shift/night shift communication, Nomvuyo's shift is over.

While the final preparation for blasting is being done, the pre-planning and preparation for the night shift and the next day are put in place. "This is all about team work and passing the baton to the next team; planning on critical jobs must be done with the team leader of the next shift," she says.

Nomvuyo supervises two separate stoping crews with 13 people each, all of whom are male. The two panels where she is currently working are opposite each other and referred to as South 20 and North 20. In total there are 15 stoping crews on this contract and for the last four months her production rates have been far better than those of the other crews.

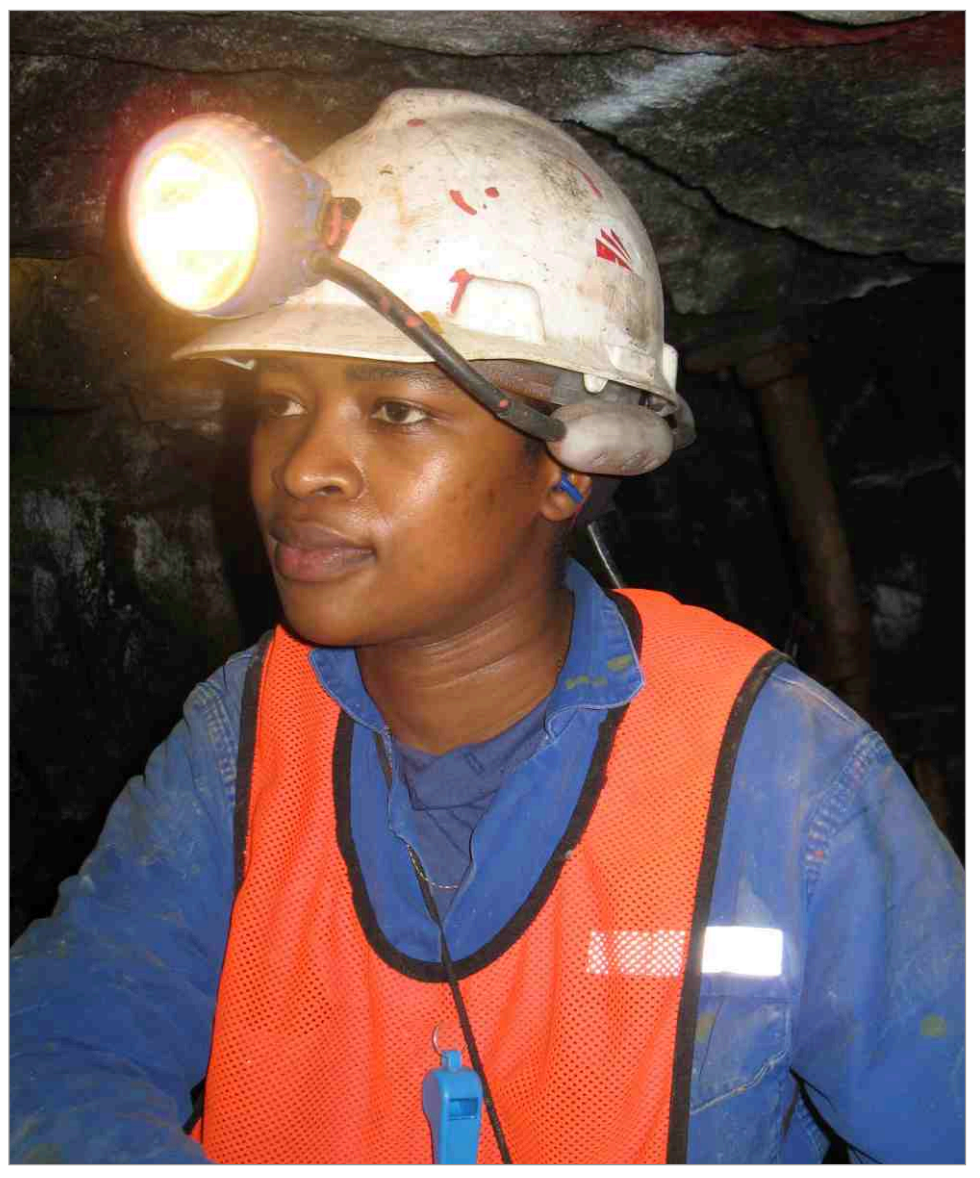
Over four months, she achieved 126% of her call with the highest monthly production rate being 806 centares per panel. Her target is 500 centares per panel. Safety rating is determined through an inspection of the mine safety department of the actual physical conditions and her average over the last three months has been 94%. No lost time injuries have been recorded against any of her crew. The whole crew is extremely motivated working with Nomvuyo and all are doing very well.

At her initial interview, Nomvuyo was prepared to take a job as a cleaner but had no intention of staying at that level, she wanted to progress through the ranks into management. She was initially employed as a conveyor belt cleaner, which involved physical labour such as raking, shoveling and cleaning spillage from under the conveyor belts.

She had a temporary blasting certificate when she joined and Jan Erasmus, Murray & Roberts Cementation mine overseer at BRPM South D Shaft, saw Nomvuyo's potential and took on the task of mentoring her. At her own request, she was moved into mine development, as she wanted to be exposed to other mining activities such as blasting.

Her first appointment was as an assistant miner, where her general duties included preparation of faces, charging and blasting. After being an assistant miner for one month, she became a team leader on completion of the Competency A Course at the BRPM Training Centre. She was then made a learner miner and has been doing this for the past five months. She has now been appointed as a miner. Erasmus describes her as very feminine with finesse. She is always willing to learn. It is both a physically and mentally demanding job and she has a good working relationship with her two teams, and they respect her knowing that whatever they can do, she can do better.

Access to the face is via a decline and the whole project is 161 metres vertical distance from surface. It is a semi mechanised operation, with the stoping panels being mined conventionally and LHDs collecting ore from muck bays and then tipping onto a grizzly and ore is fed via a conveyor to surface.

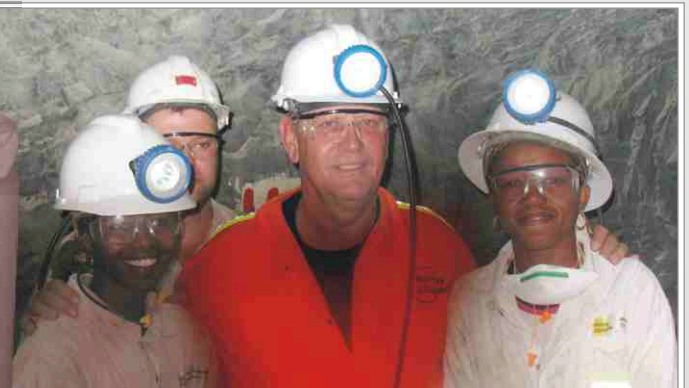


# WOMEN POWER SUCCEEDS AT KLOOF

Two teams of women played a pivotal role in the completion of a contract to construct two water retaining bulkhead plugs underground on 27 Level at Kloof No 10 shaft. The women operated the batch plant and were directly involved in the physical construction of the water plugs. This is no mean feat, considering that these plugs are six metres in length and designed to withstand a water head of 210 metres.

"We have not regretted the decision - they worked exceptionally well together as a team. With a contract of this nature, where attention to detail is critical, particularly in terms of cleaning the rock plums, they really performed a superior job," Deon Botha, cementation foreman on the contract for Murray & Roberts Cementation, says.

The women did the same physical labour as men would have been doing on this contract. This included lifting 25 kg bags of cement, operating the batching plant, barring and packing rock plums as well as operating the cementitious mortar line used to intrude grout into the plug. The contract commenced in February 2006 and was completed in August 2006.



## Some of the women involved recount their experiences on the contract:

### Motshidisi Marian Short

The job was very challenging, as I was a newcomer. The pre-requisites for the job are mainly safety awareness and the working area requires a lot of safety. Tools need to be neat and kept to their positions to avoid people tripping over them. And the most important aspect is communication. With good communication there will be no misunderstanding and health and safety hazards are minimised. Good management was evident on the job when certain targets were ordered. Management made sure that the team was provided with the required equipment for the job. Working as a team was a wonderful thing, as it made our job a lot easier. I take this job as the beginning of a challenge a woman has to face in the industry. It wasn't easy in the beginning, but I managed through co-operation and I'm willing to learn more in the future.

### Pulane Sophie Manyapelo

It was a great experience doing the plug. To start, we had to remove the stone until we reached the table, then we made the box with planks on both sides and poured the premix before packing the stones inside the plug. When the plug was full of stones, we closed the other side so we could pump the grout into the area. The work was hard but we did it and I hope our company realised that women can do the job.

### Alinah Lebo Menzi

During the first month, I didn't believe I was going to make it and I kept telling myself that it was a very hard job and that only men could do it. But I was wrong! I found I was able to lift 30 kg bags of cement, 25 kg bags of sand and 30 kg bags of premix. I also transported stones to the plug, used a saw to cut different sizes of planks, lifted pipes, used a chain block to lift heavy equipment and operated a water hose and an air hose. I've also learnt to use a "pika" machine to dig out stone, a "pompy" to remove water from the plug and a big "pompy" machine to pump cement and sand into the plug. It isn't easy being a plug assistant, particularly as a woman, but I've proved myself and I'm proud of my achievement.

### Kefilwe Segone

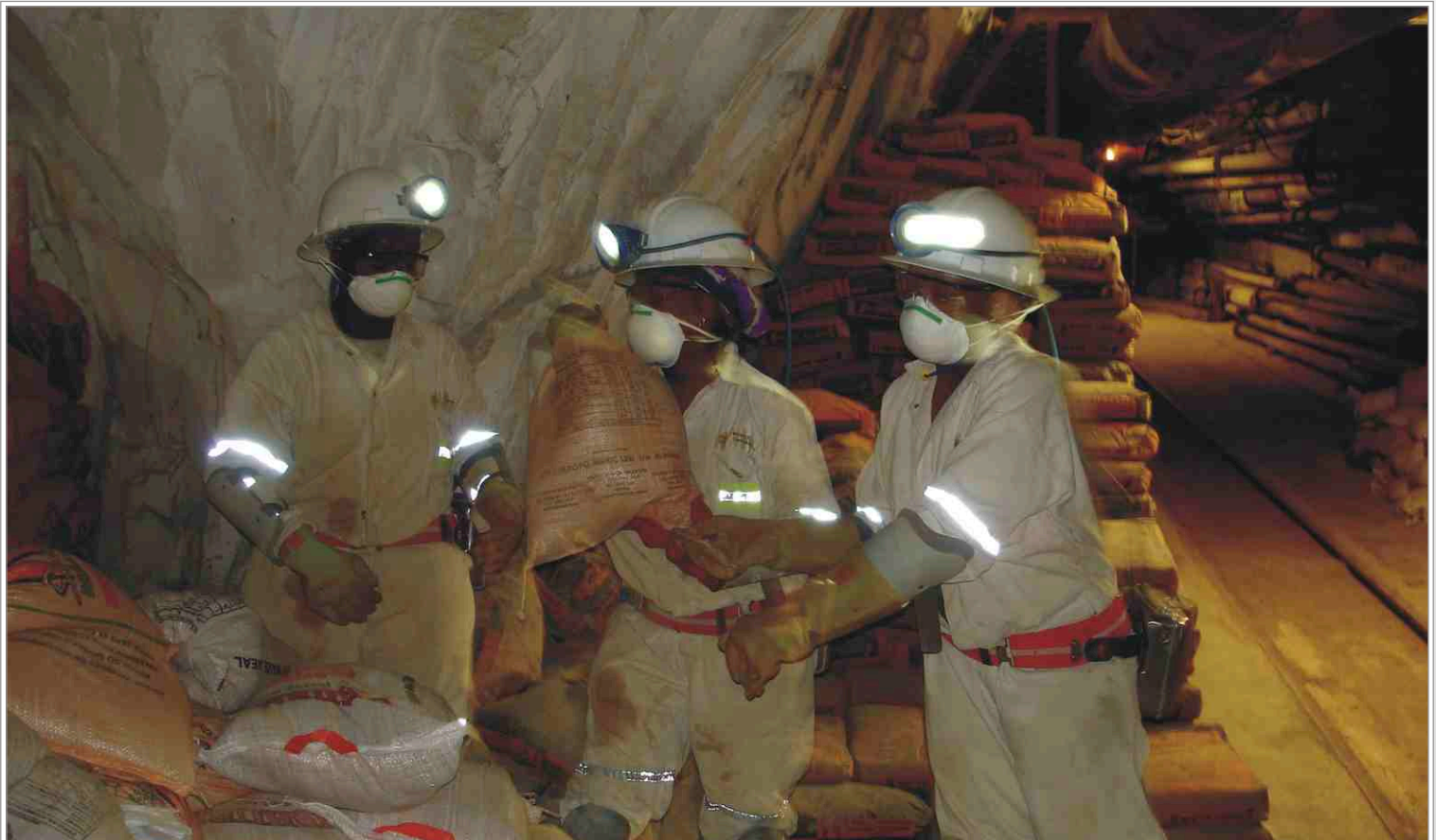
Working at Murray & Roberts has taught me many things I never thought I could do. I have learnt to use some tools which I can use at home! Although I must admit that the job is quite tough and somehow complicated, but I have managed so far. Picking up heavy stuff wasn't that easy, but I think I can still do it again.

### Barbara Mba

I helped do the plug at Kloof Mine No 10 Shaft in Lebanon. We had two plugs to do and worked as a team. We started by searching the "taffel" and clearing a distance of about 8 metres, then built the box, cleaned the stones and packed them. After that we installed two-inch and one-inch pipes and filled up the place with stones. Then we pumped, which was the most difficult part of the job. I'm proud of what I did, including picking up a bag of cement weighing 25kg and 10kg of sand. It wasn't an easy job for a woman, but we all survived. Now I know how to do the plug and we are busy drilling the second one after finishing the first. We were supposed to do the job for a year, but we completed it within six months. I enjoyed working with my team mates and we are looking forward to the next challenge. I'm also grateful to my foreman and my team leader. They taught me how to do the job. We worked safely, with no injuries.

### Jeanette Dineo Mosepele

Since February 2006 when I started working for Murray & Roberts Cementation, I have learnt a lot about my job. I never dreamt that I would be able to do a man's job one day! What we did was very difficult, but we managed.



# INNOVATIVE NEW MINING TECHNOLOGIES IN SHAFT SINKING IMPROVE SAFETY AND PRODUCTIVITY



A combination of new and innovative mining technologies in shaft sinking and mine development is aimed at increasing productivity and improving safety in the different areas within Murray & Roberts Cementation. These include a new drill rig which reduces the number of people required at the shaft bottom, lowering the risk of employees being exposed to falling objects or debris.

"From a productivity point of view, we believe that this development will allow us to sink shafts faster," Tim Wakefield, technical director at Murray & Roberts Cementation, says. He explains that this particular development is currently in a detailed design phase following six months of development. "We have drawn on Canadian experience in hydraulic drilling and applied their expertise to shaft sinking. In the process, we are integrating a number of proven technologies in an innovative way," he explains.

According to Tim, the drill is essentially a new type of shaft jumbo drill rig, and its development is linked closely to a client working in conjunction with Murray & Roberts Cementation on the project.

"We often achieve a better outcome on this type of project when working in partnership with a client," he remarks.

Murray & Roberts Cementation has also made a substantial contribution to mining innovations using its RVDS technology, developed to ensure the best possible accuracy on pilot hole drilling in raiseboring and shaft boring contracts.

"One of the 'tricks' we use in the innovation process is to identify innovations which do not fit into a system, then package these or combine them in such a way as to offer operational benefits."

A further example of innovation in shaft sinking within Murray & Roberts Cementation is the mechanisation of the blow over process at the Impala Platinum No. 20 shaft contract. The process was traditionally done using pneumatic hoses with operators, and its mechanisation has enhanced safety, lowered the risk of injury and resulted in greater productivity.

In terms of vertical shaft sinking, the company is actively involved in examining the method used to charge blast holes and looking for ways to speed up the process using an alternative packaging of the explosives.

One of the main drivers of innovation is a lack of skills within the shaft sinking industry. "We welcome newcomers to our market, but they arrive with huge potential and no experience. It is these individuals who seem to be more able to innovate than experienced people who are generally more set in their ways," he explains.

"Leaders should nurture and support the innovation process. This will ensure that we remain at the forefront of our industry," Tim concludes.

## WELCOME TO OUR FELLOW MINING CONTRACTORS

Murray & Roberts Cementation is in the fortunate position of having further extended its already comprehensive skills base with the integration of Concor Underground Mining into the company. With this exciting move, its core competency has been expanded to include the underground coal mining sector.

As a result of Murray & Roberts' acquisition of Concor, finalised in July 2006, Concor was delisted from the JSE and is now being run as a subsidiary of Concor Holdings Ltd. This, in turn, led to

rationalisation within the greater group and the decision was made that Concor would no longer be involved in underground mining activities. Hence, selected Concor underground projects were ceded to Murray & Roberts Cementation.

The process covers several projects in the Rustenburg area, one at AngloGold Ashanti and three in the underground coal mining sector. This move has enabled Murray & Roberts Cementation entry into the underground coal mining contracting market, and in particular, shaft access type pment

projects. This includes vertical or decline, as well as connecting of different underground mining blocks to one another with horizontal development work. One of the other projects which came on board is a civil engineering contract for the Braamhoek Pumped Storage Scheme.

Skills not previously present in Murray & Roberts Cementation specifically referring to personnel with fiery mine experience and appropriate government certification for competencies within this market sector, are being addressed. It is the company's intention to build on this.

## Murray & Roberts Cementation

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