

# Directors' review of operations – Somkhele

Somkhele is an open-pit anthracite mine, with a high-quality, 15-metre thick seam deposit, located about 85 kilometres from Richards Bay in KwaZulu-Natal Province. Production began in June 2007. Somkhele's product is low in phosphorus, sulphur and calcium, which makes it a viable reductant for the titanium and ferrochrome industries in South Africa, and suitable for the pelletising and sintering of iron ore. The mine has mining rights over Areas 1, 2 and 3, covering 1,400 hectares, and new order prospecting rights over Areas 4 and 5, amounting to approximately 23,000 hectares.



## Operational and Financial review

Somkhele produced 1.1 million run-of-mine (ROM) tonnes and sold 481,638 tonnes of anthracite in the financial year ending 30 June 2009. The 4.8% decrease in tonnes sold compared with the previous year was as a result of a significant decline in the international market for metallurgical coal, and the South African ferrochrome industry reducing production levels in the six months to June 2009. Somkhele's long-term export agreement meant that it was largely shielded from the reduction in international demand.

Open-pit, 'truck and shovel' mining methods are employed at Somkhele in a series of mini-pits, utilising a combination of pre-stripping and localised roll-over where bulking factors and final void requirements permit.

A total of 206,356 tonnes of anthracite were mined from Pit A in the year under review during which the final planned depth of 80 metres was reached. Feed to the washing plant was augmented with anthracite from Pits B, D and E, which is treated as one mining section. The average strip ratio over the life of Pit A is 2.45 and for Pit B-E, 1.64.

Sufficient pre-stripping of the overburden in the pits was undertaken during the year to ensure that development expenditure can remain at reduced levels in the year ahead, without causing a decrease in production. The start of extraction of coal from Area 1 has been delayed, pending a visible and sustainable increase in market demand.

A maximum vertical highwall of 30 metres is planned after extraction of coal with the final highwall sloped at 45° above this level. Detailed rock

mechanics studies have been carried out and have concluded that the hanging-wall strata are competent and dominated by massive sandstones. The rock quality designation (RQD) values are available for the cores and these indicate, in general, that there is 80% to 98% of good to excellent rock quality. However, given the tectonic setting and the magnitude of intrusives and faulting, a conservative approach to slope stability is being adopted. Concern centres on the orientation and frequency of defined planes of weakness, including intersecting faults and slicken sided shears in the highwall. On exposure of the highwall at the start of each pit, detailed mapping of the strata is carried out and a rock mechanics specialist engaged to assist in the field with the study and assessment of conditions.

### Somkhele – Key performance indicators

		FY09	FY08
Total ROM production	Mt	1.1	1.1
ROM tonnes washed	Mt	1.1	1.1
Plant yield <sup>(1)</sup>	%	42	46
Saleable tonnes produced	t	454,188	506,121
Tonnes sold	t	451,081	494,602
Sales revenue	Rm	343.5	219.8
Profit before tax	Rm	94.2	72.3
Profit after tax	Rm	65.6	51.5
Capital expenditure	Rm	263.4	179.8

<sup>(1)</sup> Bulk mining



The highwall slope is benched when excess waste is removed from the excavation to enable roll-over to proceed. The practical depth for roll-over is a function of bulking and void space in the cut. Somkhele uses the services of an independent rock mechanical engineer to advise on highwall stability and the safe design of pits.

During the 2010 financial year, the mine will implement a Datamine planning model. This computerised tool will assist with the following:

- determining mining sequence;
- a short-term, monthly planning system and a long-term system for five-year and life-of-mine plans;
- generating sequential advances from face position to face position and comparing those with the blocked mineral resource in the model;
- coal proximate analyses for model blocks;
- identifying the quality of the areas to be mined and assisting with future blending requirements; and
- enabling Somkhele to optimise mine planning and mining costs.

## Coal preparation plant

Somkhele's existing coal preparation plant has a throughput capacity of 1.4 million tonnes of ROM coal a year. The actual throughput of ROM tonnes washed during the year was 1.1 million tonnes – 78% of design capacity.

A rotary breaker was installed in the primary crushing circuit during the year to ensure better feed control to the washing plant, with the added advantage of removing a percentage of the rock dilution contained in ROM feed. The rotary breaker was still being optimised at year-end and it is expected that it will only be fully utilised once the second washing plant is built.

The plant yield ended the year at 42%. This is directly related to the quality of the ROM feed and meeting different specifications in terms of the products sold. Management is constantly striving to achieve an optimal balance between local and export markets. Whereas a 15% ash product is required for the local market, an 18% ash product is sold to the export market.

## Capital expenditure

Capital expenditure for the year was R263 million. Apart from pre-stripping of the open-pits at a cost of R86.4 million, the main items were the delineation of additional resources, the construction of a rotary breaker, mine development, and the construction of workshops and terraces for product stockpiles. The rate of spending was, however, reduced in the second half of the financial year in order to preserve cash, and due to the decrease in demand for anthracite experienced in the first half of the year.

The capital expenditure budget for the 2010 financial year will revert to normal levels – at R29 million – with Phase 1 of Somkhele's development now complete. The focus of the spend will be on developing the Luhlanga and Kwa Qubuka strike areas, completion of development of Area 1 prior to mining, and a new weighbridge.

## Exploration programme

Somkhele has one of the largest open-pit anthracite reserves in South Africa, with a further 23,000 hectares under exploration. The exploration programme conducted by the mine in the year under review concentrated on the Luhlanga, Kwaqubuka and Emalehlene coal deposits because of their proximity to Area 2 where mining is currently taking place.

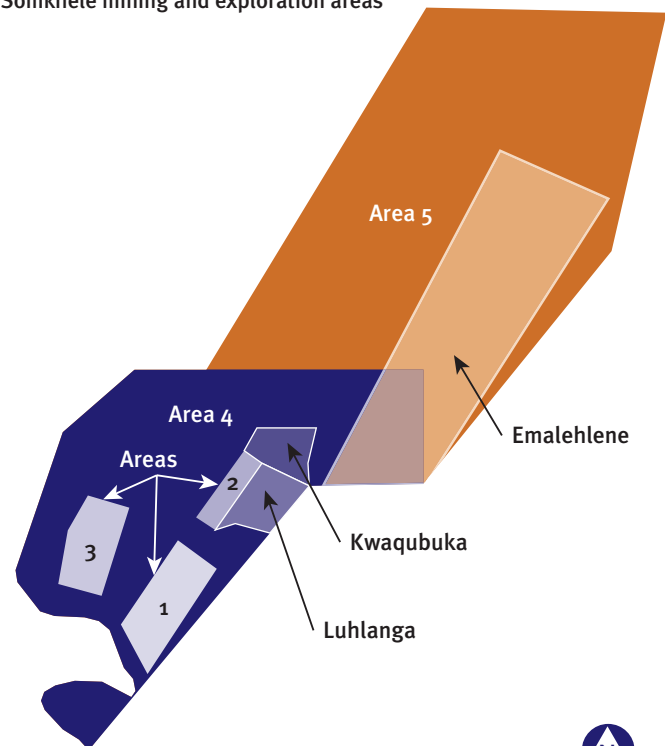
The mine conducted an accelerated exploration drilling programme which was completed in June 2009 in accordance with the guidelines of the SAMREC Code and verified by Snowden Mining Industry Consultants in their report dated June 2009.

The drilling programme resulted in 24 million tonnes of resources being delineated as follows:

- 11.9 million tonnes of measured resources in the Luhlanga area;
- 3.4 million tonnes of indicated resources in the Luhlanga area;
- 0.2 million tonnes of inferred resources in the Luhlanga area; and
- an additional 8.5 million tonnes of inferred resources in the Kwaqubuka and Emalahlene areas, all of which are contiguous with current operations. (See pages 38 and 39 of the report for the annual reserve/resource statement for further details).

At current rates of production, we expect the life of mine at Somkhele to be in excess of 40 years.

Somkhele mining and exploration areas



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## Safety, Health and Environment

### Safety and health

Somkhele strives for excellence in the management of safety and health. The mine complies with all applicable safety and health legislation and ensures that tasks are performed in a safe manner and adhere to the mine's safety policy.

The management of occupational safety and health at Somkhele draws on programmes devised by the National Occupational Safety Association (NOSA) and International Risk Management Consultants IRCA.

Systems to monitor the implementation and effectiveness of safety are in place and monthly, quarterly and annual audits are conducted to measure compliance and to highlight any shortcomings.

As was the case during Somkhele's first year of operation (FY08), there were no fatalities at this mine in FY09. A single lost-time accident was reported during the current financial year giving the operation a Lost Time Injury Frequency Rate (LTIFR) of 0.29 per 200,000 hours worked compared with 0.17 in FY08. Health and safety training and awareness campaigns continue to be actively managed by the mine.

A number of geotechnical audits were performed during the year to ensure that the mine continues to manage highwall safety appropriately.

There were no significant risks identified and all employees received training on the identification of risks and hazards associated with highwalls and slope stability. Day-to-day monitoring is an integral part of the daily inspections carried out by the responsible supervisors and safety representatives.

The main occupational health risks faced by employees are noise and dust. Four occupational health and safety audits were carried out on employees working in hazardous areas. All risks were reviewed and systems further optimised to ensure the health and safety of all workers. The results of these audits were submitted to the Department of Mineral Resources (DMR) and frequent follow-ups are carried out to ensure compliance. To date, there have been no reportable occupational diseases identified at Somkhele.

All the necessary risk assessments and procedures were revised during the year to minimise and control occupational and safety hazards. All employees were made aware of these risks and, where needed, additional training was conducted.

All accidents and potentially serious incidents were investigated and the results communicated to all employees. The involvement of employees in assisting with the identification of basic causes is encouraged and the awareness of potential hazards forms part of daily operational activities. All matters regarding health and safety are communicated on three levels. There are daily meetings held before the start of each shift,

weekly supervisors' meetings and monthly managers' meetings. All concerns raised are acted upon and documented.

### Environment

Somkhele ensures that mining is carried out in compliance with all applicable environmental legislation and in accordance with our approved Environmental Management Programme (EMP).

Management of the environment within which we operate is a priority for Somkhele management, ensuring that mining activities are carried out in a responsible manner. Regular audits were conducted during the past financial year to ensure compliance.

Various environmental programmes have been put in place, including dust suppression and monitoring systems, rehabilitation through topsoil replacement, re-seeding of reshaped areas to prevent soil erosion, and removal of alien invasive vegetation.

Amendments to the approved EMP were submitted to the DMR and performance assessment reports for our mining and exploration activities were conducted. Remedial programmes are at various stages of development and implementation.

All applications for water licences have been submitted to the Department of Water and Environmental Affairs (DWEA) for approval.

The mine will continue to conduct environmental monitoring of our activities to minimise the mine's impact on the local community and on the environment.

## Market overview

The relationship between demand and price for Somkhele's products continues to be directly associated with industry conditions affecting ferrochrome, ferromanganese, ferrotitanium and iron ore producers.

All of these commodities are, in turn, driven by steel production and demand coupled with the availability of quality reductants on a global level. The reductants in these processes are generally prioritised by carbon content and impurity levels, such as the sulphur and phosphorus content.

Somkhele, because of its carbon content together with low phosphorus and sulphur levels, has a unique application as a replacement for coke and has become more attractive than coke given its competitiveness in terms of price.

To assist in understanding the relationship between coke and anthracite in terms of characteristics, pricing, efficiencies and applications, a table comparing the two commodities is provided opposite.

Anthracite offers a cost-effective alternative to coke and char as a reductant in blast furnaces and smelters, provided that it contains low contaminant levels of sulphur and phosphorus.

## Export market

The primary export market for South African anthracite is Brazil where the product is used in the country's steel mills. This market for sized anthracite was depressed for most of the second half of the financial year ending 2009, with major customers running down significant stockpiles.

During the period under review large inventories of anthracite were still evident at consumer stockyards abroad and in South Africa, as well as at load and dispatch ports in Europe. Some price stability is expected once these stocks are reduced to normal levels. However, this is only expected to occur in the first half of calendar 2010. In these market conditions, buyers have been renegotiating existing contracts or seeking a blended price going forward on greater tonnages.

Somkhele's long-term export contract was renegotiated for the period after 30 June 2009 to accommodate the reduced short-term demand in the international market for anthracite. The terms have been amended to 200,000 tonnes per year at an average price of \$119 per tonne over the remaining four years (starting on 1 January 2010 and ending on 31 December 2013).

Given the volatility of the rand and the need to protect our cash flows and earnings, we adopted a hedging strategy which resulted in an average exchange rate of R9.09 to the dollar during the period under review. At 30 June 2009 we had \$5,814,000 in outstanding hedges and are constantly monitoring the exchange rate to ensure we enhance revenue without taking any unnecessary risks. (See note 21.1 in the annual financial statements).

## Market comparison

	Coke	Anthracite
<b>Description<sup>(1)</sup></b>	Coke is reductant of choice in these processes: <ul style="list-style-type: none"> <li>• current carrier ('coke bed'); and</li> <li>• closed furnaces (without combustion of off-gas on bed surface) because they cannot handle volatiles. Therefore only coke and char are used.</li> </ul>	Anthracite is a carbon-rich, high-quality coal with several fields of use, most commonly: <ul style="list-style-type: none"> <li>• as a carbon feedstock (reductant) in several metallurgical applications such as submerged arc furnaces, sinter-beds and pulverised fuel;</li> <li>• as a smokeless fuel for domestic heating and similar processes, typically in urban areas where pollution restrictions apply;</li> <li>• as pulverised fuel for power generation in older coal-burning utilities, especially in Europe; and</li> <li>• in the manufacture of carbon-rich products, such as Soderberg electrodes and carbon blocks.</li> </ul>
<b>Pricing</b>	Chinese monthly export pricing used as basis for much of world's coke trade.	Large variation in mechanisms and basis, depending on whether domestic or export sizing; specifications; delivery points etc.
<b>Market transparency</b>	Sufficient to produce monthly reference price series.	Annual transparent – coke is used as reference point. MAPI index has now been developed with base reference as API4 adjusted for quality <sup>(2)</sup> .
<b>Quality used as price reference</b>	12%–12.5% ash; 30mm–90mm sizing	Large variation, invariably sized according to customer specification.
<b>World annual output (2007)</b>	544 million tonnes	Estimated at 170 to 180 million tonnes (excluding Australian semi-anthracite).
<b>World exports (2007)</b>	33 million tonnes (13 countries)	50 million tonnes (six countries)
<b>Exporters to world markets</b>	China, Poland, Columbia, CIS, Japan, others.	CIS (Russia, Ukraine) for Europe, Vietnam, North Korea for Asia, South Africa, China.
<b>Demand characteristics</b>	Typically, coke is the most expensive option but not easy to replace. Substitution options often partial.	Anthracite is typically one of a number of options. Local availability often a key factor in its usage.
<b>Applications</b>	Iron-making (mainly captive), foundry iron, some base metals smelting, calcium carbide, ferroalloys (manganese, chrome), soda ash, sugar, stone wool (needing foundry coke).	Iron ore pelletising and sintering; PCI for the blast furnace, Electric Arc Furnace steelmaking; calcining for electrode manufacture; ferroalloys (mainly sintering), ilmenite smelting; soda ash; sugar; filtration.  Cement, power generation – mainly in the Far East (China, Korea, Vietnam).

<sup>(1)</sup> Petmin; <sup>(2)</sup> Energy Publishing

Source: Resource-Net – March 2009

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## Inland market

The consumption of anthracite by ferrochrome producers – Somkhele's primary customer base – was seriously affected by the global economic downturn, and these producers were operating at less than 20% capacity for the second half of the financial year under review.

In order to manage our market risk more appropriately, a local pricing formula has been devised and medium-term offtake agreements have been introduced to enhance visibility of earnings.

To ensure clarity with regard to anthracite prices, which had previously been determined by private treaty, the industry has formulated an independent pricing mechanism.

The MAPI pricing index is now an effective anthracite pricing mechanism which is published internationally by Energy Publishing (Pty) Ltd on weekly basis.

## Logistics

Petmin acquired the remaining 30% interest in Petmin Logistics from the minority shareholders in the first half of the financial year under review, and now holds a 100% interest in the company. Petmin Logistics has contracted with the South African Port Authorities to provide a dedicated export facility at Richards Bay for a minimum of 600,000 tonnes per year for four years.

## Mineral rights

The application for the renewal of prospecting rights over Areas 4 and 5 has been lodged with the DMR in KwaZulu-Natal. The conversion of the mining right for Area 2 is still outstanding. Progress on the status of these applications is being monitored by management.

## Employment

At 30 June 2009, the mine employed approximately 375 people, comprising full-time employees and contractors. Labour is currently sourced mainly from the local community with almost 80% of employees recruited from the Mpukunyoni wards in the Hlabisa district of KwaZulu-Natal.

The mine will continue to seek ways to improve its relationship with the local community and employees through employment, training and skills development, literacy and numeracy training, and development of small, medium and micro enterprises in the area.

## Outlook

Indications in the second half of 2009 are that the South African local ferrochrome and other metallurgical producers as well as the Brazilian iron producers are substantially increasing production levels by returning mothballed smelters to production. Somkhele is well-placed to increase production levels to meet the increased demand and we are contemplating a number of medium-term offtake agreements from 2010, which will significantly enhance the mine's visibility of earnings.

Operationally, the mine has implemented a project to optimise process efficiencies in the washing plant. This is geared at improving both overall yields and general product specifications. Mine planning processes will be further optimised with the implementation of DataMine-based modelling. This will specifically assist to optimise mining from different pits.