

Business operations review

Sishen Mine



Loading station – Sishen Mine

During the twelve months ended 31 December 2006, Sishen Mine achieved an all-time production record of 28,7 Mt of final product, an increase of 1 percent over the previous best.

The mine also achieved an all-time safety record, reaching a 0,22 LTIFR. Regrettably a fatality occurred during April 2006. Kumba Iron Ore extends heartfelt condolences to the family of Charel Haasbroek. The group continues to strive towards a safe working environment for all its employees and subscribe to the motto "one injury is one too many".

During 2006 the continuously expanding mine had to utilise more contractor capacity to cope with longer travel distances, a deeper ore body and increased production volumes. A total of 28 Mt of waste was handled by contractors during 2006, which represents a 64 percent increase in contractor volumes compared to 2005. Activities during the year included the preparation of facilities for the increased waste volumes that will need to be moved in 2007 as the ore body grows deeper.

While utilising contractors, the mine acquires the necessary time to study all available technology, which is expected to enable it to move these volumes more cost effectively. Consultants have been appointed to do the technology study in conjunction with Kumba Iron Ore.

Preparations for operating the new SEP plant are progressing well and are on track for commissioning towards mid-2007. Skills training programmes for the work teams were developed, together with the

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infrastructure to handle the estimated 2,4 Mt of product in 2007. Steps have been taken to integrate the project with the existing mine operations, heralding a new era of increased production growth.

In 2006 the number of people on the mine increased to levels greater than 7 700 due to the construction phase of the SEP plant. These numbers are expected to increase to even higher levels in early 2007 as construction nears its peak activity.

There is a sustained focus on continuous improvement, especially in relation to “lean production” principles, which constitute an important management tool to improve efficiencies and margins. Material efficiency improvements were achieved in a number of areas, notably in selective mining, where an increased plant yield of 2 percent was achieved on final product, resulting in improved utilisation of the ore body. Essentially the improvements depend on being more selective in the mining process using smaller, lower volume equipment to remove waste material at selected areas to expose usable material.

Due to a drive to achieve maximum benefits from selective mining, the result gained from the increased plant yield equated to a decrease of approximately 781 000 tonnes ROM mined and treated in the beneficiation plant. Associated with the lower ROM requirements, approximately 1,5 Mt less waste needed to be stripped. Iron ore gains in excess of 5,5 Mt ROM plant feed were achieved with selective mining at Sishen Mine for 2006. These tonnages would have been classified as waste if selective mining was not applied.

One of the major challenges that the mine faced during 2006 was the shortage of large tyres for the haul trucks. When necessary, Sishen Mine purchased some second-hand tyres with adequate usable life in order to keep the fleet running. Reasonable results were also achieved with tyres bought from alternative sources.

Continuous improvement initiatives also helped in the process of reducing scheduled maintenance stoppages, whilst at the same time increasing the availability of the total production line. This improvement in the maintenance planning process created additional production capacity of 100 000 tonnes a year without incurring any capital costs. The maintenance teams looked anew at routine work management,

revised the maintenance strategy of critical equipment and revisited the availability of critical spares, creating even better equipment availability.

Despite all the sustained continuous improvements at the mine to improve efficiencies and margins, production costs remained under pressure as discussed in the CFO’s financial review on page 16 – 18.

Improving operational safety has become a function of developing leadership and ensuring that every leader of a team fully supports the need for practising safe working conditions. This approach delivered the required results.

A programme of safety through empowering employees was also introduced, in which the involvement of all employees on the mine is sought in the process of managing safety. In this way, safety has become a primary concern for each employee. Management is confident that this approach will be even more successful in further reducing accident frequencies. A new programme is now being rolled out in which identified levels of safety maturity in different areas of operation on the mine are benchmarked and applied across all levels.

The challenges for 2007 include the ramp-up of the SEP plant to full capacity in terms of having the right skills available at the right time. This involves training and developing employees and ensuring that both existing and new plants operate optimally despite the fact that each will contain a proportion of relatively inexperienced employees as inter-plant transfers take effect.

Following the introduction of the SEP plant, the mine accepted the challenge to establish a satisfactory water balance management system when both operations are working at full capacity, in line with its sustainable development goals. To this end, a water circulation dam was designed and constructed for the SEP plant to ensure optimum water utilisation.

Good progress was made in the environmental management programmes in respect of the tests for the re-vegetation of the waste dumps. Excellent results were achieved on various angles of repose and the plan to roll out this process to other areas is progressing well. The basic approach remains one of ongoing rehabilitation of the affected areas as the LOM decreases.

In its human resources policies, Sishen Mine focuses on developing people and providing them with technical, personal and leadership skills. Particular emphasis is placed on integrating leadership development with personal development and training.

Mine management regards competence and performance as the main determinant of reward, with the result that affirmative action and employment equity are natural by-products of the mine's normal business practices. The best people are employed, resulting in a natural achievement of employment equity targets. HDSAs made up 34,4 percent of the management level at the mine in 2006.

Broad-based black economic empowerment is supported through the mine's procurement policies with 26,8 percent of the annual purchasing spend having benefited empowerment companies during 2006.

Sishen Mine faces two major challenges in 2007 namely the successful commissioning of the SEP and the mining of additional volumes associated with its ramp-up.

Operational activities

	2006	2005
Production (Mt)	28,69	28,46
Overburden mined (Mt)	59,26	58,64
ROM pit production (Mt)	31,21	31,69
Stripping ratio	1,90	1,85
ROM plant feed (Mt)	32,40	31,78
Plant yield (%)	89	90
Sales		
Export (Mt)	21,50	22,11
Local (Mt)	8,30	9,17
Total sales (Mt)	29,80	31,28