

# OPERATIONAL REVIEW

## ZONDEREINDE

The Zondereinde mine is operating at steady state, and its performance during the year under review reflects this stability and our confidence in its sustainability. Despite the No.1 shaft incident early in the financial year, and the one-week work stoppage in January, Zondereinde delivered 795 885 tonnes (F2014: 803 736 tonnes) of Merensky reef to its processing plant at a head grade of 5.7g/t (F2014: 5.8g/t). UG2 tonnages came in at 1 064 499 tonnes (F2014: 920 420 tonnes) to the processing plant at a head grade of 4.3g/t (F2014: 4.3g/t).

This blend of reef resulted in the overall head grade falling to 4.9g/t (F2014: 5.0g/t). Metals produced from underground increased to 7 950kg (F2014: 7 331). Concentrates purchased were 2 338kg (F2014: 1 975kg) including 922kg purchased (internally) from Booyensdal. At the year's end available ore reserves on the Merensky reef were sufficient for 20 months' production and on the UG2 reef for 24 months'.

Overall the Zondereinde mine operated well during the year. However, mining flexibility on the Merensky reef horizon remains constrained owing to challenging geological conditions, particularly in the north-west quadrant of the mine. Production from the UG2 horizon is relatively easier. With planned modifications to the processing plant, the smelter will be in a position to accommodate a higher proportion of UG2 reef. Future production from Zondereinde is consequently planned at a 65:35 UG2: Merensky ratio for 21 years.

Construction of the decline section has progressed satisfactorily with the conveyor decline on the 16 level elevation and good progress being made in developing the barrels of the material incline between 14 and 16 levels. An underground refrigeration plant was commissioned during the year on 13 level which has improved environmental conditions in the deepening section of the mine markedly. The completion of this suite of infrastructure will provide access to good quality Merensky reef and increase the life of Zondereinde to more than 20 years.

Wage negotiations got underway in May 2015 and were successfully concluded after the year end when a three-year agreement was signed with the National Union of Mineworkers.

### Health and safety

At Zondereinde, three million fatality free shifts were recorded during March this year for the first time. The management team and all employees are to be congratulated on this milestone achievement. The total number of injuries recorded declined year on year resulting in an improved lost time injury incidence rate (LTIR). Overall the operation's LTIR was 1.31 (F2014: 1.70) per 200,000 hours worked and the reportable injury incidence rate (RIIR) was 0.94 (F2014: 0.86).

Shaft steelwork was damaged during a rope-change exercise at Zondereinde's No.1 shaft in July last year. The incident put the shaft out of commission for six weeks. Repairs were carried out successfully and safely.

### Costs and capital expenditure

Zondereinde's total operating costs were R3 114.8 million against R2 690.9 million in F2014. The value of externally purchased concentrates decreased by 34.4%, to R602.4 million, whilst the quantum purchased externally fell by 28.3% to 45 525oz (1 416kg) (F2014: 63 488oz (1 975kg)), illustrating lower purchase prices of concentrates as PGM prices fell during the year.

Unit operating and cash costs at Zondereinde were 3.3% and 7.6% higher at R408 599/kg (F2014: R395 629/kg) and R386 117/kg (F2014: R358 891/kg) respectively, reflecting higher operating costs as mentioned above and the impact of six-week interruption of production associated with the No.1 shaft incident in July 2014, and the one-week work stoppage in January 2015.

In the light of the current weakness of platinum prices, we have adopted a cautious approach to capital spending. While we had planned to spend more in the year under review, certain expenditure was deferred resulting in total spend of R303.2 million, including the deepening project.

We cannot, however, defer capital projects indefinitely and we shall persist with projects that are of strategic importance to the business.

This will include the construction of a new furnace, an upgrade to the UG2 concentrator to increase throughput and continuing the development of mining infrastructure to 18 level to extend the life of the mine. The annual cost of this five-year deepening project is expected to run at R130 million and is included in Zondereinde's F2016 stay in business capital estimate of R303.2 million.

## OUTLOOK AT ZONDEREINDE

With the mine's life of mine extended to over 20 years, and the installation of additional smelting capacity to deal with a greater quantity of UG2 ore, management has unlocked significant value at Zondereinde. The operation is now well placed to improve its position on the cost curve and to remain in production for at least another 20 years.

### Processing and refining

The group's processing and refining capability is a strategic advantage. The review we embarked on last year highlighted a number of options which we have pursued in the intervening period.

Production of UG2 at Zondereinde is planned to increase over time. Therefore the decision has been made to increase the throughput of the UG2 concentrator from the current 90 000 tonnes per month. The mine is carrying out certain test work before finalising the design parameters for the upgrade. This project is expected to cost R60 million.

Whilst the board has approved capital expenditure for the installation of an additional 20MW furnace as part of the smelter expansion and de-risking programme a sum of R10.0 million has been committed to date for design and drawing work for the new furnace. This project, estimated at R750.0 million, is expected to be completed over the next three years, market conditions allowing. The additional capacity will add significant mining flexibility, allowing for higher volumes of UG2 ore to be mined and treated. The additional capacity will support the growth in production from Booyensendal.

A new autoclave with sufficient capacity to match the potential throughput from the expanded smelter facility was installed and commissioned at the base metal removal plant earlier this year at a cost of R31.0 million.

## BOOYSENDAL

Booyensendal continued the ramp-up to its annual steady-state PGMs production target of 160 000oz planned to be reached in the first half of F2016.

Operationally good progress is being made with the equipping of the last two production sections, scheduled for October 2015, to complete the original capital footprint. The concentrator performed well above its nameplate capacity in the last three months of the year, achieving an average recovery of 86%. The plan to exploit the Merensky reef from the existing footprint advanced well with the box cut completed and the development of the declines in progress to extract a bulk sample for metallurgical test work. This work is expected to be complete in the second half of F2016 following which a decision will be made on developing a Merensky mining module.

During the new financial year conceptual design work on exploiting the Booyensendal South orebody (including the former Everest mine infrastructure) will be progressed to a feasibility study. The decision to begin construction of new mining modules will be taken against the background of current and expected PGM market conditions and the potential return on investment. The feasibility is expected to cost R22.0 million and will be completed by May 2016.

For the year as a whole Booyensendal's run-of-mine production totalled 1 670 437 tonnes (F2014: 1 233 089 tonnes) with the tonnage milled increasing to 1 786 375 tonnes (F2014: 1 517 109 tonnes) at a head grade of 2.6g/t (F2014: 2.6g/t).

## Health and safety

As underground production ramped up, safety statistics regressed compared to the preceding year. The LTIR rose to 0.54 (F2014: 0.27) per 200 000 hours worked while the RIIR was also higher at 0.41 (F2014: 0.21). Safety awareness remains a key focus area for management at Booyensendal. The mine continues to deliver a good safety performance with a key differentiator being the mechanised mining method.

## Costs and capital expenditure

As the mine has progressed towards steady state, costs have approached the sort of levels we might expect when underground operations are delivering fully to the mill. Less material will be drawn from the surface stockpile to augment underground material. Booyensendal's total operating costs were R1 192.2 million against R806.8 million in F2014 with unit operating costs 0.9% lower at R358 554/kg (F2014: R361 902/kg) and cash costs 11.3% higher at R308 719/kg (F2014: R277 308/kg).

The 0.9% drop in unit operating cost in F2015 at Booyensendal results from the lower depreciation charge incurred by the mine following the change in depreciation methodology mentioned in the CFO's review on page 68.

The higher rand per tonne milled operating cost of R765/ton (F2014: R688/ton) and cash cost of R658/ton (F2014: R527/ton) at Booyensendal is attributable to the fact that in the prior year a higher proportion of milled tonnage was sourced from the pre-production stockpile.

As Booyensendal reaches its design capacity capital expenditure levels have declined accordingly. Total expenditure excluding the Everest mine asset acquisition for the year came in at R398.8 million, below the planned level of R483.4million (F2014: R539.6 million). Booyensendal's F2016 stay in business capital is estimated at R112.5 million, with project capital estimated at R250.0 million. Project capital will be spent on the continued development of the Merensky decline to extract a bulk sample and the completion of the current UG2 decline. Total capital expenditure since the start of the phase 1 Booyensendal mine development is expected to close out at R4.5 billion.

## OUTLOOK AT BOOYSENDAL

With steady state production on track, the original capital footprint should be completed by December 2015. There is potential to add two additional production levels by continuing the development of the primary decline system, thereby increasing the production profile in a very capital efficient manner.