

## Business review

A steady operating performance from the Zondereinde mine resulted in year-on-year production being marginally (3%) higher at 9 408kg (302 474oz). Also similar to the previous year were the 26 production days lost owing to the stoppages related to ongoing and intensive safety training and initiatives. Much improved were the metal sales, 21% higher at 333 159oz.

### Zondereinde mine – key statistics

Ownership	Wholly-owned by Northam Platinum Limited
Location	Northern part of the western limb of the Bushveld Complex in Limpopo Province; adjacent to the Anglo Platinum's Amandelbult operation
Access and infrastructure	Well-established infrastructure: tarred roads, railway, water and power
Project extent	7 625 hectares; strike length of 8km
Reserves	8.1Moz (3PGE+Au)
Resources	25.7Moz (3PGE+Au)
Life of mine	18 years
Operations	Underground mining operations on the Merensky and UG2 reefs Underground equipment driven by hydropower. Surface operations include a Merensky and UG2 concentrator plant, a smelter and base metals removal plant (BMR).
Production profile	Steady state output of approx 300 000oz (3PGM+Au) annually
Precious metals refining	Performed by WC Heraeus GmbH (Heraeus) in terms of toll-treating agreement
Marketing	In-house, independent marketing to established global customer base
F2009 capex	R330 million
F2010 capex (estimate)	R270 million
F2009 cash costs	R199 680/kg (3PGE+Au)



## Key operating statistics

Merensky reef	F2009	F2008
Development metres	8 071	9 615
Square metres mined	201 014	205 251
Tonnes milled	1 050 404	1 059 624
Head grade (g/t 3PGE+Au)	5.8	5.6
PGMs in concentrate produced (kg)	5 164	5 051
Ore reserve availability (months)	20	18

UG2 reef	F2009	F2008
Development metres	3 770	3 117
Square metres mined	160 555	158 294
Tonnes milled	1 054 687	963 033
Head grade (g/t 3PGE+Au)	4.4	4.4
PGMs in concentrate produced (kg)	3 835	3 285
Ore reserve availability (months)	19	21

Combined reefs	F2009	F2008
Development metres	11 841	12 732
Square metres mined	361 569	363 545
Tonnes milled	2 105 091	2 022 657
Head grade (g/t 3PGE+Au)	5.1	5.0
PGMs in conc. produced from u/g mining (kg)	8 999	8 336
PGMs in conc. from other sources (kg)	409	777
Total (kg)	9 408	9 113
PGMs in conc. purchased	487	–

### The year in review: mining and production

The higher output was largely a result of the 4% increase in tonnages milled to 2 105 091 tonnes, along with a 2% increase in the combined Merensky and UG2 head grade.

Merensky tonnage was only marginally lower in the period at 1 050 404 tonnes, indicating the effect of the reduced mining flexibility resulting from the intersection of the unmineable NP2 upper transition reef in the eastern section of the mine. The impact of this was more acutely felt on the ore reserve development metres, which were 16% lower year on year. Improved mining and grade controls contributed to the improvement in the Merensky grade to 5.8g/t (F2008: 5.6g/t) and in turn the combined mill head grade was 2% higher at 5.1g/t.

In contrast with the Merensky reef, development on the UG2 reef was 21% higher, ameliorating the constraints of lower extraction ratios in the eastern section of the mine. Good progress has been made in mining UG2 reef under Merensky pillars, thus improving the overall extraction of this reef.

### Metallurgical operations

The planned rebuild of the smelter at the Zondereinde mine was completed on schedule by the end of H1 of the financial year at a cost of R74 million. The smelter was successfully recommissioned in the first weeks of January 2009.

Continued improvements in the UG2 concentrator circuit resulted in recoveries averaging 86% for the year. The main factor contributing to this success was the sparger column cell technology which is applied as a cleaner at the end of the circuit. The other UG plant modifications, which started in F2008, were the installation of the high pressure roll crusher and the conversion of the rod mill to a ball mill. The overall effect of this suite improvement has been a sustained improvement in recoveries and lower operating costs.

### Expansion project

The effective sterilisation of the Merensky reef on the eastern section of the mine has added to the impetus to accelerate the 18 level expansion project, which has progressed satisfactorily. The conveyor decline has reached the 16 level elevation of the mine, while stoping has started on 13 and 14 levels and further ore reserve development on these levels is underway.

On the material decline, which will provide logistical support by allowing access for men and material for mining to 18 level, the excavations for the hoist chamber on 12 level, and the stations on 13 and 14 level, have been completed. The stations for this shaft will be pre-developed from the conveyor decline and the shaft barrel will be raisebored in sections between levels.

The capital cost of this five-year project is estimated at R650 million (in today's money spread over five years). With every level opened up below 12 level we add two years' life of mine.

## Business review (continued)

### Sales

The 21% increase in sales volumes to 10 362kg (333 159oz) arose from the marginally higher production combined with the effects of the purchase of 487kg (15 567oz) of custom material and the decrease in metal inventories. The higher UG2 tonnages milled contributed to higher rhodium sales.

### Costs

Higher production volumes and inflationary increases (such as the 25% higher cost of power and water) contributed to the 17% increase in operating costs to R1 906 million (F2008: R1 627 million). The increase in volumes helped to contain the increase in unit cash costs to 14%, or to R199 680/kg.

### Capital

Capital expenditure for the year amounted to R330 million. The main contributors to the capital spend were the 18 level expansion project

and the R89 million spent on the metallurgical plants – which included the smelter rebuild in the first half of the financial year.

### Into F2010

An extensive drilling programme has revealed that the downdip portion of the mine boasts a higher percentage of normal Merensky reef. This is a stable reef type lending itself to higher extraction ratios, yielding high tonnages and ounces assisting the Merensky position going forward.

The year ahead should see marginally improved production at the Zondereinde mine. Costs are likely to increase in line with inflation, while capex in the year ahead will be at significantly lower levels.

The capital forecast for F2010 is lower at R270 million. Of this, R104 million is budgeted for the expansion project. The balance is allocated to maintenance and routine capex items.

Metal sales	F2009		F2008	
	kg	oz	kg	oz
Platinum	6 288	202 154	5 275	169 612
Palladium	3 046	97 941	2 523	81 103
Rhodium	848	27 270	643	20 666
Gold	180	5 794	145	4 678
<b>Total (3PGE+Au)</b>	<b>10 362</b>	<b>333 159</b>	<b>8 586</b>	<b>276 059</b>
Ruthenium	1 227	39 446	1 059	34 035
Iridium	249	8 006	208	6 700
Osmium	–	–	4	116
Silver	200	6 430	184	5 909
<b>Total</b>	<b>12 038</b>	<b>387 041</b>	<b>10 041</b>	<b>322 819</b>
Copper (tonnes)	800		573	
Nickel (tonnes)	1 529		1 110	



## Booysendal platinum project – key statistics

Ownership	Wholly owned by Northam Platinum Limited
Location	Eastern limb of the Bushveld Complex in Mpumalanga Province; adjacent to the Everest and Mototolo operations. Closest town is Lydenburg
Access and infrastructure	<ul style="list-style-type: none"> <li>• Tarred road access from Lydenburg; new private road being constructed across the Der Brochen property</li> <li>• 16MW power secured from Anglo Platinum via the Mototolo sub-station;</li> <li>• 7 Ml of water secured for start-up</li> </ul>
Project extent	15 170 hectares; strike length of 14.5km
Resource	103Moz (3PGE+Au)
Life of mine	50 years and beyond
Project status	Feasibility study being finalised. Construction due to start in F2010; first production for 2011

### The year in review

The Northam review of the Anglo Platinum pre-feasibility study on the Booysendal project was completed early in the financial year, and included a review of the geology and resource base; an investigation of the mining method and production options; the determination of the principal project elements including metallurgy, bulk infrastructure, engineering and services; human resources and environmental permitting.

This review was followed in this year with the launch of a feasibility study which is based on the concept of a modular design which provides flexibility in implementation and lends itself to being

replicated as conditions allow. The plan remains to start mining the UG2 reef. Infrastructure, mine and metallurgical designs are largely complete. Some geotechnical drilling is in progress and will inform the final designs.

### Into F2010

Access and infrastructural considerations will start towards the end of the end of the calendar year while final designs and associated value engineering are being completed. Should it be possible to source and secure additional power and water for the project, there may be scope for some design changes and an increase in the planned production profile.

## Pandora joint venture – key statistics

Ownership	Lonmin: 42.5%
	Anglo Platinum: 42.5%
	Northam: 7.5%
	Bapo Ba Mogale Mining Company: 7.5%
Location	Western limb of the Bushveld Complex on certain portions of the farms Hartebeespoort, Roodekopjes and Uitvalgrond near Brits in the North West Province adjacent to Eastern Platinum Mine (EPM).
Access and infrastructure	Existing infrastructure at EPM has been utilised to gain quick access to the Pandora Mine.
Resource (total)	21.08Moz (158Mt @ 4.29g/t)
Resource (attributable to Northam)	1.6Moz
Life of mine	30 years and beyond
Project status	Pre-feasibility completed; stand-alone mine of 240 000 tpm being considered.

### The year in review

Following the implementation of various agreements relating to the acquisition of Booysendal, the group became recognised as a historically disadvantaged South African (HDSA) entity. Consequently Northam became entitled to acquire the 7.5% interest in Pandora, which had been warehoused by Mvela Resources. Northam has now consolidated the Pandora income into its accounts for the first time.

Pandora is producing on a relatively small scale from Lonmin's Eastern Platinum infrastructure, while a feasibility study for the future mining operation is concluded.

### Into F2010

The feasibility study is expected to be completed early in 2010 at which stage the joint venture partners will make an investment decision.