

# OPERATIONAL PERFORMANCE

## Phoenix (Tailings retreatment)

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		82	82	83
– Contractors		261	296	312
Total		343	378	395
<b>Operational</b>				
Volumes milled	(000t) (metric)	6 729	6 465	6 245
	(000t) (imperial)	7 420	7 129	6 887
Gold produced	(kg)	918	804	867
	(oz)	29 515	25 849	27 875
Gold sold	(kg)	932	788	881
	(oz)	29 964	25 335	28 324
Grade	(g/t)	0.136	0.124	0.139
	(oz/t)	0.004	0.004	0.004
Productivity	(g/TEC)	187.96	177.72	185.73
<b>Financial</b>				
Revenue	(Rm)	512	429	396
	(US\$m)	38	30	35
Average gold price received	(R/kg)	549 777	544 390	449 941
	(US\$/oz)	1 258	1 168	1 223
Cash operating cost	(Rm)	364	320	295
	(US\$m)	27	22	26
Production profit/(loss)	(Rm)	140	117	97
	(US\$m)	10	8	8
Capital expenditure	(Rm)	5	5	4
	(US\$m)	–	–	–
Cash operating cost	(R/kg)	396 486	398 122	339 896
	(US\$/oz)	907	854	924
All-in sustaining cost	(R/kg)	404 685	403 907	344 319
	(US\$/oz)	926	866	936
<b>Safety</b>				
Number of fatalities		0	0	0
Lost-time injury frequency rate per million hours worked		0	2.06	0.00
<b>Environment</b>				
Electricity consumption	(GWh)	42	40	41
Water consumption – primary activities	(ML)	249	267	277
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	42	41	42
Intensity data per tonne treated				
– energy		0.006	0.006	0.007
– water		0.04	0.04	0.04
– greenhouse gas emissions		0.006	0.006	0.007
Number of reportable environmental incidents		0	0	0

## Phoenix (Tailings retreatment) *continued*

### Other salient features

Status of operation	Retreatment of tailings
Life of mine	12 years
Compliance and certification	New order mining right – December 2007 ISO 14001 certification is under consideration – interim focus is on compliance ISO 9001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	73.0	0.28	20	–	–	–	73.0	0.28	20
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	80.5	0.008	646	–	–	–	80.5	0.008	646

Phoenix, a tailings retreatment operation situated in Virginia in the Free State Province, makes use of the Saaiplaas plant to retreat tailings. During FY13, Harmony finalised an empowerment agreement and transferred 30% of its shareholding in the Phoenix operations to black economic empowerment owners.

The Phoenix operation delivered an excellent performance in FY17. The increase in volumes processed was due to a well-managed tailings dam to plant operational circuit. Improved plant efficiencies enhanced the recovery of higher grade tailings throughput to the plant.

Year-on-year, gold production improved by 14% to 918kg (29 515oz), mainly as a result of a 10% improvement in the recovered grade to 0.136g/t (0.004oz/t), and a 4% increase in volumes processed to 6 729 000 tonnes (7 420 000 tons).

The increase in the average rand gold price received and increase in gold production, resulted in a 19% increase in revenue to R512 million (increase of 27% to US\$38 million). Cash operating costs increased by 14% to R364 million (increased by 23% to US\$27 million) due to the higher volumes processed in FY17, and increase in labour costs resulting from wage increases and bonuses paid and higher electricity tariffs.

Operational success depends on maintaining plant efficiency and reducing pump and pipe failures (adequate spillage control). Grade variability and the theft of pipelines and electrical cables are the main risks being managed at Phoenix. Security has been increased in an effort to halt the endemic theft of piping and cables that can affect the integrity of operations.