



GEOLOGY

Both the Merensky and underlying UG2 Reefs occur on the property but only the UG2 is currently exploited. The UG2 outcrops in the Klein Dwarsrivier valley over a north-south strike length of 7.5 kilometres and dips to the west at about 7 to 10 degrees. The vertical separation between the Merensky and UG2 Reefs is around 140 to 160 metres. Due to the extreme topography, the Merensky reef outcrops further up the mountain slope and also results in the UG2 occurring at a depth of 1 650 metres below surface on the south-western boundary.

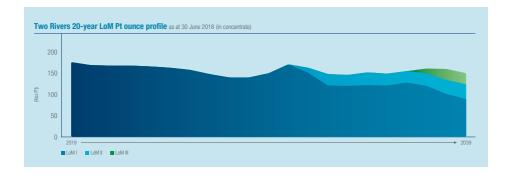
Three distinct reef types have been defined for the UG2 Reef at Two Rivers, namely the 'normal reef' with a thick main chromitite layer; a 'split reef' characterised by an internal pyroxenite/norite lens within the main chromitite layer; and a 'multiple split reef' with numerous pyroxenite/norite lenses occuring within the main chromitite layer.

	Category	Tonnes (Mt)	Width (cm)	4E Grade (g/t)	6E Grade (g/t)	Platinum (Moz)
Merensky	indicated	75.0	214	3.06	3.34	4.4
	inferred	104.7	149	3.59	3.90	7.0
UG2	measured	13.1	151	4.54	5.50	1.1
	indicated	80.1	152	4.69	5.63	6.5
	inferred	80.4	116	4.77	5.69	6.5
	Total	353.2		4.03	4.64	25.5

Mineral Reserves as at 30 June 2018

Orebody	Category	Tonnes (Mt)	Width (cm)	4E Grade (g/t)	6E Grade (g/t)	Platinum (Moz)
UG2	proved	8.3	256	3.03	3.61	0.4
	probable	62.7	249	2.96	3.49	3.3
	Total	71.0		2.97	3.50	3.7





MINING

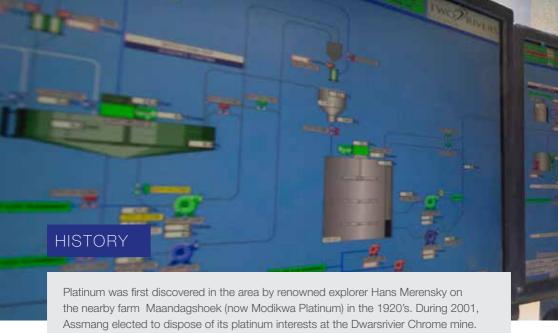
The UG2 orebody is accessed via two decline shaft systems situated three kilometres apart, namely the Main Decline and the North Decline. Underground mining operations are fully mechanised and the bord and pillar mining method is employed where stoping widths average around 1.8 metres. A mining section consists of eight 12 metre rooms, with pillar sizes increasing with depth below surface.

METALLURGY

Two Rivers has a concentrator plant on site, where initial processing is done. It comprises a standard MF2 design as generally used in the industry. Concentrate is transported by road to Impala's Mineral Processes in Rustenburg where further processing takes place in terms of an agreement with Impala Refining Services (IRS).

SUSTAINABLE DEVELOPMENT

Two Rivers is committed to social development initiatives and engages in, develops and builds community relationships. It takes responsibility for economic, social and environmental issues that impact its people, communities and environments and is involved in a number of community projects in the area. The Two Rivers Platinum Community Forum was established primarily to share information about the mine with local communities and to set up a focus and network for social upliftment projects.



Platinum was first discovered in the area by renowned explorer Hans Merensky on the nearby farm Maandagshoek (now Modikwa Platinum) in the 1920's. During 2001, Assmang elected to dispose of its platinum interests at the Dwarsrivier Chrome mine. Two Rivers Platinum, the incorporated Joint Venture between Avmin and Implats secured the platinum rights in December of that year. Subsequent corporate activity involving Avmin, ARM and Harmony resulted in the transfer of Avmin's share in Two Rivers to a new, empowered platinum entity, ARM Platinum, a division of ARM. The joint venture partners began development of the Two Rivers project in June 2005. The concentrator plant was commissioned early in FY2007 and in FY2008 the mine successfully made the transition from project to operation.

In 2015 portions 4, 5 and 6 of the farm Kalkfontein, as well as portion of the farm Tweefontein, were incorporated into the Two Rivers mining right. An agreement was also reached for the remaining Implats-owned mineral rights on portions of the farms Kalkfontein and Buffelshoek in exchange for a royalty payment.

BLACK ECONOMIC EMPOWERMENT

African Rainbow Minerals (ARM) was founded in 2004 as South Africa's first black-owned mining company. As such Two Rivers complies with the BEE equity component of the Mining Charter while all other aspects of the Charter are dealt with at an operational level. The operation subscribes to the transformation of South African business by actively promoting BEE ownership and employing local SMEs (small- and medium-sized enterprises).

TWO RIVERS – KEY STATISTICS TWO RIVERS - KEY STATISTICS FY2018 FY2016 FY2014 FY2017 FY2015 Production 3 455 3 501 Tonnes milled ex mine ('000t) 3 511 3 362 3 2 7 9 Headgrade (6E) (g/t) 3.63 3.90 4.06 3.98 4.01 Platinum in concentrate 162.5 181.9 185.9 173.5 ('000oz) 175.1 PGM in concentrate ('000oz) 348.4 390.2 400.7 372.6 374.7 Labour efficiency Tonnes milled per employee costed** (t/man/annum) 1 086 1 084 1 059 1 029 988 Cost Mining cost of sales (Rm) (2785)(2872)(2822)(2657)(2587)Mining operations (Rm) (1940)(1927)(1785)(1714)(1.657)Processing operations (Rm) (419)(424)(404)(359)(345)Other (Rm) (426)(521)(633)(584)(585)(Rm) 2 359 2 351 2 189 2 073 2002 Total cost (US\$m) 184 172 152 182 193 (R/t) 683 672 623 617 611 Unit costs per tonne milled (US\$/t) 53 49 43 54 59 (R/oz) 14 517 12 925 11 775 11 948 11 433 per platinum ounce in concentrate (US\$/oz) 1 130 948 816 1 047 1 103 Financial ratios Gross margin ex mine (%) 26.2 27.5 27.7 29.5 Capital expenditure 454 293 282 275 319 (Rm) (US\$m) 35 20 24 31 Safety **LTIFR** 2.2 1.6 2.1 1.2 1.4 (pmmhw+) FIFR (pmmhw+) Labour complement

(no)

(no)

2 333

859

2 415

804

2 410

960

2 404

879

2 350

1 066

Own employees

Contractors

⁺ Per million man hours worked



December 2018