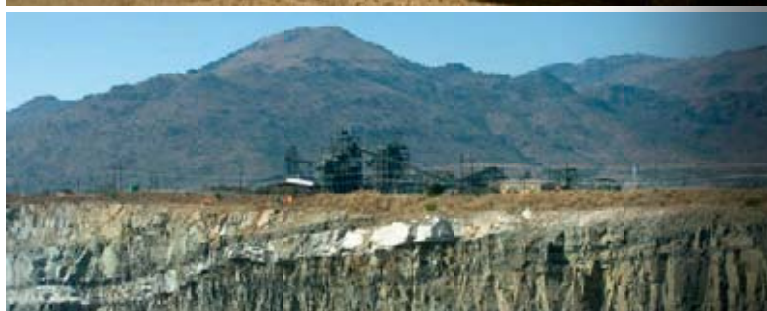




**ARM**  
African Rainbow Minerals



**We do it better**

Mineral Resources  
and Reserves  
2010

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## Competent person's report on Mineral Resources and Mineral Reserves

This report is issued as the annual update of Resources and Reserves to inform shareholders and potential investors of the mineral assets held by African Rainbow Minerals Limited (ARM).

### Salient features F2010

#### ARM Ferrous

<b>Khumani</b>	Investigations into the modelling of the ore-body limits according to the geological units are in progress.
<b>Beeshoek</b>	Exploration around Beeshoek North (BN) pit increased the BN reserves and resources by 18%. Feasibility study on Village pit is in progress.
<b>Nchwaning</b>	Development into the Graben area continues and valuable information on the geological structure is being gained.
<b>Gloria</b>	Drilling in progress to increase geological knowledge to the west. 42 boreholes have been completed and are awaiting assays and re-modelling.

#### ARM Platinum

<b>Nkomati</b>	The SRK audit on the 2009 re-modelling was finalised. Measured Resources were declared in the Pit 3 area where the 50m infill drilling was undertaken.
<b>Two Rivers</b>	The Snowden audit on the UG2 re-modelling was completed and finalised.
<b>Kalplats</b>	The addition of the Mira deposit and the update of resource estimates by Coffey has resulted in an increase in total resource to 137 million tonnes (6.7 million ounces 3E).

#### ARM Coal

<b>Goedgevonden</b>	Production increased by 50% as the mine is ramping up to full production.
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#### ARM Copper

<b>Konkola North</b>	Vale/ARM JV on Konkola North announced.
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## F2010 Mineral Resource/Reserves summary

Platinum	Mineral Resources (Measured and Indicated)		Mineral Reserves (Proved and Probable)		
	Mt	PGE+Au	Mt	PGE+Au	Moz
<b>Two Rivers</b>					
UG2	55.65	4.67(6E)	35.92	3.54 (6E)	4.09 (6E)
Merensky	18.70	3.55(6E)	–	–	–
<b>Modikwa</b>					
UG2	149.01	5.86(4E)	47.57	4.94(4E)	7.55(4E)
Merensky	72.00	2.78(4E)	–	–	–
<b>Nkomati</b>	266.03	0.85(4E)	129.51	0.87(4E)	3.62(4E)
<b>Kalplats</b>	64.95	1.49(3E)	–	–	–

6E=Pt+Pd+Rh+Ru+Ir+Au 4E=Pt+Pd+Rh+Au 3E=Pt+Pd+Au

Nickel	Mineral Resources (Measured and Indicated)		Mineral Reserves (Proved and Probable)	
	Mt	Ni%	Mt	Ni%
<b>Nkomati – Total MMZ+PCMZ</b>	266.03	0.34	129.51	0.34

Manganese	Mineral Resources (Measured and Indicated)			Mineral Reserves (Proved and Probable)		
	Mt	Mn%	Fe%	Mt	Mn%	Fe%
<b>Nchwaning</b>						
No 1 Seam	128.63	45.3	8.7	107.96	45.3	8.7
No 2 Seam	180.80	42.4	15.5	–	–	–
<b>Gloria</b>						
No 1 Seam	51.57	38.3	5.5	39.71	38.3	5.5
No 2 Seam	29.40	29.9	10.1	–	–	–

Iron ore	Mineral Resources (Measured and Indicated)		Mineral Reserves (Proved and Probable)	
	Mt	Fe%	Mt	Fe%
<b>Beeshoek</b>	113.35	63.71	47.67	64.93
<b>Khumani</b>				
Bruce	234.32	64.49	213.55	64.49
King	379.41	64.51	330.08	64.39

Chromite	Mineral Resources (Measured and Indicated)		Mineral Reserves (Proved and Probable)	
	Mt	Cr <sub>2</sub> O <sub>3</sub> %	Mt	Cr <sub>2</sub> O <sub>3</sub> %
<b>Dwarsrivier</b>	50.60	39.03	39.50	35.75
<b>Nkomati</b>	2.00	31.63	2.00	31.63

Coal	Mineral Resources (Measured and Indicated)	Mineral Reserves (Proved and Probable)	
	Mt	Mt	Saleable Mt
<b>Goedgevonden</b>	550.6	364	195.4

Copper	Mineral Resources (Measured and Indicated)		Mineral Reserves (Proved and Probable)	
	Mt	%TCu	Mt	%TCu
<b>Konkola North</b>	57.4	2.42	–	–

## General statement

ARM's method of reporting Mineral Resources and Mineral Reserves conforms to the South African Code for Reporting Mineral Resources and Mineral Reserves (SAMREC Code) and the Australian Institute of Mining and Metallurgy Joint Ore Reserves Committee Code (JORC Code).

The convention adopted in this report is that Mineral Resources are reported inclusive of that portion of the total Mineral Resource converted to a Mineral Reserve, except for Modikwa Platinum Mine where the Mineral Resources are reported exclusive of the Mineral Reserves. Resources and reserves are quoted as at 30 June 2010. External consulting firms audit the resources and reserves of the ARM operations on a three- to four-year cycle basis.

Underground resources are in-situ tonnages at the postulated mining width, after deductions for geological losses. Underground Mineral Reserves reflect milled tonnages while surface Mineral Reserves (dumps) are in-situ tonnages without dilution. Both are quoted at the grade fed to the plant. Open-pit Mineral Resources are quoted as in-situ tonnages and Mineral Reserves are tonnages falling within an economic pit-shell.

The evaluation method is generally Ordinary Kriging with mining block sizes ranging from 10 x 10 metres to 100 x 100

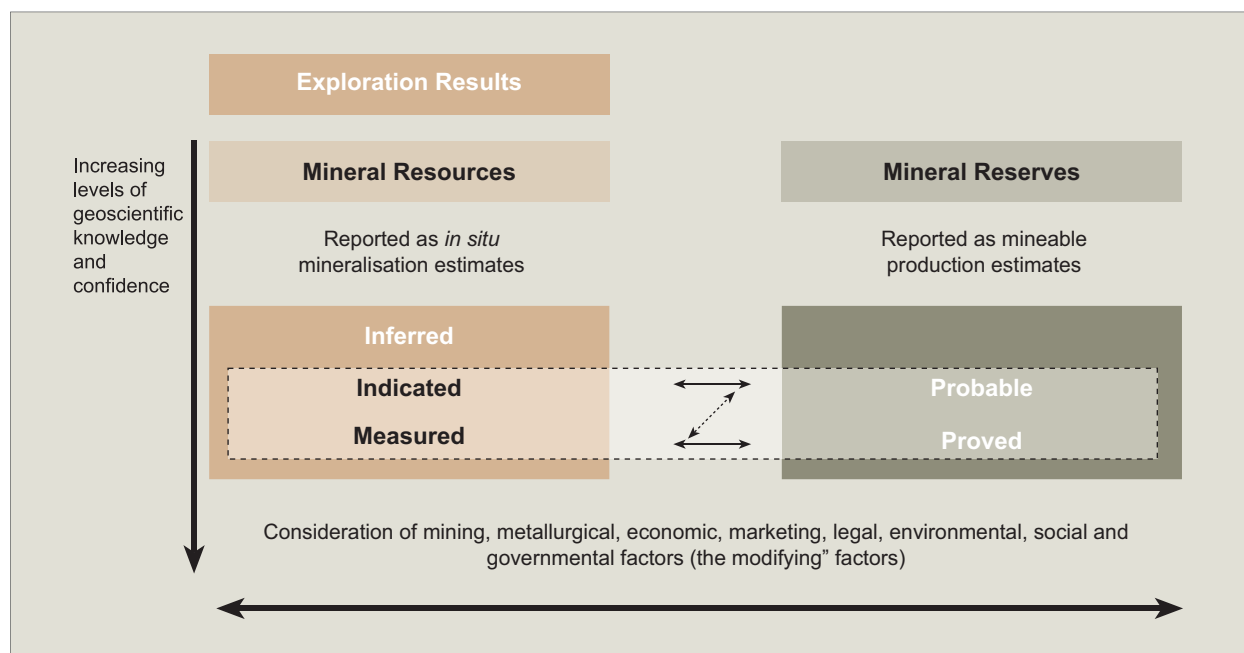
metres to 250 x 250 metres in the plan view. The blocks vary in thickness from 2.5 to 10 metres. The evaluation process is fully computerised, generally utilising the Datamine software package.

The Mineral Resources and Mineral Reserves are reported on a total basis regardless of the attributable beneficial interest that ARM has on the individual projects or mines. When the attributable beneficial interests on a mine or project is less than 100%, the actual percentage of the attributable interest is specified.

Maps, plans and reports supporting resources and reserves are available for inspection at ARM's registered office and at the relevant mines.

In order to satisfy the requirements of the Minerals and Petroleum Resources Development Act, ARM's operations will have to obtain new mining rights for all properties required to support the planned operations over the next 30 years. The act was effective from 1 May 2004 and the new rights must be obtained within five years from then. The operations are at various stages of application.

Rounding of figures may result in computational discrepancies on the Mineral Resource and Reserve tabulations.





## Competence

The competent person with overall responsibility for the compilation of the Mineral Reserves and Resources Report is Paul van der Merwe, PrSciNat, an ARM employee. He consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

Paul van der Merwe graduated with a BSc (Hons) in Geology from Free State University. He spent four years as an exploration geologist for FOSKOR. He then joined the Uranium Resource Evaluation Group of the then Atomic Energy Corporation of South Africa for 12 years. While employed there he studied geostatistics and spent some time at the University of Montreal, Canada. In 1991 he joined Anglovaal Mining (now ARM) in the Geostatistics Department and evaluated numerous mineral deposit types for this group in Africa. In 2001, he was appointed as Mineral Resources Manager for the Group. He is registered with the South African Council for Natural Scientific Professions as a Professional Natural Scientist in the field of practice of geological Science, Registration Number 400498/83, and as such is considered to be a Competent Person.

All competent persons at the operations have sufficient relevant experience in the type of deposit and in the activity for which they have taken responsibility. Details of the ARM's competent persons are available from the Company Secretary on written request.

The following competent persons were involved in the calculation of Mineral Resources and Reserves. They are employed by ARM or its subsidiaries and joint venture (JV) partners:

<b>M Burger/ S v Niekerk</b>	PrSciNat PrSciNat	Iron
<b>B Rusive</b>	PrSciNat	Manganese
<b>A Pretorius*</b>	PrSciNat	Chrome
<b>M Davidson</b>	PrSciNat	Nickel
<b>J Woolfe</b>	PrSciNat	Nickel/Platinum
<b>R van Rhyn</b>	PrSciNat	Platinum
<b>S Kadzviti</b>	PrSciNat	Nickel/Platinum
<b>AMEC*</b>		Copper

\* External consultant

### P J van der Merwe

24 Impala Road, Chislehurst, Sandton

15 October 2010



The new manganese ore crushing and screening plant at Nchwaning

## ARM Ferrous

### Assmang Limited Operations

ARM's attributable beneficial interest in Assmang's operations is 50%. The other 50% is held by Assore Limited.

#### Manganese Mines

##### Locality

The manganese mines are situated in the Northern Cape province in South Africa, approximately 80 kilometres North-West of the town of Kuruman. Located at latitude 27°07'50"S and longitude 22°50'50"E, the site is accessed via the national N14 route between Johannesburg and Kuruman, and the provincial R31 road.

##### History

In 1940, ARM Ferrous acquired a manganese ore outcrop on a small hillock known as Black Rock. Several large properties underlain by ore were subsequently found and acquired. Today the Black Rock area is considered to be the largest and richest manganese deposit in the world. Manganese ore operations were extended and today include the Gloria and Nchwaning underground mines. Manganese ore is supplied locally to Assmang-owned smelters, but is mainly exported through Port Elizabeth to Japanese and German customers.

##### Mining authorisation

The Nchwaning mining lease (ML10/76) comprises an area of 1 986 hectares and is located on the farms Nchwaning (267), Santoy (230) and Belgravia (264). The Gloria mining lease (ML11/83) comprises an area of 1 713 hectares and is located on portion 1 of the farm Gloria (266). Shortly after the financial year-end Assmang was informed that the application for the conversion of above mining right had been granted and steps are being taken to proceed with the execution and registration of the right.

##### Geology

The manganese ores of the Kalahari Manganese field are contained within sediments of the Hotazel Formation of the Griqualand West Sequence, a subdivision of the Proterozoic Transvaal Supergroup. At Black Rock, Belgravia and Nchwaning, the Hotazel, Mappedi and Lucknow Formations have been duplicated by thrusting. The average thickness of the Hotazel Formation is approximately 40 metres.

The manganese orebodies exhibit a complex mineralogy and more than 200 mineral species have been identified to date. The hydrothermal upgrading has resulted in a zoning of the orebody with regard to fault positions. Distal areas exhibit more original and low-grade kutnohorite + braunite assemblages, while areas immediately adjacent to faults exhibit a very high-grade hausmannite ore. The intermediate areas exhibit a very complex mineralogy, which includes bixbyite, braunite and jacobsonite amongst a host of other manganese-bearing minerals. A similar type of zoning also exists in the vertical sense. At the top and bottom contacts it is common to have

high iron (Fe) and low manganese (Mn) contents while the reverse is true towards the centre of the seam. This vertical zoning has given rise to a mining practice where only the centre 3.5 metre-high portion of the seam is being mined. At the Gloria Mine the intensity of faulting is much less, which also explains the lower grade.

Two manganese seams are present. The No 1 seam is up to 6 metres in thickness, of which 3.5 metres are mined, using a manganese marker zone for control. There is, therefore, minimum dilution. No mining presently undertaken on No 2 seam at Nchwaning or Gloria.

##### Nchwaning Mineral Resources and Reserves

Measured Resources at Nchwaning are based on the two-thirds of the semivariogram sill range. Areas where the borehole spacing is greater than this distance and up to the sill range are classified as Indicated. There are no Inferred resources at Nchwaning. Measured/Indicated Resources were converted to Proved/Probable Reserves by a LOM scheduling exercise. Geological losses are built into the grade models. Measured Resources at Gloria are classified as material available up to 100 metres in front of the mining faces. Material situated further than 100 metres from the face and up to a boundary string around the densely drilled area on Gloria is classified as Indicated resources. The rest of the property with limited drill information is classified as Inferred. At Gloria a 23% pillar loss is accounted for in moving Measured/Indicated resources into Proved/Probable reserve.

The Nchwaning Mine was diamond drilled from surface at 330 metre centres and the data is now captured in a Geological Database Management System (GDMS) developed by Datamine SA for the manganese mines. The core was logged and 0.5-metre-long, half-core, diamond-saw cut samples were submitted to Assmang's laboratory at Black Rock for X-ray fluorescence (XRF) analyses. Mn and Fe values were checked by Wet Chemical analyses. Several standards were used to calibrate XRF equipment, and results are compared with other laboratories on a regular basis.

At Nchwaning a total of 316 boreholes as well as a total of 27 801 face samples were considered in the grade estimation for Nchwaning 1 orebody. The available data for an area was optimised over a thickness of 3.5 metres and exported into data files for computerised statistical and geostatistical manipulation to determine the average grades of Mn, Fe, silica (SiO<sub>2</sub>), calcium (CaO) and magnesium (MgO).

Ordinary Kriging interpolation within Datamine was used to estimate the grade of each 50 x 50 x 3.5 metre block generated within the geological model.

## ARM Ferrous continued

Sub-cell splitting of the 50 x 50 metre blocks was allowed to follow the geological boundaries accurately. The relative density of Nchwaning manganese ore was taken as 4.3 t/m<sup>3</sup>.

Trackless mechanised equipment is used in the board and pillar mining method. Mining in the eastern extremity of Nchwaning occurs at a depth of 200 metres while the deepest (current) excavations can be found at a depth of 519 metres below surface. Gloria Mine is extracting manganese at depths that vary between 180 and 250 metres below surface.

Ore from Nchwaning No 2 Mine is crushed underground before being hoisted to a surface stockpile via a vertical shaft. Similarly, ore from the Nchwaning No 3 Mine is crushed underground before being conveyed to a surface stockpile via a declined conveyor system. Ore is withdrawn from the surface stockpile and forwarded to two stages of crushing, dry screening and wet screening to yield lumpy and fine products.

At the Gloria Mine, ore is crushed underground before being conveyed to a surface stockpile via a decline shaft. At both plants the finer fractions are stockpiled while the coarser fractions are extracted from the respective product boxes into road haulers, sampled, weighed and stored on stacks ahead of despatch. Samples from each stack are analysed for chemical content and size distribution. This ensures good quality control and enables the ore control department to blend various stacks according to customer demand.

## Nchwaning year-on-year change

The 2010 Mineral Reserves for the Nchwaning No 1 orebody changed from 109.4 million tonnes in 2009 to 107.96 million tonnes. The Mineral Resources at Nchwaning No 1 orebody decreased by 1.97 million tonnes to 128.63 million tonnes. The decrease in resources/reserves is mainly due to depletion by production. The Mineral Resources at Nchwaning No 2 orebody remained the same at 180.8 million tonnes.

Nchwaning Mine: 1 Body Manganese Resources and Reserves							
	Mineral Resources				Mineral Reserves		
	Mt	Mn%	Fe%		Mt	Mn%	Fe%
Measured	39.63	46.6	9.2	Proved	34.08	46.6	9.2
Indicated	89.01	44.7	8.4	Probable	73.88	44.7	8.4
<b>Total Resources 1 Body 2010</b>	<b>128.63</b>	<b>45.3</b>	<b>8.7</b>	<b>Total Reserves 1 Body 2010</b>	<b>107.96</b>	<b>45.3</b>	<b>8.7</b>
Total Resources 1 Body 2009	130.60	45.1	9.04	Total Reserves 1 Body 2009	109.40	45.1	9.04

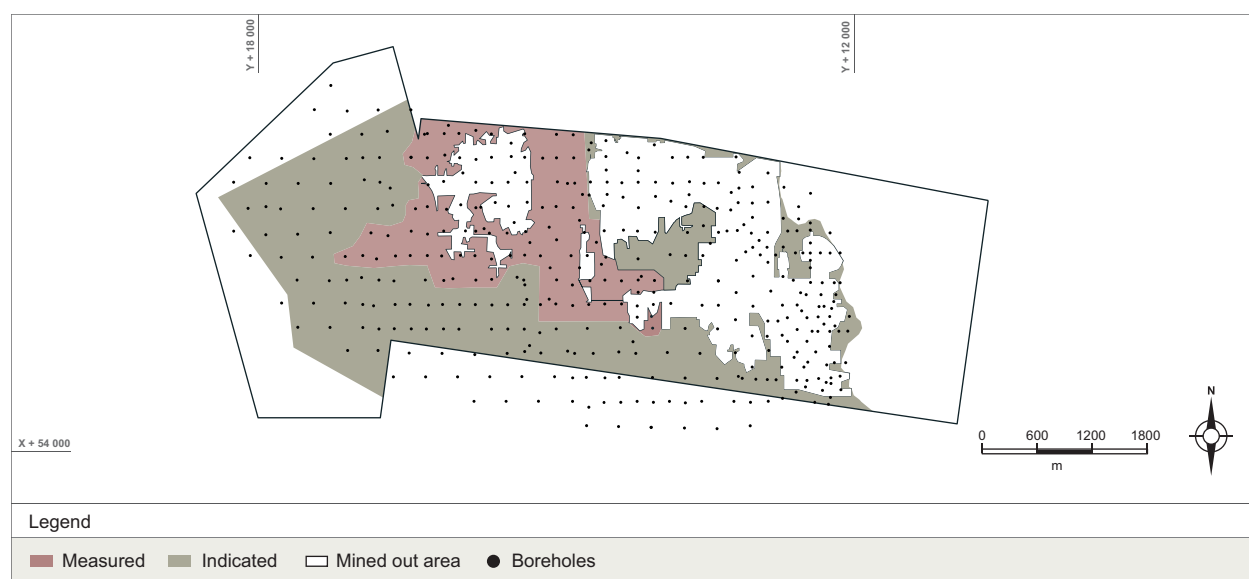
Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.

Modifying factors: Proved Reserves=Measured Resources less 14% pillar loss.

Probable Reserves=Indicated Resources less 17% pillar loss.

## NCHWANING MINERAL RESOURCE CLASSIFICATION MAP





## ARM Ferrous continued

Nchwaning Mine: 2 Body Manganese Resources			
Mineral Resources	Mt	Mn%	Fe%
Measured	53.37	42.0	16.3
Indicated	127.43	42.6	15.2
<b>Total Resources 2 Body 2010</b>	<b>180.80</b>	<b>42.4</b>	<b>15.5</b>
Total Resources 2 Body 2009	180.8	42.4	15.5

Totals are rounded off.

## Gloria Mineral Resources and Reserves

Procedures for drilling and assaying at Gloria Mine are the same as at Nchwaning. A total of 107 boreholes and 6 480 face samples were considered in the evaluation of the Gloria 1 Body Mine. The wide-spaced borehole interval puts some limitation on the evaluation in areas away from current mining faces. The underground sampling values were used in evaluating areas close to current mining. The boreholes were optimised over a stoping width of 3.5 metres and the relative density was taken as 3.8 t/m<sup>3</sup>. The seams were evaluated by means of statistical and geostatistical methods to determine the average grades of Mn, Fe, SiO<sub>2</sub>, CaO and MgO. Ordinary Kriging interpolation within Datamine was used to estimate the grade of each 50 x

50 x 3.5 metre block generated within the geological model. Sub-cell splitting of the 50 x 50 metre blocks was allowed to follow the geological boundaries.

## Gloria year-on-year change

The 2010 Proved Reserves at Gloria No 1 Body increased to 10.73 from 9.1 million tonnes due to re-evaluation and movement of reserves from the Probable to the Proved category. The Probable Reserves decreased from 31.9 million tonnes to 28.98 million tonnes. The Mineral Resources at Gloria No 2 Body stayed the same. No South African markets exist for Gloria 2 Body ore at this time.

Gloria Mine: 1 Body Manganese Resources and Reserves							
	Mineral Resources				Mineral Reserves		
	Mt	Mn%	Fe%		Mt	Mn%	Fe%
Measured	13.94	38.1	5.0	Proved	10.73	38.1	5.0
Indicated	37.63	38.3	5.7	Probable	28.98	38.3	5.7
<b>Total Resources 1 Body 2010</b>	<b>51.57</b>	<b>38.3</b>	<b>5.5</b>	<b>Total Reserves 1 Body 2010</b>	<b>39.71</b>	<b>38.3</b>	<b>5.5</b>
Total Resources 1 Body 2009	53.30	38.2	5.5	Total Reserves 1 Body 2009	41.00	38.2	5.5
<b>Inferred 2010</b>	<b>128.24</b>						
Inferred 2009	128.30						

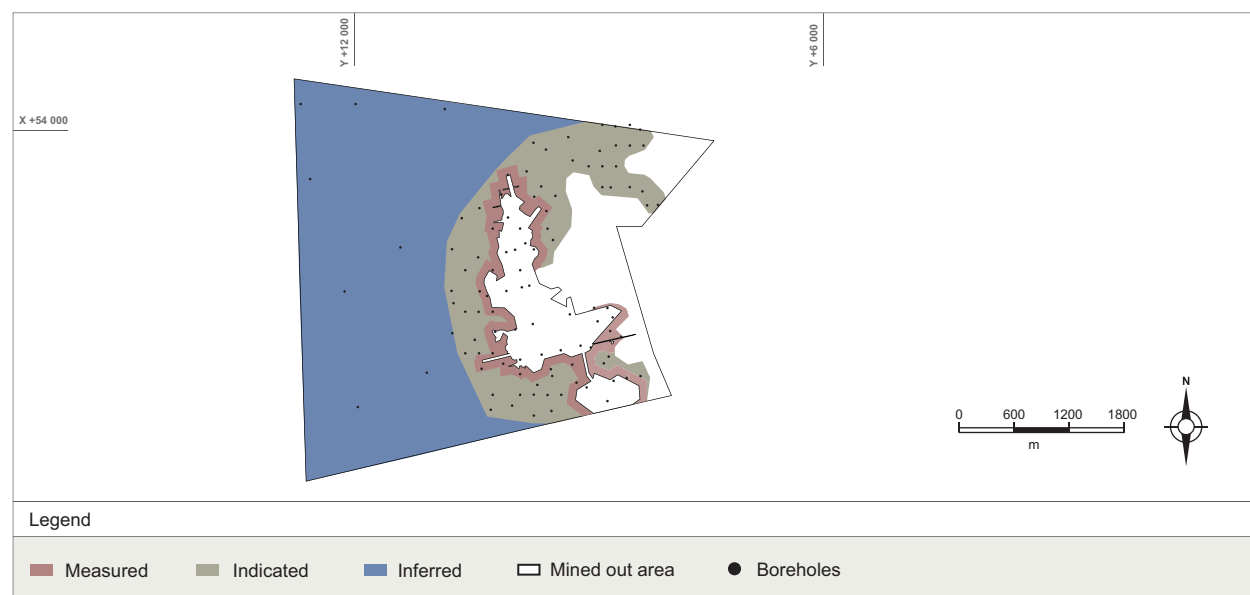
Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.

Modifying factors: Proved Reserves=Measured Resources less 23% pillar loss.

Probable Reserves=Indicated Resources less 23% pillar loss.

## GLORIA MINERAL RESOURCE CLASSIFICATION MAP



## ARM Ferrous continued

Gloria Mine: 2 Body Manganese Resources			
Mineral Resources	Mt	Mn%	Fe%
Measured	—	—	—
Indicated	29.40	29.9	10.1
<b>Total Resources 2 Body 2010</b>	<b>29.40</b>	<b>29.9</b>	<b>10.1</b>
Total Resources 2 Body 2009	29.40	29.9	10.1
<b>Inferred 2010</b>	128.24		
Inferred 2009	132.30		

Totals are rounded off.

## Historical manganese production at Nchwaning and Gloria Mines

Saleable product	Nchwaning	Gloria
Year	Mt	Mt
2005/2006	2.83	0.13
2006/2007	2.49	0.43
2007/2008	2.71	0.41
2008/2009	2.63	0.51
2009/2010	1.30	0.67



Underground refueling facility at Nchwaning 3 Shaft

## ARM Ferrous continued

### Iron Ore Mines

#### Locality

The iron ore division is made up of the Beeshoek Mine located on the farms Beeshoek 448 and Olynfontein 475, and the Khumani Mine situated on the farms Bruce 544, King 561 and Mokaning 560. All properties are in the Northern Cape approximately 200 kilometres west of Kimberley. The Beeshoek open-pit operations are situated 7 kilometres west of Postmasburg and the new Khumani open pits are adjacent to, and south-east of, the Sishen mine, which is operated by Kumba Resources. Located at latitude 28°30'00"S/longitude 23°01'00"E, and latitude 27°45'00"S/longitude 23°00'00"E respectively. Khumani Mine supplies iron ore to the export markets. Exports are railed to the iron ore terminal at Saldanha Bay. Beeshoek ore is supplied to local customers.

#### History

Mining of iron ore (mainly specularite) was undertaken as early as 40 000 BC on the farm Doornfontein which is due north of Beeshoek. The potential of iron ore in this region was discovered in 1909, but, due to lack of demand and limited infrastructure, this commodity was given little attention. In 1929 the railway line was extended from Koopmansfontein (near Kimberley) to service a manganese mine at Beeshoek. In 1935 The Associated Manganese Mines of South Africa Limited (Assmang) was formed, and in 1964 the Beeshoek iron ore mine was established, with a basic hand sorting operation. In 1975 a full washing and screening plant was installed and production increased to 7 million tonnes over the years. The Khumani Iron Ore Mine was commissioned in 2007 and is ramping up to approximately 10 million tonnes per annum with expansion plans to 16 million tonnes per annum being investigated.

#### Mining authorisation

The Beeshoek mining lease (ML3/93) comprises an area of 5 686 hectares and is located on the farms Beeshoek (448) and Olynfontein (475). An application for the conversion to a new order mining right was submitted during the 2009 financial year.

The Khumani mining right comprises an area of 7 388 hectares and is located on the farms Bruce (544), King (561) and Mokaning (560). The mining right was granted during the 2007 financial year.

#### Geology

The iron ore deposits are contained within a sequence of early Proterozoic sediments of the Transvaal Supergroup deposited between 2 500 and 2 200 million years ago. In general two ore types are present, namely laminated hematite ore forming part of the Manganore Iron Formation and conglomerate ore belonging to the Doornfontein Conglomerate Member at the base of the Gamagara Formation.

The older laminated ore types occur in the upper portion of the Manganore Iron Formation as enriched high-grade hematite bodies. The boundaries of high-grade hematite orebodies crosscut primary sedimentary bedding, indicating that secondary hematitisation of the iron formation took place. In all of these, some of the stratigraphic and sedimentological features of the original iron formation are preserved.

The conglomeratic ore is found in the Doornfontein Conglomerate Member of the Gamagara Formation and is lenticular and not persistently developed along strike. It consists of stacked, upward fining conglomerate-gritstone-shale sedimentary cycles. The lowest conglomerates and gritstones tend to be rich in sub-rounded to rounded hematite ore pebbles and granules and form the main orebodies. The amount of iron ore pebbles decreases upwards in the sequence so that upper conglomerates normally consist of poorly sorted, angular to rounded chert and banded iron formation pebbles.

The erosion of the northern Khumani deposit is less than that in the southern Beeshoek area. The result is that Khumani is characterised by larger stratiform bodies and prominent hangingwall outcrops. The down-dip portions are well preserved and developed, but in outcrop the deposits are thin and isolated. Numerous deeper extensions occur into the basins due to karst development. A prominent north-south strike of the ore is visible. The southern Beeshoek orebodies were exposed to more erosion and are more localised and smaller. Outcrops are limited to the higher topography on the eastern side of the properties. Down dip to the west, the ore is thin and deep. The strike of the orebodies is also in a north-south direction, but less continuous.

Haematite is the predominant ore mineral, but limonite and specularite also occur.

Mining operations are all open pit, based on the conventional drill-and-blast, truck-and-shovel operations. Run-of-mine ore is crushed and stored as on or off grade on blending stockpiles. Ore from the stockpiles is either sent to the wash-and-screen plants or, if off grade, to the beneficiation plants. The washing and screening plants consist primarily of tertiary crushing, washing, screening, conveying and stacking equipment. The beneficiation plants consist of tertiary crushers; scrubbers; coarse and fine jigs; lumpy, fines and scaw product stockpiles; and a rapid load-out facility. No chemical is being used in any of the treatment plants.

#### Mineral Resources and Reserves

In the iron ore operations, the following table shows how the search ellipse (i.e. the ellipsoid used by the Kriging process to determine if a sample is used in the estimation of a block) is used to classify the Minerals Resources:



## ARM Ferrous continued

	Minimum No of samples	Maximum No of samples	Search ellipse settings XYZ (m)
Measured	6	30	100 x 100 x 10
Indicated	5	30	200 x 200 x 20
Inferred	4	30	400

Only Measured and Indicated Resources are converted to Proved and Probable Reserves respectively. Modifying factors were applied to these resources and financially optimised. The financial outline is used to define the optimal pit by means of the Lersch-Grossman algorithm. The resources within this mining constraint are defined as reserves. These are categorised into different product types, destined for the different plant processes and scheduled for planning.

The methodology followed to identify targets is initiated with geological mapping, followed by geophysics (ground magnetics and gravity). Percussion drilling is used to pilot holes through overlying waste rock down to the iron ore bodies. Diamond drilling is the next phase, which is usually on a 200 x 200 metre grid. Further infill drilling is carried out at spacing ranging from 100 x 100 metres to 25 x 25 metres, depending on the complexity of the geological structures. Numerous exploration programmes have been completed in the last 40 years. A total of 2 832 holes (1 315 holes on Khumani and 1 517 holes on Beeshoek) have been drilled. Core samples are logged and split by means of a diamond saw and the half-core is sampled

every 0.5 metres. Before submission for assaying, the half-cores are crushed, split and pulverised. Samples with values larger than 60 percent are included in the definition of the orebodies. Any lower-grade samples inside the orebody are defined as internal waste and modelled separately. Each zone is modelled per section, and then wireframed to get a three-dimensional (3D) model.

Ordinary Kriging interpolation within Datamine is used to estimate the grade of each 10 x 10 x 10 metre block generated within the geological model. Density in the resource model is calculated using a fourth degree polynomial fit applied to the estimated Fe grade. Densities range from 4.38 t/m<sup>3</sup> (60 percent Fe) to 5.01 t/m<sup>3</sup> (68 percent Fe). A default density of 3.2 t/m<sup>3</sup> is used for waste.

At the Iron Ore Mines all blast holes are sampled per metre, but composited per hole. All holes are analysed for density and blast holes in ore are sampled and analysed for Fe, potassium oxide (K<sub>2</sub>O), sodium oxide (Na<sub>2</sub>O), silica (SiO<sub>2</sub>), aluminium oxide (Al<sub>2</sub>O<sub>3</sub>), phosphorus (P), sulphur (S), CaO, MgO, Mn and barium oxide (BaO). Every fifth blast hole is geologically logged per metre, which is used to update the geological model. The chemical results of these holes are used to update the ore block model. The major analytical technique for elemental analyses is XRF spectroscopy. Volumetric titration is used as verification method for the determination of total iron in the ore. International standards (e.g. SARM11) and in-house iron standards are used for calibration of the XRF spectrometer. The Khumani laboratory participates in a round robin group that includes eleven laboratories for verification of assay results.



The King Primary and secondary crusher installation under construction at Khumani Mine

## ARM Ferrous continued

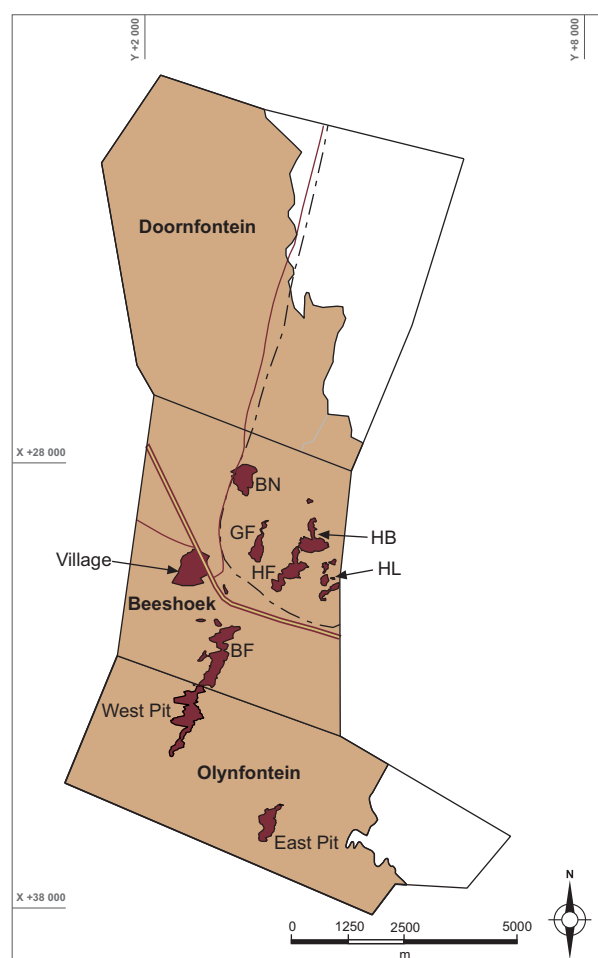
Beeshoek Iron Ore Mine: Resources and Reserves														
	Measured Resources		Indicated Resources		Inferred Resources		Total Resources Measured + Indicated		Proved Reserves		Probable Reserves		Total Reserves	
Pit/Area	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
BN	23.54	63.50	0.03	63.13	–	–	23.57	63.50	15.52	63.95	–	–	15.52	63.95
HF/HB	16.64	64.30	0.30	63.85	–	–	16.94	64.29	2.55	65.24	0.03	66.45	2.58	65.25
BF	6.95	63.29	0.22	63.58	–	–	7.17	63.30	1.93	63.81	–	–	1.93	63.81
East Pit	9.14	64.61	0.03	64.19	–	–	9.17	64.61	1.89	65.66	–	–	1.89	65.66
Village	40.80	63.56	0.09	64.64	–	–	40.89	63.56	24.23	65.53	–	–	24.23	65.53
GF	3.13	63.81	0.09	61.80	–	–	3.22	63.75	–	–	–	–	–	–
HH Ext	0.28	62.63	–	–	–	–	0.28	62.63	–	–	–	–	–	–
HL	3.05	65.17	–	–	–	–	3.05	65.17	0.93	65.70	–	–	0.93	65.70
West Pit	9.06	62.74	–	–	0.05	61.87	9.06	62.74	0.59	64.45	–	–	0.59	64.45
Detrital	–	–	–	–	2.50	60.00	–	–	–	–	–	–	–	–
<b>Total 2010</b>	<b>112.59</b>	<b>63.71</b>	<b>0.76</b>	<b>63.61</b>	<b>2.55</b>	<b>60.04</b>	<b>113.35</b>	<b>63.71</b>	<b>47.64</b>	<b>64.93</b>	<b>0.03</b>	<b>66.45</b>	<b>47.67</b>	<b>64.93</b>
Total 2009	108.94	63.71	0.74	63.61	3.75	60.00	109.68	63.71	45.21	64.95	0.03	66.45	45.24	64.95

Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.

Modifying factors: Economic pit design, Fines generated, Classified to customer specifications.

## BEESHOEK OPEN-PIT LOCALITY MAP



## Beeshoek year-on-year change

The 2010 Mineral Resources (Measured and Indicated) at Beeshoek Mine increased from 109.68 to 113.35 million tonnes, due to exploration around Beeshoek North (BN) pit which increased BN resources by 18%. The Mineral Reserves at Beeshoek also increased from 45.24 million tonnes to 47.67 million tonnes. There was little or no change to the other Beeshoek pits due to minimal mining. A feasibility study for Village pit is still in progress. The Khumani Mine took over the Beeshoek export production.



Tailing thickener



## ARM Ferrous continued

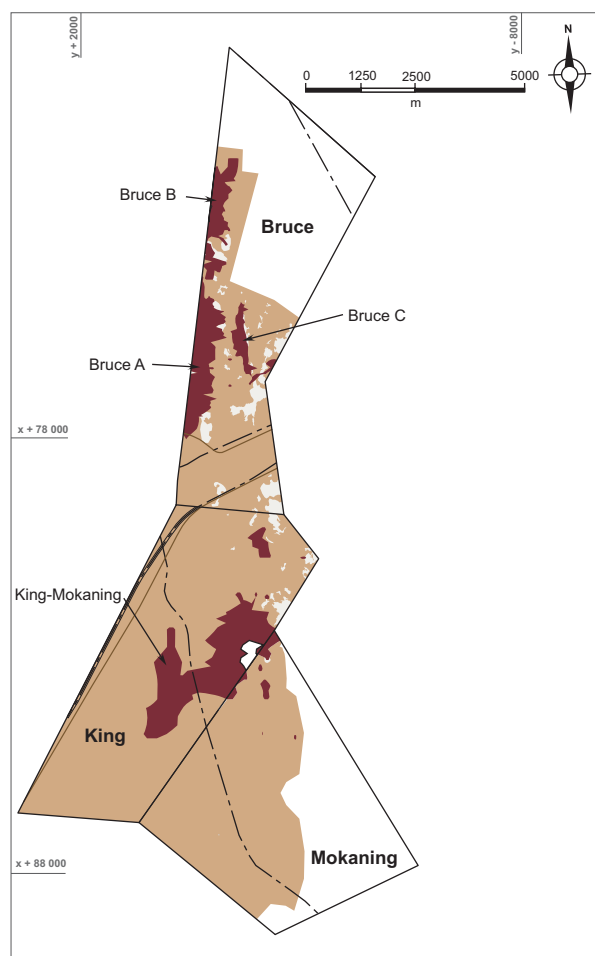
Khumani Iron Ore Mine: Resources and Reserves														
	Measured Resources		Indicated Resources		Inferred Resources		Total Resources Measured + Indicated		Proved Reserves		Probable Reserves		Total Reserves	
Pit/Area	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
Bruce A	110.60	64.39	0.05	62.43	0.33	63.70	110.65	64.39	100.60	64.43	0.08	62.12	100.68	64.43
Bruce B	93.88	64.43	9.18	64.56	3.81	64.13	103.06	64.44	88.01	64.41	4.20	63.92	92.21	64.39
Bruce C	17.10	65.13	3.51	65.84	1.04	64.29	20.61	65.25	17.02	65.14	3.64	65.91	20.66	65.28
King/ Mokaning	255.60	64.53	123.81	64.48	17.67	64.00	379.41	64.51	258.14	64.43	71.94	64.26	330.08	64.39
Detrital	—	—	—	—	4.00	60.00	—	—	—	—	—	—	—	—
<b>Total 2010</b>	<b>477.18</b>	<b>64.50</b>	<b>136.55</b>	<b>64.52</b>	<b>26.85</b>	<b>63.43</b>	<b>613.73</b>	<b>64.50</b>	<b>463.77</b>	<b>64.45</b>	<b>79.86</b>	<b>64.32</b>	<b>543.63</b>	<b>64.43</b>
Total 2009	325.40	64.70	307.60	64.42	40.80	62.97	632.90	64.56	481.40	64.51	84.40	64.26	565.70	64.49

Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.

Modifying factors: Economic pit design, Fines generated, Classified to customer specifications.

## KHUMANI OPEN-PIT LOCALITY MAP



## Khumani year-on-year change

At the Khumani Mine the 2010 Mineral Resources (Measured and Indicated) decreased to 613.73 from 632.90 million tonnes in 2009. Total Reserves decreased from 565.70 to 543.63 million tonnes. A feasibility study to increase production from 10 million tonnes to 16 million tonnes per annum at Khumani is in progress.

## Historical production at Beeshoek and Khumani Mines

Saleable product	Beeshoek	Khumani
Year	Mt	Mt
2005/2006	6.20	
2006/2007	6.70	
2007/2008	5.30	2.00
2008/2009	2.66	6.65
2009/2010	0.52	8.77



Construction of new thickener at Khumani

## ARM Ferrous continued

### Chromite Mine

#### Locality

Chromite operations at Dwarsrivier Mine form part of the chrome division of Assmang Limited. The mine is situated on the farm Dwarsrivier 372KT, approximately 30 kilometres from Steelpoort and 60 kilometres from Lydenburg, in Mpumalanga province in South Africa. Located at longitude 30°05'00"E/latitude 24°59'00"S, Assmang purchased the farm from Gold Fields Limited, together with all surface and mineral rights in October 1998.

#### History

Neighbouring properties to the north and south of Dwarsrivier had existing chrome mining operations at the time of purchase. The feasibility study of the plant, tailings dam and designs for the opencast and underground mines then commenced. After the completion of the feasibility study, approval to proceed with the final design and construction work was given in July 1999.

Chromite was obtained from the opencast mining areas at a rate of approximately 0.9 million tonnes a year and these areas were mined out within five years. Underground mining commenced in 2005 at a rate of 1.2 million tonnes ROM a year. Dwarsrivier Mine is specifically geared to deliver high quality metallurgical grade chromite to the Machadodorp smelter. In addition, the plant has been designed to produce chemical grade products.

#### Mining authorisation

An old order Mining Licence 21/99 was granted in October 1999. It was granted for the mining of chrome and platinum group metals. An application for the conversion to a new order mining right was submitted during October 2007.

#### Geology

Dwarsrivier Mine is situated in the eastern limb of the Bushveld Complex, which comprises persistent layers of mafic and ultramafic rocks, containing the world's largest known resources of platinum group metals, chromium and vanadium. The mafic rocks termed the Rustenburg Layered Suite, are approximately 8 kilometres thick in the eastern lobe, and are divided formally into five zones.

The rocks of the Marginal Zone at the base of the succession consist mainly of pyroxenites with some dunites and harzburgites. Above the Marginal Zone, the Lower Zone comprises mainly pyroxenites, harzburgites and dunite, and is present only in the northern part of the Eastern Lobe, and only as far south as Steelpoort. The appearance of chromitite layers marks the start of the Critical Zone, economically the most important zone. The layers are grouped into three sets termed the Lower, Middle and Upper groups. The sixth chromitite seam in the Lower Group (LG6), is an important source of chromite ore and is the orebody being mined at Dwarsrivier Mine. In the Eastern Lobe, in the vicinity of Dwarsrivier, the strike is nearly north-south,

with a dip of approximately 10 degrees towards the west. Average thickness of the LG6 seam is about 1.86 metres in the Dwarsrivier area. Pipe-like dunite intrusions are evident in the area, as well as dolerite dykes that on average strike northeast-southwest. No significant grade variation is evident, especially not vertically in the ore seam. Small, insignificant regional variations do, however, exist.

#### Mineral Resources and Reserves

Information was obtained from boreholes with a 300 to 150 metre grid spacing.

Resources were determined with a decreasing level of confidence.

- Measured Resource (150 metres drill grid spacing);
- Indicated Resource (300 metres drill grid spacing); and
- Inferred Resource (drill grid spacing greater than 300 metres).

All possible resources down to a mineable depth of 350 metres below ground level have been considered.

Vertical diamond drill holes are used for geological and grade modelling, except where information is needed to clarify large-scale fault planes. The Mineral Resources at Dwarsrivier Mine are based on a total of 232 diamond drill holes that have been used for grade estimation and orebody modelling purposes. The drill core is NQ size and is geologically and geotechnically logged. The collar position of the drill holes is surveyed, but no down-hole surveys are done, and the holes are assumed to have minimal deflection.

The chromitite seam is bounded above and below by pyroxenites. As such, the ore horizon is clearly defined. The core is sampled from the top contact downwards at 0.5 metre intervals. The core is split and half is retained as reference material in the core sheds. The other half is crushed and split into representative samples, which are crushed and pulverised for chemical analysis. The samples are analysed fusion/ICP-OES for chrome oxide ( $\text{Cr}_2\text{O}_3$ ),  $\text{SiO}_2$ ,  $\text{FeO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{MgO}$  and  $\text{CaO}$ . Three laboratories, all ISO 17025 accredited for this method, are used. Every tenth sample is analysed in duplicate. SARM 8 and SARM 9 standards, as well as in-house reference material (CRI), are included every 20 to 30 samples in each batch. The density for each sample is measured using a gas pycnometer.

Mineral Resources have been estimated using Ordinary Kriging, where  $\text{Cr}_2\text{O}_3$ ,  $\text{FeO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{MnO}$  and  $\text{MgO}$ -contents of the LG6 seam and densities were determined, using block sizes of 50 x 50 x 4 metres.

During mining, a slightly diluted run of mine ore inclusive of the 'false' hangingwall is fed to the beneficiation plant. In the dense media separation part of the plant, the coarse fraction is

## ARM Ferrous continued

upgraded to 40 percent  $\text{Cr}_2\text{O}_3$ , with a yield of 80 percent. In the spiral section of the plant the finer fraction is upgraded to 44 percent  $\text{Cr}_2\text{O}_3$ , and 46 percent  $\text{Cr}_2\text{O}_3$  respectively, for metallurgical grade fines and chemical grade fines. A 67 percent yield is achieved in the spiral circuit.

## Year-on-year change

When compared to 2009, the 2010 Mineral Reserves increased by 3.86 million tonnes to 39.5 million tonnes and the Mineral Resources increased by 2.72 million tonnes to 50.6 million tonnes. The increase in the Mineral Resources was due to the extension of the block model by remodelling of the Indicated Resources. The increase in the Mineral Reserves is due to the remodelling and incorporation of the "false hangingwall". The latter caused a decrease in the  $\text{Cr}_2\text{O}_3$  grade to 35.75% in 2010 model.

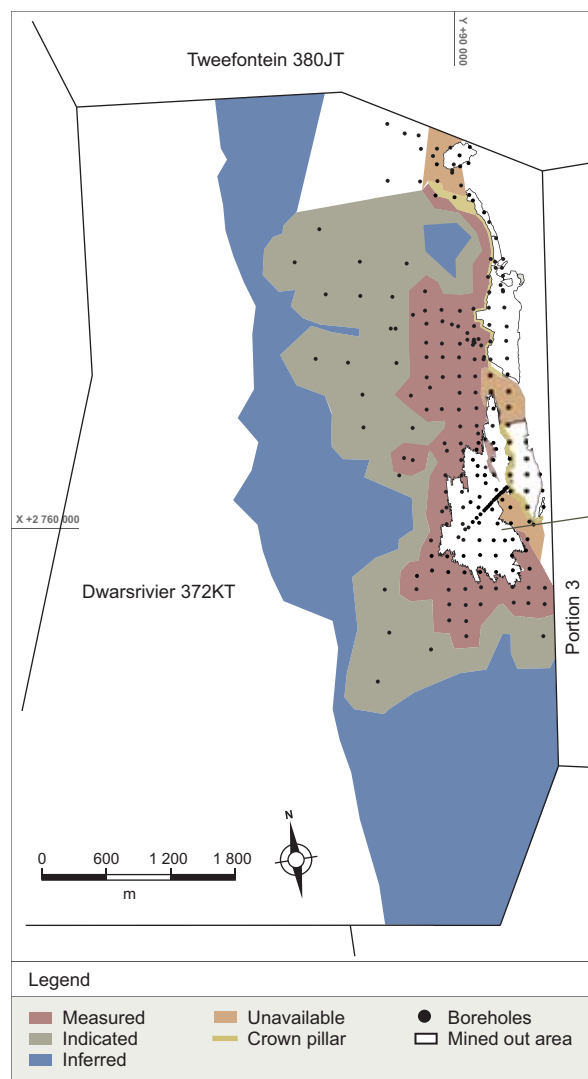
## Historical production at Dwarsrivier Chrome Mine

Year	Mt
2005/2006	0.82
2006/2007	1.01
2007/2008	1.24
2008/2009	1.03
2009/2010	0.78



Load Haul Dump (LHD) operation

## DWARSRIVIER MINERAL RESOURCE CLASSIFICATION MAP



Dwarsrivier Chrome Mine: Resources and Reserves							
	Mineral Resources				Mineral Reserves		
	Mt	$\text{Cr}_2\text{O}_3\%$	FeO%		Mt	$\text{Cr}_2\text{O}_3\%$	FeO%
Measured	18.83	39.21	23.07	Proved	12.75	35.95	22.07
Indicated	31.77	38.93	22.93	Probable	26.75	35.65	21.96
<b>Total Measured and Indicated 2010</b>	<b>50.60</b>	<b>39.03</b>	<b>22.98</b>	<b>Total Reserves 2010</b>	<b>39.50</b>	<b>35.75</b>	<b>22.00</b>
Total Measured and Indicated 2009	47.88	39.56	23.11	Total reserves 2009	35.64	39.50	23.10
Inferred	48.09	39.56	23.16				

Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.

Modifying factors: Geological losses (10%), Mining losses (5%), Pillar loss (23%).

## ARM Platinum

### Nkomati Nickel-Copper-Cobalt-PGM-Chromite Mine

ARM's attributable beneficial interest in Nkomati operations is 50%. The other 50% is held by Norilsk Nickel Africa (Pty) Limited.

#### Locality

The Nkomati Mine is situated some 300 kilometres east of Johannesburg in Mpumalanga province in South Africa. Situated at latitude 25°40'S and longitude 30°30'E, the site is accessed via the national N4 highway between Johannesburg and Machadodorp, the R341 provincial road and the R351 tarred road.

#### History

Nickel, copper, cobalt, PGM and chromite mineralisation is hosted by the Uitkomst Complex, a layered mafic-ultramafic, Bushveld satellite intrusion. The Uitkomst Complex outcrops on the farms Slaaihoek 540JT and Nkomati 770JT. In 1929, the mineral rights on Slaaihoek were purchased by ETC, an Anglovaal subsidiary, to mine gold at the old Mamre and Slaaihoek mines. In the early 1970s, an Anglo American/INCO joint venture began exploring Uitkomst for nickel. In 1990, Anglo American (AAC) completed a feasibility study on an open-pit operation exploiting the large disseminated sulphide resource on Uitkomst, with negative results. Exploration on Slaaihoek by Anglovaal began in earnest in 1989, and in 1991, the massive sulphide body (MSB) was discovered by surface drilling. In 1995, the Nkomati JV between Anglovaal and AAC was formed and in January 1997, underground production started on the MSB. In 2004, Anglovaal acquired AAC's interest and in 2005, a 50:50 JV was formed between ARM and LionOre, then a global nickel producer and owner of the Activox technology. In February 2006, Nkomati approved the Phase 1 expansion project to exploit the MMZ, one of the disseminated sulphide orebodies, by underground and open-pit mining at a rate of 100 000 tonnes per month of ore to maintain annual nickel production at approximately 5 000 tonnes in concentrate after the MSB became depleted. The project was completed in 2007 and in the same year, Norilsk Nickel acquired LionOre, together with its 50% share in Nkomati. The MSB orebody has now been completely mined out.

The Phase 2a expansion project, increasing MMZ ore production to 375 000 tonnes per month with the construction of a new plant, was commissioned during this financial year. The Phase 2b expansion, involving the upgrading of the 100 000 tonnes per month MMZ plant to a 250 000 tonnes per month PCMZ plant is in progress and will be completed in 2011. The PCMZ, which will be mined only in the open pit, is a disseminated chromite-rich sulphide body within the PCR unit (overlying the MMZ), which has to be treated separately to liberate the chromite fines. At full production from 2012, Nkomati will produce approximately 20 500 tonnes of nickel in concentrate per year.

Nkomati has also been producing lumpy chromite, chips and fines since 2006 from the Oxidized Massive Chromitite, a layer which overlies the PCMZ orebody in the open pits. A chrome washing plant to treat the fines stockpile was commissioned in 2008. In addition, the Oxidized PCR, which is the highly weathered PCR unit immediately below the Oxidized Massive Chromitite, is being stockpiled for future processing for its chromite content.

#### Mining authorisation

Old order Mining Licences, numbers 3/2001 and 27/2003, exist on the farms Slaaihoek and Nkomati respectively for the mining of nickel, copper, cobalt, platinum group metals (PGMs) and chromite. An application for the conversion to a new order mining right was approved during 2009.

#### Geology

The Uitkomst Complex is a Bushveld-age layered, mafic ultramafic body intruded into the basal sediments of the Transvaal Supergroup, which lies unconformably on an Archean granitic basement. The complex is a long linear body, which outcrops in the Slaaihoek valley for approximately 8 kilometres and dips below an escarpment where it has been drilled at depth for an additional 4 kilometres. The complex, which dips at approximately 4 degrees to the northwest, is still open-ended.

From the base to top, the stratigraphy of the Uitkomst Complex comprises the Basal Gabbro Unit (up to 15 metres thick), the Lower Pyroxenite Unit (average 35 metres), the Chromititic Peridotite Unit (30 to 60 metres), the Massive Chromitite Unit (up to 10 metres), the Peridotite Unit (330 metres), the Upper Pyroxenite Unit (65 metres), the Gabbro-norite Unit (250 metres), and the Upper Gabbro Unit (50 metres). The complex and surrounding sediments are intruded by numerous diabase sills up to 30 metres in thickness.

There are five sulphide zones in the Uitkomst Complex: the MSB, situated at and below the base of the complex, but which has now been mined out; the BMZ within the Basal Gabbro; the MMZ, occurring within the Lower Pyroxenite, the PCMZ, which occurs with the Chromititic Peridotite (PCR), and the PRDMZ, which occurs in the Peridotite Unit, but which is not yet included in the mine's resource base. In addition, the Massive Chromitite Unit (MCHR), situated at the top of the PCR unit, is mined where it is fully oxidised (weathered) in the open-pit area. The dominant sulphide minerals are pyrrhotite, pentlandite and chalcopyrite; cobalt is mostly in solid solution in the pentlandite, and the PGMs occur as separate minerals, merenskyite being dominant.

#### Mineral Resources and Reserves

There have been numerous diamond, percussion and RC drilling campaigns since 1972 totalling approximately 185 000 metres

## ARM Platinum continued

in 1 250 boreholes. Consequently, various sampling and assaying protocols as well as varying standards of QA/QC have been used. Core sizes have been mainly NQ and TNW. Before 1990 (Anglo American holes), half core samples over widths ranging from 1m to 5m were taken. Samples were assayed at Anglo American Research Laboratory (AARL) for total nickel, copper and cobalt using AA and for "sulphide" nickel using a peroxide leach/AA finish. Composite samples were assayed for platinum and palladium by Pb-collection fire assay/ICP, S by combustion, and a range of major elements by fusion, and RD using the Archimedes bath method. Between 1990 and 1997 (Anglovaal holes), assays were carried out at the Anglovaal Research Laboratory (AVRL), with internal standard checks. Nickel analyses were also carried out by the partial digestion methods and comparisons between AARL and AVRL to ensure that the data was compatible. In 2003, a 50m spaced drilling programme was carried out in the shallow open pit area. Samples from this drilling were analysed at AVRL for nickel, copper cobalt using an aqua regia partial extraction/AA finish. Platinum, palladium, rhodium and gold were analysed by Pb collection fire-assay/AA finish. Analyses also included Cr<sub>2</sub>O<sub>3</sub>, MgO, FeO, S and RD. Duplicates and internal standards were used and a suite of referee samples were analysed at Genalysis Laboratory in Perth. Comparisons indicated good correlations between laboratories. In 2005, it was decided to resample many of the Anglo American drill holes to improve the sample density for PGEs in the open pit area. Drill core was resampled (quarter core) at 1 metre intervals. Assays were carried out by SGS Laboratory in Johannesburg for Pt, Pd and Au by Pb-collection fire assay/AA and for Ni, Cu and Co by aqua regia leach/AA. Blanks, duplicates and AMIS standards were included.

In 2007/08, a 50m infill diamond drilling programme (116 holes – 18 000m) was completed in the shallower part of Pit 3. In the Pit 2 area, another 44 holes (3 450m) were added to the database. Half core samples from the Pit 3 drilling were analysed at Genalysis Laboratory Services in Perth for Ni, Cu, Co by aqua regia partial digestion/ICP; for Pt, Pd and Au by Pb collection fire assay/ICP; high chrome samples for Cr<sub>2</sub>O<sub>3</sub> by fusion/ICP and SG by gas pycnometer. AMIS standards, duplicates and blank samples were used for internal QA/QC. Half core samples from the Pit 2 drilling were analysed at Nkomati's mine laboratory for Ni, Cu and Co by aqua regia partial digestion/AA.

The underground MMZ and PCMZ mineral resources are based on surface and underground diamond drilling. Surface boreholes in the open pit area are at 100 metre spacing other than those areas where 50m infill diamond drilling has been undertaken. Underground holes are spaced 10 to 20 metres apart and the drill core is sampled at 1 metre intervals. The Nkomati mine laboratory analyses samples for Ni, Cu and Co using aqua regia leach/ICP, while the PGE assays are carried out by SGS and Mintek Laboratories in Johannesburg. Both laboratories use blanks, standards and check assays for quality control.

Geological wireframe models are generated from the entire borehole database in Datamine but only diamond drill holes are used for the variography and grade estimation is by ordinary kriging. Block sizes for the resource model is 50 metres x 50 metres x 2.5 metres.

New geological and grade models in the open pit area were generated during this financial year and have been used in the current mineral resource and reserve statements. SRK audited and signed off the Mineral Resource model. The underground mineral resource is still based on the previous year's model.

Nkomati Mine: Resources																	
	Measured Mineral Resources						Indicated Mineral Resources						Total Mineral Resources				
	Cut-off (Ni)%	Mt	Ni%	Cu%	Co%	4E g/t	Cut-off (Ni)%	Mt	Ni%	Cu%	Co%	4E g/t	Mt	Ni%	Cu%	Co%	4E g/t
BMZ (underground)	0.35	0.03	0.62	0.36	0.04	1.60	0.35	0.20	0.47	0.33	0.02	1.20	0.23	0.49	0.33	0.02	1.25
MMZ (underground)	0.35	0.95	0.54	0.19	0.03	1.06	0.30	47.80	0.48	0.21	0.03	1.03	48.75	0.48	0.21	0.03	1.03
PCMZ (underground)	–	–	–	–	–	–	0.30	19.90	0.38	0.12	0.02	0.77	19.90	0.38	0.12	0.02	0.77
MMZ (open-pit)																	
Pits 2 & 3 PCMZ (open-pit)	0.24	18.90	0.46	0.19	0.03	1.07	0.24	57.25	0.42	0.19	0.03	1.00	76.15	0.42	0.19	0.03	1.02
Pits 2 & 3	0.16	23.30	0.27	0.08	0.01	0.79	0.16	97.70	0.22	0.07	0.01	0.66	121.00	0.23	0.07	0.01	0.68
<b>Total 2010 Mineral Resources</b>		<b>43.18</b>	<b>0.36</b>	<b>0.13</b>	<b>0.02</b>	<b>0.92</b>		<b>222.85</b>	<b>0.34</b>	<b>0.14</b>	<b>0.02</b>	<b>0.84</b>	<b>266.03</b>	<b>0.34</b>	<b>0.13</b>	<b>0.02</b>	<b>0.85</b>
Total 2009 Mineral Resources		0.98	0.54	0.20	0.03	1.71		233.00	0.38	0.15	0.02	0.93	233.98	0.38	0.15	0.02	0.93

4E = platinum, palladium, rhodium and gold.

Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.



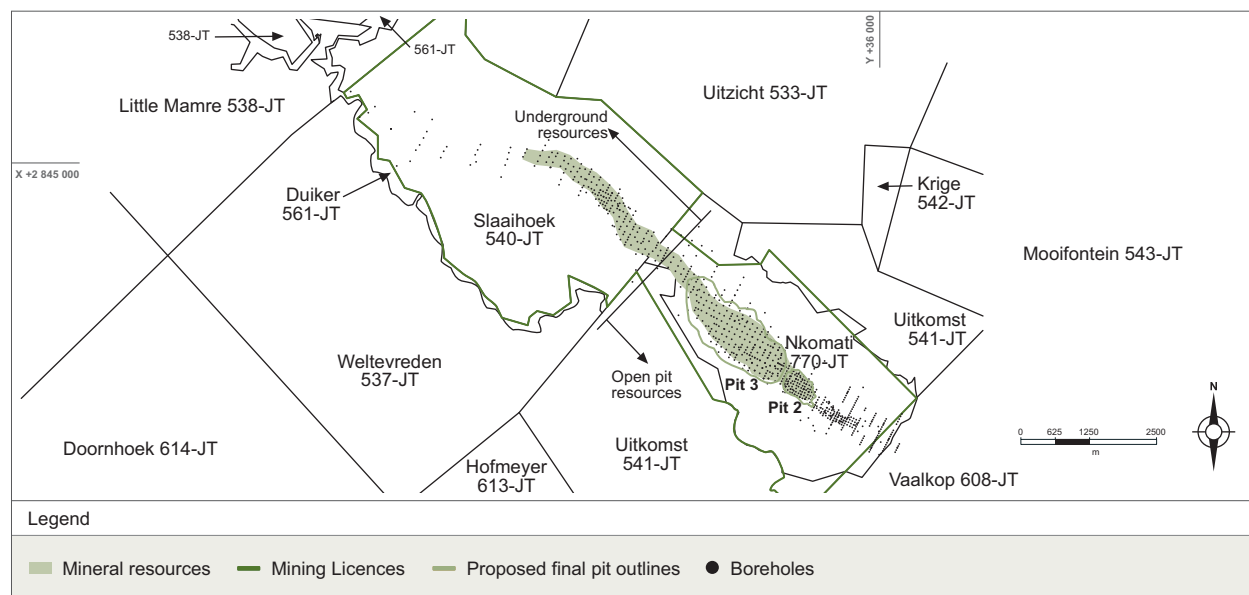
## ARM Platinum continued

Nkomati Mine: Reserves																	
	Proved Mineral Reserves						Probable Mineral Reserves						Total Mineral Reserves				
	Cut-off (Ni)%	Mt	Ni%	Cu%	Co%	4E g/t	Cut-off (Ni)%	Mt	Ni%	Cu%	Co%	4E g/t	Mt	Ni%	Cu%	Co%	4E g/t
MMZ (underground)	—	—	—	—	—	—	0.35	6.54	0.59	0.22	0.03	1.09	6.54	0.59	0.22	0.03	1.09
MMZ (open-pit)	—	—	—	—	—	—	0.24	65.32	0.42	0.18	0.02	1.01	65.32	0.42	0.18	0.02	1.01
Pits 2 & 3 PCMZ (open-pit)	—	—	—	—	—	—	0.16	57.65	0.23	0.07	0.01	0.69	57.65	0.23	0.07	0.01	0.69
<b>Total 2010 Mineral Reserves</b>	—	—	—	—	—	—	—	<b>129.51</b>	<b>0.34</b>	<b>0.13</b>	<b>0.02</b>	<b>0.87</b>	<b>129.51</b>	<b>0.34</b>	<b>0.13</b>	<b>0.02</b>	<b>0.87</b>
Total 2009 Mineral Reserves	—	—	—	—	—	—	—	159.70	0.32	0.12	0.02	0.82	159.70	0.32	0.12	0.02	0.82

Totals are rounded off.

Modifying factors: Economic pit design, geotechnical, metallurgical.

## NKOMATI MINE LOCALITY MAP



Oxidised Massive Chromitite Resources				
	Indicated Mineral Resources		Inferred Resources	
	Mt	Cr <sub>2</sub> O <sub>3</sub> %	Mt	Cr <sub>2</sub> O <sub>3</sub> %
<b>Total 2010 Chromitite (at 30% Cr<sub>2</sub>O<sub>3</sub> cut-off)</b>	<b>2.00</b>	<b>31.63</b>		
Total 2009 Chromitite (at 30% Cr <sub>2</sub> O <sub>3</sub> cut-off)	1.82	33.56	0.1	31.71

Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.

## ARM Platinum continued

Oxidised Massive Chromitite Reserves		
	Probable Mineral Reserves	
	Mt	Cr <sub>2</sub> O <sub>3</sub> %
Total 2009 Chromitite (at 30% Cr <sub>2</sub> O <sub>3</sub> cut-off)	2.00	31.63

Totals are rounded off.

Modifying factors: Economic pit design, geotechnical, metallurgical.

Oxidised Chromititic Peridotite				
	Indicated Mineral Resources		Inferred Resources	
	Mt	Cr <sub>2</sub> O <sub>3</sub> %	Mt	Cr <sub>2</sub> O <sub>3</sub> %
<b>Total 2010 Oxidised PCR</b>			<b>3.70</b>	<b>10.30</b>
Total 2009 Oxidised PCR	5.20	16.41	8.7	16.04

Mineral Resources are inclusive of Mineral Reserves.

Totals are rounded off.

## Year-on-year change

Remodelling of the Nkomati Mineral Resource model (Open-pit area) was completed during 2009 and the following are changes to the MMZ and PCMZ:

- An increase in the Measured Resources (Open-pit and underground) of 42.2 million tonnes (MMZ and PCMZ) from 0.98 million tonnes in 2009 mainly due to upgrading of the Indicated Resources in the Pit 3 area where 50m infill drilling was carried out.
- An increase in the PCMZ resources (Open-pit area) from 82.8 in 2009 to 121.0 million tonnes mainly due to use of a lower cut-off grade, 0.16%Ni in 2010 compared to 0.20%Ni in 2009.
- Minor changes in grade and tonnage are attributable to depletion by production and the re-modelling that was undertaken in 2009 for the open-pit model.
- The change in the MMZ Mineral Reserve (Open-pit area) from 67.10 to 65.32 million tonnes is mainly due to depletion by production in the Pit 2 area. A significant drop in the PCMZ reserve of 28.05 million tonnes was due the conversion of only that part of the PCMZ that will be processed (the remainder will be stockpiled).

Mining operations to date comprise a mechanised underground and open pit mining operation which feeds two concentrators producing concentrate containing PGMs, nickel, copper and cobalt. Final products are transported to various third parties for toll treatment. Chrome products are sold to local and export markets.

## Historical Nickel production at Nkomati Mine

Year	Tonnes Ni ore milled
2005/2006	377 000
2006/2007	359 000
2007/2008	1 070 000
2008/2009	1 258 818
2009/2010	3 308 142



Nkomati PCMZ plant tailings thickener

## ARM Platinum continued

## Two Rivers Platinum Mine

ARM's attributable beneficial interest in Two River's operations is 55%. The other 45% is held by Impala Platinum.

Mining operations to date comprise a mechanised underground and open pit mining operation which feeds two concentrators producing concentrate containing PGMs, nickel, copper and cobalt. Final products are transported to various third parties for toll treatment. Chrome products are sold to local and export markets.

### Locality

Two Rivers Platinum Mine is located within the southern sector of the eastern limb of the Bushveld complex, on the farm Dwarsrivier 372KT. Situated at longitude 30°07'00E and latitude 24° 59'00S, the UG2 and Merensky reefs are present on the farm.

### History

Exploration, development and production history in the area dates from the early 1920s. During 1929, Lydenburg Platinum Areas Limited started mining activity. No records are available. Following the acquisition by Gold Fields Mining and Development Limited, exploration started up again in 1987 and was mainly directed at the Merensky Reef. Assmang acquired the farm in September 1998 primarily to exploit the LG6 Chromitite. During 2001, Avmin acquired the PGE rights on the Dwarsrivier farm from Assmang and targeted the UG2 Reef.

In June 2005, following a full feasibility study and a period of trial underground mining, the joint venture announced the release of a 220 000 ounce-per-year PGM mine. As a result an underground mine was established. The plant was commissioned in July 2006.

### Mining authorisation

Two Rivers holds an old order Mining Licence no. 4/2003 on Dwarsrivier 372KT relating only to the PGEs contained in the Merensky and UG2 reefs. An application for a new order conversion of the mining licence was submitted in July 2007. This application is still pending.

### Geology

The UG2 Reef outcrops in the Klein Dwarsrivier valley over a north-south strike length of 7.5 kilometres, dipping to the west at between 7 and 10 degrees. The extreme topography results in the UG2 occurring at a depth of 935 metres on the western boundary.

The following reef facies have been defined for the UG2 at Two Rivers:

- UG2 Normal reef facies characterised by a 100-120 centimetre thick chromitite which is overlain by up to three

chromitite 'leaders' collectively termed the UG2A chromitites.

- UG2 Split Reef facies in the southern, west-central and north-eastern parts, characterised by a chromitite seam that is separated by a layer of a fine to medium grained internal pyroxenite unit.
- The UG2 Multiple Split reef facies represented by multiple splitting of the UG2 chromitite by internal pyroxenite.

The UG2 is usually bottom loaded with peak PGM values occurring in the basal 10-centimetre sample.

The Merensky Reef consists mainly of orthopyroxene with lesser amounts of plagioclase and clinopyroxene. Thin chromitite layers, usually 1 to 4 millimetres thick generally, occur near the upper and lower contacts of the reef.

### Mineral Resources and Reserves

The majority of resources at Two Rivers are classified as Indicated Mineral Resources, and it is only the areas around the North decline and the Main decline that are classified as Measured Resources due to the more closely spaced drilling in this area.

A total of 218 surface diamond boreholes had intersected the UG2, of which 35 were drilled by Gold Fields of South Africa and 18 by Assmang. This provided a total of 409 individual UG2 reef intersections, with an average spacing grid of 500 metres over the whole property and 250-metre grid spacing over the area planned for the first five years of mining. The drill hole spacing in the area of the open pit is 50 metres on dip and 100 metres on strike. It was standard for Two Rivers to drill three non-directional deflections off each mother hole. An additional 15 new boreholes have been drilled providing additional UG2 intersections.

The holes were halved by diamond saw and the half-core sampled at 20 centimetres. Samples were crushed and split and submitted for assaying. All samples were assayed by Ni-sulphide collection fire-assay with an ICP-MS finish to determine Pt, Pd, Rh, Ru, iridium (Ir) and Au values. Base metals (Ni, Cu, Co) were also assayed by aqua regia digestion/OES finish. Duplicate samples and check analyses were carried out. The earlier Gold Fields and Assmang samples were assayed by Pb-collector fire-assay with gravimetric finish. In order to combine the data, some of the original core samples were re-assayed by means of Ni-sulphide collection fire-assay and a regression equation was derived at to re-cast the original Pb-collection data as Ni-sulphide assay 'equivalents'. The Merensky Reef resource is based on a total of 81 surface diamond drill holes. The same sampling protocol was used as for the UG2, but assays were carried out by Pb-collection fire-assay with ICP-MS finish for Pt, Pd Rh and Au.

## ARM Platinum continued

Ordinary Kriging interpolation within Datamine was used to estimate the grade of each 50 x 50 x 1-metre block generated within the geological model. The UG2 was wireframed and estimated as two units based on the Pt:Pd ratio as observed in the drill hole database. Sub-cell splitting of blocks was allowed to follow the geological boundaries accurately. Relative density was calculated for each sample and determined by Kriging in the resource model.

Total in-situ resources were decreased by 30 percent to account for geological losses due to potholes, faults, dykes and replacement pegmatoids.

The resource to reserve conversion was done using the Mine 2-4D optimisation software package to select the optimum economic cut subject to the geological, geotechnical and trackless mining constraints.

New UG2 geological and grade models were generated during this financial year have been used in the current mineral resource and reserve statements. Snowden audited and signed off both the Mineral Resource and Reserve models.

UG2 Mineral Resources									
(UG2 + Internal Pyroxenite)									
	Mt	Pt g/t	Pd g/t	Rh g/t	Au g/t	(3PGE + Au) g/t	(5PGE + Au) g/t	Pt Moz	6E Moz
Measured	8.83	2.57	1.44	0.48	0.04	4.53	5.42	0.73	1.54
Indicated	46.82	2.09	1.24	0.39	0.04	3.76	4.53	3.15	6.82
<b>Total 2010</b>	<b>55.65</b>	<b>2.17</b>	<b>1.27</b>	<b>0.41</b>	<b>0.04</b>	<b>3.89</b>	<b>4.67</b>	<b>3.88</b>	<b>8.36</b>
Total 2009	54.09	2.17	1.3	0.4	0.04	3.91	4.71	3.77	8.19
Inferred	1.12	2.91	1.69	0.54	0.05	5.19	6.26	0.1	0.23

**3PGE** = platinum, palladium and rhodium; **5PGE** = platinum, palladium, rhodium, iridium and ruthenium; **6E** = 5PGE + gold  
Mineral Resources are inclusive of Mineral Reserves.  
Totals are rounded off.

UG2 Mineral Reserves									
(UG2 + Internal Pyroxenite)									
	Mt	Pt g/t	Pd g/t	Rh g/t	Au g/t	(3PGE + Au) g/t	(5PGE + Au) g/t	Pt Moz	6E Moz
Proved	5.12	1.83	1.08	0.35	0.03	3.29	3.94	0.30	0.65
Probable	30.80	1.62	0.92	0.31	0.03	2.88	3.47	1.60	3.44
<b>Total 2010</b>	<b>35.92</b>	<b>1.65</b>	<b>0.95</b>	<b>0.32</b>	<b>0.03</b>	<b>2.94</b>	<b>3.54</b>	<b>1.90</b>	<b>4.09</b>
Total 2009	37.29	1.83	1.10	0.34	0.03	3.30	3.98	2.19	4.78

**3PGE** = platinum, palladium and rhodium; **5PGE** = platinum, palladium, rhodium, iridium and ruthenium; **6E** = 5PGE + gold  
Totals are rounded off.  
Modifying factors: Mining losses, dilution, geotechnical, metallurgical.

Merensky Reef Mineral Resources						
Top Zone	Mt	(3PGE + Au) g/t	Pt g/t	6E g/t	Pt Moz	6E Moz
Measured						
Indicated	18.70	3.34	2.06	3.55	1.2	2.13
<b>Total 2010</b>	<b>18.70</b>	<b>3.34</b>	<b>2.06</b>	<b>3.55</b>	<b>1.2</b>	<b>2.13</b>
Total 2009	18.70	3.34	2.06	3.55	1.2	2.13
Inferred	3.90	3.16	1.95	3.36	0.24	0.41

**3PGE** = platinum, palladium and rhodium; **5PGE** = platinum, palladium, rhodium, iridium and ruthenium; **6E** = 5PGE + gold  
Mineral Resources are inclusive of Mineral Reserves.  
Totals are rounded off.

## ARM Platinum continued

## Year-on-year change

The 2010 Measured mineral resource tonnage decreased to 8.83 million tonnes from 13.81 million tonnes in 2009, largely due to reduction in the Measured Resource area to exclude the Multiple Split reef. Part of the reduction was also due to the depletion by mining. Minor changes in grade are due to the re-modelling in which a new semi-variogram was used.

Indicated mineral resource tonnage increased by 16% to 46.82 million tonnes due to the re-classification of the South pit area from an Inferred Resource to Indicated Resource on the basis of good reef continuity and the significant number of boreholes drilled in the area, as well as recommendations by the Snowden Mineral Resource auditors. Overall the Measured and Indicated resource increased from 54.09 to 55.65 million tonnes.

The Mineral Reserves decreased by 1.37 million tonnes from 37.29 to 35.92 million tonnes.

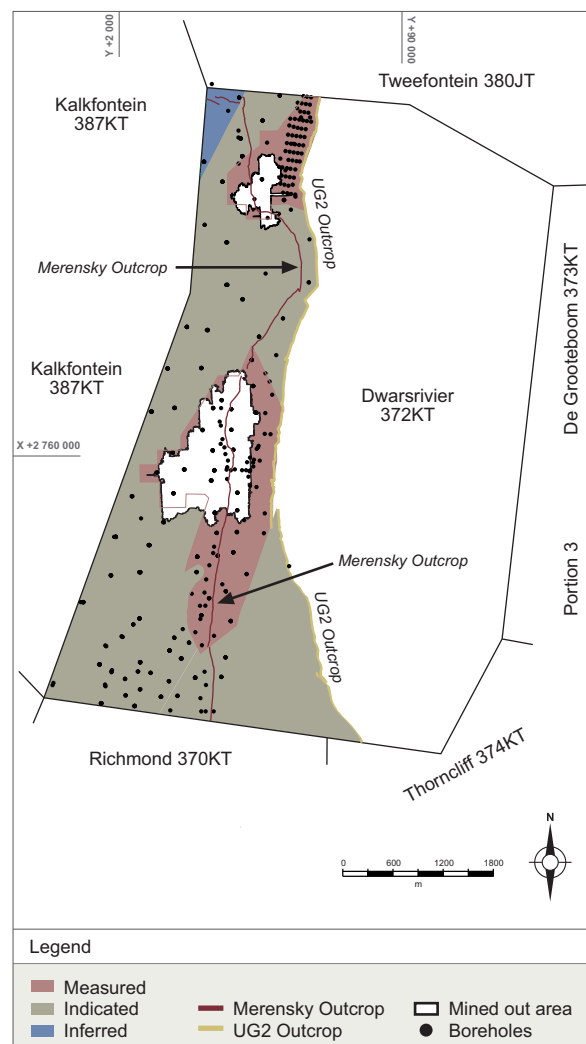
## Historical production at Two Rivers Platinum Mine

Year	Mt
2005/2006	1.00
2006/2007	1.28
2007/2008	2.33
2008/2009	2.69
2009/2010	2.92



Manganese ore being transferred to the stockpile

## TWO RIVERS MINERAL RESOURCE CLASSIFICATION MAP



Underground drill rig



## ARM Platinum continued

## Modikwa Platinum Mine

ARM's attributable beneficial interest in Modikwa's operations is 50%. The other 50% is held by Anglo Platinum.

### Locality

Modikwa platinum underground mine is situated some 15 kilometres north of Burgersfort and 15 kilometres east of Steelpoort, along the border between the Mpumalanga and Limpopo provinces in South Africa. Located at longitude 30°10'E and latitude 24°40'S, the site is accessed via the R37 road between Polokwane and Burgersfort.

### History

Exploration in the area started in the mid 1920s with the discovery of the Merensky Reef. During the late 1980s further drilling was completed on the UG2 and Merensky reefs. In the late 1990s a feasibility study was completed on the exploitation of the UG2. During 2001 a 50:50 JV agreement was signed between Rustenburg Platinum Mines and ARM Mining Consortium Limited. ARM's effective stake in Modikwa is 41.5 percent, through its 83 percent ownership of ARM Mining Consortium. The other 8.5 percent is held by the Mampudima and Matimatjati community companies through their 17 percent shareholding in ARM Mining Consortium.

### Mining authorisation

During June 2001, an old order mining licence was issued to ARM Mining Consortium and Rustenburg Platinum Mines over the properties Onverwacht 292KT, Portion 1 and R/E Winterveldt 293KT, Driekop 253KT, Maandagshoek 254KT and Hendriksplaats 281KT. An application for new order rights is in preparation and was submitted in March 2009.

### Geology

The igneous layering at Modikwa mine is north-northwest striking with an average dip of 10 degrees to the west. Both the UG2 and Merensky reefs are present. The UG2 occurs as a chromitite layer with average thickness of approximately 60 centimetres. Three leader chromitites occur above the main seam. Gentle undulations of the UG2 with amplitudes of less than 2 metres are pervasively developed across the mine area. Potholes of varying size appear to be randomly distributed within the North shaft area. Potholes are less abundant in the South shaft area, which is more disturbed by faulting. The Onverwacht Hill area is characterised by the presence of several large ultramafic pegmatoid intrusions that disrupt and locally replace the UG2.

### Mineral Resources and Reserves

The resource over a minimum resource width of 1.02m has been classified in accordance with the SAMREC code. The classification is based on data constraints, information risk assessments, geological, geostatistical considerations and after review by the Competent Persons Team.

The mineral resource is based on 1849 surface diamond drillhole intersections and 3000 underground sample sections. These logs and values are kept in separate electronic databases and combined for estimation purposes after rigorous data validation. Samples are submitted to Anglo Platinum Laboratories (AR) and Mintek Laboratories (primary laboratories) and to Genalysis (check laboratory) for analysis.

The UG2 Resource Cut is divided into three units comprising the UG2 Reef and dilution cuts in the hangingwall and footwall to make up the mining cut. Estimation of the three sub-units in the mining cut is carried out separately and independently. Two-dimensional block models with block sizes of 125m x 125m, 250m x 250m and 500m x 500m, depending on the drillhole/sample section spacing are created. The Pt, Pd, Rh, Au, Cu and Ni grades, width and density are interpolated using Ordinary Kriging. Resources are reported after deduction of geological losses and exclude resources converted to reserves. The geological losses account for losses due to pegmatoidal intrusions, faults, dykes and potholes. Part of the Resources are converted to Mineral Reserves by applying appropriate mining, metallurgical and economic factors, i.e "modifying factors".

A minimum mining cut of 102 centimetres is used to calculate the amount of footwall waste that is included in the mining cut. Where the hangingwall and the main seam thickness are greater than 102 centimetres, an additional 5 centimetres of footwall waste is included. The basal contact of the UG2 layer is typically high-grade and it is important that this contact is not left in the footwall during mining. The UG2 is accessed via two primary declines from surface – and a fleet of mechanised equipment is used for the mining operations. Run-of-mine tonnage is processed at the Modikwa concentrator and the PGE rich concentrate is transported to Anglo Platinum's Polokwane smelter and refining facilities.

### Year-on-year change

The Mineral Reserves at Modikwa decreased to 47.6 million tonnes from 56.0 million tonnes when compared with the 2009 statement. The Measured and Indicated Mineral Resources increased from 145.7 to 149.0 million tonnes due to conversion of resources (measured, indicated and inferred) and re-evaluation. Resources and Reserves were adjusted to reflect June 2010 status.

### Historical production at Modikwa Mine

Year	Mt
2005/2006	2.51
2006/2007	2.32
2007/2008	2.26
2008/2009	2.45
2009/2010	2.27

## ARM Platinum continued

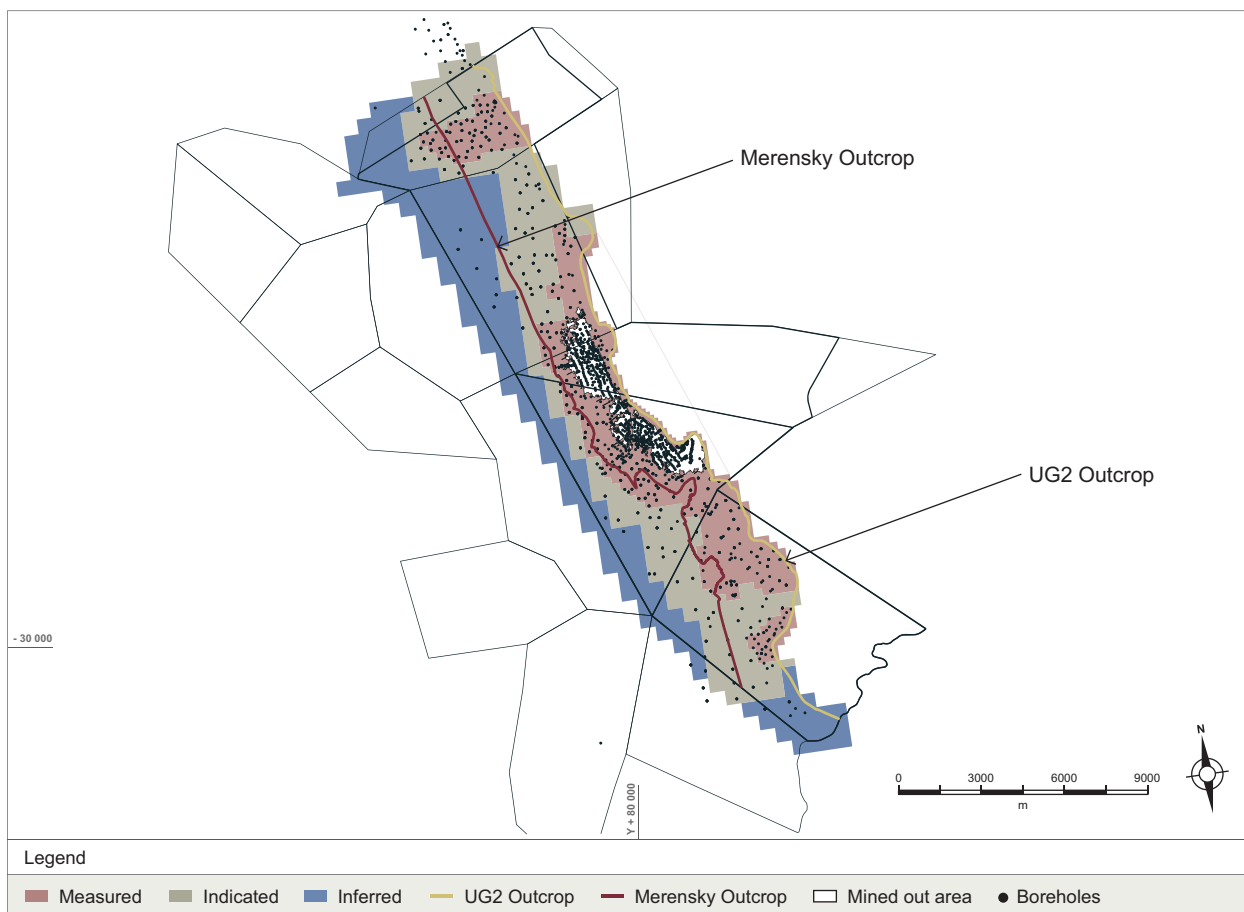
Modikwa Mineral Resources and Reserves UG2							
	Mineral Resources				Mineral Reserves		
	Mt	3PGE + Au g/t	Moz		Mt	3PGE + Au g/t	Moz
Measured	54.30	5.84	10.19	Proved	20.69	5.02	3.34
Indicated	94.71	5.88	17.89	Probable	26.88	4.87	4.21
<b>Total Measured and Indicated 2010</b>	<b>149.01</b>	<b>5.86</b>	<b>28.08</b>	<b>Total</b>	<b>47.57</b>	<b>4.94</b>	<b>7.55</b>
Total Measured and Indicated 2009	145.73	5.86	27.44		56.01	4.71	8.49
Inferred	75.68	6.19	15.05				

3PGE = platinum, palladium and rhodium. Mineral Resources are exclusive of Mineral Reserves. Totals are rounded off.

Modikwa Mineral Resources Merensky Reef			
	Mineral Resources		
	Mt	3PGE + Au g/t	Moz
Measured	17.95	2.94	1.70
Indicated	54.05	2.73	4.74
<b>Total Measured and Indicated 2010</b>	<b>72.00</b>	<b>2.78</b>	<b>6.44</b>
Total Measured and Indicated 2009	72.00	2.78	6.44
Inferred	136.84	2.65	11.66

3PGE = platinum, palladium and rhodium. Totals are rounded off. Modifying factors: Mining losses, dilution, geotechnical, metallurgical.

## MODIKWA MINERAL RESOURCE CLASSIFICATION MAP



## ARM Platinum continued

## Kalplats Platinum Projects

ARM's attributable beneficial interest in Kalplats' operations is 90%.

### Locality

The Kalplats Platinum Projects are situated 330 kilometres west of Johannesburg and some 90 kilometres southwest of Mafikeng in the North West Province of South Africa. Situated at latitude 26°30'S and longitude 24°50'E, the project area is accessed from Stella on the N14 national road linking Mafikeng and Vryburg.

### History

Anglo American discovered the Kalplats platinum deposits in the early 1990's and Harmony Gold Mining Company Limited acquired the project from Anglo in 1999. Subsequently ARM acquired the project as part of the merger of the Anglovaal, ARM and Harmony assets in 2004. Pre-2004, exploration comprised a combination of rotary air blast (RAB), reverse circulation (RC) and diamond drilling. Anglo drilled a total of 6 000 metres in 133 holes, while Harmony drilled a total of 35 640 metres in 399 holes. Harmony commissioned a feasibility study in 2003 and excavated a 500 tonne bulk sample for metallurgical test work. The study assessed the viability of both an open pit and underground mining operation. The feasibility study was completed early in 2004.

In 2005, ARM Platinum entered into two joint venture agreements with Platinum Australia Limited (PLA), one over the "Kalplats Project" in which ARM Platinum has a 90 percent share and which provides for PLA to earn up to 49 percent by completing a bankable feasibility study and making the Panton metallurgical process available at no cost. The other joint venture agreement covers the "Kalplats Extended Project" (Extended Project) in which ARM Platinum and PLA each has a 50% share and contributes equally to the exploration expenditure. Both projects are managed by PLA.

PLA continued drilling from 2006 with increased focus on the Vela, Scorpio, Sirius, Mira, Serpens North, Serpens South and Crux deposits. PLA's drilling consisted of a combination of RC and diamond drilling and focussed on extending existing holes and infill drilling along and between existing drill lines. PLA completed 683 drill holes for a total of 92,529 m. Late in 2009, PLA completed a pre-feasibility study on a 1.5 million tonne of ore per year open pit mining operation and is currently finalising a bankable feasibility study.

Limited drilling was carried out on a soil geochemical anomaly in the Extended Project area with initial positive results.

### Prospecting rights

In September 2006, ARM Platinum was granted a new order prospecting right (PR492 of 2006) over the Kalplats Project covering portions of the farms Groot Gewaagd 270, Gemsbok Pan 309, Koodoos Rand 321 and Papiessvlakte 323 (approximately 3,810 hectares). In April 2007, a new order prospecting right (DME1056) (approximately 62,985 hectares) was granted to ARM Platinum over the Extended Project area which covers an additional 20 kilometre of strike to the north and 18 kilometres to the south of the Kalplats Project area.

### Geology

PGE mineralisation is hosted mainly by magnetite-rich gabbros within the Stella Layered Intrusion (SLI), a 3.0 billion year old layered complex intruded into the Kraaipan Greenstone Belt. Mineralisation is contained in eight separate, subvertically dipping zones known as Crater, Orion, Vela, Sirius, Mira, Serpens North and Serpens South and Crux, each with strike lengths of between approximately 500 and 1 000 metres and widths of between 15 and 45 metres. In addition, drilling has outlined at least three additional deposits known as Scorpio, Tucana and Pointer.

Three main sub-parallel reef packages within each zone have been recognised. They are the Main Reef (the highest grade reef), Mid Reef and LG Reef. The area is structurally complex, and thrusting has caused duplication of reefs in some cases.

### Mineral Resources

Geological modelling and resource estimation has been completed by Coffey Mining on all eight major deposits in the Kalplats PGM Project. The Mira deposit was added to the inventory during the year.

Resources have been calculated to a depth of 200m below surface at a cut of grade of 0.5 g/t 3E. Tonnages and grades are reported only for the entire thickness of a package of seven reefs, namely the UM, UUM, LM, MR, LG, MMW and the Main Reef Residual layers.

### Year-on-year change

Mainly due to the addition of the Mira deposit, the total Measured and Indicated Resource increased by 8.38 million tonnes to 64.95 million tonnes at 1.49 g/t 3E (3.11 million ounces 3E). The total mineral resource, including Inferred, increased by 4.15 million tonnes to 137.36 million tonnes at 1.53 g/t 3E (6.74 million ounces 3E).

## ARM Platinum continued

Kalplats Mineral Resources												
	Measured Resources		Indicated Resources		Measured and Indicated Resources			Inferred Resources		Total Mineral Resources		
Deposit	Mt	3E g/t	Mt	3E g/t	Mt	3E g/t	3E Moz	Mt	3E g/t	Mt	3E g/t	3E Moz
Crater	1.34	1.89	6.22	1.85	7.55	1.86	0.45	18.66	2.11	26.22	2.04	1.72
Orion	4.20	1.57	4.01	1.56	8.21	1.57	0.41	3.64	1.61	11.86	1.58	0.60
Crux	7.70	1.55	10.88	1.40	18.58	1.46	0.87	9.46	1.35	28.04	1.42	1.28
Sirius	0.80	1.52	5.31	1.49	6.11	1.49	0.29	3.38	1.27	9.48	1.41	0.43
Mira	—	—	2.71	1.42	2.71	1.42	0.12	3.93	1.44	6.63	1.43	0.31
Vela	—	—	21.79	1.36	21.79	1.36	0.95	14.87	1.32	36.66	1.34	1.58
Serpens N	—	—	—	—	—	—	—	7.70	1.43	7.70	1.43	0.35
Serpens S	—	—	—	—	—	—	—	10.76	1.34	10.76	1.34	0.46
<b>Total 2010</b>	<b>14.04</b>	<b>1.59</b>	<b>50.91</b>	<b>1.46</b>	<b>64.95</b>	<b>1.49</b>	<b>3.11</b>	<b>72.40</b>	<b>1.56</b>	<b>137.36</b>	<b>1.53</b>	<b>6.74</b>
Total 2009	13.43	1.58	43.14	1.46	56.57	1.49	2.71	76.63	1.53	133.20	1.51	6.48

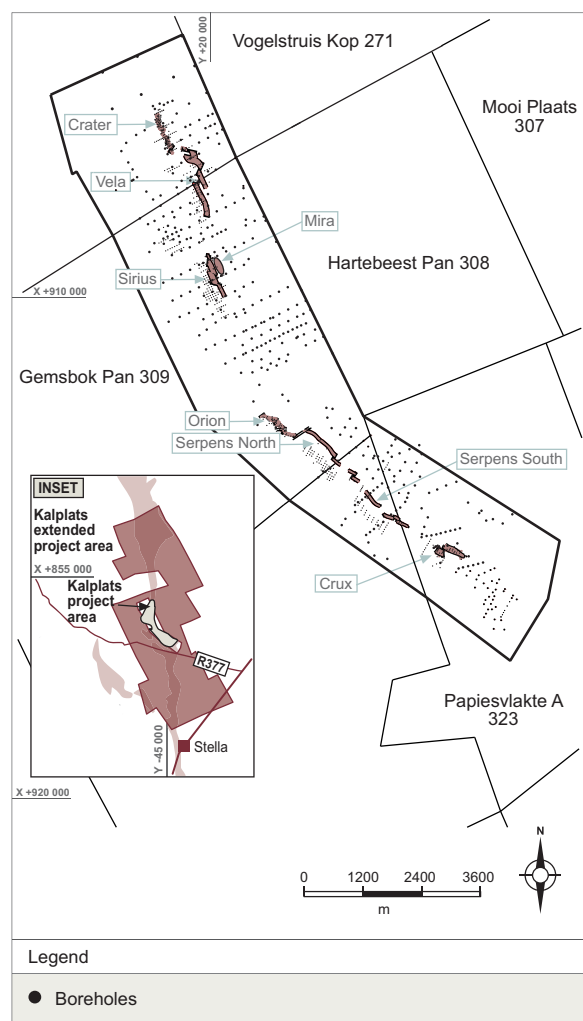
3E = platinum, palladium and gold

Totals are rounded off.

Resources include UM, UUM, LM, MR, LG, MMW and the Main Reef Residual layers, which is the total mineralised width for all seven layers.

Cut off grade of 0.5 g/t 3E has been applied.

## KALPLATS PLATINUM PROJECTS LOCALITY MAP



Twin boom drill rig

## ARM Coal

### Goedgevonden Coal Mine

ARM's attributable beneficial interest in Goedgevonden's operations is 26%. The other 74% is held by Xstrata.

#### Locality

The Goedgevonden Mine is situated in the Witbank Coalfield about 7 kilometres south of the town of Ogies in Mpumalanga province in South Africa .

#### History

A total of 548 surface diamond boreholes were drilled during 1964 to 2004 by Duiker Mining and Xstrata SA. Anglo Coal supplied an additional 102 boreholes for the Zaaewater area. Most boreholes were drilled down to basement to define the seam locality and basement topography. Owing to the different campaigns, the database had to be validated to produce a consistent set of data.

#### Mining authorisation

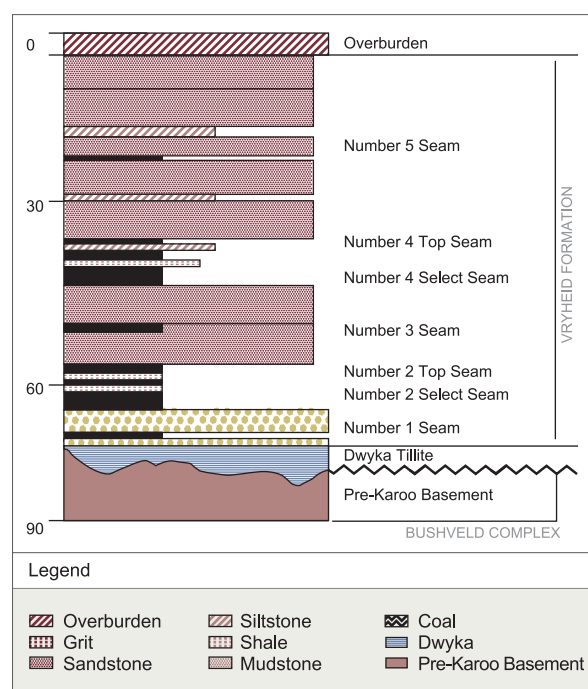
New order mining rights were granted on 29 March 2010. Registration in progress.

#### Geology

The stratigraphy of the Witbank Coalfield consists of five seams numbered from oldest to youngest: No 5 to No 1 seam. The seams vary in thickness from less than 0.5 metres to over 6 metres and do not exceed 300 metres in depth from surface. The coal seams dip at less than 5 degrees. However, coal seam morphology and qualities may be locally influenced by basement topography, surface weathering and intrusion of dolerite dykes and sills. The coal qualities vary both within and between individual coal seams. Low quality coals, suitable for the local steam coal market, have a calorific value of between 18 to 22Mj/kg, whereas the high quality export steam coal has a calorific value of greater than 27Mj/kg. The proposed Goedgevonden open-cut mine is expected to produce about 3.2 million additional tonnes annually for export and 3.4 million tonnes a year for domestic thermal generation coal. The planned stripping ratio is between 3.35:1 and 1.85:1 in the early years of production. Using a mining contractor, Xstrata SA started mining on the Goedgevonden property at a rate of 1 million tonnes a year (run-of-mine).

All five coal seams are developed on Goedgevonden (See Figure). The No 1 seam is of low quality, thin and only developed in paleo-low areas. The No 2 seam is extensively developed and is of good quality and is, on average, 5.5 metres thick. The No 3 seam at Goedgevonden is of good quality but, with an average thickness of only 0.3 metres, is uneconomic. The No 4 seam, being closer to surface and although of the same thickness as the No 2 seam, is influenced by weathering and is not as extensively developed. The No 5 seam is of good quality, but is preserved as erosional remnants on the high ground only and thus not extensively developed over the area. No major faults, structural disturbances or intrusives were observed in the boreholes drilled to date.

Wireframes for the seam composites for the No 2, 4 and 5 seams were generated in Datamine. Two-dimensional block models were generated with block sizes of 50 x 50 metres. All estimations of the individual blocks were done using inverse distance cubed with an isotropic search. Other software packages used in the evaluation are 'Washproduct' and 'Xpac'.



Overburden removal at Goedgevonden



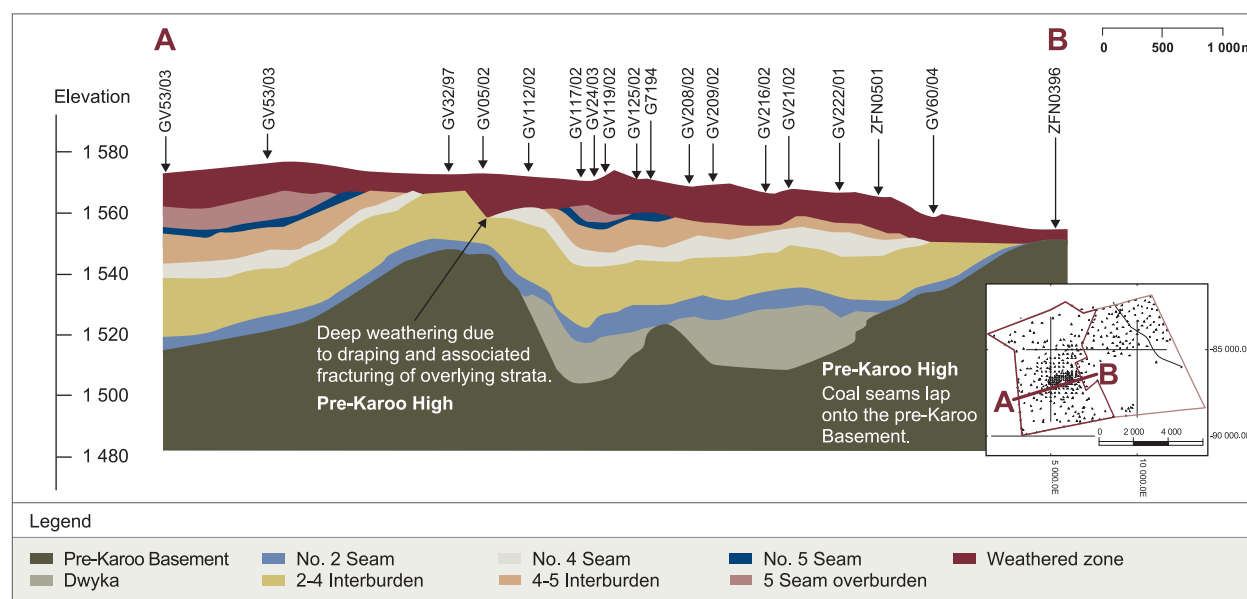
ARM Coal *continued*

The following table with regard to Goedgevonden Coal Resources and Reserves was obtained from Xstrata, reflecting the status as at June 2010. Mineral Resources and Reserves of the Xstrata mines are the responsibility of the Xstrata SA Resources and Reserves team. No ARM employee is involved in the compilation of Xstrata SA's Mineral Resources and Reserves.

Goedgevonden Resources						
Seam No.	Measured Mt	Indicated Mt	Inferred Mt	Proved Mt	Probable Mt	Saleable Mt
<b>Resources within Mine Plan</b>						
2	188.2	—	—	169.3	—	89.4
4	177.5	—	—	159.6	—	85.7
5	39.5	—	—	35.5	—	20.3
<b>Total</b>	<b>405.2</b>	<b>—</b>	<b>—</b>	<b>364.4</b>	<b>—</b>	<b>195.4</b>
<b>Resources outside of Mine Plan</b>						
2	51.4	18.3	—	—	—	—
4	49.2	8.6	56.9	—	—	—
5	17.0	0.8	6.3	—	—	—
<b>Total</b>	<b>117.7</b>	<b>27.7</b>	<b>63.2</b>			
<b>Overall</b>	<b>522.9</b>	<b>27.7</b>	<b>63.2</b>	<b>364.4</b>	<b>—</b>	<b>195.4</b>

Totals are rounded off.

Section showing Goedgevonden Coal seams



### Historical production at Goedgevonden

Saleable product	
Year	Mt
2006/2007	1.6
2007/2008	1.6
2008/2009	2.5
2009/2010	2.7

## ARM Copper

### Konkola North Copper Project

ARM and its 50:50 strategic joint venture partner Vale, owners of Konnoco Zambia, announced on 27 August 2010 the release of the Konkola North Copper Mine in Zambia. ZCCM Investment Holdings plc has a buy-in right into Konnoco Zambia of either 15% or 20% with 5% thereof being a free carry.

The Konkola North Copper Project is located within the Greater Konkola Area of the Zambian Copperbelt and consists of a large scale mining licence covering an area of approximately 44 square kilometres.

The Vale/ARM joint venture intends to focus initially on the development of the northern portion of the deposit, known as the South and East Limb areas and the re-equipping of the existing infrastructure at the South Limb, which includes a 423 metre vertical shaft, two ventilation shafts and three ore haulage levels. At the East Limb, the Company is considering the sinking of a decline shaft to access the mineralisation.

The expected life of mine of Konkola North is 28 years. A further three year exploration programme to evaluate area "A", which has potential to double the output to 1000 000 tonnes copper per annum in concentrate is in progress.

Konkola North's Area "A" hosts a potentially world-class resource, with approximately 220 million tonnes of ore at grades of 2.64% copper. The Company has completed a first phase definition drilling phase of Area "A". Following the geological data processing and interpretation, another drilling programme will be planned to further define the copper resources in this area. It is anticipated that drilling will commence in the next financial year.

The mine's throughput design is 2.5 mtpa of ore at an average mill head grade of 2.3% copper, yielding 45 000 tonnes of contained copper in concentrate to be toll smelted in Zambia.

Total project capital expenditure, in July 2010 terms, is US\$380 million. Construction commenced in August 2010 with commissioning of the concentrator plant expected 27 months later and the mine is planned to reach full production in 2015.

#### Mineral Resources

The **Konkola North Copper** Project is situated on the Zambian Copperbelt.

Mineral Resources at a 1% total copper cut-off grade.



Geological computer modelling

Mineral Resources	Mt	%TCu	Mt Contained Cu
Measured South Limb	0.7	2.7	0.02
Indicated South Limb	23.9	2.13	0.51
<b>Total South Limb</b>	<b>24.6</b>	<b>2.15</b>	<b>0.53</b>
Measured East Limb	4.0	2.64	0.11
Indicated East Limb	16.6	2.58	0.43
<b>Total East Limb</b>	<b>20.6</b>	<b>2.59</b>	<b>0.54</b>
Measured Fold axis	0.4	2.1	0.01
Indicated Fold axis	11.8	2.7	0.32
<b>Total Fold axis</b>	<b>12.2</b>	<b>2.68</b>	<b>0.33</b>
<b>Total Measured and Indicated 2010</b>	<b>57.4</b>	<b>2.42</b>	<b>1.39</b>
Inferred South Limb	13.8	2.22	
Inferred East Limb	0.4	2.0	
Inferred Fold axis	9.7	2.25	
Inferred Area A	219.5	2.64	

Totals are rounded off.

## ARM Exploration

ARM's attributable beneficial interest in exploration ventures is 50%. The other 50% is held by Vale.

ARM Exploration's main objective is to identify and assess exploration and mineral business opportunities for base metals, PGM's and coal. The Division focusses on opportunities in Sub Sahara Africa where it has established expertise and relationships.

### Zambia

The **Mwambashi Copper Project** lies in the Zambian Copperbelt on the western edge of the Chambishi Basin.

Mineral Resources at 0.5% total copper cut-off grade.

Mineral Resources	Mt	%TCu	Mt Contained Cu
Measured	10.54	1.84	0.19
Indicated	1.90	1.17	0.02
<b>Total Measured and Indicated 2010</b>	<b>12.44</b>	<b>1.74</b>	<b>0.16</b>
Inferred	1.77	2.10	0.04

Totals are rounded off.

### Democratic Republic of Congo (DRC)

Situated in the DRC in close proximity to the city of Lubumbashi, the Kalumine Copper-Cobalt Project, a joint venture with La Générale des Carrières et des Mines (Gécamines), comprises approximately 77 square kilometers. The mining license area hosts numerous deposits, including the Lupoto, Kasonta, Kasonta South, Niamumenda and Karavia prospects.

Exploration drilling commenced in March 2007. At Lupoto a small-scale mining operation was commissioned in 2008 and a total of 2.25 million tonnes of copper ore with an average grade of 4.5% Cu was mined and upgraded through a screening and sorting process. A total of 1 663 tonnes of lumpy ore at a grade of 22.46% Cu and 15 931 tonnes of fine ore material at a grade of 12.69% Cu was produced and sold to third parties. The remainder of the ore comprises a stockpile of 1.1 million tonnes with an average grade of 4.5% Copper. All mining and processing related work has now stopped, and the copper furnace previously commissioned is on care and maintenance. The company will focus on exploration and resource definition work.

Kalumines Properties (DRC) – Mineral Resources				
Mineral Resources		Mt	%TCu	Mt Contained Cu
Lupoto	Measured	—	—	—
	Indicated	30.70	2.53	0.78
	Inferred	4.20	2.33	0.10
Kasonta	Inferred	25.10	1.40	0.35
Kasonta south	Inferred	4.40	1.64	0.07
Karu East	Inferred	5.50	1.80	0.10
Niamumenda	Inferred	2.60	2.25	0.06
Stockpile		1.10	4.15	0.05

Totals are rounded off.

### Namibia

In May 2010, ARM announced the successful disposal of the Otjikoto Gold Project in Namibia to BC Limited Consortium. The interest in the company owning the mineral rights was sold for a net consideration of US\$26 million. The funds from the sale will be utilised towards the development of the Konkola North Project in Zambia.

## Gold: Harmony

ARM owns 14,8% of Harmony's issued share capital. Harmony, South Africa's third largest gold producer, is separately run by its own management team. Resources and Reserves of the Harmony mines are the responsibility of the Harmony team and are published in Harmony's Annual Report.



*Detailed mine planning*

## Definitions

The definitions of Mineral Resources and Reserves, quoted from the SAMREC Code, are as follows:

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A **‘Mineral Resource’** is a concentration or occurrence of material of economic interest in or on the earth’s crust in such form, quality and quantity that there are reasonable and realistic prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, or estimated from specific geological evidence, sampling and knowledge interpreted from an appropriately constrained and portrayed geological model. Mineral Resources are subdivided, and must be so reported, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated or Measured categories.

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An **‘Inferred Mineral Resource’** is that part of a Mineral Resource for which volume or tonnage, grade and mineral content can be estimated with only a low level of confidence. It is inferred from geological evidence and sampling and assumed but not verified geologically or through analysis of grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that may be limited in scope or of uncertain quality and reliability.

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An **‘Indicated Mineral Resource’** is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on information from exploration, sampling and testing of material gathered from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological or grade continuity but are spaced closely enough for continuity to be assumed.

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A **‘Measured Mineral Resource’** is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable information from exploration, sampling and testing of material from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

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A **‘Mineral Reserve’** is the economically mineable material derived from a Measured or Indicated Mineral Resource or both. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a Pre-Feasibility Study for a project and a Life-of-Mine Plan for an operation must have been completed, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors (the modifying factors). Such modifying factors must be disclosed.

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A **‘Probable Mineral Reserve’** is the economically mineable material derived from a Measured or Indicated Mineral Resource or both. It is estimated with a lower level of confidence than a Proved Mineral Reserve. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a Pre-Feasibility Study for a project or a Life-of-Mine Plan for an operation must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. Such modifying factors must be disclosed.

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A **‘Proved Mineral Reserve’** is the economically mineable material derived from a Measured Mineral Resource. It is estimated with a high level of confidence. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a Pre-Feasibility Study for a project or a Life-of-Mine Plan for an operation must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. Such modifying factors must be disclosed.

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