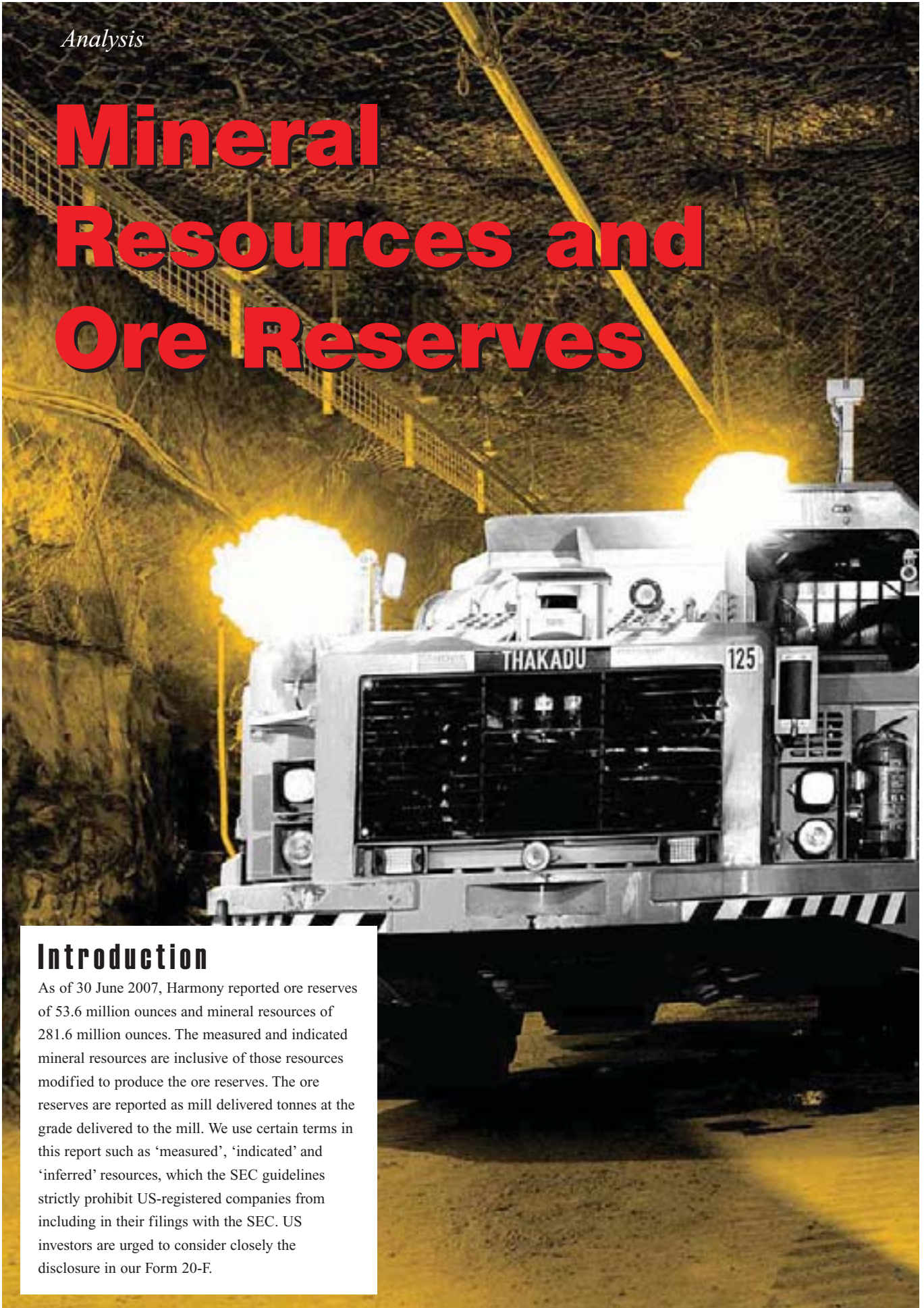


*Analysis*

# Mineral Resources and Ore Reserves

## Introduction

As of 30 June 2007, Harmony reported ore reserves of 53.6 million ounces and mineral resources of 281.6 million ounces. The measured and indicated mineral resources are inclusive of those resources modified to produce the ore reserves. The ore reserves are reported as mill delivered tonnes at the grade delivered to the mill. We use certain terms in this report such as 'measured', 'indicated' and 'inferred' resources, which the SEC guidelines strictly prohibit US-registered companies from including in their filings with the SEC. US investors are urged to consider closely the disclosure in our Form 20-F.



## Commodity prices

A gold price of US\$520/oz was used for the conversion of Mineral Resources to Ore Reserves at our South African and Australasian operations. An exchange rate of US\$/R6.88 for South Africa and AU\$/US\$0.73 for Australia has been used, resulting in a gold price of R115 000/kg or AU\$712/oz

## Reconciliation FY06/FY07

### Ore Reserves

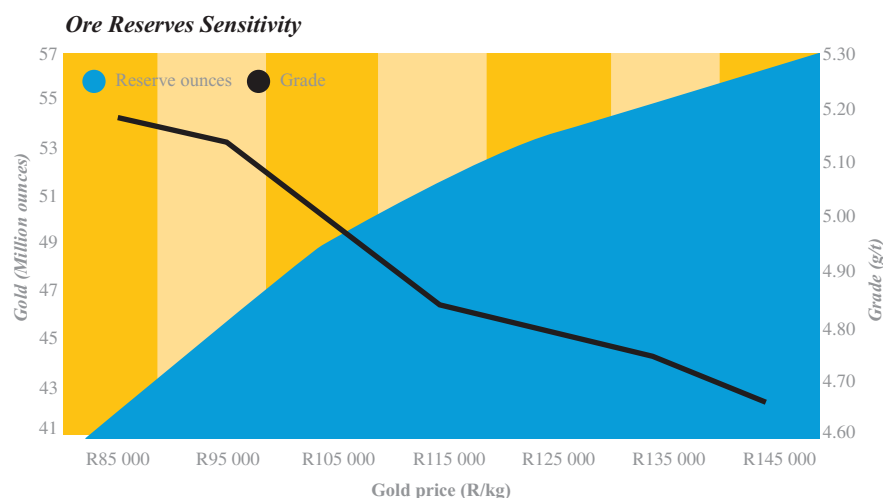
A reconciliation of Harmony's ore reserves shows a decrease of 4.3% from 56.0 million ounces to 53.6 million ounces. As indicated in the table below, Harmony's Ore Reserves as at 30 June 2007 reflects a year-on-year depletion of 2.3 million ounces when compared with the combined ore reserves for 30 June 2006. Disposals of assets, shaft closures, and the loss of the Western Areas equity ounces accounts for a further decrease of 5.3 million ounces of reserves.

On the positive side the successful pre-feasibility studies at Harmony's Evander South Project as well as Golpu in Papua New Guinea (PNG) added 3.5 million ounces to the reserves. A further increase of 1.8 million ounces is attributable to growth in the reserves from the South African operations.

Of the company's 53.6 million ounces of ore reserves, 41.5 million ounces are classified as current reserves (above infrastructure) and 12.1 million ounces are classified as below infrastructure, i.e. reserves for which capital expenditure has yet to be approved.

## Reporting Code

Harmony uses the South African Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (SAMREC Code), which sets out the internationally recognised procedures and standards for reporting of mineral resources and ore reserves in South Africa. This code was developed by the South African Institute of Mining and Metallurgy and is the recommended guideline for reserve and resource reporting for companies listed on



The graph illustrates ore reserve sensitivities, inclusive of projects below infrastructure and exclusive of surface stockpiles, to a changing gold price below and above R115 000/kg. Note that these sensitivities are approximations only and based on the orebodies in the current life of mine plans and pre-feasibility studies. Accordingly, at different gold prices, alternative mining strategies may be pursued, including the addition of more secondary reef horizons into reserves.

### Ore Reserve reconciliation: FY06 to FY07

		GOLD (tonnes)	GOLD (million ounces)
	<b>Balance at June 2006</b>	<b>1 742</b>	<b>56.0</b>
Reductions	Mined during FY07	72	(2.3)*
	Western Areas equity ounces	(131)	(4.2)
	Disposals and shaft closures	(34)	(1.1)**
	<b>Total</b>	<b>1 505</b>	<b>48.3</b>
Additions	Evander South (Pre-feasibility)	65	2.1
	Golpu (Pre-feasibility)	44	1.4
	Other adjustments	56	1.8
	<b>Balance at June 2007</b>	<b>1 670</b>	<b>53.6</b>

\* Ounces based on ROM grades.

\*\* Reasonable expectation that Orkney assets would be sold.

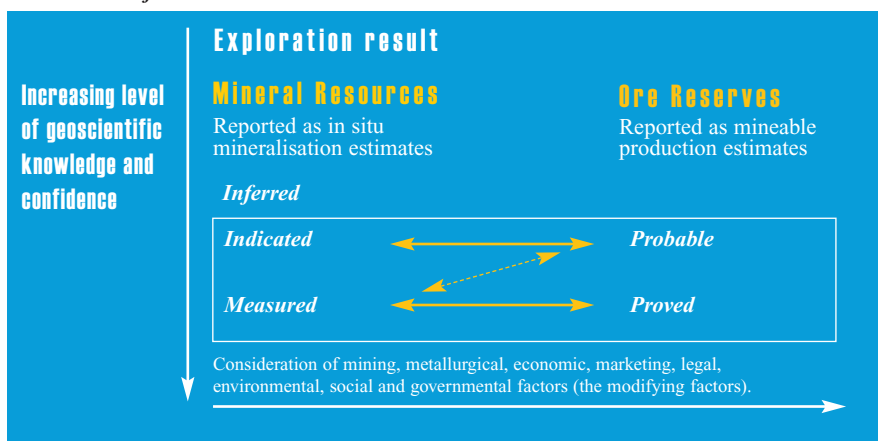
### Mineral Resources breakdown: FY07

	GOLD (tonnes)	GOLD (million ounces)
Underground and open pits	7 581	243.8
Projects (below infrastructure)	890	28.6
Surface sources	286	9.2
<b>Total</b>	<b>8 757</b>	<b>281.6</b>

The difference between the declared Mineral Resources for FY06 (537.6 million ounces) and that for FY07 (281.6 million ounces) can be broken up into the following components. Disposals, shaft closures and Western Areas amounted to 35.2 million ounces. Depletion accounted for 3.3 million ounces and an increase of abandoned blocks of 25.1 million ounces. Resources that previously formed part of the company's declared mineral resource statement but which are not being declared this year amount to 192.4 million ounces (see table below). The reason for this exclusion is that Harmony does not currently consider that there would be reasonable and realistic prospects for the eventual economic extraction of these resources (as per the SAMREC code).

	GOLD (tonnes)	GOLD (million ounces)
Closed shafts	2 875	92.4
Projects	2 091	67.2
Minor reefs	948	30.5
Surface sources	72	2.3
<b>Total</b>	<b>5 986</b>	<b>192.4</b>

Framework of the SAMREC code



Definitions as per the SAMREC code

Mineral Resources

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, estimated from specific geological evidence and knowledge, or are interpreted from a well-constrained and portrayed geological model. Mineral resources are sub-divided in order of increasing confidence in respect of geoscientific evidence into inferred, indicated and measured categories.

An *inferred mineral resource* is that part of a mineral resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and sampling, and assumed but not verified geologically and/or through analysis of grade continuity.

the JSE Limited. The code was updated in June 2006 and Harmony has proactively aligned itself with the requirements of the new release of the SAMREC code.

Harmony’s reporting of its Australian and PNG mineral resources and ore reserves also complies with the Australian Code for the Reporting of Mineral Resources and Ore Reserves (JORC code) of the Australian Institute of Mining and

Metallurgy. This code is materially the same as the SAMREC code.

In reporting reserves, distinct cognisance has also been taken of Industry Guide 7 of the United States Securities Exchange Commission.

Harmony uses the term ‘ore reserves,’ which has the same meaning as ‘mineral reserves’, as defined in the SAMREC code.

RELATIONSHIP BETWEEN HARMONY’S MINERAL RESOURCES AND ORE RESERVES ACCORDING TO THE SAMREC CODE

**UNDERGROUND AND OPEN PITS**

Increasing level of geoscientific knowledge and confidence	Mineral Resources (total)				Ore Reserves (total)			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
	1 911	3.97	7 581	243 751	280	4.37	1 225	39 398
	<i>Reported as in situ mineralisation estimates</i>				<i>Reported as mineable production estimates</i>			
	Inferred				Probable			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
	1 179	3.53	4 159	133 722	224	4.01	898	28 884
	Indicated				Proved			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
	513	4.13	2 122	68 210	56	5.80	327	10 514
	Measured				Proven			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
	219	5.95	1 301	41 819	56	5.80	327	10 514
	<i>Consideration of mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors (the modifying factors).</i>							

**SURFACE STOCKPILE**

Increasing level of geoscientific knowledge and confidence

**Mineral Resources (total)**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
1 033	0.28	286	9 182

*Reported as in situ mineralisation estimates*

**Ore Reserves (total)**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
208	0.31	64	2 058

*Reported as mineable production estimates*

**Inferred**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
444	0.27	121	3 875

**Indicated**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
12	0.58	7	231

**Probable**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
11	0.60	7	218

**Measured**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
577	0.27	158	5 076

**Proven**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
196	0.29	57	1 840

*Consideration of mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors (the modifying factors).*

**PROJECTS (BELOW INFRASTRUCTURE)**

Increasing level of geoscientific knowledge and confidence

**Mineral Resources (total)**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
146	6.11	890	28 620

*Reported as in situ mineralisation estimates*

**Ore Reserves (total)**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
52	7.31	380	12 212

*Reported as mineable production estimates*

**Inferred**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
73	3.42	251	8 056

**Indicated**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
72	8.83	640	20 564

**Probable**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
52	7.31	380	12 212

**Measured**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
-	-	-	-

**Proven**

Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
-	-	-	-

*Consideration of mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors (the modifying factors).*

*NB: Rounding of figures may result in slight computational discrepancies*

It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that may be limited or of uncertain quality and reliability.

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 exploration, sampling and the testing of information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

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 exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

### Ore Reserves

An *Ore Reserve* is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. 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 (the modifying factors). Such modifying factors must be disclosed.

A *Probable Ore Reserve* is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is estimated with a lower level of confidence than a Proved Ore 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.

A *Proven Ore 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.

### Harmony reporting in compliance with SAMREC

In order to meet the requirements of the SAMREC code that the material reported as a mineral resource should have "reasonable and realistic prospects for eventual economic extraction", Harmony has determined an appropriate cut-off grade which has been applied to the quantified mineralised body according to a process incorporating a long-term view on future economic modifying factors.

By applying this process, Harmony uses a gold price US\$1 000/oz and an exchange rate of US\$/R8.60 to derive a cut-off grade for mineral resources of approximately 250cmg/t (approximately 2g/t).

Mineral resources have been estimated on the basis of geoscientific knowledge with input from the company's ore reserve managers, geologists and geostatistical staff. Each mine's mineral resources are categorised, blocked-out and ascribed an estimated value. At most mines computerised geostatistical estimation processes are used.

In order to define that portion of a measured and indicated mineral resource that can be converted to a proven and probable ore

reserve, Harmony applies the concept of a cut-off grade. At our underground South African mines, this is done by defining the optimal cut-off as the lowest grade at which an orebody can be mined such that the total profits, under a specified set of mining parameters, are maximised. The cut-off grade is determined using the company's Optimiser computer programme which requires the following as input: the database of measured and indicated resource blocks (per shaft section); an assumed gold price which, for this ore reserve statement, was taken as R115 000/kg; planned production rates; the Mine Recovery Factor (MRF) which is equivalent to the Mine Call Factor (MCF) multiplied by the Plant Recovery Factor (PRF); and planned cash operating costs (rand per tonne). Rand per tonne cash operating costs are historically based but take cognisance of distinct changes in the cost environment such as restructuring, right-sizing, and other cost reduction initiatives, and for below infrastructure ounces, a capex estimate.

The ore reserves represent that portion of the measured and indicated resources above cut-off in the life-of-mine plan and have been estimated after consideration of the factors affecting extraction, including mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors. A range of disciplines which includes geology, survey, planning, mining engineering, rock engineering, metallurgy, financial management, human resources management and environmental management have been involved at each mine in the life-of-mine planning process and the conversion of resources into reserves.

The modifying factors related to the ore-flow used to convert the mineral resources to ore reserves through the life-of-mine planning process are stated for each individual shaft. For these factors, 18-month historical information is used, except if there is a valid reason to do otherwise.

As a result of the depth at which mining occurs and the resulting rock engineering requirements at our South African underground mines, some shafts design stope support pillars into their mining layouts which accounts for discounts of 7% to 10%. A further 15% discount is applied as a life-of-mine factor to provide for unpay

and off-reef mining. In general, life-of-mine plan extraction factors do not exceed 85% and are reflected in the ore reserves.

**Auditing**

The Harmony Mineral Resources and Ore Reserves have been comprehensively audited by a team of internal competent persons that operate independently from the operating units. The Internal Audit team verifies compliance with the Harmony Code of Resource blocking, valuation, classification, cut-off calculations, development of life of mine plans and SAMREC sheets which supports Harmony's Annual Mineral Resource and Ore Reserve Statement. This audit process is specifically designed to be aligned with compliance requirements for internationally recognised procedure and standards such as:

- South African Code for Reporting Mineral Resources and Mineral Reserves – SAMREC Code
- Australian Code for Reporting Mineral

- Resources and Ore Reserves - JORC Code
- Industry Guide 7 of the United States Securities Exchange Commission
- Sarbanes-Oxley requirements

**Competent person's declaration**

Harmony employs an ore reserve manager at each of its operations who takes responsibility for the reporting of the mineral resources and ore reserves of the mines for which they are responsible.

The competent person responsible for the overall preparation and reporting of the company's mineral resources and ore reserves in South Africa is Jaco Boshoff (BSc (Hons), MSc (Geology), MBA, Pri.Sci.Nat) with 12 years' relevant experience.

The competent person responsible for Papua New Guinea and Australia is Greg Job (BSc, MSc (Min Econ), MAusIMM).

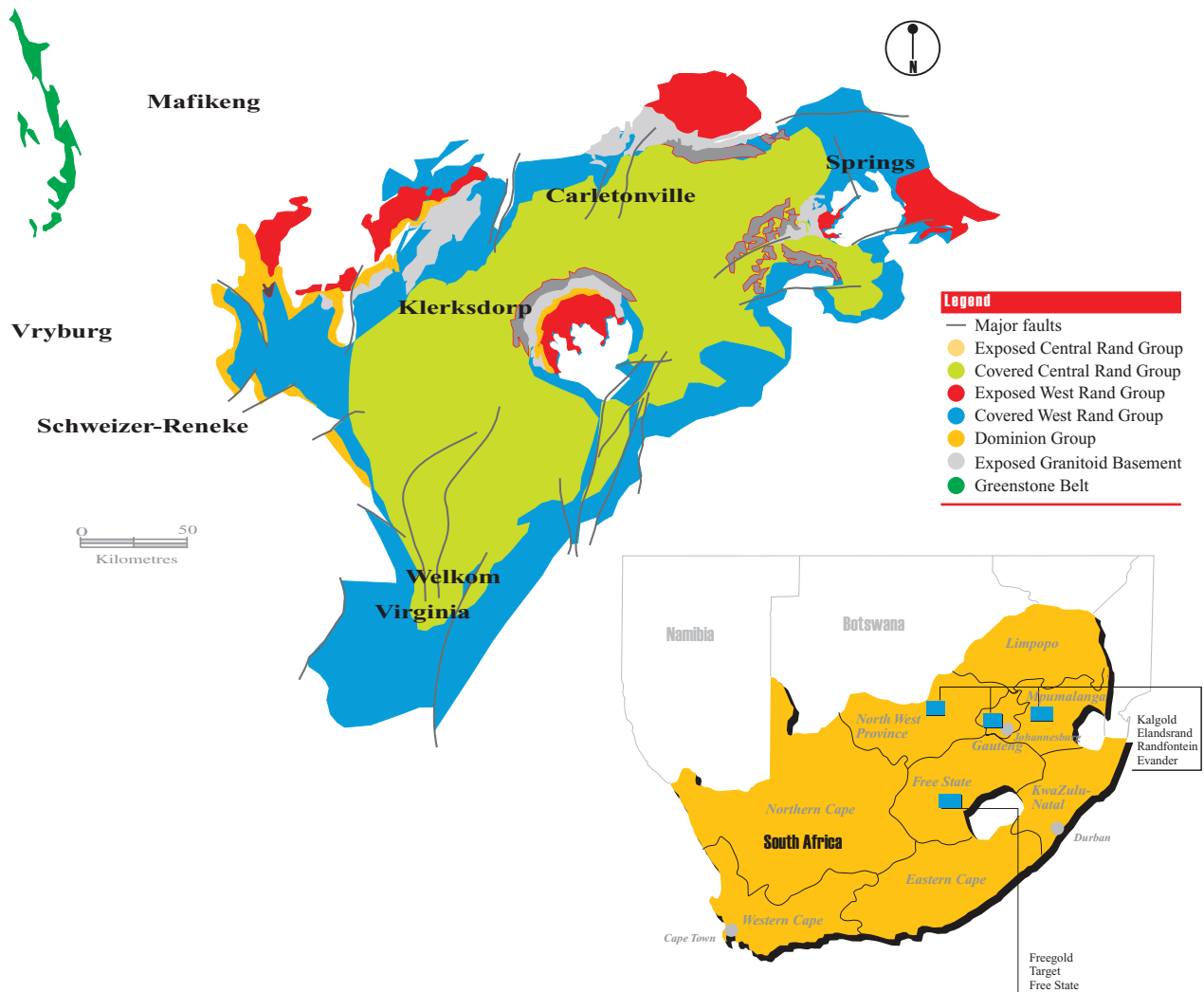
Greg has 20 years' experience in mine and resource geology.

**Mineral Resources and Ore Reserves Statement per tax entity**

The tables in this section report the company's mineral resources as at 30 June 2007.

**Witwatersrand Basin, South Africa**

The Witwatersrand Basin, situated on the Kaapvaal Craton, has been filled by a 6-kilometre thick succession of sedimentary rocks, which extend laterally for hundreds of kilometres. The majority of the ore resources tend to be concentrated in reef bands located on one or two distinct unconformities. A minority of the resources are located on other unconformities. Mining that has taken place is mostly deep-level underground mining, exploiting the narrow, generally shallow-dipping tabular reefs.

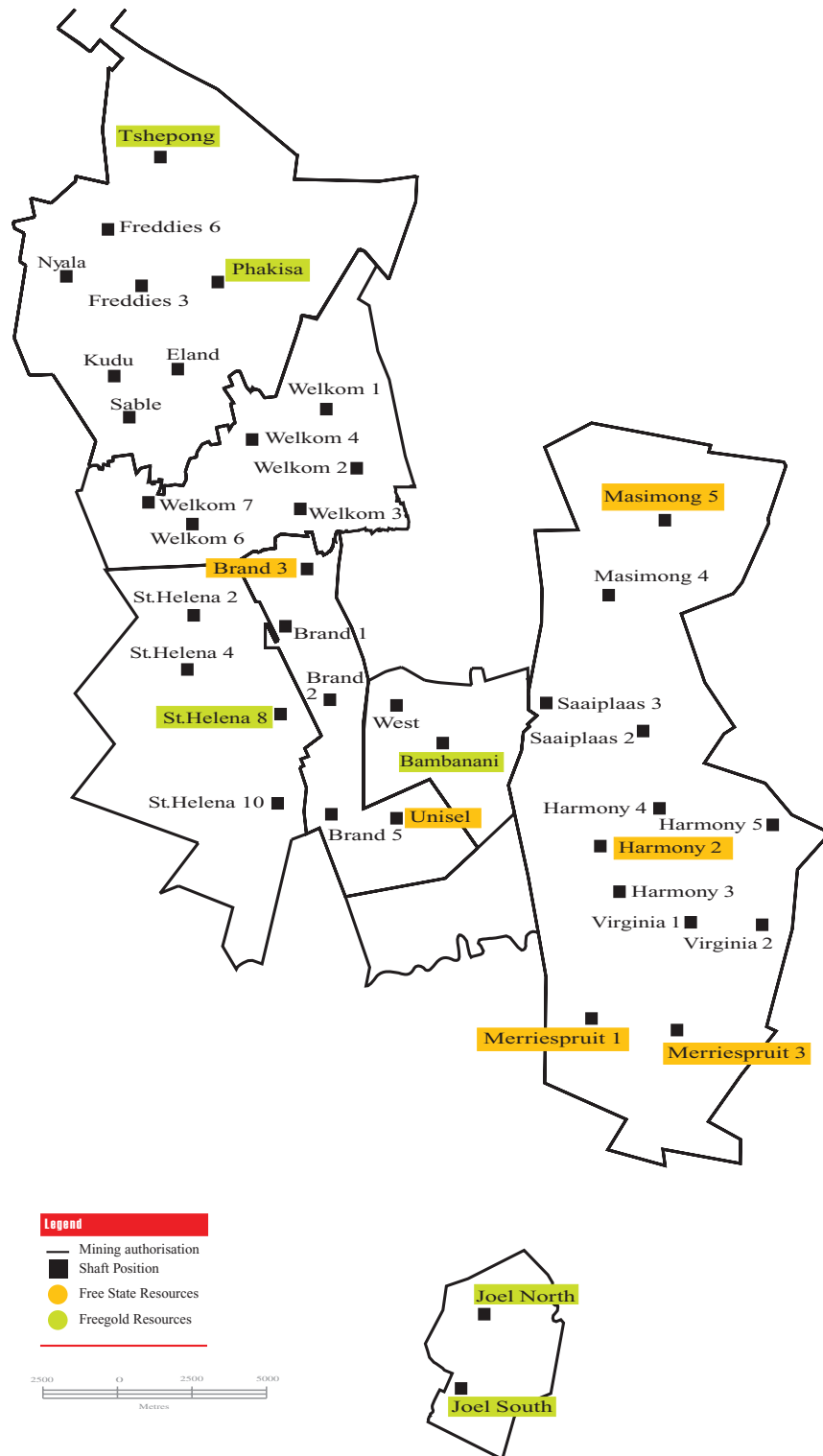


**Free State operations**

**Geology:** These operations, which originally exploited the Basal Reef, have also begun mining secondary reefs, most notably the Leader Reef (15-20m above Basal), the B Reef (100m above Basal) and the A Reef (40m above the B Reef). Harmony 2 is continuing to mine high grade Basal Reef pillars, as well as Leader Reef, but the majority of its production comes from the A Reef. The A Reef is highly channelised and mining is confined to these distinct channels. Dips are shallow towards the east, becoming steeper approaching the De Bron Fault in the west. Merriespruit 1 and 3 are exploiting the

Basal and Leader reefs, as well as locally developed high grade Middle Reef pockets. Dips tend to be at 20° to the north with very little structure apart from the De Bron Fault in the west. At Unisel, the Basal, Middle and Leader Reefs are mined, with reefs dipping 30° to the east. The structure is complex due to a number of north-south trending faults as well as sills close to the Basal Reef. Brand 1/3 is mining Basal pillars together with the A Reef. The structure is dominated by north-south trending faults, often with lateral shift. Brand 2 and 5, currently on care and maintenance, have mined mostly Basal and Leader Reefs. The Masimong shafts exhibit

intense faulting due to a number of north-south trending faults parallel to the Homestead fault in the west. Reef dips are mainly to the south-east, varying from 5° to 35°. Masimong 5 is currently exploiting Basal Reef as well as the B Reef. The B Reef is characterised by complex sedimentologically controlled gold mineralisation within a wide east-west trending channel. Within this channel, gravel bars, containing abundant kerogen and gold, were deposited. Masimong 4 and Saaiplaas 3 have mined Basal and A Reef. Mining is dominated by faulting, which results in steep dips (50°) in the west.

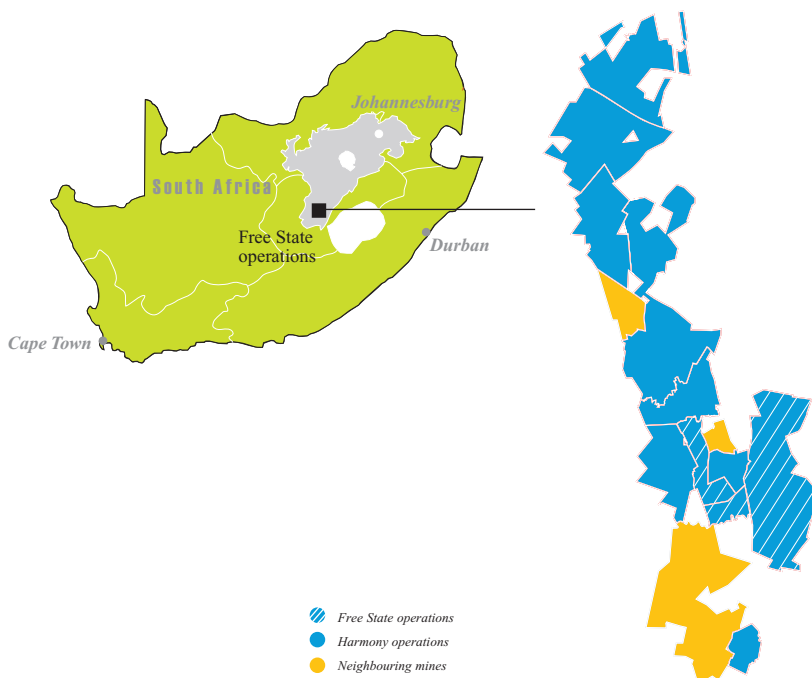
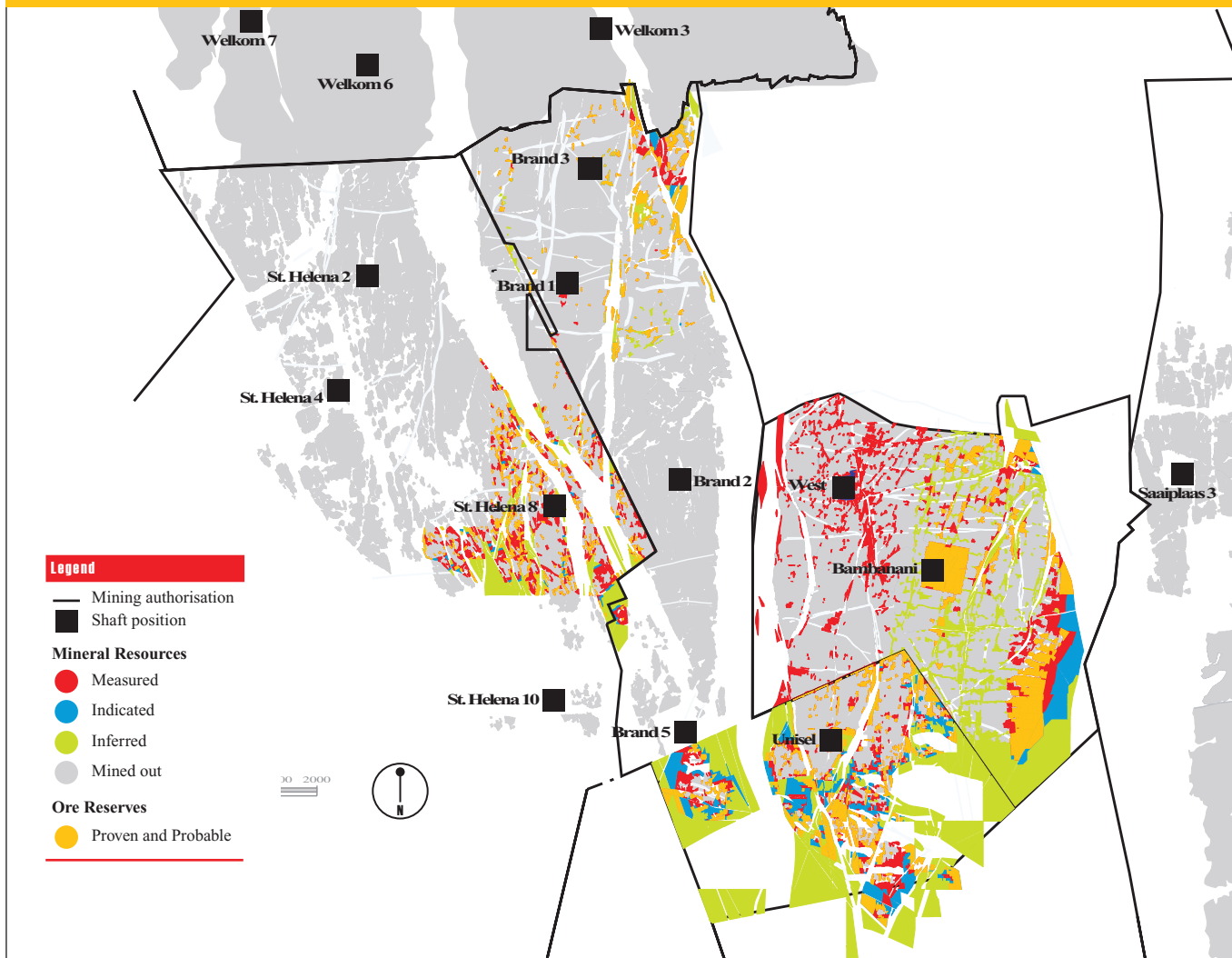


**FREE STATE**

Brand 3 Shaft and Unisel Shaft  
Basal Reef

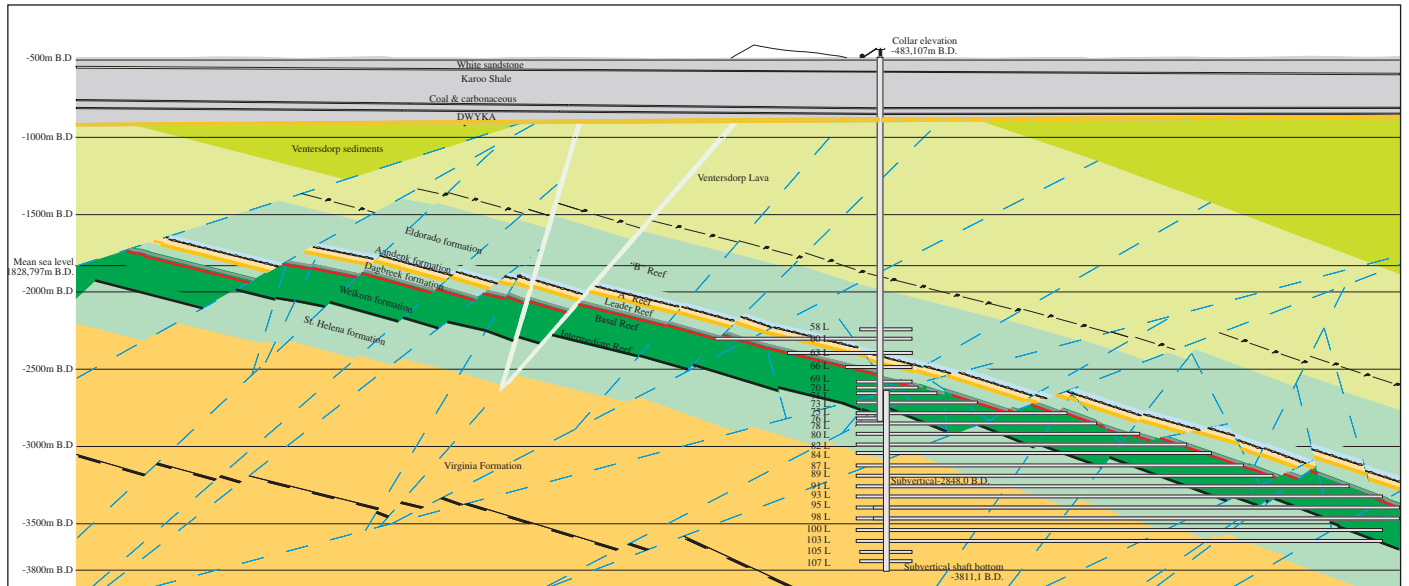
**FREE GOLD**

St. Helena 8 and Bambanani Shafts  
Basal Reef





## Bambanani mine geology section looking north



## Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Harmony 2	6.2	3.99	24.8	796	5.5	2.70	14.8	477	100.8	3.44	347.0	11 156	112.5	3.44	386.6	12 429
Merriespruit 1	13.9	3.95	54.7	1 760	11.8	3.62	42.6	1 369	22.8	3.72	84.7	2 725	48.4	3.76	182.1	5 854
Merriespruit 3	14.5	3.61	52.4	1 683	11.8	3.68	43.4	1 396	27.2	3.77	102.5	3 294	53.5	3.71	198.2	6 373
Unisel	9.7	4.18	40.6	1 305	17.5	3.71	65.0	2 090	48.2	4.09	197.4	6 348	75.4	4.02	303.0	9 743
Brand 3	2.3	4.72	10.7	343	0.8	4.39	3.7	119	0.6	4.11	2.5	81	3.7	4.54	16.9	543
Masimong 5	13.0	7.00	91.2	2 933	18.9	5.41	102.3	3 289	132.5	5.27	698.2	22 447	164.5	5.42	891.7	28 669
<b>Grand total</b>	<b>59.5</b>	<b>4.61</b>	<b>274.3</b>	<b>8 820</b>	<b>66.3</b>	<b>4.10</b>	<b>271.9</b>	<b>8 740</b>	<b>332.2</b>	<b>4.31</b>	<b>1 432.3</b>	<b>46 051</b>	<b>458.0</b>	<b>4.32</b>	<b>1 978.6</b>	<b>63 611</b>

## Modifying factors

Shaft	(R/kg)	MCF (%)	SW (cm)	MW (cm)	PRF (%)	EP (%)
Harmony 2	115 000	72	176	196	95.0	70.5
Merriespruit 1	115 000	69	168	193	95.2	71.3
Merriespruit 3	115 000	75	219	241	94.6	47.9
Unisel	115 000	85	175	191	92.8	69.8
Brand 3	115 000	90	182	222	94.3	75.3
Masimong 5	115 000	75	135	148	95.5	99.0

MCF = Mine call factor    MW = Milling width    SW = Stopping width

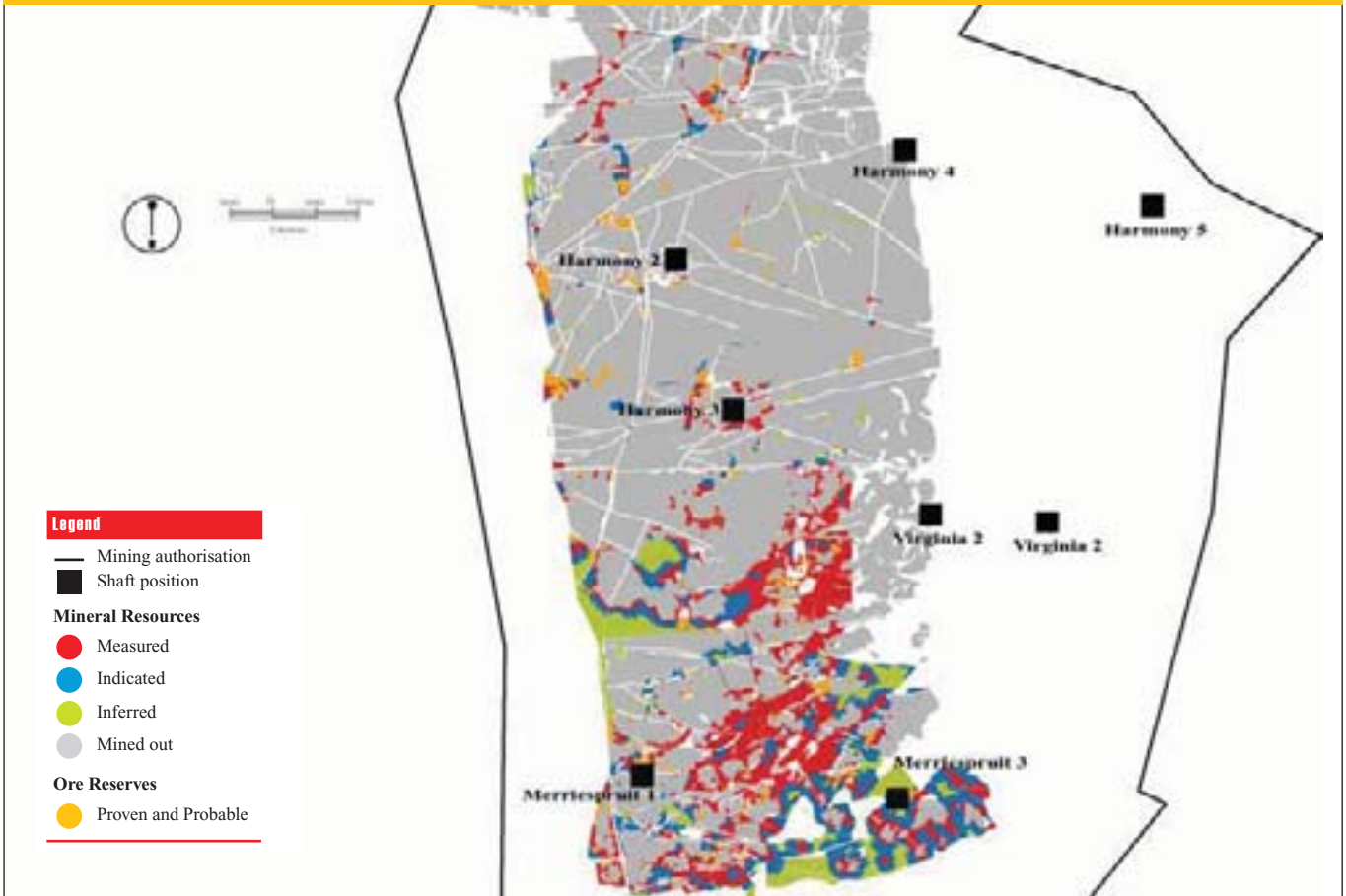
EP = Extraction percentage    PRF = Plant recovery factor

## Ore reserves

Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Harmony 2	0.7	4.70	3.4	110	0.2	3.48	0.6	20	0.9	4.46	4.1	130
Merriespruit 1	0.8	4.66	3.8	122	0.6	4.42	2.8	91	1.5	4.55	6.6	213
Merriespruit 3	0.3	4.48	1.4	45	0.7	4.76	3.2	102	1.0	4.67	4.6	147
Unisel	1.8	5.32	9.4	303	2.1	5.22	11.2	361	3.9	5.27	20.7	664
Brand 3	0.5	4.45	2.2	70	0.1	4.29	0.4	14	0.6	4.43	2.6	84
Masimong 5	5.1	6.00	30.9	993	4.0	5.69	22.8	732	9.1	5.86	53.6	1 725
<b>Grand total</b>	<b>9.3</b>	<b>5.52</b>	<b>51.1</b>	<b>1 643</b>	<b>7.7</b>	<b>5.31</b>	<b>41.1</b>	<b>1 320</b>	<b>17.0</b>	<b>5.42</b>	<b>92.2</b>	<b>2 963</b>

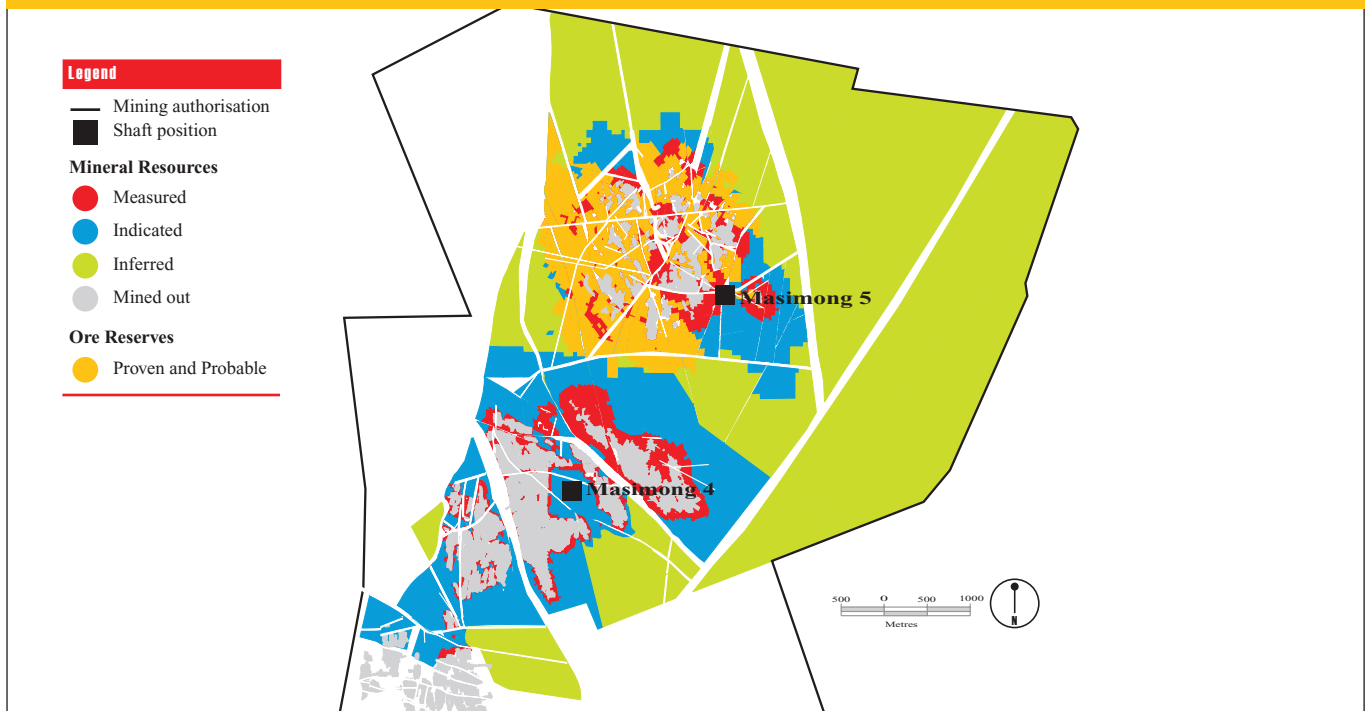
**FREE STATE**

*Merriespruit 1, 3 and Harmony 2 Shafts*  
**Basal Reef**

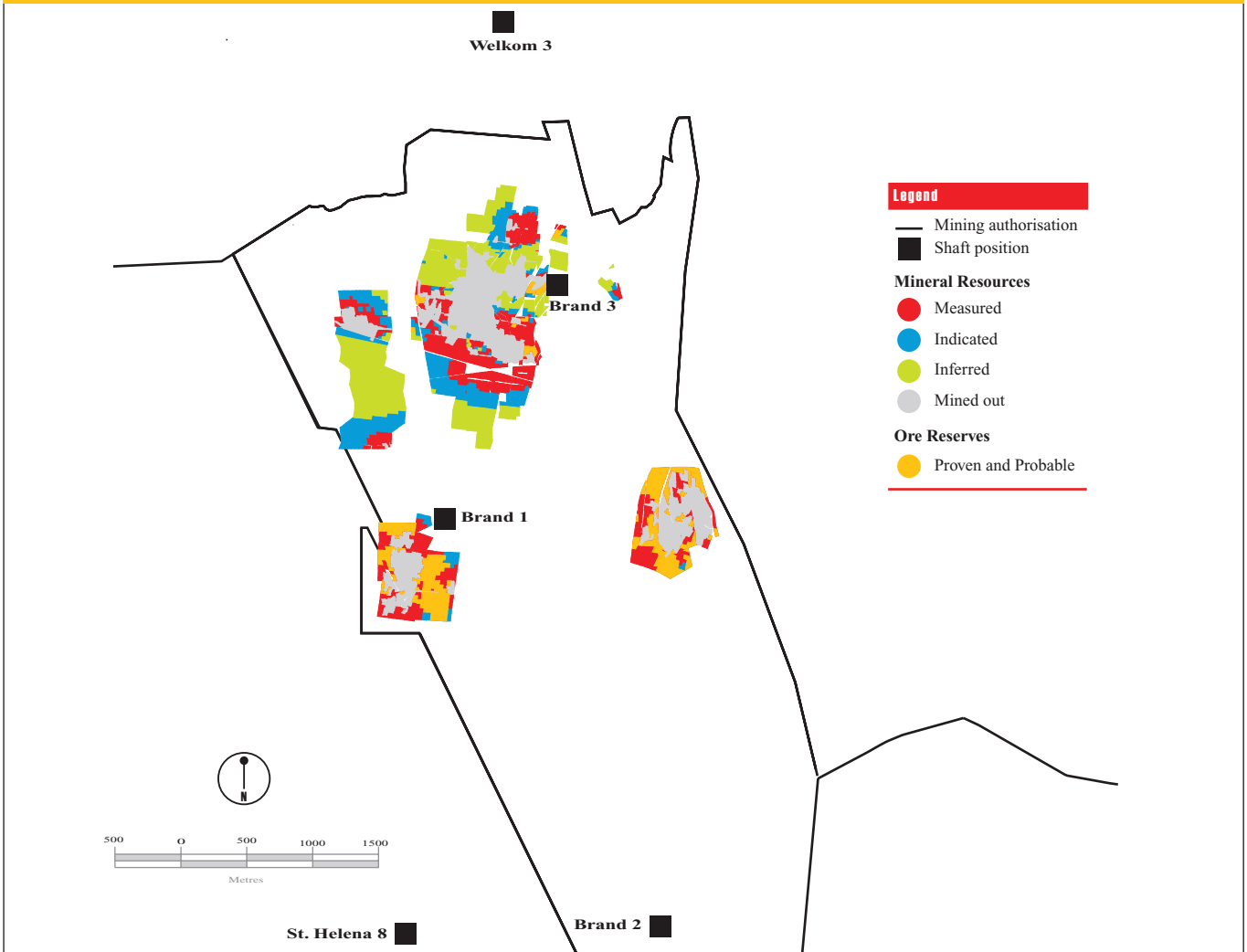


**FREE STATE**

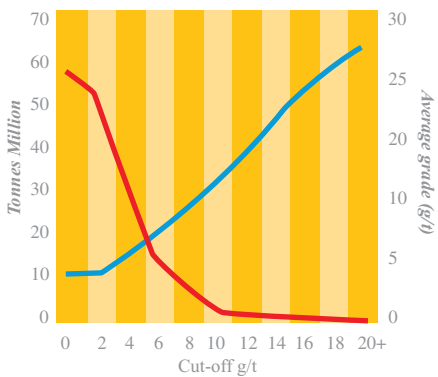
*Masimong 4 and Masimong 5 Shafts*  
**Basal Reef**



**FREE STATE**  
Brand 3 Shaft  
A Reef



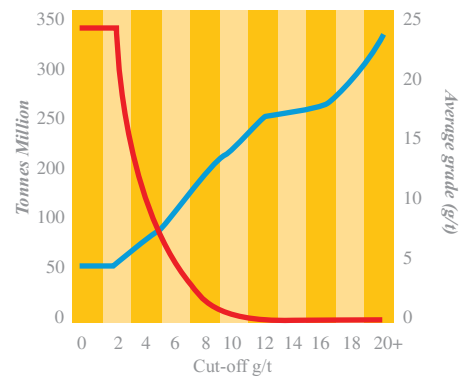
Free State grade tonnage curve - Measured



Free State grade tonnage curve - Indicated



Free State grade tonnage curve - Inferred



**Freegold operations**

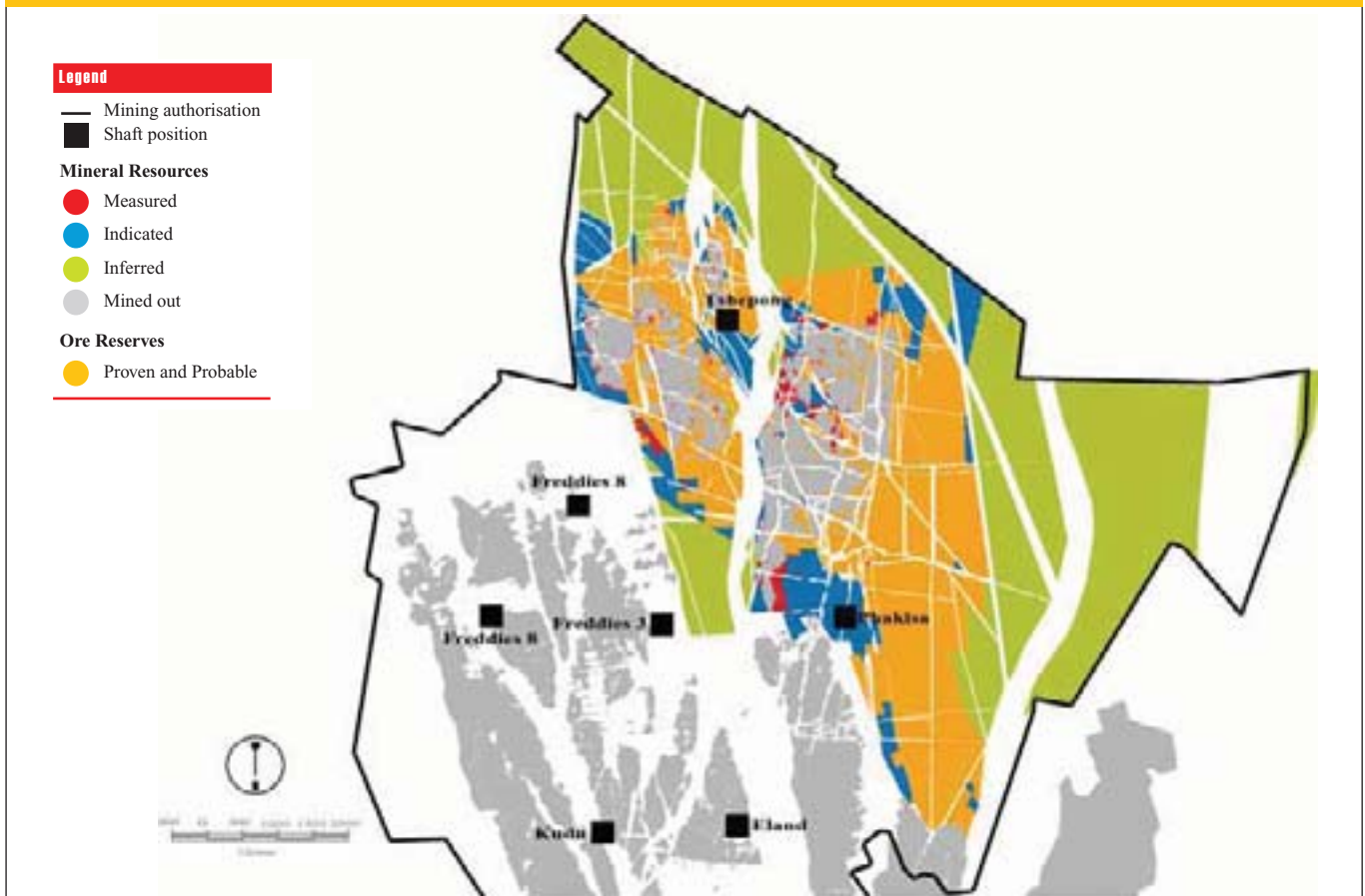
**Geology:** The mines of the Freegold operations – Tshepong, Phakisa, Bambanani, West, Kudu, Sable, Nyala, Eland and St Helena - are located to the north and west of Welkom, while Joel is situated 30km to the south. Joel is mining

the shallow flat-dipping Beatrix/VS5 Reef, while the other mines primarily exploit the Basal Reef. Limited mining has taken place on Leader Reef, A Reef and B Reef in the past. Kudu, Sable, Nyala, Eland and St. Helena are characterised by intense

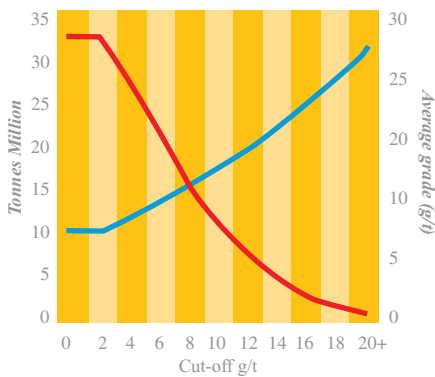
faulting, especially towards the western margin. Tshepong, Phakisa, West and Bambanani are cut by the regional north-south trending faults and, mostly, have shallow dips to the east. B Reef is currently being mined at Tshepong and has the potential to be exploited elsewhere.

**FREEGOLD**

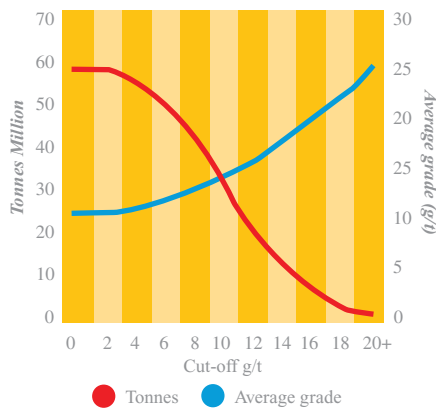
*Tshepong and Phakisa shafts*  
**Basal Reef**



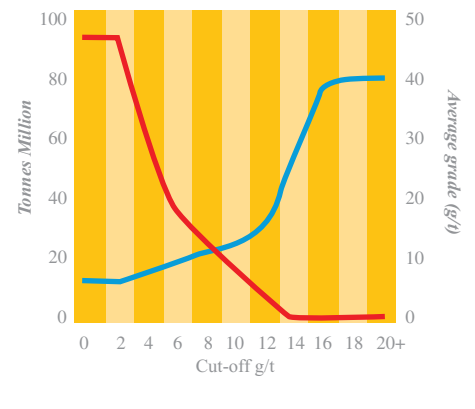
**Freegold grade tonnage curve – Measured**



**Freegold grade tonnage curve – Indicated**



**Freegold grade tonnage curve – Inferred**



● Tonnes ● Average grade

## Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Bambanani	14.5	10.12	146.4	4 705	7.5	8.25	61.8	1 987	15.1	5.08	76.8	2 470	37.1	7.68	285.0	9 162
Tshepong	8.2	11.77	96.9	3 116	22.2	11.39	252.7	8 123	29.4	5.88	172.9	5 559	59.8	8.73	522.5	16 798
Phakisa	0.1	11.44	1.0	31	24.1	11.63	280.7	9 023	30.3	7.46	226.1	7 269	54.5	9.31	507.7	16 323
St Helena 8 Shaft	4.5	5.60	24.9	801	1.5	4.47	6.6	212	3.6	4.34	15.8	507	9.6	4.94	47.3	1 520
Joel	5.1	5.35	27.2	874	4.6	6.02	27.5	885	13.4	6.44	86.3	2 774	23.1	6.12	141.0	4 533
<b>Total</b>	<b>32.3</b>	<b>9.17</b>	<b>296.3</b>	<b>9 527</b>	<b>59.9</b>	<b>10.51</b>	<b>629.2</b>	<b>20 230</b>	<b>91.9</b>	<b>6.29</b>	<b>577.8</b>	<b>18 579</b>	<b>184.0</b>	<b>8.17</b>	<b>1 503.4</b>	<b>48 336</b>
Surface stockpile	192.4	0.28	54.7	1 757	11.4	0.59	6.7	215	444.0	0.27	120.5	3 875	647.8	0.28	181.9	5 847
<b>Grand total</b>	<b>224.7</b>		<b>351.0</b>	<b>11 284</b>	<b>71.3</b>		<b>635.9</b>	<b>20 445</b>	<b>535.9</b>		<b>698.3</b>	<b>22 454</b>	<b>831.9</b>		<b>1 685.2</b>	<b>54 183</b>

## Modifying factors

Shaft	(R/kg)	MCF (%)	SW (cm)	MW (cm)	PRF (%)	EP (%)
Bambanani	115 000	78	202	239	95.2	76.5
Phakisa	115 000	85	100	129	97.2	79.8
Tshepong	115 000	73	103	139	97.2	78.7
St Helena 8	115 000	68	191	235	95.1	66.9
Joel	115 000	85	142	182	96.3	83.1
Surface stockpile	115 000	100				

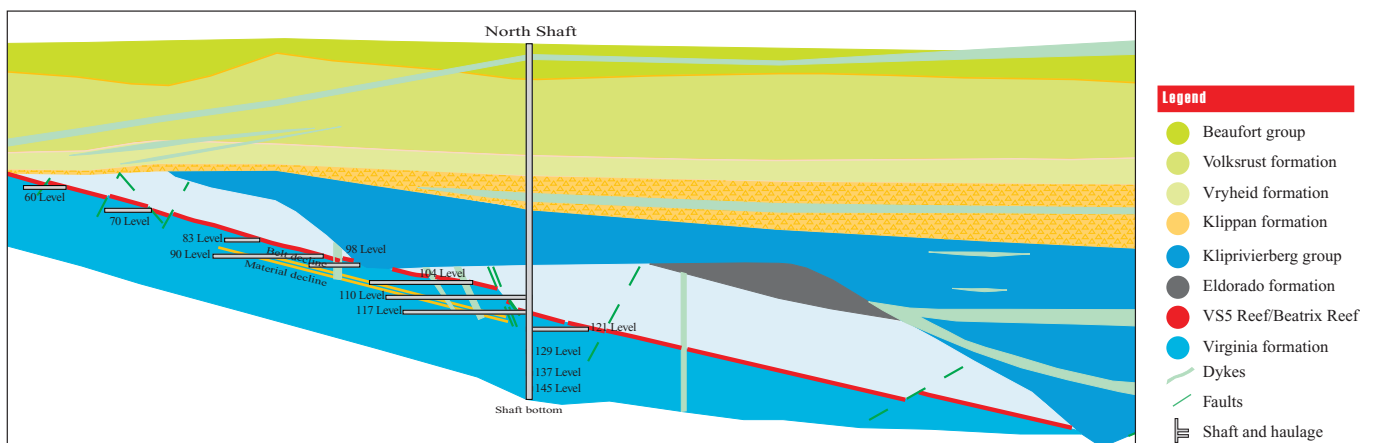
MCF = Mine call factor      MW = Milling width      SW = Stopping width

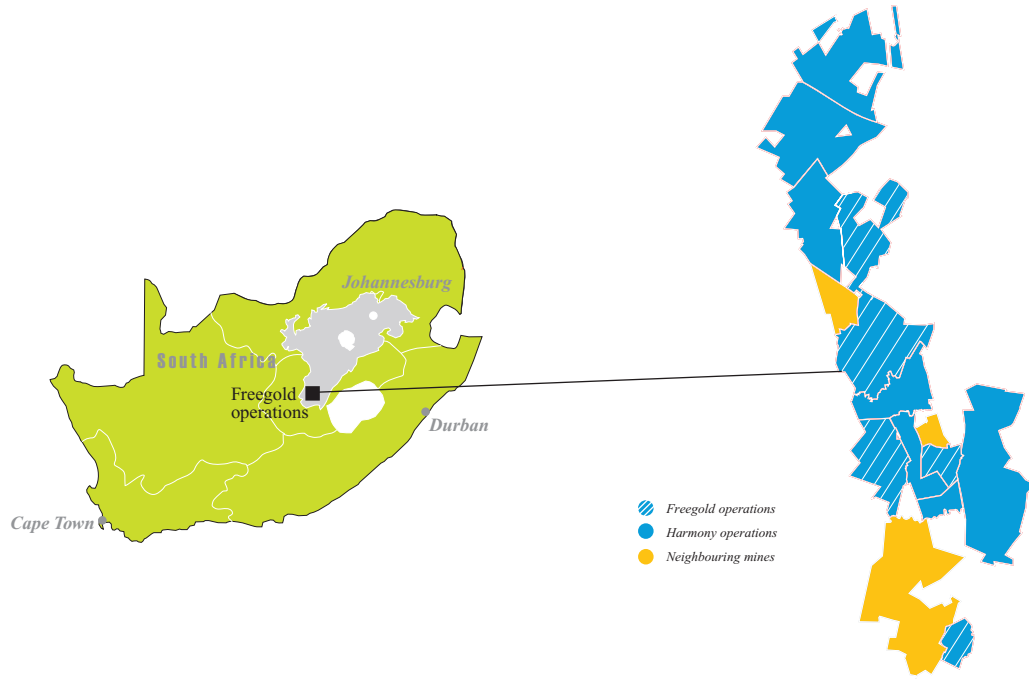
EP = Extraction percentage      PRF = Plant recovery factor

## Ore reserves

Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Bambanani	6.1	7.01	42.7	1 373	2.3	8.39	19.7	632	8.4	7.39	62.4	2 005
Phakisa	0.1	7.75	0.7	21	19.9	8.42	167.3	5 380	20.0	8.41	168.0	5 401
Tshepong	6.3	7.07	44.4	1 427	16.1	7.17	115.7	3 720	22.4	7.14	160.1	5 147
St Helena 8	0.6	4.31	2.5	81	0.4	4.09	1.5	47	0.9	4.23	4.0	128
Joel	0.8	4.80	3.6	116	3.0	5.23	15.5	498	3.7	5.14	19.1	614
<b>Total</b>	<b>13.8</b>	<b>6.80</b>	<b>93.9</b>	<b>3 018</b>	<b>41.7</b>	<b>7.67</b>	<b>319.7</b>	<b>10 277</b>	<b>55.5</b>	<b>7.45</b>	<b>413.5</b>	<b>13 295</b>
Surface stockpile	192.4	0.28	54.7	1 757	11.4	0.59	6.7	215	203.8	0.30	61.4	1 972
<b>Grand total</b>	<b>206.2</b>		<b>148.5</b>	<b>4 775</b>	<b>53.1</b>		<b>326.3</b>	<b>10 492</b>	<b>259.3</b>		<b>474.9</b>	<b>15 267</b>

## Joel Mine geological section looking west



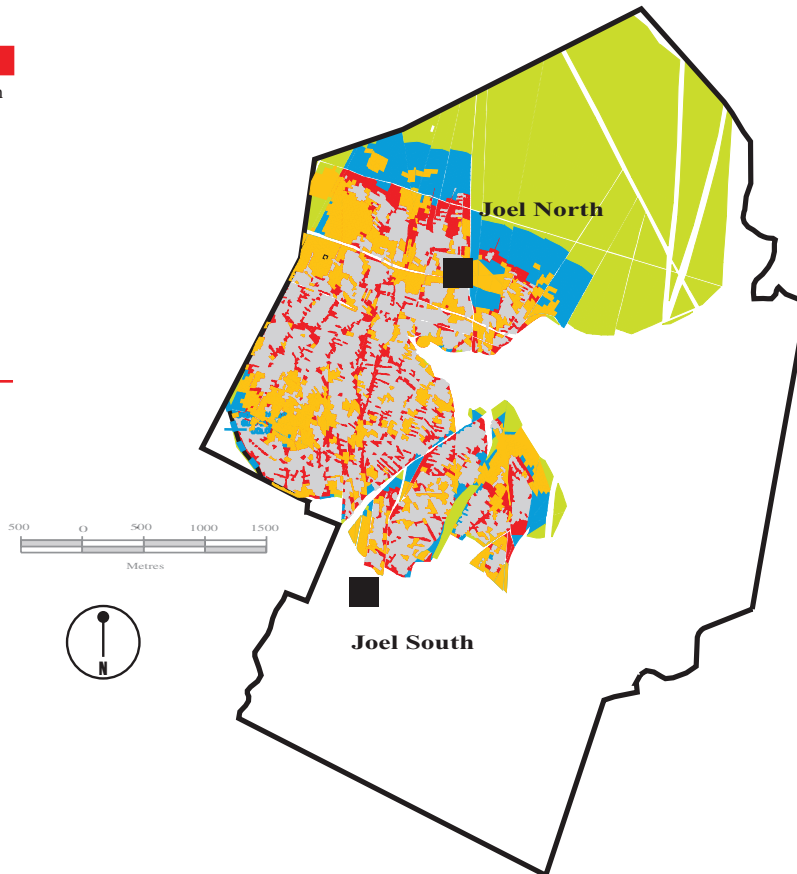


**FREEGOLD**

*Joel North and South Shafts  
Beatrix/VS5 Reef*

**Legend**

- Mining authorisation
- Shaft position
- Mineral Resources**
- Measured
- Indicated
- Inferred
- Mined out
- Ore Reserves**
- Proven and Probable



**Evander operations**

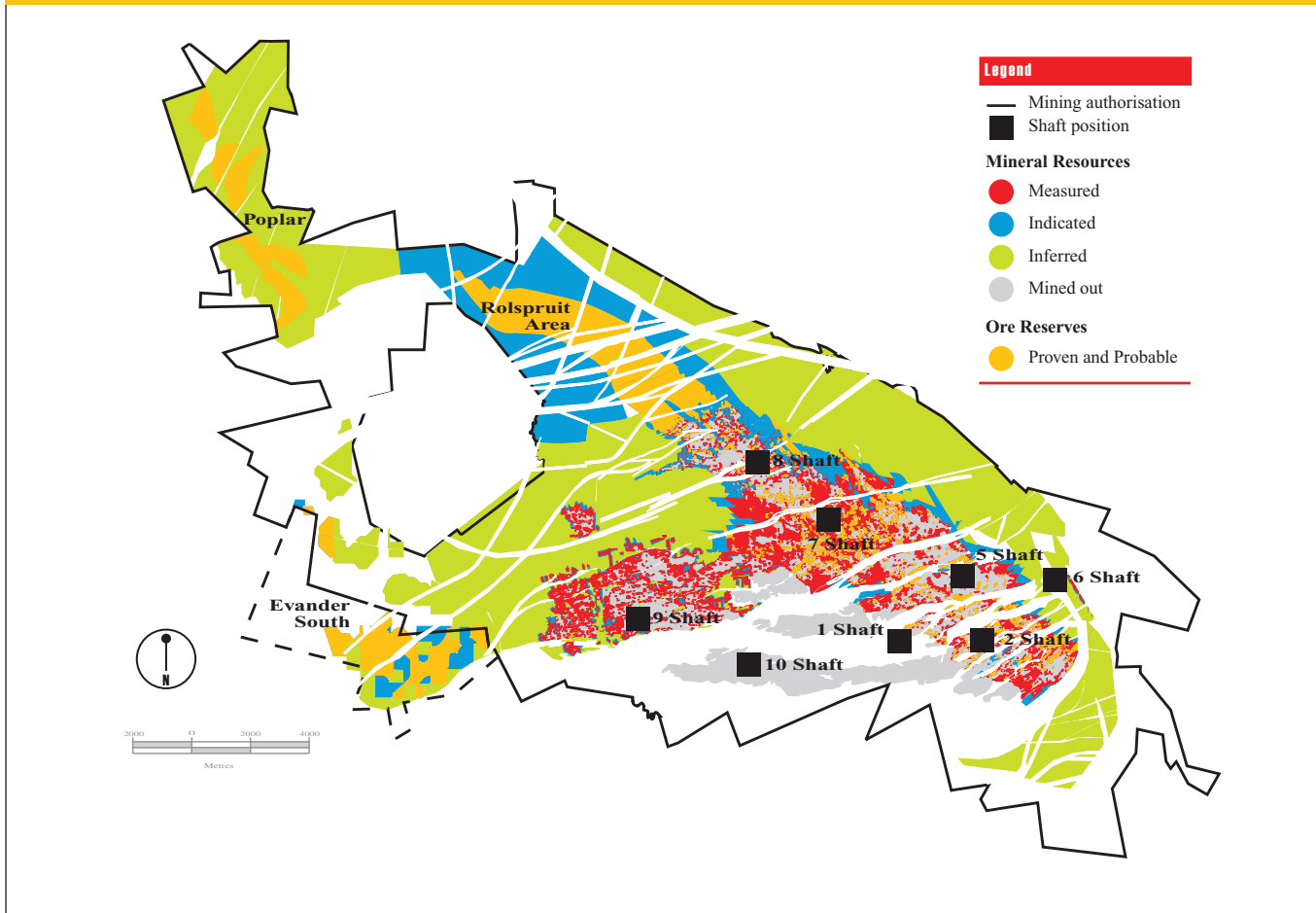
**Geology:** The Evander Basin is a tectonically preserved sub-basin outside the main Wits Basin and forms an asymmetric syncline, plunging to the north-east. It is

structurally complex, with a series of east-north-east striking normal faults, and in the south-east margin of the basin, vertically to locally overturned reef is present. The only economic reef horizon

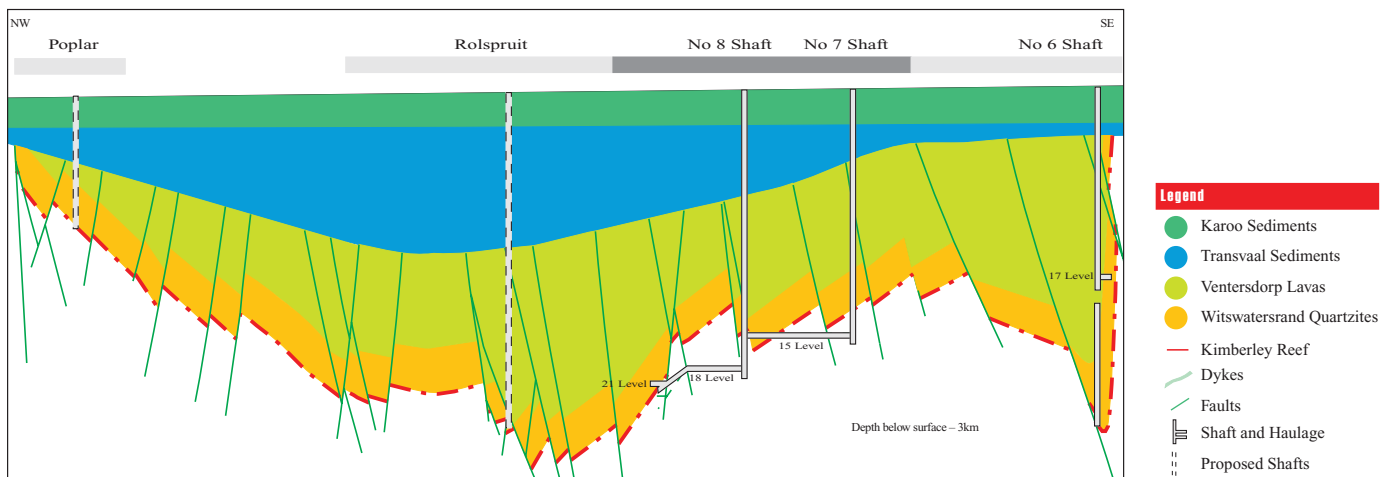
exploited in the Evander Basin is the Kimberley Reef. The Intermediate Reef is generally poorly mineralised, except where it erodes the subcropping Kimberley Reef in the south and west of the basin.

**EVANDER OPERATIONS**

*Evander 2,5,6,7,8 and 9 Shafts  
Poplar and Rolspruit areas  
Kimberley Reef*



**Section across the Evander Basin**



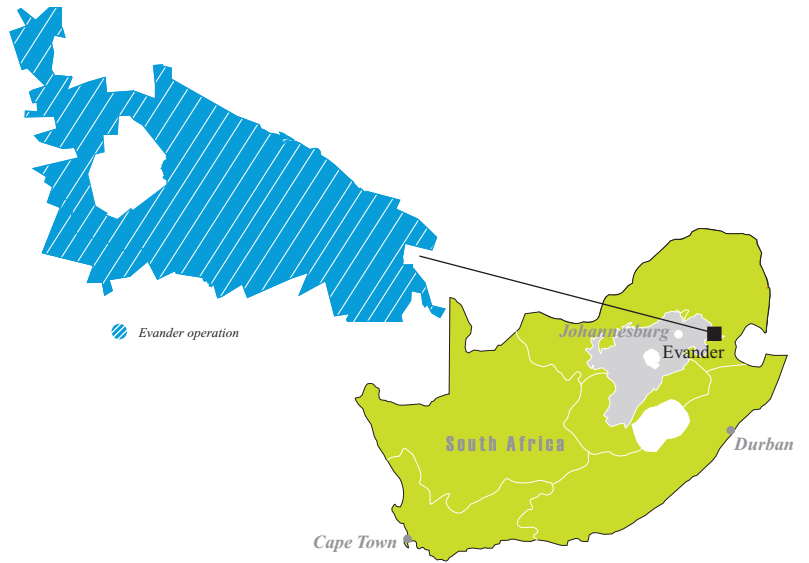
Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Evander 2, 3 and 5	8.6	8.20	70.8	2 278	3.8	6.79	26.1	839	31.0	8.21	254.8	8 191	43.5	8.08	351.7	11 308
Evander 7	17.6	5.07	89.5	2 877	5.5	5.61	30.8	989	20.3	8.15	165.6	5 325	43.5	6.58	285.9	9 191
Evander 8	4.6	7.49	34.8	1 119	21.2	8.39	177.7	5 714	37.6	5.76	216.5	6 962	63.4	6.77	429.1	13 795
<b>Total</b>	<b>30.9</b>	<b>6.31</b>	<b>195.1</b>	<b>6 274</b>	<b>30.5</b>	<b>7.69</b>	<b>234.6</b>	<b>7 542</b>	<b>88.9</b>	<b>7.16</b>	<b>636.9</b>	<b>20 478</b>	<b>150.4</b>	<b>7.09</b>	<b>1 066.7</b>	<b>34 294</b>
<b>Projects (below infrastructure)</b>																
Evander South	0.0	0.00	0.0	0	17.7	6.11	108.3	3 481	20.6	5.24	107.6	3 460	38.3	5.64	215.9	6 941
Rolspruit	0.0	0.00	0.0	0	29.1	11.59	337.3	10 846	52.8	2.71	142.9	4 596	81.9	5.87	480.3	15 442
Poplar	0.0	0.00	0.0	0	25.6	7.58	194.0	6 237	0.0	0.00	0.0	—	25.6	7.58	194.0	6 237
<b>Total</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0</b>	<b>72.4</b>	<b>8.83</b>	<b>639.6</b>	<b>20 564</b>	<b>73.3</b>	<b>3.42</b>	<b>250.6</b>	<b>8 056</b>	<b>145.7</b>	<b>6.11</b>	<b>890.2</b>	<b>28 620</b>
<b>Grand total</b>	<b>30.9</b>		<b>195.1</b>	<b>6 274</b>	<b>102.9</b>		<b>874.2</b>	<b>28 106</b>	<b>162.2</b>		<b>887.5</b>	<b>28 534</b>	<b>296.1</b>		<b>1 956.8</b>	<b>62 914</b>

Modifying factors

Shaft	(R/kg)	MCF (%)	SW (cm)	MW (cm)	PRF (%)	EP (%)
Evander 2, 3 and 5	115 000	73	157	191	96.8	84.3
Evander 7	115 000	83	136	155	97.0	81.6
Evander 8	115 000	75	121	152	96.9	82.0
Evander South	115 000	80	125	131	96.5	
Rolspruit	115 000	80	110	129	97.1	80.8
Poplar	115 000	80	100	116	97.1	85.1

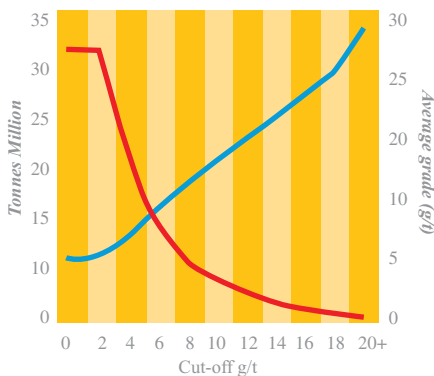
MCF = Mine call factor      MW = Milling width      SW = Stopping width  
 EP = Extraction percentage      PRF = Plant recovery factor



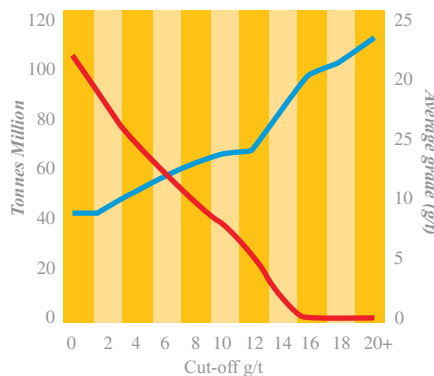
Ore reserves

Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Evander 2,3 and 5	1.4	6.70	9.6	308	0.8	5.42	4.2	135	2.2	6.25	13.8	443
Evander 7	3.0	6.46	19.5	629	1.4	5.86	8.2	263	4.4	6.27	27.7	892
Evander 8	0.4	8.12	3.3	107	11.8	6.41	75.9	2 441	12.3	6.47	79.2	2 548
<b>Total underground</b>	<b>4.9</b>	<b>6.67</b>	<b>32.5</b>	<b>1 044</b>	<b>14.0</b>	<b>6.30</b>	<b>88.3</b>	<b>2 839</b>	<b>18.9</b>	<b>6.39</b>	<b>120.8</b>	<b>3 883</b>
<b>Projects (below infrastructure)</b>												
Evander South	0.0	0.0	0.0	0	14.0	4.75	66.4	2 136	14.0	4.75	66.4	2 136
Rolspruit	0.0	0.0	0.0	0	24.4	8.71	212.8	6 842	24.4	8.71	212.8	6 842
Poplar	0.0	0.0	0.0	0	13.5	7.45	100.6	3 234	13.5	7.45	100.6	3 234
<b>Total projects</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0</b>	<b>51.9</b>	<b>7.31</b>	<b>379.9</b>	<b>12 212</b>	<b>51.9</b>	<b>7.31</b>	<b>379.9</b>	<b>12 212</b>
<b>Grand total</b>	<b>4.9</b>	<b>6.67</b>	<b>32.5</b>	<b>1 044</b>	<b>65.9</b>	<b>7.10</b>	<b>468.2</b>	<b>15 051</b>	<b>70.8</b>	<b>7.07</b>	<b>500.6</b>	<b>16 095</b>

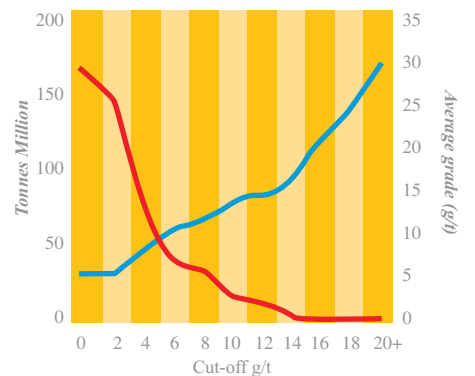
Evander grade tonnage curve – Measured



Evander grade tonnage curve – Indicated



Evander grade tonnage curve – Inferred



● Tonnes ● Average grade

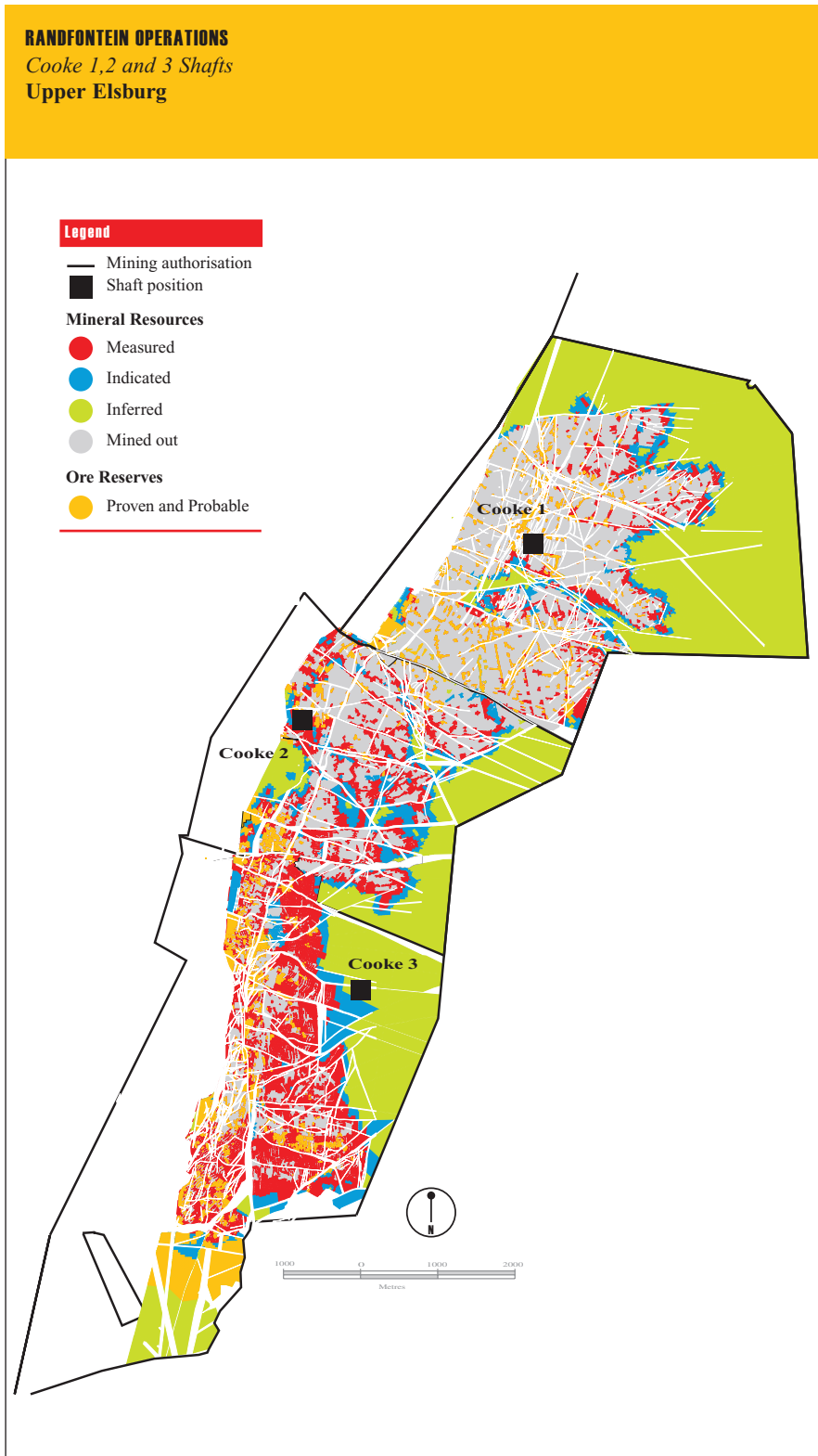


**Randfontein operations**

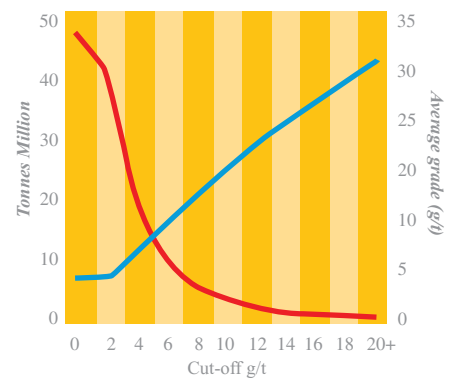
**Geology:** The structure of the West Rand Goldfield is dominated by the Witpoortjie and Panvlakte Horst blocks, which are superimposed over broad folding associated with the south-east plunging West Rand syncline. At Cooke mines, two major fault

trends are present. The first is parallel to the Panvlakte Fault and strikes north-northeast, having small throws and no lateral shift. The second trend north-west to west, has small throws, but significant lateral shift, resulting in the payshoots becoming displaced. The main orebodies

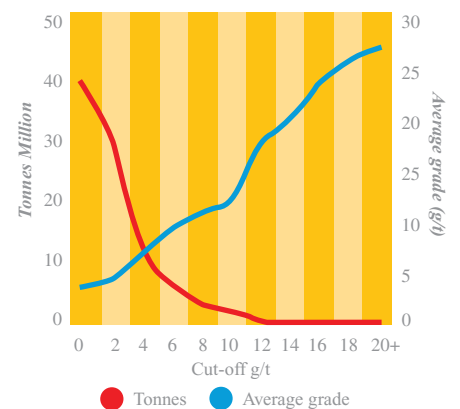
mined at Cooke 1, 2 and 3 Mines are the Upper Elsberg Reef with secondary reefs being the E8 Reef and the Ventersdorp Contact Reef. At Doornkop Mine, the Kimberley Reefs and the South Reef are being exploited.



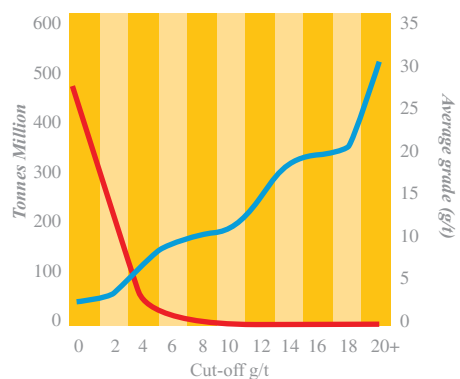
**Randfontein grade tonnage curve – Measured**



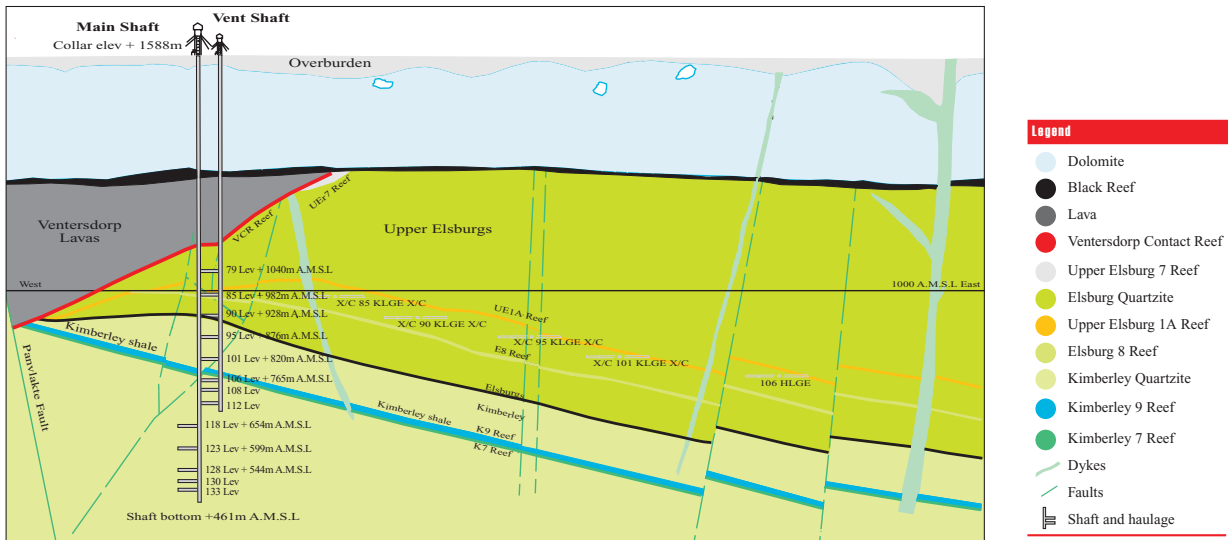
**Randfontein grade tonnage curve – Indicated**



**Randfontein grade tonnage curve – Inferred**



Cooke 2 Shaft – geological section looking north



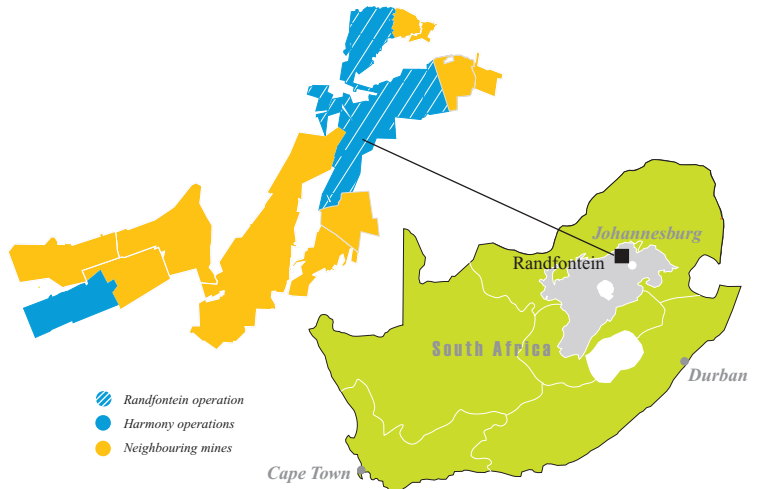
Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	Gold g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Cooke 1	10.8	5.32	57.6	1 852	6.2	3.10	19.2	618	63.2	2.46	155.3	4 992	80.2	2.89	232.1	7 462
Cooke 2	8.6	4.42	38.1	1 225	7.3	3.15	23.1	741	80.0	1.54	123.1	3 957	96.0	1.92	184.2	5 923
Cooke 3	17.0	5.91	100.6	3 233	18.7	4.07	76.2	2 451	81.6	3.17	258.6	8 315	117.3	3.71	435.4	13 999
Doornkop																
Kimberley Reef	9.6	2.94	28.2	908	6.9	2.66	18.5	593	192.9	1.89	364.6	11 723	209.4	1.96	411.3	13 224
Doornkop																
South Reef	0.3	7.38	2.0	63	1.7	9.81	16.9	545	63.9	5.22	333.8	10 731	65.9	5.35	352.7	11 339
<b>Total</b>	<b>46.3</b>	<b>4.89</b>	<b>226.5</b>	<b>7 281</b>	<b>40.9</b>	<b>3.76</b>	<b>153.9</b>	<b>4 948</b>	<b>481.7</b>	<b>2.56</b>	<b>1 235.4</b>	<b>39 718</b>	<b>568.9</b>	<b>2.84</b>	<b>1 615.7</b>	<b>51 947</b>
Surface stockpile	384.3	0.27	103.2	3 319	0.9	0.54	0.5	16	0.0	0.00	0.0	-	385.2	0.27	103.7	3 335
<b>Grand total</b>	<b>430.6</b>		<b>329.7</b>	<b>10 600</b>	<b>41.8</b>		<b>154.4</b>	<b>4 964</b>	<b>481.7</b>		<b>1 235.4</b>	<b>39 718</b>	<b>954.1</b>		<b>1 719.4</b>	<b>55 282</b>

Modifying factors

Shaft	(R/kg)	MCF (%)	SW (cm)	MW (cm)	PRF (%)	EP (%)
Cooke 1	115 000	77	169	193	96.5	71.3
Cooke 2	115 000	88	158	170	96.5	59.3
Cooke 3	115 000	70	206	207	96.3	65.1
Doornkop						
Kimberley Reef	115 000	83	355	361	95.0	59.6
Doornkop						
South Reef	115 000	75	119	136	95.0	88.2
Surface stockpile	115 000	100				

MCF = Mine call factor    MW = Milling width    SW = Stopping width  
 EP = Extraction percentage    PRF = Plant recovery factor

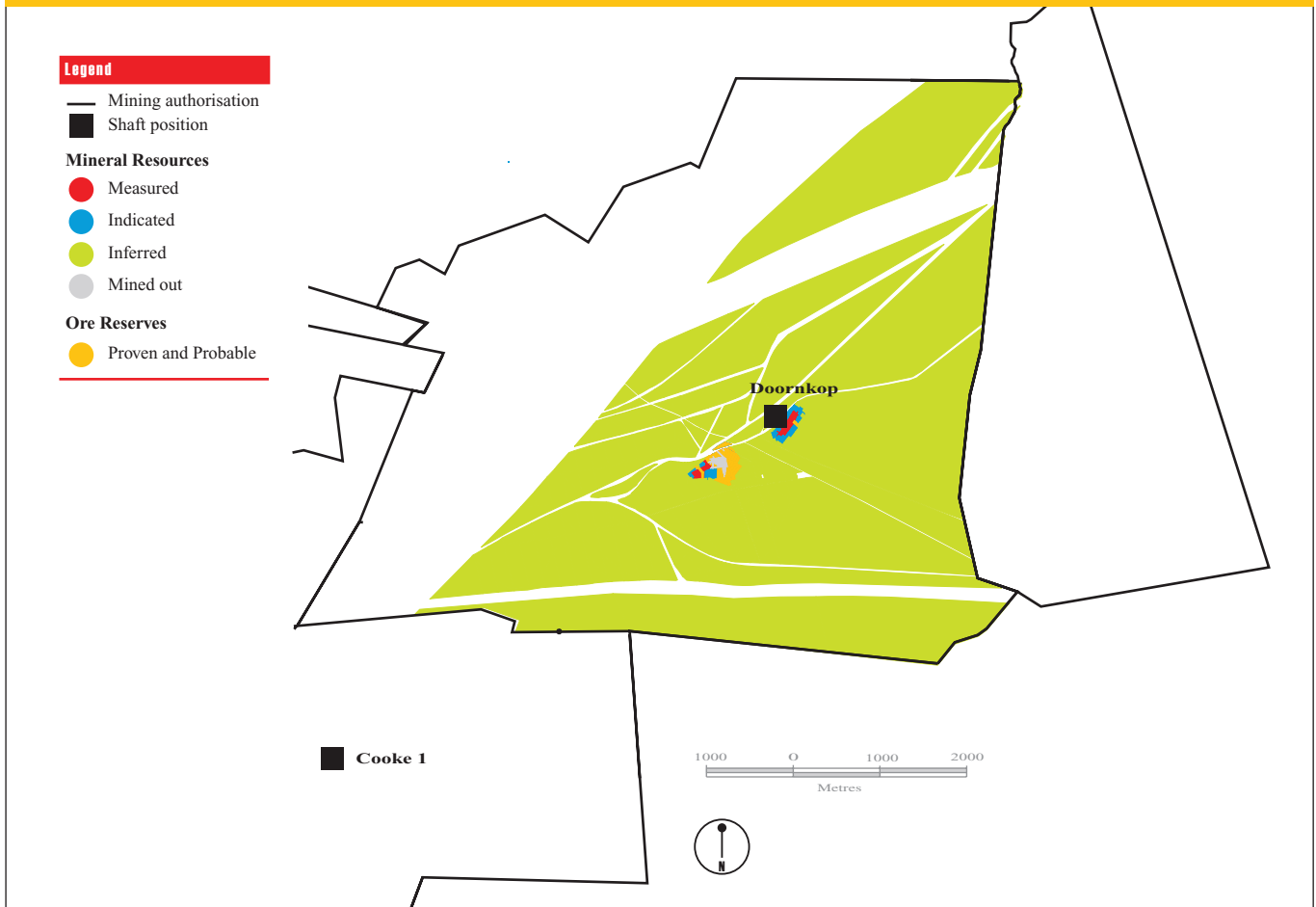


Ore reserves

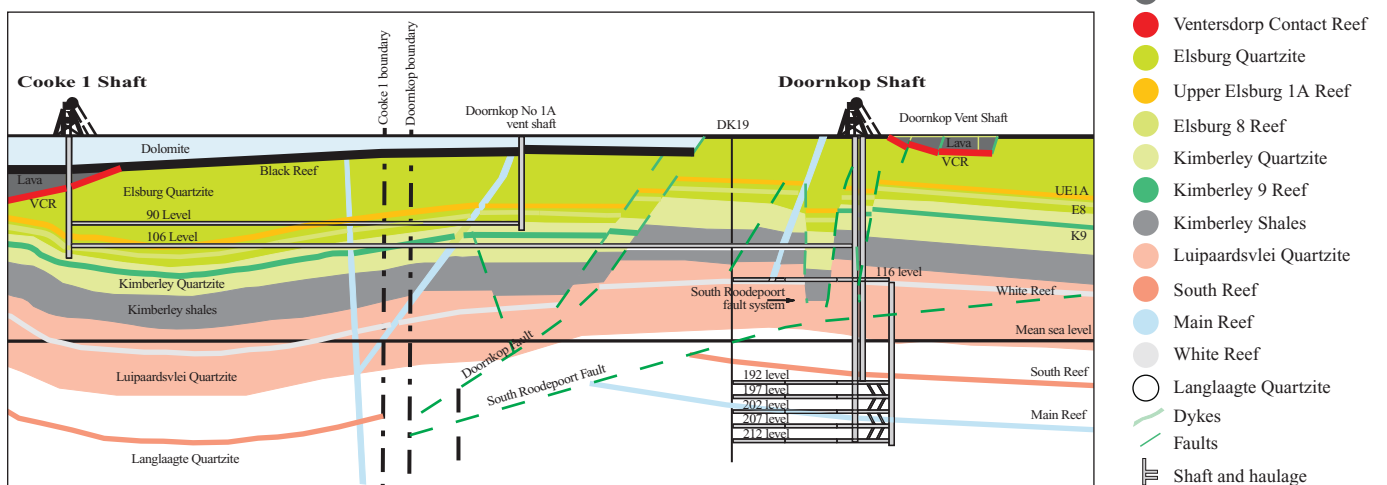
Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	Gold g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Cooke 1	0.3	9.29	2.6	82	0.0	4.24	0.1	4	0.3	8.85	2.7	86
Cooke 2	0.5	7.14	3.3	108	0.2	9.87	2.2	71	0.7	8.02	5.5	179
Cooke 3	2.3	8.00	18.5	594	2.4	5.06	12.1	390	4.7	6.50	30.6	984
Doornkop												
Kimberley Reef	0.03	2.99	0.1	2	0.2	3.12	0.6	18	0.2	3.11	0.6	20
Doornkop												
South Reef	0.1	6.89	0.5	17	1.5	7.13	10.4	333	1.5	7.11	10.9	350
<b>Total</b>	<b>3.1</b>	<b>7.93</b>	<b>25.0</b>	<b>803</b>	<b>4.3</b>	<b>5.93</b>	<b>25.4</b>	<b>816</b>	<b>7.4</b>	<b>6.78</b>	<b>50.3</b>	<b>1 619</b>
Surface stockpile	3.7	0.69	2.6	83	0.1	1.60	0.1	3	3.8	0.70	2.7	86
<b>Grand total</b>	<b>6.9</b>		<b>27.5</b>	<b>886</b>	<b>4.3</b>		<b>25.5</b>	<b>819</b>	<b>11.2</b>		<b>53.0</b>	<b>1 705</b>

DOORKOP SHAFT

South Reef



Cooke 1/Doornkop geological section looking west



Legend

- Dolomite
- Black Reef
- Lava
- Ventersdorp Contact Reef
- Elsberg Quartzite
- Upper Elsberg 1A Reef
- Elsberg 8 Reef
- Kimberley Quartzite
- Kimberley 9 Reef
- Kimberley Shales
- Luipaardsvlei Quartzite
- South Reef
- Main Reef
- White Reef
- Langlaagte Quartzite
- Dykes
- Faults
- Shaft and haulage

**Elandsrand**

**Geology:** The structure on the Far West Rand is dominated by a series of east trending normal faults with throws of up to 40m, as well as a series of north-northeast striking normal faults with generally smaller displacements in the north-west.

Faulting is generally less prevalent than in other Wits goldfields. The primary reefs exploited are the Ventersdorp Contact Reef and the Carbon Leader, separated by 900 to 1 300m, increasing from east to west. Secondary targets are the Middelvlei

Reef (50 to 75m above the Carbon Leader) and the Mondeor Conglomerate Reef Zone, which subcrops beneath the VCR at Deelkraal and the western side of Elandsrand.

**ELANDSRAND**

*Elandsrand Shaft, Deelkraal Shaft  
Ventersdorp Contact Reef*

**Legend**

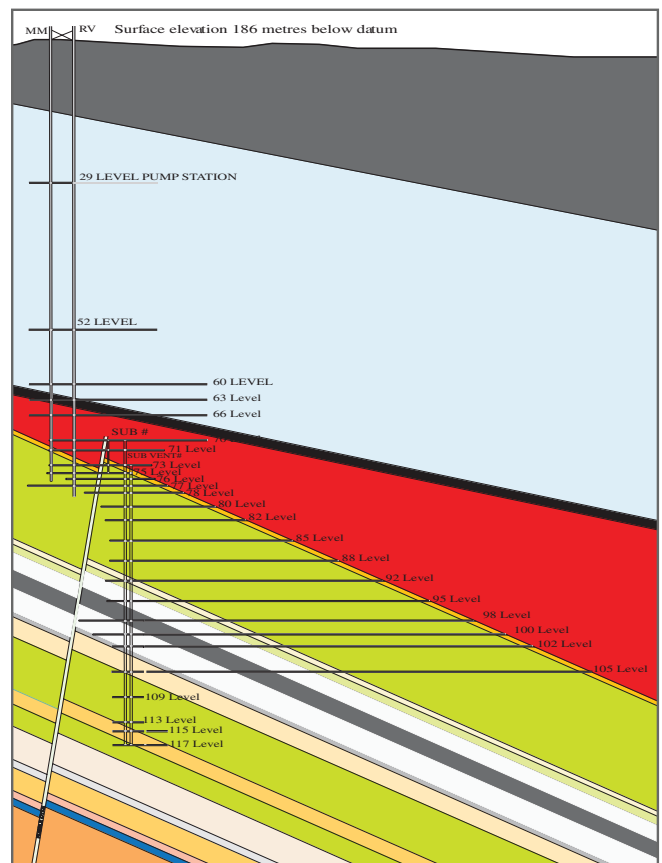
- Mining authorisation
- Shaft position
- Mineral Resources**
- Measured
- Indicated
- Inferred
- Mined out
- Ore Reserves**
- Proven and Probable



**Legend**

- Pretoria Group – Shales and Quartzites
- Chuniespoort Dolomites
- Black Reef
- Ventersdorp Lava
- Ventersdorp Contact Reef
- Elsburg Quartzite Formation
- Kimberley Conglomerate Formation
- Doornkop Quartzite Formation
- Transition Zone
- Booyens Shale
- Krugersdorp Formation
- Bird Conglomerate Formation
- Luipaardvlei Quartzite Formation
- Livingstone Conglomerate Formation
- Randfontein Quartzite Formation
- Langlaagte Quartzite Formation
- Middelvlei Reef
- Main Conglomerate Formation
- Carbon Leader Reef
- North Leader Reef
- Mariasburg Conglomerate Formation
- Dykes
- Faults
- Shaft and haulage

**Section through MM and Sub-Shaft looking east**



Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Elandsrand	17.4	9.24	161.0	5 176	31.8	9.54	302.9	9 738	1.3	10.44	13.7	439	50.5	9.46	477.5	15 353
<b>Grand total</b>	<b>17.4</b>		<b>161.0</b>	<b>5 176</b>	<b>31.8</b>		<b>302.9</b>	<b>9 738</b>	<b>1.3</b>		<b>13.7</b>	<b>439</b>	<b>50.5</b>		<b>477.5</b>	<b>15 353</b>

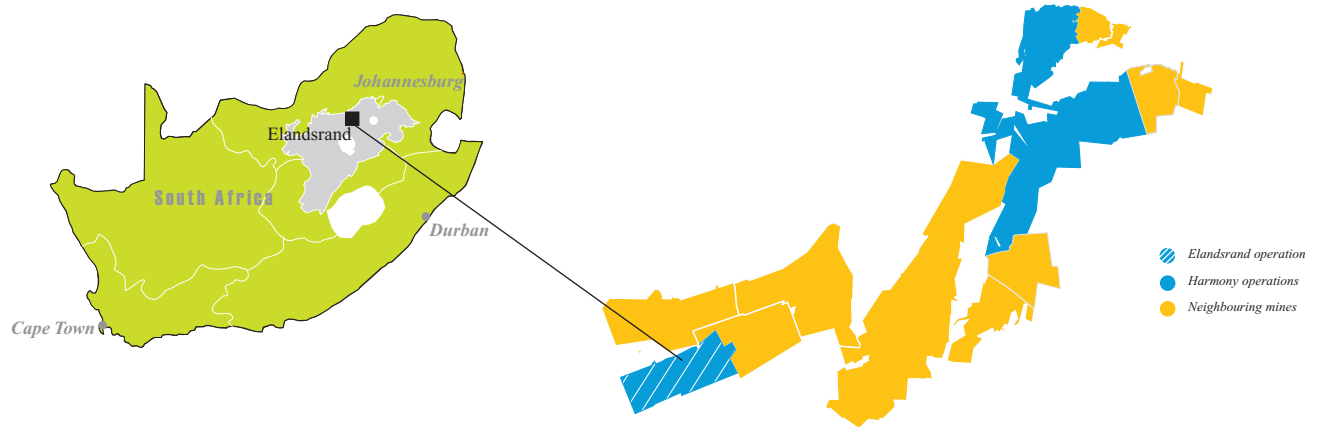
Modifying factors

Shaft	(R/kg)	MCF (%)	SW (cm)	MW (cm)	PRF (%)	EP (%)
Elandsrand	115 000	90	122	143	97.0	63.9

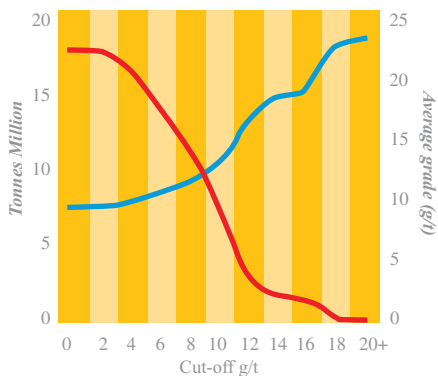
MCF = Mine call factor    MW = Milling width    SW = Stopping width  
 EP = Extraction percentage    PRF = Plant recovery factor

Ore reserves

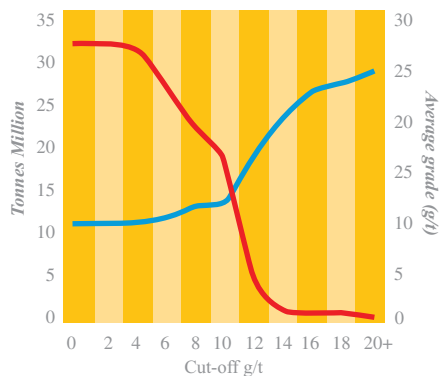
Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Elandsrand	6.4	7.62	48.8	1 570	25.3	8.25	208.6	6 707	31.7	8.12	257.5	8 277
<b>Grand total</b>	<b>6.4</b>	<b>7.62</b>	<b>48.8</b>	<b>1 570</b>	<b>25.3</b>	<b>8.25</b>	<b>208.6</b>	<b>6 707</b>	<b>31.7</b>	<b>8.12</b>	<b>257.5</b>	<b>8 277</b>



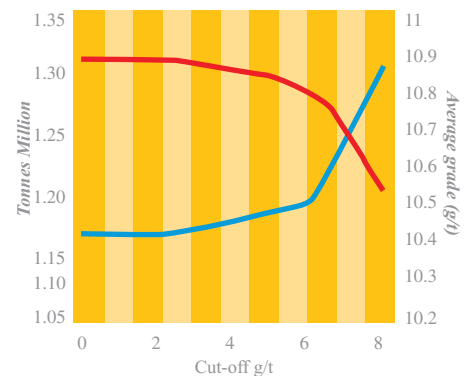
Elandsrand grade tonnage curve – Measured



Elandsrand grade tonnage curve – Indicated



Elandsrand grade tonnage curve – Inferred



● Tonnes ● Average grade

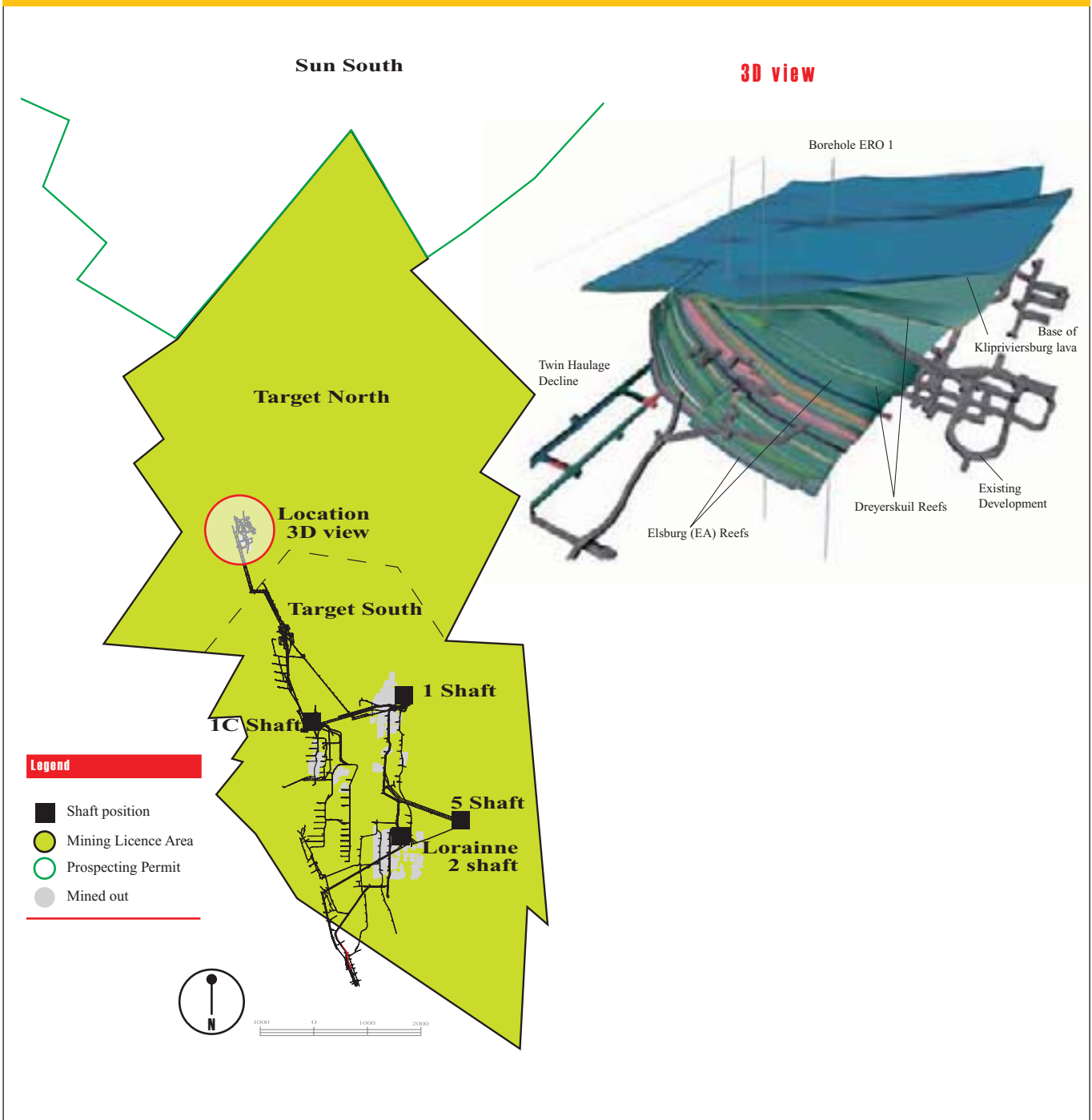
**Target**

**Geology:** The Target operations are located at the northern extent of the Free State Goldfields, some 20 km north of Welkom. The reefs currently exploited are the Elsburg – Dreyerskuil conglomerates, which form a wedge-shaped stacked package, comprising 35 separate reef horizons, often separated by quartzite beds. The Elsburg Reefs are truncated by an

unconformity surface at the base of the overlying Dreyerskuil Member. Below the subcrop, the Elsburg dips steeply to the east, with dips becoming progressively shallower down dip. Close to the sub-outcrop, the thickness of the intervening quartzites reduces, resulting in the Elsburg Reefs coalescing to form composite reef packages that are exploited by massive mining

techniques at Target Mine. The Dreyerskuil also consists of stacked reefs dipping shallowly to the east. These reefs tend to be less numerous, but more laterally extensive than the underlying Elsburg Reefs. The Big Pebble Reefs, A Reef, B Reef and Basal Reef have been exploited at the old Lorraine shafts in the past and potential exists for opening up these old areas.

**TARGET**  
Elsburg and Dreyerskuil Reefs



Mineral resources

Shaft	Measured			Indicated			Inferred			Total						
	Tonnes (Mt)	g/t	Gold (000kg)	Tonnes (Mt)	g/t	Gold (000kg)	Tonnes (Mt)	g/t	Gold (000kg)	Tonnes (Mt)	g/t	Gold (000kg)				
<b>Underground</b>																
Target	14.6	7.75	113.1	3 638	15.4	6.95	107.0	3 440	6.4	6.32	40.7	1 308	36.4	7.16	260.8	8 386
<b>Grand total</b>	<b>14.6</b>	<b>7.75</b>	<b>113.1</b>	<b>3 638</b>	<b>15.4</b>	<b>6.95</b>	<b>107.0</b>	<b>3 440</b>	<b>6.4</b>	<b>6.32</b>	<b>40.7</b>	<b>1 308</b>	<b>36.4</b>	<b>7.16</b>	<b>260.8</b>	<b>8 386</b>

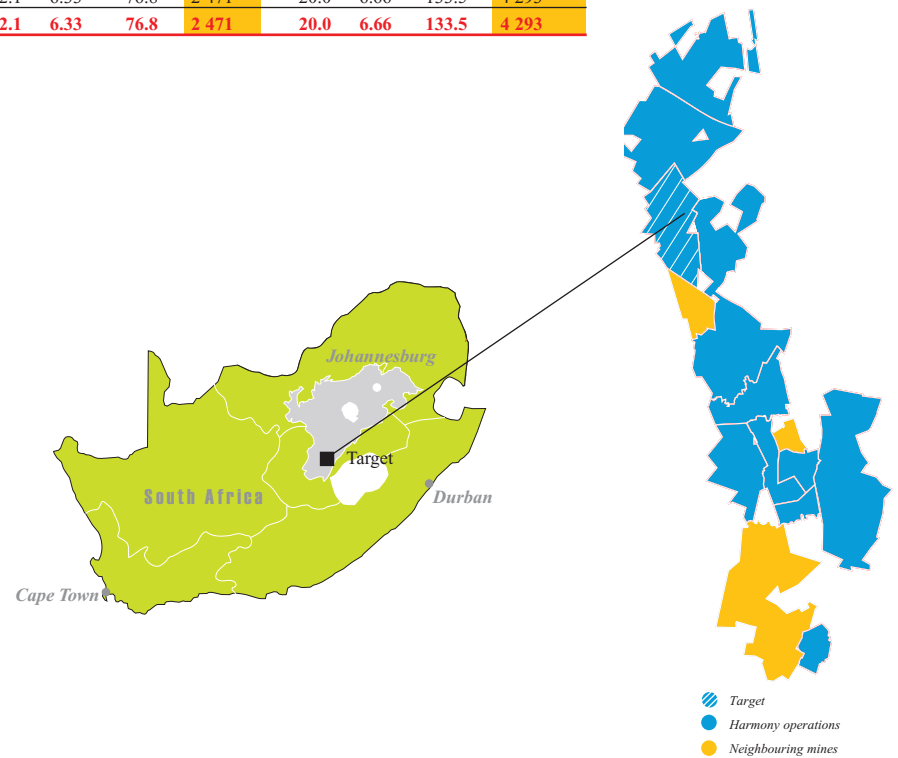
Modifying factors

Shaft	(R/kg)	MCF (%)	Dilution (cm)	PRF (%)
Target	115 000	97	6	97

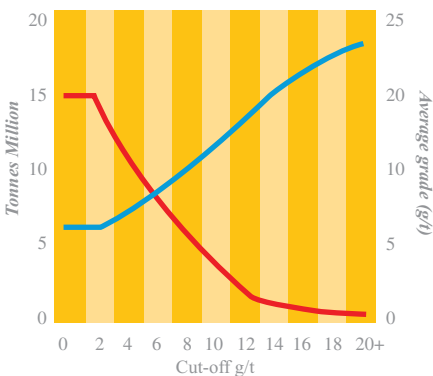
MCF = Mine call factor PRF = Plant recovery factor

Ore reserves

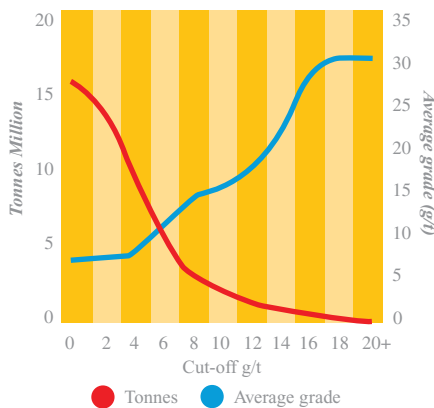
Shaft	PROVEN			PROBABLE			TOTAL					
	Tonnes (Mt)	g/t	Gold (000kg)	Tonnes (Mt)	g/t	Gold (000kg)	Tonnes (Mt)	g/t	Gold (000kg)			
<b>Underground</b>												
Target	7.9	7.17	56.7	1 822	12.1	6.33	76.8	2 471	20.0	6.66	133.5	4 293
<b>Grand total</b>	<b>7.9</b>	<b>7.17</b>	<b>56.7</b>	<b>1 822</b>	<b>12.1</b>	<b>6.33</b>	<b>76.8</b>	<b>2 471</b>	<b>20.0</b>	<b>6.66</b>	<b>133.5</b>	<b>4 293</b>



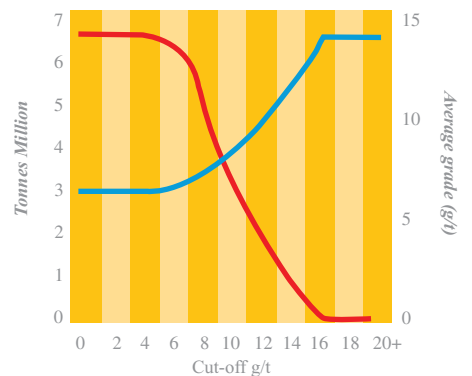
Target grade tonnage curve - Measured



Target grade tonnage curve - Indicated



Target grade tonnage curve - Inferred



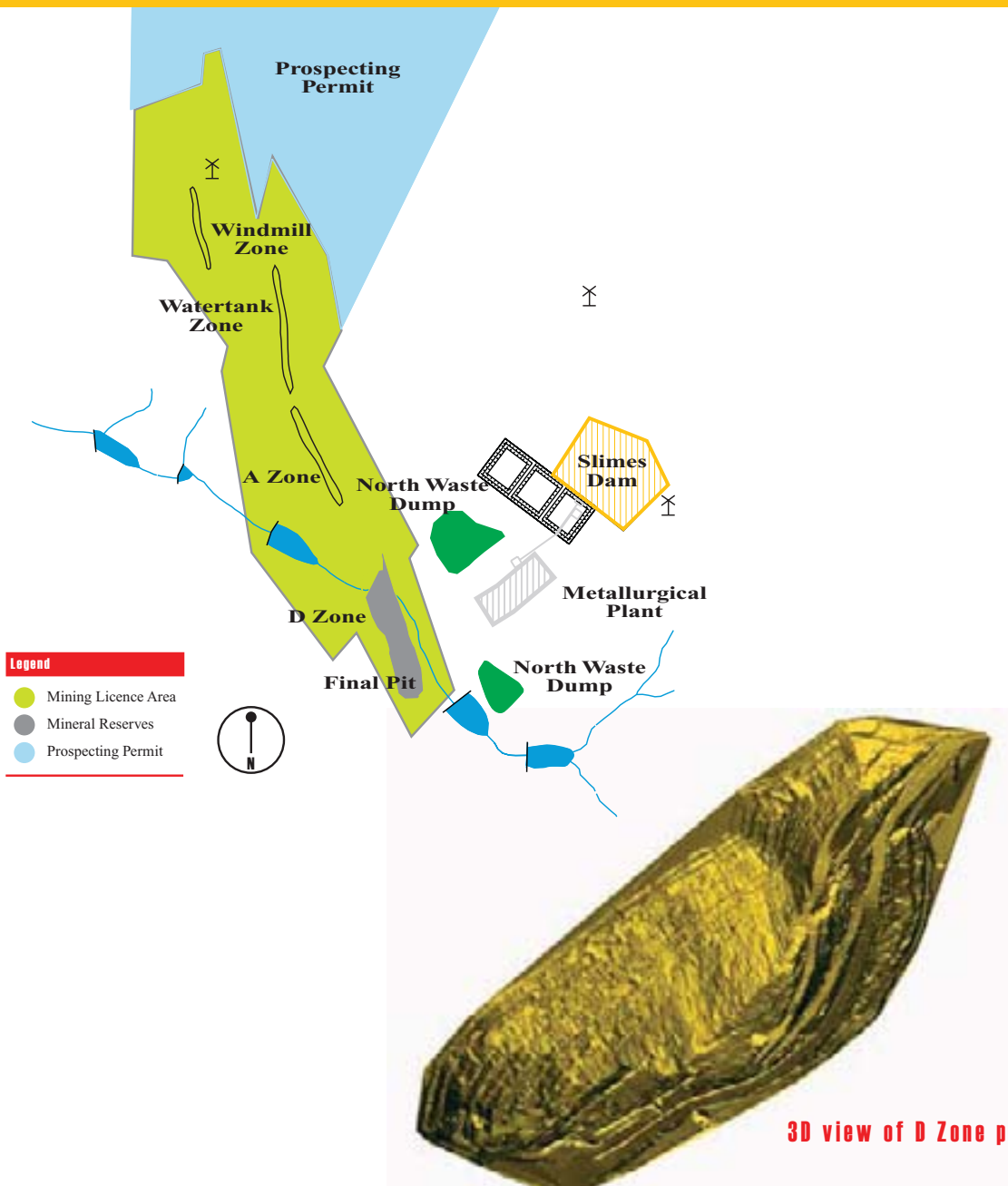
**Kalgold**

**Geology:** The Kalgold operations are located within the Kraaipan Greenstone Belt, 60km south of Mafikeng. This is part of the larger Amalia-Kraaipan Greenstone terrain, consisting of north trending linear belts of Archaean meta-volcanic and meta-sedimentary rocks, separated by granitoid units. Mineralisation occurs in shallow

dipping quartz veins, which occur in clusters or swarms, within the steeply dipping magnetite-chert banded iron formation. Disseminated sulphide mineralisation, dominated mostly by pyrite, occurs around and between the shallow dipping quartz vein swarms. The D Zone is the largest orebody encountered and has

been extensively mined within a single open pit operation, along a strike length of 1 300m. Mineralisation has also been found in the Mielie Field Zone (adjacent to the D Zone), the A Zone and A Zone West (along strike to the north of the D Zone), and the Watertank and Watermill areas to the north of the A Zone.

**KALGOLD**  
Kraaipan, Greenstone Belt



3D view of D Zone pit



## Mineral resources

Mine	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
Kalgold	7.1	1.53	10.8	347	27.5	1.73	47.5	1 527	0.1	1.52	0.1	4	34.6	1.69	58.4	1 878
<b>Grand total</b>	<b>7.1</b>	<b>1.53</b>	<b>10.8</b>	<b>347</b>	<b>27.5</b>	<b>1.73</b>	<b>47.5</b>	<b>1 527</b>	<b>0.1</b>	<b>1.52</b>	<b>0.1</b>	<b>4</b>	<b>34.6</b>	<b>1.69</b>	<b>58.4</b>	<b>1 878</b>

## Modifying factors

Mine	MCF (R/kg)	Dilution (%)	PRF (cm)	PRF (%)
Underground	115 000	100	2	85

MCF = Mine call factor PRF = Plant recovery factor

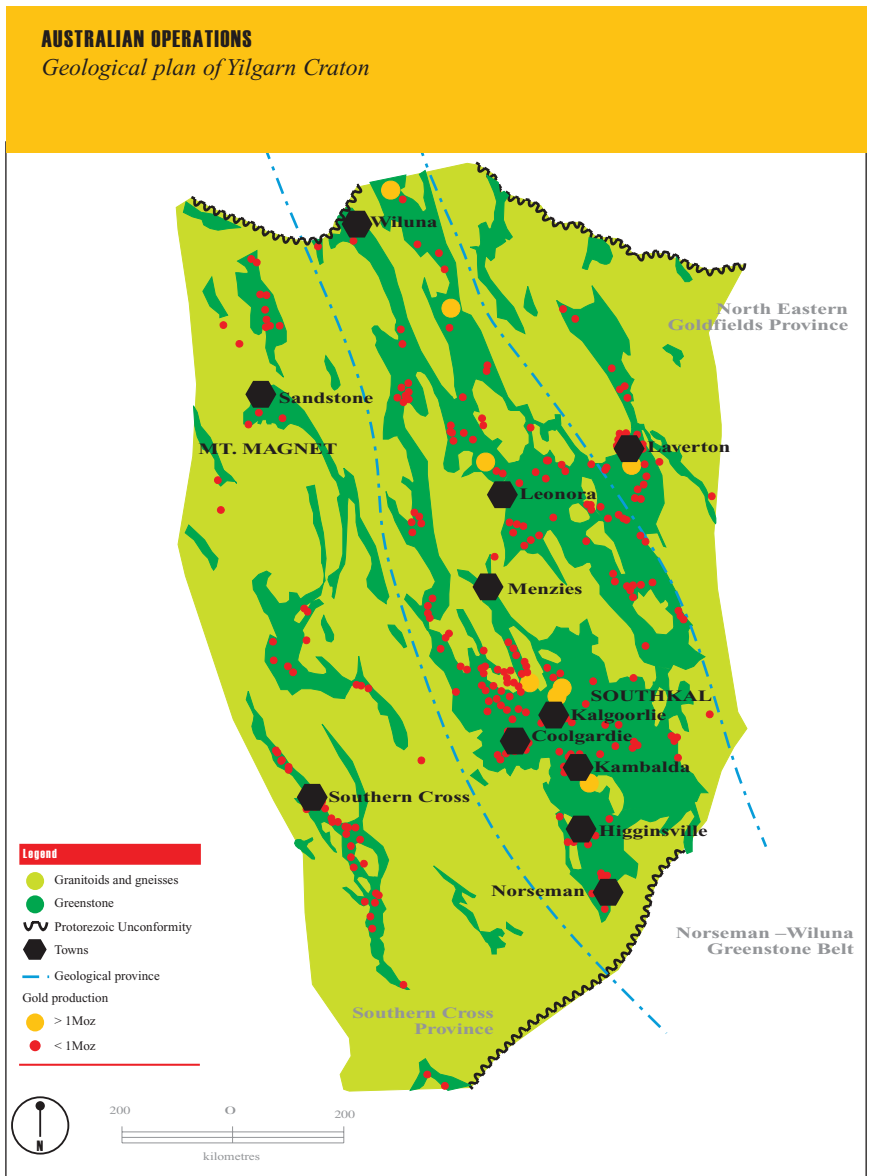
## Ore reserves

Mine	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
Kalgold	3.7	1.00	3.7	118	3.9	1.81	7.1	229	7.6	1.42	10.8	347
<b>Grand total</b>	<b>3.7</b>	<b>1.00</b>	<b>3.7</b>	<b>118</b>	<b>3.9</b>	<b>1.81</b>	<b>7.1</b>	<b>229</b>	<b>7.6</b>	<b>1.42</b>	<b>10.8</b>	<b>347</b>



## Australia

**Geology:** The Yilgarn Craton is a large Archaean terrain and comprises an early high-grade granite-gneiss metamorphic terrain (the Southwestern Province), and three granite-greenstone terrains (the North-East Goldfields, the Southern Cross and Murchison Provinces). The major gold deposits occur at Kalgoorlie, Kambalda, Mt Magnet, Boddington and Wiluna, and are hosted in greenstone belts. These form linear belts of mafic, ultramafic and felsic volcanics, intercalated with sedimentary sequences, and have been multiply deformed and metamorphosed. The mode of occurrence of the gold mineralisation on the Harmony leases tends to be small- to medium-sized structurally controlled lobes, sheers, and quartz veins.



## Mineral resources

Mine	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
South Kal Mines	2.3	1.97	4.6	148	24.9	1.75	43.5	1 398	5.9	1.76	10.3	332	33.1	1.77	58.4	1 878
Mt Magnet	2.8	2.54	7.2	232	16.5	3.46	56.9	1 830	8.8	3.05	26.9	865	28.1	3.24	91.0	2 927
<b>Grand total</b>	<b>5.2</b>	<b>2.28</b>	<b>11.8</b>	<b>380</b>	<b>41.3</b>	<b>2.43</b>	<b>100.4</b>	<b>3 228</b>	<b>14.7</b>	<b>2.54</b>	<b>37.2</b>	<b>1 197</b>	<b>61.2</b>	<b>2.44</b>	<b>149.4</b>	<b>4 805</b>

## Ore reserves

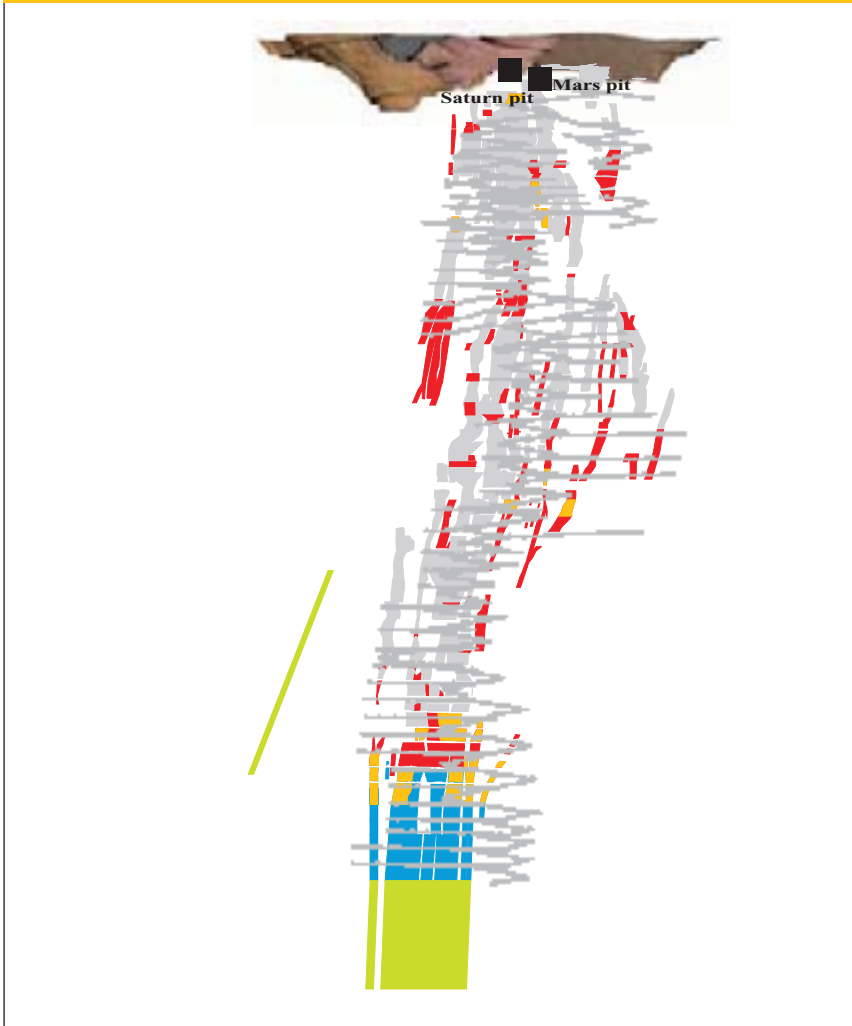
Mine	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
South Kal Mines	0.5	0.93	0.4	14	3.9	1.89	7.4	237	4.4	1.79	7.8	251
Mt Magnet	1.8	2.19	3.9	124	0.5	5.03	2.6	85	2.3	2.84	6.5	209
<b>Grand total</b>	<b>2.2</b>	<b>1.93</b>	<b>4.3</b>	<b>138</b>	<b>4.4</b>	<b>2.26</b>	<b>10.0</b>	<b>322</b>	<b>6.6</b>	<b>2.15</b>	<b>14.3</b>	<b>460</b>

**AUSTRALIAN OPERATIONS**

*Hill 50*

**Mt Magnet**

Longitudinal projection looking south-west



**Legend**

- Mining authorisation
- Shaft position
- Mineral Resources**
- Measured
- Indicated
- Inferred
- Mined out
- Ore Reserves**
- Proven and Probable

**ST GEORGE, MT MAGNET**

Longitudinal section looking south-west



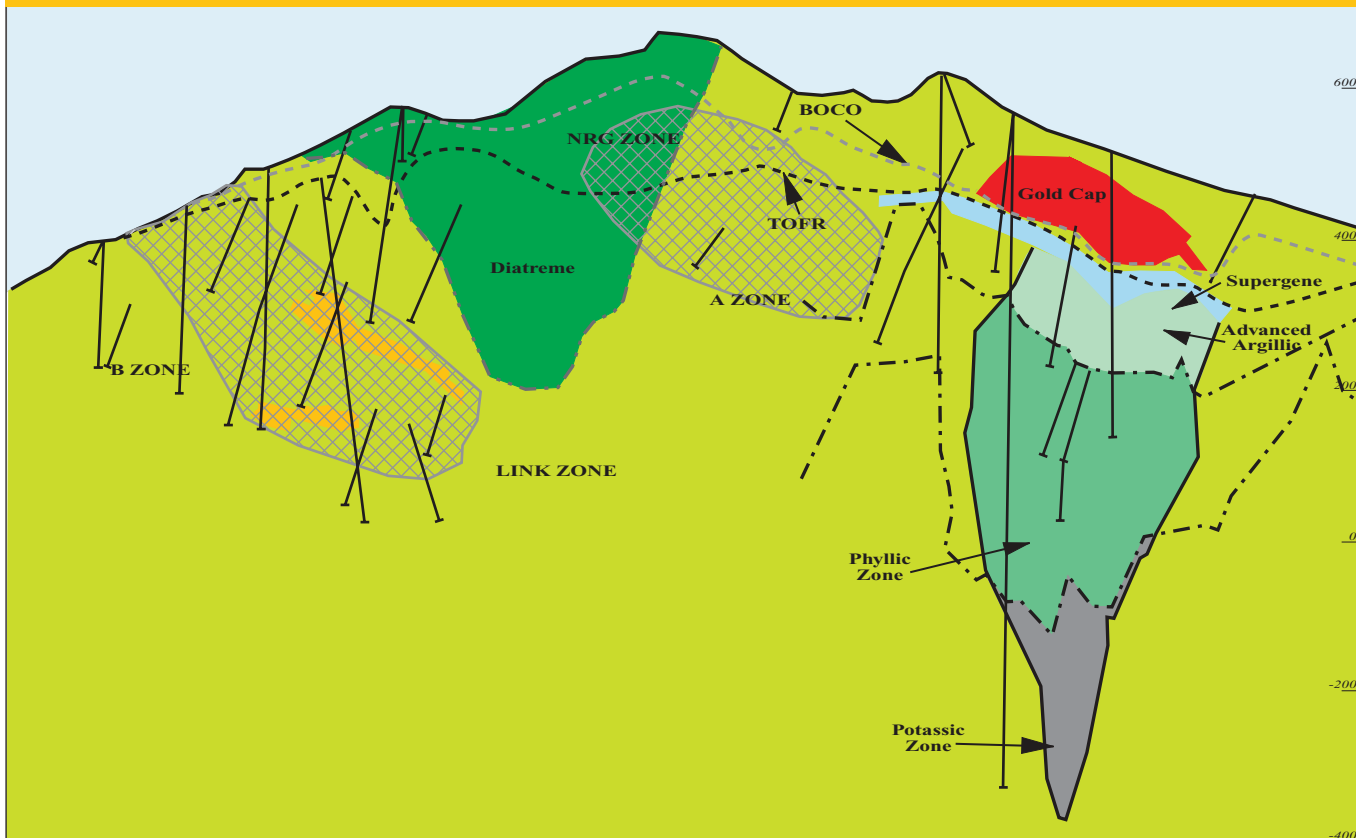
## Papua New Guinea

**Geology:** Papua New Guinea (PNG) lies on the northern end of the Australian Plate and has three major components: a continental cratonic platform, an arc of volcanic islands and a central collisional fold belt, consisting of Mesozoic sediments, ophiolite

sequences, Tertiary sediments and diorite intrusions. During collision, the Wau Graben, the host of major gold and silver deposits, was formed in the fold belt. It coincided with a phase of volcanic activity, resulting in precious and base metals deposits being formed. These include

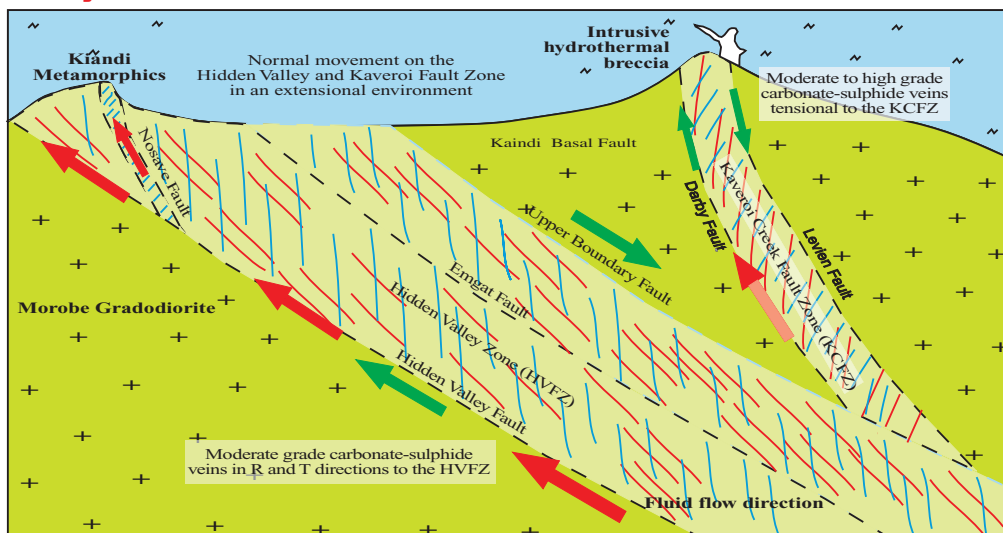
epithermal gold deposits at Hidden Valley, Hamata, Kerimenge and Wafi and porphyry-style copper deposits such as Golpu. Numerous other gold and copper-gold prospects, which are at various stages of exploration and evaluation, occur at Harmony's leases.

### WAFI/GOLPU PROJECT Oblique section looking north-west



**Schematic section showing relationships of the Mineral Resource:** Please note that the A zone and NRG zones are projected onto this section. The Zones bound the diatreme and are not hosted in it. The NRG zone fall above the Top of Fresh Rock(TOFR) in the weathered profile.

### Schematic geological section through the Hidden Valley and Kaveroi orebodies, looking north-west



**Legend**  
 — Tensional (T) Vein/Fracture  
 — Synthetic (R) Vein/Fracture

## Gold

## Gold mineral resources

Mine	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
Hidden Valley and Kaveroi	5.4	2.19	11.7	376	37.0	1.97	73.0	2 347	42.4	1.64	69.5	2 236	84.8	1.82	154.2	4 959
Hamata	0.0	0.00	0.0	0	8.1	2.33	18.8	606	1.3	2.54	3.2	103	9.4	2.36	22.0	709
Wafi	0.0	0.00	0.0	0	67.1	1.90	127.2	4 090	42.6	1.77	75.3	2 420	109.6	1.85	202.5	6 510
Golpu	0.0	0.00	0.0	0	87.6	0.63	55.2	1 774	75.5	0.49	37.0	1 189	163.1	0.57	92.2	2 963
<b>Grand total</b>	<b>5.4</b>	<b>2.19</b>	<b>11.7</b>	<b>376</b>	<b>199.8</b>	<b>1.37</b>	<b>274.2</b>	<b>8 817</b>	<b>161.7</b>	<b>1.14</b>	<b>185.0</b>	<b>5 948</b>	<b>366.8</b>	<b>1.28</b>	<b>470.9</b>	<b>15 141</b>

## Gold ore reserves

Mine	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
Hidden Valley and Kaveroi	5.1	2.18	11.1	358	33.0	1.89	62.5	2 008	38.1	1.93	73.6	2 366
Hamata	0.0	0.00	0.0	0	6.6	2.38	15.7	506	6.6	2.38	15.7	506
Golpu	0.0	0.00	0.0	0	70.8	0.61	43.2	1 389	70.8	0.61	43.2	1 389
<b>Grand total</b>	<b>5.1</b>	<b>2.18</b>	<b>11.1</b>	<b>358</b>	<b>110.4</b>	<b>1.10</b>	<b>121.4</b>	<b>3 903</b>	<b>115.5</b>	<b>1.15</b>	<b>132.5</b>	<b>4 261</b>

Gold price used = US\$520/oz

## Silver

## Silver mineral resources

Mine	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Silver (000kg)	Silver (000oz)	Tonnes (Mt)	g/t	Silver (000kg)	Silver (000oz)	Tonnes (Mt)	g/t	Silver (000kg)	Silver (000oz)	Tonnes (Mt)	g/t	Silver (000kg)	Silver (000oz)
Hidden Valley and Kaveroi	5.4	39.66	212.2	6 821	37.0	33.91	1 255.8	40 373	42.4	31.11	1 318.3	42 384	84.7	32.88	2 786.2	89 578
<b>Grand total</b>	<b>5.4</b>	<b>39.66</b>	<b>212.2</b>	<b>6 821</b>	<b>37.0</b>	<b>33.91</b>	<b>1 255.8</b>	<b>40 373</b>	<b>42.4</b>	<b>31.11</b>	<b>1 318.3</b>	<b>42 384</b>	<b>84.7</b>	<b>32.88</b>	<b>2 786.2</b>	<b>89 578</b>

## Silver ore reserves

Mine	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Silver (000kg)	Silver (000oz)	Tonnes (Mt)	g/t	Silver (000kg)	Silver (000oz)	Tonnes (Mt)	g/t	Silver (000kg)	Silver (000oz)
Hidden Valley and Kaveroi	5.1	39.63	202.1	6 498	33.0	33.23	1 096.7	35 261	38.1	34.09	1 298.9	41 759
<b>Grand total</b>	<b>5.1</b>	<b>39.63</b>	<b>202.1</b>	<b>6 498</b>	<b>33.0</b>	<b>33.23</b>	<b>1 096.7</b>	<b>35 261</b>	<b>38.1</b>	<b>34.09</b>	<b>1 298.9</b>	<b>41 759</b>

Silver price used = US\$8/oz

## Copper

### Copper mineral resources

Mine	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	%	Cu ('000 t)	Cu (M lbs)	Tonnes (Mt)	%	Cu ('000 t)	Cu (M lbs)	Tonnes (Mt)	%	Cu ('000 t)	Cu (M lbs)	Tonnes (Mt)	%	Cu ('000 t)	Cu (M lbs)
Golpu	0.0	0.0	0.0	0.0	87.6	1.39	1 217.9	2 684	75.5	0.72	543.5	1 198	163.1	1.08	1 761.4	3 882
<b>Grand total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>87.6</b>	<b>1.39</b>	<b>1 217.9</b>	<b>2 684</b>	<b>75.5</b>	<b>0.72</b>	<b>543.5</b>	<b>1 198</b>	<b>163.1</b>	<b>1.08</b>	<b>1 761.4</b>	<b>3 882</b>

### Copper ore reserves

Mine	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	%	Cu (000 t)	Cu (M lbs)	Tonnes (Mt)	%	Cu (000 t)	Cu (M lbs)	Tonnes (Mt)	%	Cu (000 t)	Cu (M lbs)
Golpu	0.0	0.00	0.0	0.0	70.8	1.13	800.0	1 763	70.8	1.13	800.0	1 763
<b>Grand total</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0.0</b>	<b>70.8</b>	<b>1.13</b>	<b>800.0</b>	<b>1 763</b>	<b>70.8</b>	<b>1.13</b>	<b>800.0</b>	<b>1 763</b>

Copper price used = US\$2.30/lb

## Molybdenum

### Molybdenum mineral resources

Mine	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	ppm	Mo ('000 t)	Mo (M lbs)	Tonnes (Mt)	ppm	Mo ('000 t)	Mo (M lbs)	Tonnes (Mt)	ppm	Mo ('000 t)	Mo (M lbs)	Tonnes (Mt)	%	Cu ('000 t)	Cu (M lbs)
Golpu	0.0	0.0	0.0	0.0	87.6	110.00	9.6	21	75.5	157.00	11.9	26	163.1	131.75	21.5	47
<b>Grand total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>87.6</b>	<b>110.00</b>	<b>9.6</b>	<b>21</b>	<b>75.5</b>	<b>157.00</b>	<b>11.9</b>	<b>26</b>	<b>163.1</b>	<b>131.75</b>	<b>21.5</b>	<b>47</b>

### Molybdenum ore reserves

Mine	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	%	Cu (000 t)	Cu (M lbs)	Tonnes (Mt)	%	Cu (000 t)	Cu (M lbs)	Tonnes (Mt)	%	Cu (000 t)	Cu (M lbs)
Golpu	0.0	0.00	0.0	0.0	70.8	121.00	8.6	19	70.8	121.00	8.6	19
<b>Grand total</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0.0</b>	<b>70.8</b>	<b>121.00</b>	<b>8.6</b>	<b>19</b>	<b>70.8</b>	<b>121.00</b>	<b>8.6</b>	<b>19</b>

Molybdenum price used = US\$20/lb

## South Africa Uranium mineral resources

Mine	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	kg/t	U <sub>3</sub> O <sub>8</sub> (000kg)	U <sub>3</sub> O <sub>8</sub> (000lb)	Tonnes (Mt)	kg/t	U <sub>3</sub> O <sub>8</sub> (000kg)	U <sub>3</sub> O <sub>8</sub> (000lb)	Tonnes (Mt)	kg/t	U <sub>3</sub> O <sub>8</sub> (000kg)	U <sub>3</sub> O <sub>8</sub> (000lb)	Tonnes (Mt)	kg/t	U <sub>3</sub> O <sub>8</sub> (000kg)	U <sub>3</sub> O <sub>8</sub> (000lb)
Randfontein	362	0.099	35 844	79 000	1	0.055	49	107					363	0.099	35 893	79 107
Free State	193	0.071	13 612	30 000	71	0.066	1 537	10 000					264	0.069	18 149	40 000
<b>Grand total</b>	<b>555</b>	<b>0.089</b>	<b>49 456</b>	<b>109 000</b>	<b>72</b>	<b>0.064</b>	<b>4 586</b>	<b>10 107</b>					<b>627</b>	<b>0.086</b>	<b>54 041</b>	<b>119 107</b>

\* Resources quoted represent total contained (dry) dump resources.

\* No economic cut-offs have been applied.

## Breakdown of mineral resources and ore reserves by quality, leveraged and growth assets

At Harmony we manage and report our South African operations as

- Quality assets
- Leveraged assets
- Growth assets

While mineral resources and ore reserves are required to be reported by tax entity

(on previous pages), for ease of reference we have provided a breakdown of our mineral resources and ore reserves according to quality, leveraged and growth assets.

- the quality assets, which typically have a larger reserve base and hence a longer life. These form the core of the group's operations;

- the leveraged assets are those that provide significant upside in the event of a rising gold price (as has been evident in the latter part of FY06); and
- the growth projects, which comprise the expansion projects/new mines currently being constructed in South Africa.

## Quality assets Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Evander 2, 3 and 5	8.6	8.20	70.8	2 278	3.8	6.79	26.1	839	31.0	8.21	254.8	8 191	43.5	8.08	351.7	11 308
Evander 7	17.6	5.07	89.5	2 877	5.5	5.61	30.8	989	20.3	8.15	165.6	5 325	43.5	6.58	285.9	9 191
Evander 8	4.6	7.49	34.8	1 119	21.2	8.39	177.7	5 714	37.6	5.76	216.5	6 962	63.4	6.77	429.1	13 795
Cooke 1	10.8	5.32	57.6	1 852	6.2	3.10	19.2	618	63.2	2.46	155.3	4 992	80.2	2.89	232.1	7 462
Cooke 2	8.6	4.42	38.1	1 225	7.3	3.15	23.1	741	80.0	1.54	123.1	3 957	96.0	1.92	184.2	5 923
Cooke 3	17.0	5.91	100.6	3 233	18.7	4.07	76.2	2 451	81.6	3.17	258.6	8 315	117.3	3.71	435.4	13 999
Target	14.6	7.75	113.1	3 638	15.4	6.95	107.0	3 440	6.4	6.32	40.7	1 308	36.4	7.16	260.8	8 386
Tshepong	8.2	11.77	96.9	3 116	22.2	11.39	252.7	8 123	29.4	5.88	172.9	5 559	59.8	8.73	522.5	16 798
Masimong5	13.0	7.00	91.2	2 933	18.9	5.41	102.3	3 289	132.5	5.27	698.2	22 447	164.5	5.42	891.7	28 669
<b>Sub total</b>	<b>103.2</b>	<b>6.71</b>	<b>692.7</b>	<b>22 271</b>	<b>119.2</b>	<b>6.84</b>	<b>815.1</b>	<b>26 204</b>	<b>482.2</b>	<b>4.33</b>	<b>2 085.7</b>	<b>67 056</b>	<b>704.6</b>	<b>5.10</b>	<b>3593.4</b>	<b>115 531</b>
<b>Projects (below infrastructure)</b>																
Evander South	0.0	0.00	0.0	0	17.7	6.11	108.3	3 481	20.6	5.24	107.6	3 460	38.3	5.64	215.9	6 941
Rolspruit	0.0	0.00	0.0	0	29.1	11.59	337.3	10 846	52.8	2.71	142.9	4 596	81.9	5.87	480.3	15 442
Poplar	0.0	0.00	0.0	0	25.6	7.6	194.0	6 237	0.0	0.00	0.0	0.00	25.6	7.58	194.0	6 237
<b>Total</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0</b>	<b>72.4</b>	<b>8.83</b>	<b>639.6</b>	<b>20 564</b>	<b>73.3</b>	<b>3.42</b>	<b>250.6</b>	<b>8 056</b>	<b>145.7</b>	<b>6.11</b>	<b>890.2</b>	<b>28 620</b>
<b>Grand total</b>	<b>103.2</b>	<b>6.71</b>	<b>692.7</b>	<b>22 271</b>	<b>191.6</b>	<b>7.59</b>	<b>1 454.7</b>	<b>46 768</b>	<b>555.5</b>	<b>4.21</b>	<b>2 336.2</b>	<b>75 112</b>	<b>850.3</b>	<b>5.27</b>	<b>4 483.6</b>	<b>144 151</b>

## Ore reserves

Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Evander 2,3 and 5	1.4	6.70	9.6	308	0.8	5.42	4.2	135	2.2	6.25	13.8	443
Evander 7	3.0	6.46	19.5	629	1.4	5.86	8.2	263	4.4	6.27	27.7	892
Evander 8	0.4	8.12	3.3	107	11.8	6.41	75.9	2 441	12.3	6.47	79.2	2 548
Cooke 1	0.3	9.29	2.6	82	0.0	4.24	0.1	4	0.3	8.85	2.7	86
Cooke 2	0.5	7.14	3.3	108	0.2	9.87	2.2	71	0.7	8.02	5.5	179
Cooke 3	2.3	8.00	18.5	594	2.4	5.06	12.1	390	4.7	6.50	30.6	984
Target	7.9	7.17	56.7	1 822	12.1	6.33	76.8	2 471	20.0	6.66	133.5	4 293
Tshepong	6.3	7.07	44.4	1 427	16.1	7.17	115.7	3 720	22.4	7.14	160.1	5 147
Masimong 5	5.1	6.00	30.9	993	4.0	5.69	22.8	732	9.1	5.86	53.6	1 725
<b>Sub total</b>	<b>27.3</b>	<b>6.93</b>	<b>188.8</b>	<b>6 070</b>	<b>48.9</b>	<b>6.50</b>	<b>318.1</b>	<b>10 227</b>	<b>76.2</b>	<b>6.65</b>	<b>506.8</b>	<b>16 297</b>
<b>Projects (below infrastructure)</b>												
Evander South	0.0	0.00	0.0	0	14.0	4.75	66.4	2 136	14.0	4.75	66.4	2 136
Rolspruit	0.0	0.00	0.0	0	24.4	8.71	212.8	6 842	24.4	8.71	212.8	6 842
Poplar	0.0	0.00	0.0	0	13.5	7.45	100.6	3 234	13.5	7.45	100.6	3 234
<b>Sub total</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0</b>	<b>51.9</b>	<b>7.31</b>	<b>379.9</b>	<b>12 212</b>	<b>51.9</b>	<b>7.31</b>	<b>379.9</b>	<b>12 212</b>
<b>Grand total</b>	<b>27.3</b>	<b>6.93</b>	<b>188.8</b>	<b>6 070</b>	<b>100.9</b>	<b>6.92</b>	<b>697.9</b>	<b>22 439</b>	<b>128.1</b>	<b>6.92</b>	<b>886.7</b>	<b>28 509</b>

## Leveraged assets

## Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Harmony 2	6.2	3.99	24.8	796	5.5	2.70	14.8	477	100.8	3.44	347.0	11 156	112.5	3.44	386.6	12 429
Merriespruit 1	13.9	3.95	54.7	1 760	11.8	3.62	42.6	1 369	22.8	3.72	84.7	2 725	48.4	3.76	182.1	5 854
Merriespruit 3	14.5	3.61	52.4	1 683	11.8	3.68	43.4	1 396	27.2	3.77	102.5	3 294	53.5	3.71	198.2	6 373
Unisel	9.7	4.18	40.6	1 305	17.5	3.71	65.0	2 090	48.2	4.09	197.4	6 348	75.4	4.02	303.0	9 743
Brand 3	2.3	4.72	10.7	343	0.8	4.39	3.7	119	0.6	4.11	2.5	81	3.7	4.54	16.9	543
Bambanani	14.5	10.12	146.4	4 705	7.5	8.25	61.8	1 987	15.1	5.08	76.8	2 470	37.1	7.68	285.0	9 162
St Helena 8 Shaft	4.5	5.60	24.9	801	1.5	4.47	6.6	212	3.6	4.34	15.8	507	9.6	4.94	47.3	1 520
Joel	5.1	5.35	27.2	874	4.6	6.02	27.5	885	13.4	6.44	86.3	2 774	23.1	6.12	141.0	4 533
Kalgold	7.1	1.53	10.8	347	27.5	1.73	47.5	1 527	0.1	1.52	0.1	4	34.6	1.69	58.4	1 878
<b>Total underground</b>	<b>77.6</b>	<b>5.06</b>	<b>392.4</b>	<b>12 614</b>	<b>88.4</b>	<b>3.54</b>	<b>313.0</b>	<b>10 062</b>	<b>231.9</b>	<b>3.94</b>	<b>913.1</b>	<b>29 359</b>	<b>397.9</b>	<b>4.07</b>	<b>1618.5</b>	<b>52 035</b>

## Ore reserves

Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Harmony 2	0.7	4.70	3.4	110	0.2	3.48	0.6	20	0.9	4.46	4.1	130
Merriespruit 1	0.8	4.66	3.8	122	0.6	4.42	2.8	91	1.5	4.55	6.6	213
Merriespruit 3	0.3	4.48	1.4	45	0.7	4.76	3.2	102	1.0	4.67	4.6	147
Unisel	1.8	5.32	9.4	303	2.1	5.22	11.2	361	3.9	5.27	20.7	664
Brand 3	0.5	4.45	2.2	70	0.1	4.29	0.4	14	0.6	4.43	2.6	84
Bambanani	6.1	7.01	42.7	1 373	2.3	8.39	19.7	632	8.4	7.39	62.4	2 005
St Helena 8	0.6	4.31	2.5	81	0.4	4.09	1.5	47	0.9	4.23	4.0	128
Joel	0.8	4.80	3.6	116	3.0	5.23	15.5	498	3.7	5.14	19.1	614
Kalgold	3.7	1.00	3.7	118	3.9	1.81	7.1	229	7.6	1.42	10.8	347
<b>Total underground</b>	<b>15.2</b>	<b>4.78</b>	<b>72.7</b>	<b>2 338</b>	<b>13.3</b>	<b>4.65</b>	<b>62.0</b>	<b>1 994</b>	<b>28.5</b>	<b>4.72</b>	<b>134.7</b>	<b>4 332</b>

## Growth assets

## Mineral resources

Shaft	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>																
Doornkop	0.3	7.38	2.0	63	1.7	9.81	16.9	545	63.9	5.22	333.8	10 731	65.9	5.35	352.7	11 339
Elandsrand	17.4	9.24	161.0	5 176	31.8	9.54	302.9	9 738	1.3	10.44	13.7	439	50.5	9.46	477.5	15 353
Phakisa	0.1	11.44	1.0	31	24.1	11.63	280.7	9 023	30.3	7.46	226.1	7 269	54.5	9.31	507.7	16 323
<b>Total underground</b>	<b>17.8</b>	<b>9.22</b>	<b>163.9</b>	<b>5 270</b>	<b>57.6</b>	<b>10.42</b>	<b>600.5</b>	<b>19 306</b>	<b>95.6</b>	<b>6.00</b>	<b>573.5</b>	<b>18 439</b>	<b>171.0</b>	<b>7.83</b>	<b>1337.9</b>	<b>43 015</b>

## Ore reserves

Shaft	PROVEN				PROBABLE				TOTAL			
	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	g/t	Gold (000kg)	Gold (000oz)
<b>Underground</b>												
Doornkop	0.1	6.89	0.5	17	1.5	7.13	10.4	333	1.5	7.11	10.9	350
South Reef	6.4	7.62	48.8	1 570	25.3	8.25	208.6	6 707	31.7	8.12	257.5	8 277
Elandsrand	0.1	7.75	0.7	21	19.9	8.42	167.3	5 380	20.0	8.41	168.0	5 401
<b>Total underground</b>	<b>6.6</b>	<b>7.61</b>	<b>50.0</b>	<b>1 608</b>	<b>46.6</b>	<b>8.28</b>	<b>386.3</b>	<b>12 420</b>	<b>53.2</b>	<b>8.20</b>	<b>436.3</b>	<b>14 028</b>



## Ore Reserves Statement (Imperial)

Operations	PROVEN			PROBABLE			TOTAL		
	Tonnes (million)	Grade (oz/ton)	Gold <sup>1</sup> (Moz)	Tonnes (million)	Grade (oz/ton)	Gold <sup>1</sup> (Moz)	Tonnes (million)	Grade (oz/ton)	Gold <sup>1</sup> (Moz)
<b>South Africa Underground</b>									
Elandskraal	7.1	0.222	1.57	27.9	0.240	6.71	35.0	0.237	8.28
Free State	10.2	0.161	1.64	8.5	0.155	1.32	18.8	0.158	2.96
Randfontein	3.5	0.232	0.80	4.7	0.173	0.82	8.2	0.198	1.62
Evander	5.4	0.195	1.04	15.5	0.184	2.84	20.8	0.187	3.88
Evander (below infrastructure)				57.2	0.213	12.21	57.2	0.213	12.21
Target	8.7	0.209	1.82	13.4	0.185	2.47	22.1	0.194	4.29
Free Gold	15.2	0.198	3.02	45.9	0.224	10.28	61.1	0.217	13.30
<b>Total S.A. Underground</b>	<b>50.0</b>	<b>0.198</b>	<b>9.90</b>	<b>173.2</b>	<b>0.213</b>	<b>36.64</b>	<b>223.2</b>	<b>0.209</b>	<b>46.54</b>
<b>South Africa surface</b>									
Randfontein	4.1	0.020	0.08	0.1	0.054	0.00	4.2	0.021	0.09
Kalgold	4.0	0.029	0.12	4.3	0.053	0.23	8.4	0.041	0.35
Free Gold	212.1	0.008	1.76	12.6	0.017	0.22	224.7	0.009	1.97
<b>Total S.A. Surface</b>	<b>220.2</b>	<b>0.009</b>	<b>1.96</b>	<b>17.0</b>	<b>0.026</b>	<b>0.45</b>	<b>237.2</b>	<b>0.010</b>	<b>2.41</b>
<b>Australian operations<sup>2</sup></b>									
Mt. Magnet	1.9	0.064	0.12	0.6	0.147	0.09	2.5	0.083	0.21
South Kalgoorlie	0.5	0.028	0.01	4.3	0.055	0.24	4.8	0.052	0.25
<b>Total Australian Operations</b>	<b>2.4</b>	<b>0.056</b>	<b>0.14</b>	<b>4.9</b>	<b>0.066</b>	<b>0.32</b>	<b>7.3</b>	<b>0.063</b>	<b>0.46</b>
<b>Papua New Guinea<sup>3</sup></b>									
Hidden Valley	5.6	0.064	0.36	36.4	0.055	2.01	42.0	0.056	2.37
Kaveroi and Hamata				7.3	0.070	0.51	7.2	0.070	0.51
Golpu				78.1	0.018	1.39	78.5	0.018	1.39
<b>Total Papua New Guinea</b>	<b>5.6</b>	<b>0.064</b>	<b>0.36</b>	<b>121.7</b>	<b>0.032</b>	<b>3.90</b>	<b>127.3</b>	<b>0.033</b>	<b>4.26</b>
<b>Grand total</b>	<b>278.3</b>	<b>0.044</b>	<b>12.35</b>	<b>316.7</b>	<b>0.130</b>	<b>41.31</b>	<b>595.1</b>	<b>0.090</b>	<b>53.67</b>

<sup>1</sup> Gold oz figures are fully inclusive of all mining dilutions and gold losses, and are reported as mill delivered tonnes and head grades. Metallurgical recovery factors have not been applied to the reserve figures.

<sup>2</sup> Includes reserves from underground and surface mining at each of the Australian operations.

<sup>3</sup> Includes reserves from underground and surface mining at the operations.

## Ore Reserves Statement (Metric)

Operations	PROVEN			PROBABLE			TOTAL		
	Tonnes (million)	Grade (g/t)	Gold <sup>1</sup> (000kg)	Tonnes (million)	Grade (g/t)	Gold <sup>1</sup> (000kg)	Tonnes (million)	Grade (g/t)	Gold <sup>1</sup> (000kg)
<b>South Africa Underground</b>									
Elandskraal	6.4	7.61	49	25.3	8.25	209	31.7	8.12	257
Free State	9.3	5.51	51	7.7	5.31	41	17.0	5.42	92
Randfontein	3.1	7.94	25	4.3	5.93	25	7.4	6.78	50
Evander	4.9	6.67	32	14.0	6.30	88	18.9	6.40	121
Evander (below infrastructure)				51.9	7.31	380	51.9	7.31	380
Target	7.9	7.17	57	12.1	6.33	77	20.0	6.66	134
Free Gold	13.8	6.81	94	41.7	7.67	320	55.5	7.46	414
<b>Total S.A. Underground</b>	<b>45.4</b>	<b>6.78</b>	<b>308</b>	<b>157.1</b>	<b>7.26</b>	<b>1 140</b>	<b>202.5</b>	<b>7.15</b>	<b>1 448</b>
<b>South Africa surface</b>									
Randfontein	3.7	0.69	3	0.1	1.87	0	3.8	0.71	3
Kalgold	3.7	1.00	4	3.9	1.82	7	7.6	1.42	11
Free Gold	192.4	0.28	55	11.4	0.59	7	203.8	0.30	61
<b>Total S.A. Surface</b>	<b>199.8</b>	<b>0.30</b>	<b>61</b>	<b>15.4</b>	<b>0.90</b>	<b>14</b>	<b>215.2</b>	<b>0.35</b>	<b>75</b>
<b>Australian operations<sup>2</sup></b>									
Mt. Magnet	1.8	2.19	4	0.5	5.03	3	2.3	2.84	7
South Kalgoorlie	0.5	0.96	0	3.9	1.89	7	4.4	1.79	8
<b>Total Australian Operations</b>	<b>2.2</b>	<b>1.94</b>	<b>4</b>	<b>4.4</b>	<b>2.26</b>	<b>10</b>	<b>6.6</b>	<b>2.15</b>	<b>14</b>
<b>Papua New Guinea<sup>3</sup></b>									
Hidden Valley	5.1	2.18	11	33.0	1.89	62	38.1	1.93	74
Kaveroi and Hamata				6.6	2.38	16	6.6	2.38	16
Golpu				70.8	0.61	43	70.8	0.61	43
<b>Total Papua New Guinea</b>	<b>5.1</b>	<b>2.18</b>	<b>11</b>	<b>110.4</b>	<b>1.10</b>	<b>121</b>	<b>115.5</b>	<b>1.15</b>	<b>133</b>
<b>Grand total</b>	<b>252.5</b>		<b>384</b>	<b>287.3</b>		<b>1 285</b>	<b>539.8</b>		<b>1 669</b>

<sup>1</sup> Gold kilogram figures are fully inclusive of all mining dilutions and gold losses, and are reported as mill delivered tonnes and head grades. Metallurgical recovery factors have not been applied to the reserve figures.

<sup>2</sup> Includes reserves from underground and surface mining at each of the Australian operations.

<sup>3</sup> Includes reserves from underground and surface mining at the operations.

## Glossary of geological terms

**Below infrastructure:** That part of a company's ore reserve that can only be accessed following certain capital expenditure which has yet to be approved.

**Craton:** A part of the earth's crust that has attained stability and has been little deformed for a long period of geological time.

**Diorite:** A group of plutonic rocks intermediate in composition between acidic and basic.

**Felsic:** An igneous rock having abundant light coloured minerals.

**Graben:** A block of rock that lies between two faults, and has moved downward to

form a depression between two adjacent fault blocks.

**Greenstone:** A field term for any compact dark green altered or metamorphosed basic igneous rock that owes its colour to chlorite.

**Horst:** A block of rock that lies between two faults and has moved upward relative to the two adjacent fault blocks.

**Kaapvaal Craton:** The ancient proto-continental basement of South Africa.

**Lacustrine:** Pertaining to sediments formed in lakes.

**Mafic:** An igneous rock composed chiefly of dark, ferromagnesium minerals.

**Ophiolite:** A group of mafic and ultramafic igneous rocks derived by metamorphism, whose origin is associated with an early phase of the development of a geosyncline.

**Plunge:** The inclination of a fold axis or other linear feature, measured in the vertical plane.

**Sub-outcrop:** A rock stratum that unconformably underlies another rock stratum.

**Syncline:** Concave fold in stratified rock, in which strata dip down to meet in a trough.

**Witwatersrand Basin:** A sedimentary basin in South Africa.

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