HARMONY GOLD MINING CO LTD
Form 6-K
May 16, 2005
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO

RULE 13a-16 OR 15d-16 UNDER THE SECURITIES

EXCHANGE ACT OF 1934

For the Month of May 2005

Commission File Number: 001-31545

Harmony Gold Mining Company Limited

(Translation of registrant s name into English)

Suite No. 1

Private Bag X1

Melrose Arch, 2076

South Africa

(Address of principal executive offices)

(Indicate by check mark whether the registrant files or will file annual reports under cover of

Form 20-F or Form 40-F.)

Form 20-F x   Form 40-F ¨

(Indicate by check mark whether the registrant by

furnishing the information contained in this form

is also thereby furnishing the information to the

Commission pursuant to Rule 12g3-2(b) under the

Securities Exchange Act of 1934.)

Yes ¨   No x

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Proposed Merger with

GOLD FIELDS LIMITED

AN INDEPENDENT

COMPETENT PERSONS REPORT

ON THE MINING ASSETS OF

HARMONY GOLD MINING COMPANY LIMITED

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CORPORATE INFORMATION

Joint financial advisor and investment bank

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E14 5HQ

United Kingdom

South African attorneys

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South Africa

South African transfer secretaries

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(PO Box 4844, Johannesburg, 2000)

South Africa

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The Registry

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Company secretary and registered office

Marian van der Walt

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Joint financial advisor and investment bank

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Illovo, 2196

(PO Box 55291, Northlands, 2116)

South Africa

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AN INDEPENDENT

COMPETENT PERSONS REPORT

ON THE MINING ASSETS OF

HARMONY GOLD MINING COMPANY LIMITED

Prepared for:

Harmony Gold Mining Company Limited

Prepared by:

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Dear Goldfields Shareholder,

In accordance with an undertaking set out in the offer document to Gold Fields Limited (Gold Fields) shareholders dated 20 October 2004, Harmony Gold Mining Company Limited (Harmony) is pleased to enclose a Competent Person s Report (CPR) prepared by the independent mining consulting company, Steffen Robertson and Kirsten (South Africa) (Proprietary) Limited (SRK).

The CPR summarises SRK s independent view of Harmony s operating units under a broad range of macro and micro economic scenarios. Harmony s operations are currently spread over all of the gold fields of the Witwatersrand in South Africa and extend to other jurisdictions in South Africa, Australia and Papua New Guinea. In addition, and in compliance with the Listings Requirements of the JSE Securities Exchange South Africa, the CPR includes SRK s independent estimate of Harmony s Mineral Resources and Reserves and an estimate of Harmony s equity value as at 1 January 2005, predominantly based on the Net Present Asset Value method.

The CPR has been intentionally designed to provide a range of equity values for Harmony s assets under various possible future macro-economic and commodity price scenarios, as independently calculated by SRK, to allow the reader to assess the impact that such varying scenarios may have on Harmony s operations.

The CPR does not incorporate Harmony s opinion on the likelihood, or otherwise, of occurrence of any of the future macro-economic or commodity price scenarios, nor does Harmony necessarily endorse the Net Present Asset Value method as the most appropriate way of valuing Harmony s gold assets.

Yours sincerely,

Bernard Swanepoel

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AN INDEPENDENT COMPETENT PERSONS REPORT ON THE MINING ASSETS OF

HARMONY GOLD MINING COMPANY LIMITED

EXECUTIVE SUMMARY

1.0ES INTRODUCTION

1.1ES Background

Steffen, Robertson and Kirsten (South Africa) (Pty) Limited (SRK) is a subsidiary of the international group holding company, SRK Global Limited (the SRK Group). SRK has been commissioned by the directors of Harmony Gold Mining Company Limited (Harmony also referred to as the Company) to prepare an independent competent person s report (CPR) on certain mining assets (the Mining Assets) of the Company.

On 18 October 2004, the Company announced a proposal to merge with Gold Fields. The proposal comprised an offer (the Offer) of 1.275 new Harmony shares for each Gold Fields share and 1.275 new Harmony American Depositary Shares (ADS) for each Gold Fields ADS. The conditions precedent stated in the offer document include, inter alia, fulfilling certain obligations in respect of compliance with various sections of the listing requirements of the JSE (the Listing Requirements) and the Securities Regulation Code on Takeovers and Mergers and the Rules of the SRP issued in terms of the Corporation Act (the SRP Code).

SRK has been informed that a copy of this CPR will be filed with the JSE and the SRP (hereinafter referred to as the Regulatory Authorities) and distributed to Harmony and Gold Fields shareholders.

The effective date (the Effective Date) of this CPR is deemed to be 1 January 2005, and is co-incident with the Valuation Date and cashflow projections as incorporated herein. The valuation of the Mining Assets is dependent upon the following:

- Technical information as generated by the Company in accordance with its annual planning process defined as the Base Information Date (BID), which in the case of the Company is 1 July 2004; and

- Appropriate adjustments made by SRK to technical information which inter alia includes depletion, historical performance and any additional material information provided by the Company from the BID to the Effective Date.

The key aspects of the CPR comprise SRK s opinion on the Mineral Resource and Mineral Reserve statements of the Company and the resulting Equity Value of the Company. Notwithstanding this statement, SRK notes that the Equity Value as presented is done so in accordance with the Listing Requirements and is not intended to constitute an opinion or recommendation as would normally be expected in terms of a fair and reasonable statement.

In respect of all matters relation to Limitations, Reliance on Information, Declarations, Consent and Copyright, the reader is referred to Section 1.6 of this CPR.

In accordance with Section 12.3(d) of the Listing Requirements this document has undergone regulatory review for assessment and comment by representatives of the JSE comprising an independent technical readers panel. This document has been found to be materially compliant with the Listing Requirements and the SAMREC Code and consequently has been approved for publication by the JSE.

1.2ES The Mining Assets

The Mining Assets reviewed by SRK are represented within the following companies:

- A 100% interest in ARMGold/Harmony Freegold Joint Venture Company (Proprietary) Limited (Freegold);
- A 100% interest in Randfontein Estates Limited (Randfontein);
- A 100% interest in Avgold Limited (Avgold);
- A 100% interest in Harmony Free State Operations (Harmony Free State);
- A 100% interest in Evander Gold Mining Company Limited (Evander);
- A 100% interest in African Rainbow Minerals Gold Limited (ARMgold);
- A 100% in Kalahari Goldridge Mining Company Limited (Kalgold);
- A 100% interest in Harmony Gold (Australia) Pty Limited (Harmony Australia); and
- A 100% interest in Abelle Limited (Abelle).

The Mining Assets incorporated within the above companies have been valued by SRK and incorporated into the Equity Value derived for the Company.

The Company holds various interests in listed entities (the Listed Entities) and joint ventures (the Joint Ventures) for which it has no legal right to disclose information to third parties or its advisors. Consequently the Company has secured dispensation from the JSE Securities Exchange South Africa (the JSE) and the Securities Regulation Panel (the SRP) in respect of such interests. The interests in listed entities and joint ventures comprise:

- A 19.00% interest in African Rainbow Minerals Limited (ARM) held via a 100% interest in Clidet 454 (Proprietary) Limited (Clidet);

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A 11.64% interest in Bendigo Mining NL (Bendigo);

A 50.00% interest in the Burnside Joint Venture (Burnside JV);

A 11.50% interest in Gold Fields;

A 18.40% interest in Gold City Industries Limited (Gold City); and

A 13.00% interest in San Gold Resources Corporation (San Gold).

The Listed Entities and JointVentures have not been valued by SRK, but have been incorporated into the Equity Value for the Company based on the market capitalisations of the companies as at 1 January 2005.

For reporting purposes, technical descriptions of the Mining Assets have been grouped into operations that broadly reflect the management structures and/or common geographical entities. All entries, including text, tables and other data, are quoted assuming 100% ownership and not on an attributable basis.

The South African Mining Assets are substantially similar and represent the larger contribution to the Mining Assets. This CPR has been structured on a discipline basis (e.g. Geology, Mineral Resources and Mineral Reserves, Mining, Metallurgical Processing, Tailings Storage Facilities, Infrastructure, Human Resources, Occupational Health and Safety, Environmental and Financial Valuation) where Mining Assets are grouped into the following operations:

Freegold Operations;
West Wits Operations;
Target Operations;
Harmony Free State Operations;
Evander Operations;
Orkney Operations;
Welkom Operations;
Kalgold Operations;
Australian Operations;
Papua New Guinea Operations; and
Exploration Properties.

For reporting purposes the valuation of the Mining Assets has been grouped in accordance with the following Tax Entities, hereinafter referred to as (the Tax Entities). All entries (including text, tables and other data) are quoted assuming 100% ownership and not on an attributable basis.

1.3ES Valuation Basis and Methodology

The valuation methodology for arriving at the Equity Value of the Company is based on the sum of the parts approach comprising the following:

- The Enterprise Value defined as the sum of the NPVs of the Tax Entities;
- The value of Mineral Rights, Exploration Properties and non-LoM Mineral Resources;
- The value of interests in listed entities; and
- Valuation adjustments.

The sum of the Enterprise Values and the value of Mineral rights, Exploration Properties and non-LoM Mineral Resources is defined as the Net Asset Value (NAV) of the Mining Assets. The sum of the NAV of the Mining Assets, the value ascribed to interests in listed entities and the valuation adjustments is defined as the Equity Value of the Company.

The Enterprise Values are based on the application of Discounted Cash Flow (DCF) techniques to the post-tax pre-finance cashflows represented by the Financial Models (FMs) as developed for each Tax Entity. The FMs are based on the various LoM plans and have been established for all valuation Scenarios and operating options as stated in Table 1.1ES below).

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Table 1.1ES Operating Options and Valuation Scenarios

Valuation Scenarios	Operating Options: Option A	Option B	Option C
Scenario 1	LoM @ CMF	Option A (excluding Projects) @ CMF	Option B (excluding Tax Entities with negative NPV) @ CMF
Scenario 2	LoM @ CMF (excluding South African Royalty)	Option A (excluding Projects) @ CMF (excluding South African Royalty)	Option B (excluding Tax Entities with negative NPV) @ CMF (excluding South African Royalty)
Scenario 3	LoM @ SMF	Option A (excluding Projects) @ SMF	Option B (excluding Tax Entities with negative NPV) @ SMF
Scenario 4	LoM @ CMF (excluding Inferred)	Option A (excluding Projects) @ CMF (excluding Inferred)	Option B (excluding Tax Entities with negative NPV) @ CMF (excluding Inferred)
Scenario 5	LoM @ SMF (excluding Inferred)	Option A (excluding Projects) @ SMF (excluding Inferred)	Option B (excluding Tax Entities with negative NPV) @ SMF (excluding Inferred)

1. CMF consensus market forecast.
2. SMF sport market forecast (1 January 2005 purchase price parity for US$:ZAR exchange rates).
3. Excluding Projects excluding the Evander Rolspruit and the Evander Poplar Project.

The post-tax pre-finance cash flows for each Tax Entity have been developed using the commodity price and macro-economic projections as presented in Table 1.2ES. In each instance the FMs are based on annual cashflow projections ending 30 June and TEPs stated in 1 January 2005 money terms. As the Effective Date is 1 January 2005, the cashflow projection for Year 1 comprises projections for 6 months only.

Table 1.2ES Base-case commodity price and macro-economic projections[(1), (2)]

Parameter	Units	2005	2006	2007	2008	2009	2010
Commodity Prices							
Gold	(US$/oz)	428	441	460	462	473	484
	(ZAR/kg)	83,550	95,287	106,799	109,947	115,483	121,298
	(A$/oz)	548	566	592	595	611	627
Silver	(US$/oz)	6.07	6.22	6.37	6.52	6.68	6.84
	(ZAR/kg)	1,185	1,343	1,478	1,552	1,630	1,712
	(A$/oz)	7.78	7.98	8.19	8.40	8.62	8.85

Macro Economics							
US CPI		1.10%	2.50%	2.40%	2.40%	2.40%	2.40%
RSA CPI		2.10%	5.09%	5.04%	5.04%	5.04%	5.04%
AUS CPI		1.30%	2.60%	2.60%	2.60%	2.60%	2.60%
Exchange Rates	(US$:ZAR)	6.08	6.72	7.22	7.41	7.60	7.79
	(US$:A$)	1.28	1.28	1.29	1.29	1.29	1.29

(1) All commodity prices and exchange rates are quoted at the closing period of 30 June.

(2) CPI rates for 2005 are reported for 6 months only.

2.0ES MINERAL RESOURCES AND MINERAL RESERVES

The Mineral Resource and Mineral Reserve statement as included in this CPR for operating Option A includes total Mineral Resources of 255.6Moz Au contained within a tonnage of 1,865Mt grading 4.3g/t and total Mineral Reserves of 52.2Moz of gold contained within a tonnage of 288Mt grading 5.6g/t. Should a decision not to proceed with the Evander Poplar Project and the Evander Rolspruit Project be made then the Mineral Reserve statement would most likely reflect that associated with operating Option B . Operating Option B includes total Mineral Reserves of 42.3Moz of gold contained within a tonnage of 247Mt grading 5.3g/t.

Certain of the Mining Assets, notably those represented by the Evander Tax Entity and the Harmony Free State Tax Entity, reflect negative NPVs under the various scenarios considered in this CPR. SRK notes that these negative NPVs are a result of the assumptions contained in this CPR, which include adjustments to the operating forecasts initially proposed by the Company (specifically production rates, modifying factors and operating costs). In such instances the reader is referred to the various sensitivity tables which indicate the net change in two of the key parameters (sales revenue and total working costs) which would be required to render positive NPVs. SRK recognises the opportunity at these Tax Entities, through a combination of re-planning and re-structuring, to produce at

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higher RoM grades. This will however most likely result in a reduction in Mineral Reserves, the hypothetical worst case of which is reflected in operating Option C . Operating Option C includes total Mineral Reserves of 33.7Moz of gold contained within a tonnage of 195Mt grading 5.4g/t.

In assessing the potential beyond operating Option A , the reader is referred to the various Mineral Reserve sensitivities as reflected in Section 4.0 of this CPR. These sensitivity tables however are based on grade tonnage curves, with a view to present the indicative potential of the various mining operations, and not on re-scheduled mine plans.

SRK has stated in Section 4.9 of this CPR that the process of arriving at Mineral Reserve statements currently adopted by the Company has deficiencies. SRK notes the Company s stated intention to redress the identified deficiencies by undertaking improvements as stipulated in Section 4.9.3 of this CPR.

Tables 2.1ES to Table 2.6ES below are reproduced from Section 4.0 of this CPR and reflect the analysis relating to Operating Option A . In considering the following tables the reader is referred to the various sensitivity tables in Section 14.0 of this CPR, specifically when noting the impact of the certain of the Mining Assets which reflect negative NPVs at the CMF.

Table 2.1ES Harmony: Mineral Resource and Mineral Reserve Statement[(1), (2)] Operating Option A

Mineral Reserve Category	Tonnage (kt)	Grade (g/t)	Gold (koz)	Mineral Resource Category	Tonnage (kt)	Grade (g/t)	Gold (koz)
Proved				**Measured**			
u/g(1)	63,454	6.6	13,475	u/g(1)	78,537	9.7	24,535
	0	0.0	0	u/g(2)	31,842	10.2	10,432
s/f(1)	4,702	0.7	113	s/f(1)	6,993	0.8	170
	0	0.0	0	s/f(2)	13,533	0.4	166
o/p(1)	6,167	2.6	517	o/p(1)	16,518	2.4	1,271
	0	0.0	0	o/p(2)	12,154	1.2	466
Sub-total	**74,323**	**5.9**	**14,106**	**Sub-total**	**159,577**	**7.2**	**37,041**
Probable				**Indicated**			
u/g(1)	163,257	6.8	35,617	u/g(1)	187,850	10.0	60,448
	0	0.0	0	u/g(2)	92,190	7.6	22,552
s/f(1)	30,428	0.5	536	s/f(1)	50,678	0.5	868
	0	0.0	0	s/f(2)	411,074	0.4	4,868
o/p(1)	20,328	2.9	1,927	o/p(1)	50,773	2.3	3,795
	0	0.0	0	o/p(2)	161,939	1.5	7,872
Sub-total	**214,013**	**5.5**	**38,081**	**Sub-total**	**954,505**	**3.3**	**100,403**
Total Reserves	**288,336**	**5.6**	**52,186**	**Total**	**1,114,082**	**3.8**	**137,443**
Inferred in LoM			Inferred				

u/g[1]	43,479	5.7	7,963	u/g[1]	138,957	7.6	34,003
	0	0.0	0	u/g[2]	326,269	7.2	75,934
s/f[1]	0	0.0	0	s/f[1]	176	0.7	4
	0	0.0	0	s/f[2]	163,439	0.3	1,747
o/p[1]	4,019	2.6	334	o/p[1]	46,823	1.5	2,185
	0	0.0	0	o/p[2]	74,820	1.8	4,315
Sub-total	47,498	5.4	8,297	Sub-total	750,485	4.9	118,187
Total in LoM	335,834	5.6	60,483	Total	1,864,566	4.3	255,631

(1) Mineral Resources classified by the suffix [1] in the following tables represent those Mineral Resources which have been used as a base for modification to produce Mineral Reserves and those Inferred Mineral Resources which have been modified to produce material included for depletion in the respective LoM plans. The Mineral Resources not modified to produce Mineral Reserves as defined by the suffix [2], generally include reef horizons not currently planned to be extracted in the current LoM plans, and pillars and other resource blocks for which insufficient technical work has been completed to allow conversion to Mineral Reserves.

(2) A portion of the material stated as Inferred in LoM plan comprises a minor amount of Measured and Indicated Mineral Resources reported at RoM delivered tonnages and grades associated with the Australian Operations.

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Table 2.2ES Harmony: Mineral Resource, Mineral Reserve and LoM plan Sensitivities[(1)] Operating Option A

Gold Price	(US$/oz) EXR (ZAR/kg)	250 7.15 57,500 63%	300 7.15 69,000 75%	350 7.15 80,500 88%	375 7.15 86,250 94%	400 7.15 92,000 100%	425 7.15 97,750 106%	450 7.15 103,500 113%	500 7.15 115,000 125%
Mineral Resources (M+Ind+Inf)									
Tonnage	(kt)	885,394	1,068,717	1,220,479	1,608,030	1,864,566	2,065,430	2,337,801	2,648,304
Grade	(g/t)	5.2	5.4	5.6	4.6	4.3	4.1	3.7	3.5
Metal	(koz)	147,020	186,143	217,966	240,154	255,631	269,987	279,363	296,875
Mineral Reserves									
Tonnage	(kt)	167,243	218,014	253,420	267,611	288,336	300,898	312,376	333,657
Grade	(g/t)	6.6	6.0	5.9	5.8	5.6	5.6	5.5	5.3
Metal	(koz)	35,318	42,225	47,748	49,535	52,186	53,698	54,907	57,050
LoM Plan									
Tonnage	(kt)	177,335	249,649	294,672	312,019	335,834	371,631	384,634	414,760
Grade	(g/t)	6.5	6.0	5.8	5.7	5.6	5.4	5.4	5.2
Metal	(koz)	37,021	48,282	55,272	57,494	60,483	64,808	66,176	69,126

(1) The sensitivities as presented include the base case statements for Kalgold Operations, Australian Operations and Papua New Guinea Operations for which no sensitivities were available.

Table 2.3ES Harmony: LoM Plan and Mineral Reserve assessment (Production Unit Level) [(1), (2)]

Mining Asset	LoM Plan[(1)] (koz)	Other Sources (koz)	LoM Plan[(2)] (koz)	Inferred in LoM (koz)	Mineral Reserves (koz)	NPV[(1)] (koz)	NPV[(2)] (koz)
Freegold Operations	14,548	69	14,479	705	13,774	12,250	11,868
West Wits Operations	15,331	515	14,816	4,178	10,638	10,423	10,098
Target Operations	4,859	0	4,859	485	4,374	4,374	4,374
Harmony Free State Operations	6,378	84	6,294	1,982	4,312	192	0
Evander Operations	14,503	216	14,287	90	14,197	4,120	0
Orkney Operations	1,594	18	1,576	0	1,576	1,576	605
Welkom Operations	0	0	0	0	0	0	0
Kalgold Operations	296	0	296	0	296	296	0
Australian Operations	1,836	0	1,836	854	982	982	982
Papua New Guinea Operations	2,041	0	2,041	4	2,037	2,037	2,037
Total	**61,386**	**902**	**60,483**	**8,297**	**52,186**	**36,251**	**29,963**

(1) LoM Plan[(1)] reports contained ounces inclusive of Other Sources.

(2)

LoM Plan[2] reports contained ounces exclusive of Other Sources; NPV[1] relates to Mineral Reserve ounces of gold which attain positive NPV status at the CMF; and NPV[2] relates to Mineral Reserve ounces of gold which attain positive NPV status at the SMF reported as at 1 January 2005 and using PPP principles for generation of nominal exchange rates. Note that all positive NPV tests include the impact of Inferred Mineral Resources; Other Sources; and Silver sales.

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Table 2.4ES Harmony: LoM Plan and Mineral Reserve assessment (Tax Entity Level)[1]

	Contained Gold								
Mining Asset	LoM Plan (koz)	Other Sources (koz)	LoM Plan[1] (koz)	Inferred in LoM Plan (koz)	Mineral Reserves (koz)	NPV[1] (koz)	NPV[2] (koz)	NPV[3] (koz)	NPV[4] (koz)
Freegold Operations	14,548	69	14,479	705	13,774	13,774	13,774	13,774	13,774
West Wits Operations	15,331	515	14,816	4,178	10,638	10,638	10,638	10,638	10,638
Target Operations	4,859	0	4,859	485	4,374	4,374	4,374	4,374	4,374
Harmony Free State Operations	6,378	84	6,294	1,982	4,312	0	0	0	0
Evander Operations	14,503	216	14,287	90	14,197	0	0	0	0
Orkney Operations	1,594	18	1,576	0	1,576	1,576	1,576	1,576	1,576
Welkom Operations									
Kalgold Operations	296	0	296	0	296	296	0	296	0
Australian Operations	1,836	0	1,836	854	982	982	982	982	982
Papua New Guinea Operations	2,041	0	2,041	4	2,037	2,037	2,037	2,037	2,037
Total	**61,386**	**902**	**60,484**	**8,297**	**52,186**	**33,677**	**33,381**	**33,677**	**33,381**

(1) NPV[1] and NPV[2] reports Mineral Reserve ounces of gold which attain positive NPV status at the CMF and the SMF, respectively. Note that all positive NPV tests include the impact of Inferred Mineral Resources; Other Sources; and Silver sales. NPV[3] and NPV[4] reports Mineral Reserve ounces of gold which attain positive NPV status at the CMF and the SMF respectively. Note that all positive NPV tests exclude the impact of Inferred Mineral Resources; Other Sources; and Silver sales.

Table 2.5ES Harmony LoM Plan: Break Even Analysis[1], [2]

Mining Assets	Units	Gold Price[1]	Gold Price[2]
Freegold Operations	(ZAR/kg)	79,964	73,950
West Wits Operations	(ZAR/kg)	70,124	65,033
Target Operations	(ZAR/kg)	63,303	62,043
Harmony Free State Operations	(ZAR/kg)	98,051	92,441
Evander Operations[3]	(ZAR/kg)	96,708	90,813
Orkney Operations	(ZAR/kg)	81,352	79,793
Welkom Operations	(ZAR/kg)	0	0
Kalgold Operations	(ZAR/kg)	82,094	79,221
Australian Operations	(A$/oz)	388	435
Papua New Guinea Operations	(A$/oz)	359	252

(1) Gold Price[1] presents the equivalent real terms (1 January 2005) gold price required to generate break-even NPV defined at the price at which the NPVs return a zero value at the Company s WACC.

(2) Gold Price[2] presents the equivalent real terms (1 January 2005) gold price required to generate break-even defined as cash costs.

(3)

The figures as presented for Evander Operations exclude the impacts of the Evander Rolspruit Project and the Evander Poplar Project. Should both projects be executed the resulting Gold price[1] and Gold Price[2] would be ZAR 106,255/kg and ZAR66, 944/kg, respectively.

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Table 2.6ES Harmony Projects: Break Even Analysis to attain Nominal Internal rates of Return (IRR)

Mining Projects (IRR) (% Nominal)	Doornkop Project (ZAR/kg)	Phakisa Project (ZAR/kg)	Poplar Project (ZAR/kg)	Rolspruit Project (ZAR/kg)	HVGP (A$/oz Au)	HVGP (A$/oz Ag)
5%	66,366	74,738	79,580	91,080	340	4.79
8%	67,021	75,996	84,196	111,707	357	5.03
10%	67,542	77,017	87,504	129,170	369	5.19
12%	68,189	78,521	91,437	147,572	380	5.35
15%	69,368	81,115	98,426	179,792	397	5.60
18%	71,823	86,671	113,051	253,598	415	5.84
20%	72,753	89,889	120,096	292,405	427	6.01
22%	74,485	95,329	131,512	361,102	439	6.19
25%	74,485	95,329	131,512	361,102	458	6.44
Mineral Resources (koz)	6,513	21,714	4,751	11,127	3,665	
Mineral Reserves (koz)	424	4,072	3,125	6,744	2,037	
Inferred in LoM (koz)	3,593	258	0	0	4	
LoM Plan[(1)] (koz)	4,017	4,330	3,125	6,744	2,041	

3.0ES EQUITY VALUE

The Equity Value of the Company is based on the sum of the parts approach combining: the valuation of the Mining Assets as represented by the sum of Enterprise Values, Valuation of Mineral Rights, Exploration Properties, and Non-LoM Resources; the interests in Listed Entities; and Valuation Adjustments.

Based on the 392,993,004 fully diluted ordinary shares in issue as at 1 January 2005, SRK has derived an Equity Value per share which can be compared to the latest available market price as at 31 December 2004, which was ZAR51.20. The resulting ratio relating Equity Value to share price is included for presentation purposes only, and no detailed analysis is included as to the reasonableness of such a ratio.

The range of Equity Values defined for the Company is significant and is a direct result of the various operating Options and Scenarios considered. The lower values are a direct result of the negative NPVs ascribed to certain of the Mining Assets. In respect of these negative NPVs it is likely that should the projections as indicated in the accompanying FMs prevail then; the Company will undertake the necessary action which may entail a combination of re-planning, re-structuring and implementing improvements to ensure that a positive cash position or at least minimal loss position is established and maintained. Note that for operating Option C it is assumed that as Mining Assets are closed and all liabilities are incurred.

Table 3.1aES and Table 3.1bES give the salient details of the consolidated FM for the Company which reflects operating Option A . Note that these tables are not financial statements as may be customary for determining the consolidated cash flow positions for companies. Further, no account is taken of movements in working capital at the Company level, or deferrals of tax liabilities between accounting periods, as may be the case in the generation of such financial statements. The first period 2005[(H2)] reports the forecast six-month projections to 30 June 2005, thereafter the projections are annual ending 30 June. Actual results for the first six-month period of 2005[(H1)] are reported in Section 2.0 of this CPR. The Tax Entity valuations are derived from reported cash flows commencing 1 January 2005.

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Table 3.1aES Harmony: FM in ZAR nominal terms (Scenario 1 Option A)

Financial Year Project Year	Units	Totals/ Averages	2005(H2) 1	2006 2	2007 3	2008 4	2009 5	2010 6	2011 7	2012 8
Production										
Mining										
RoM Tonnage	(kt)	341,737	12,524	24,951	27,320	26,112	25,502	23,540	22,494	21,279
Head Grade	(g/t)	5.6	4.5	4.7	4.5	4.8	5.0	5.2	5.3	5.4
Contained Gold	(koz)	61,386	1,804	3,744	3,993	4,037	4,119	3,949	3,845	3,726
Processing										
Milled Tonnage	(kt)	341,737	12,524	24,951	27,320	26,112	25,502	23,540	22,494	21,279
Milled Grade	(g/t)	5.6	4.5	4.7	4.5	4.8	5.0	5.2	5.3	5.4
Milled Gold	(koz)	61,386	1,804	3,744	3,993	4,037	4,119	3,949	3,845	3,726
Metallurgical Recovery	(%)	95.3	94.6	94.7	94.8	95.0	95.2	95.1	95.2	95.2
Recovered Gold	(koz)	58,476	1,707	3,547	3,784	3,837	3,920	3,757	3,660	3,547
Clean-up Gold	(koz)	183	0	6	0	1	0	0	0	14
Saleable Metal	(koz)	58,659	1,707	3,553	3,784	3,838	3,920	3,757	3,660	3,561
Commodity Sales										
Gold	(koz)	58,659	1,707	3,553	3,784	3,838	3,920	3,757	3,660	3,561
Silver	(koz)	31,017	152	321	772	3,467	4,832	5,706	4,786	6,178
Commodity Prices										
Gold Price	(US$/oz)		428	441	460	462	473	484	496	508
	(ZAR/kg)		83,550	95,287	106,799	109,947	115,483	121,298	127,405	133,820
Macro Economics										
Exchange Rate	(US$:ZAR)		6.08	6.72	7.22	7.41	7.60	7.79	7.99	8.20
US CPI	(%)		1.1%	2.5%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
RSA CPI	(%)		2.1%	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Financial Nominal										
Sales Revenue Gold	**(ZARm)**	**284,590.1**	**4,435.6**	**10,541.0**	**12,570.6**	**13,124.9**	**14,079.0**	**14,174.3**	**14,505.4**	**14,821.2**
Operating Expenditures	**(ZARm)**	**(217,385.2)**	**(4,345.4)**	**(9,406.7)**	**(10,143.1)**	**(10,278.1)**	**(10,828.8)**	**(10,961.9)**	**(11,115.8)**	**(11,254.3)**
Mining	(ZARm)	(163,563.5)	(3,452.9)	(7,372.6)	(7,762.1)	(7,948.7)	(8,487.2)	(8,347.7)	(8,407.3)	(8,441.4)
Processing	(ZARm)	(18,614.0)	(428.3)	(880.7)	(1,076.2)	(1,078.9)	(1,017.7)	(1,032.3)	(1,113.9)	(1,116.1)
Overheads	(ZARm)	(24,242.3)	(485.2)	(1,004.8)	(1,183.1)	(1,219.1)	(1,298.3)	(1,265.4)	(1,316.7)	(1,326.5)
By-Product Credits	(ZARm)	1,779.4	6.3	14.9	37.0	168.6	246.0	305.0	268.7	364.0
Mineral Royalty	(ZARm)	(7,406.7)	(14.7)	(30.7)	(46.2)	(46.9)	(247.9)	(442.5)	(456.6)	(489.8)
Environmental	(ZARm)	(1,336.0)	(29.6)	(62.3)	(67.9)	(60.4)	(56.2)	(59.1)	(61.8)	(61.6)
Terminal Benefits	(ZARm)	(3,726.1)		(38.1)	(36.9)	(53.0)	(0.6)	(108.4)	(35.7)	(138.8)
	(ZARm)	(275.9)	59.0	(32.5)	(7.7)	(39.7)	33.0	(11.4)	7.5	(43.9)

Net Change in Working Capital										
Operating Profit	**(ZARm)**	**67,204.9**	**90.1**	**1,134.3**	**2,427.5**	**2,846.8**	**3,250.1**	**3,212.4**	**3,389.6**	**3,566.9**
Tax Liability	**(ZARm)**	**(14,775.7)**	**0.0**	**-5.7**	**-33.3**	**-136.1**	**-515.0**	**-624.1**	**-762.7**	**-832.3**
Capital Expenditure	**(ZARm)**	**(23,120.1)**	**(420.7)**	**(2,034.2)**	**(2,118.5)**	**(1,762.8)**	**(1,354.8)**	**(1,169.5)**	**(1,301.4)**	**(1,166.8)**
Project	(ZARm)	(19,498.5)	(364.1)	(1,937.3)	(2,006.0)	(1,621.7)	(1,170.2)	(967.2)	(1,067.6)	(946.9)
Ongoing	(ZARm)	(3,621.6)	(56.6)	(96.9)	(112.4)	(141.1)	(184.5)	(202.3)	(233.8)	(219.9)
Final Net Free Cash	**(ZARm)**	**29,309.1**	**(330.6)**	**(905.6)**	**275.7**	**947.9**	**1,380.4**	**1,418.8**	**1,325.5**	**1,567.8**
Reporting Statistics	**Real**									
Cash Costs	(ZAR/kg)	70,883	80,363	78,602	76,588	73,044	72,849	72,523	72,810	71,494
Total Cash Costs	(ZAR/kg)	71,062	80,672	78,923	77,054	73,431	73,168	72,873	73,185	71,788
Total Working Costs	(ZAR/kg)	72,412	80,413	79,574	78,006	74,307	73,491	73,886	73,763	73,135
Total Costs	(ZAR/kg)	80,669	87,663	87,710	94,146	86,966	82,287	81,755	82,127	80,657

Financial Year		**Totals/**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Project Year	**Units**	**Averages**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Production										
Mining										
RoM Tonnage	(kt)	341,737	17,334	15,924	15,777	15,714	15,547	13,410	11,036	7,990
Head Grade	(g/t)	5.6	5.8	5.9	5.9	5.9	5.7	5.9	6.8	6.8
Contained Gold	(koz)	61,386	3,256	2,999	2,982	2,958	2,869	2,557	2,406	1,748
Processing										
Milled Tonnage	(kt)	341,737	17,334	15,924	15,777	15,714	15,547	13,410	11,036	7,990
Milled Grade	(g/t)	5.6	5.8	5.9	5.9	5.9	5.7	5.9	6.8	6.8
Milled Gold	(koz)	61,386	3,256	2,999	2,982	2,958	2,869	2,557	2,406	1,748
Metallurgical Recovery	(%)	95.3	95.5	95.6	95.5	95.4	95.3	95.4	95.7	95.6
Recovered Gold	(koz)	58,476	3,109	2,866	2,849	2,822	2,733	2,440	2,304	1,671
Clean-up Gold	(koz)	183	0	0	0	0	0	0	0	28
Saleable Metal	(koz)	58,659	3,109	2,866	2,849	2,822	2,733	2,440	2,304	1,699
Commodity Sales										
Gold	(koz)	58,659	3,109	2,866	2,849	2,822	2,733	2,440	2,304	1,699
Silver	(koz)	31,017	2,025	287	285	282	273	244	230	170
Commodity Prices										
Gold Price	(US$/oz)		520	532	545	558	572	585	599	614
	(ZAR/kg)		140,558	147,635	155,068	162,876	171,077	179,691	188,738	198,241
Macro Economics										
Exchange Rate	(US$:ZAR)		8.41	8.62	8.85	9.07	9.31	9.55	9.79	10.04
US CPI	(%)		2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
RSA CPI	(%)		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Financial Nominal										
Sales Revenue Gold	**(ZARm)**	**284,590.1**	**13,593.4**	**13,159.6**	**13,739.5**	**14,296.5**	**14,542.6**	**13,636.7**	**13,523.2**	**10,478.2**
Operating Expenditures	**(ZARm)**	**(217,385.2)**	**(10,008.5)**	**(9,953.9)**	**(10,263.9)**	**(10,912.9)**	**(11,206.6)**	**(10,839.0)**	**(10,242.3)**	**(8,441.0)**
Mining	(ZARm)	(163,563.5)	(7,615.3)	(7,421.6)	(7,861.0)	(8,355.5)	(8,594.2)	(8,116.5)	(7,761.1)	(5,900.9)
Processing	(ZARm)	(18,614.0)	(764.3)	(685.8)	(779.1)	(811.6)	(843.2)	(809.2)	(765.5)	(711.9)
Overheads	(ZARm)	(24,242.3)	(1,200.2)	(1,141.5)	(1,242.8)	(1,191.7)	(1,131.2)	(1,162.0)	(1,158.3)	(890.3)
By-Product Credits	(ZARm)	1,779.4	125.0	18.6	19.4	20.2	20.5	19.3	19.1	14.8
Mineral Royalty	(ZARm)	(7,406.7)	(441.8)	(395.3)	(412.7)	(429.5)	(436.9)	(409.7)	(406.3)	(314.8)
Environmental	(ZARm)	(1,336.0)	(49.2)	(47.3)	(49.6)	(51.8)	(54.1)	(56.8)	(59.7)	(62.7)
Terminal Benefits	(ZARm)	(3,726.1)	(4.5)	(285.1)	(0.0)	(112.9)	(122.3)	(232.4)	(87.0)	(543.2)
Net Change in Working Capital	(ZARm)	(275.9)	(58.2)	4.1	62.0	19.9	(45.3)	(71.7)	(23.5)	(32.0)
Operating Profit	**(ZARm)**	**67,204.9**	**3,584.8**	**3,205.6**	**3,475.6**	**3,383.5**	**3,335.9**	**2,797.7**	**3,280.9**	**2,037.1**
Tax Liability	**(ZARm)**	**(14,775.7)**	**-883.6**	**-763.3**	**-804.0**	**-720.8**	**-674.6**	**-515.8**	**-586.5**	**-180.1**
Capital Expenditure	**(ZARm)**	**(23,120.1)**	**(1,314.2)**	**(1,422.9)**	**(2,022.1)**	**(2,212.6)**	**(1,580.5)**	**(663.2)**	**(546.3)**	**(359.0)**
Project	(ZARm)	(19,498.5)	(1,099.6)	(1,252.8)	(1,852.3)	(2,007.9)	(1,350.3)	(524.3)	(425.3)	(197.3)
Ongoing	(ZARm)	(3,621.6)	(214.6)	(170.1)	(169.8)	(204.7)	(230.3)	(138.9)	(121.0)	(161.7)
Final Net Free Cash	**(ZARm)**	**29,309.1**	**1,387.1**	**1,019.4**	**649.4**	**450.1**	**1,080.8**	**1,618.6**	**2,148.0**	**1,498.1**
Reporting Statistics Real										
Cash Costs	(ZAR/kg)	70,883	67,950	67,939	69,470	69,958	70,160	71,368	69,178	69,169
Total Cash Costs	(ZAR/kg)	71,062	68,143	67,939	69,470	69,958	70,160	71,368	69,178	69,169
Total Working Costs	(ZAR/kg)	72,412	69,086	70,285	69,805	71,029	71,286	73,338	70,186	74,540
Total Costs	(ZAR/kg)	80,669	78,081	80,299	83,056	85,275	81,670	78,344	74,100	78,006

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Table 3.1bES Harmony: FM in ZAR nominal terms (Scenario 1 Option A) continued

Financial Year		2021	2022	2023	2024	2025	2026	2027	2028	2029
Project Year	**Units**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Production										
Mining										
RoM Tonnage	(kt)	7,889	7,110	5,773	4,627	4,312	3,182	2,660	2,378	2,221
Head Grade	(g/t)	6.7	7.0	7.4	7.4	7.5	7.3	7.2	7.3	7.3
Contained Gold	(koz)	1,697	1,592	1,367	1,101	1,033	748	618	556	519
Processing										
Milled Tonnage	(kt)	7,889	7,110	5,773	4,627	4,312	3,182	2,660	2,378	2,221
Milled Grade	(g/t)	6.7	7.0	7.4	7.4	7.5	7.3	7.2	7.3	7.3
Milled Gold	(koz)	1,697	1,592	1,367	1,101	1,033	748	618	556	519
Metallurgical Recovery	(%)	95.6	95.7	95.7	95.6	95.5	95.2	94.9	94.9	94.9
Recovered Gold	(koz)	1,623	1,525	1,309	1,052	987	712	586	528	492
Clean-up Gold	(koz)	0	45	0	6	0	53	8	0	0
Saleable Metal	(koz)	1,623	1,570	1,309	1,058	987	766	595	528	492
Commodity Sales										
Gold	(koz)	1,623	1,570	1,309	1,058	987	766	595	528	492
Silver	(koz)	162	157	131	106	99	77	59	53	49
Commodity Prices										
Gold Price	(US$/oz)	629	644	659	675	691	708	725	742	760
	(ZAR/kg)	208,223	218,707	229,718	241,285	253,433	266,194	279,597	293,674	308,461
Macro Economics										
Exchange Rate	(US$:ZAR)	10.30	10.57	10.84	11.12	11.41	11.70	12.00	12.31	12.63
US CPI	(%)	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
RSA CPI	(%)	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Financial Nominal										
Sales Revenue Gold	**(ZARm)**	**10,509.3**	**10,678.0**	**9,353.9**	**7,940.2**	**7,779.3**	**6,338.4**	**5,171.6**	**4,818.9**	**4,721.2**
Operating Expenditures	**(ZARm)**	**(7,955.9)**	**(7,871.9)**	**(6,966.9)**	**(5,961.7)**	**(5,438.6)**	**(4,533.8)**	**(3,380.9)**	**(3,100.7)**	**(3,072.9)**
Mining	(ZARm)	(5,937.6)	(5,713.1)	(5,030.0)	(4,339.1)	(3,964.6)	(3,072.5)	(2,594.6)	(2,522.4)	(2,368.1)
Processing	(ZARm)	(695.3)	(729.6)	(524.4)	(436.1)	(416.0)	(412.1)	(261.1)	(241.8)	(248.2)
Overheads	(ZARm)	(905.5)	(888.4)	(887.5)	(734.5)	(739.1)	(433.9)	(237.3)	(195.7)	(203.7)
By-Product Credits	(ZARm)	14.8	15.1	13.2	11.2	11.0	8.9	7.3	6.8	6.7
Mineral Royalty	(ZARm)	(315.7)	(320.8)	(281.0)	(238.5)	(233.7)	(190.4)	(155.4)	(144.8)	(141.8)
Environmental	(ZARm)	(65.9)	(69.2)	(72.7)	(49.6)	(36.4)	(20.6)	(13.4)	(13.2)	(13.9)
Terminal Benefits	(ZARm)	(48.1)	(153.4)	(175.3)	(159.8)	(45.9)	(392.0)	(110.7)		(95.1)
Net Change in Working Capital	(ZARm)	(2.5)	(12.5)	(9.3)	(15.2)	(13.8)	(21.3)	(15.8)	10.5	(8.7)
Operating Profit	**(ZARm)**	**2,553.5**	**2,806.1**	**2,387.0**	**1,978.5**	**2,340.8**	**1,804.6**	**1,790.7**	**1,718.2**	**1,648.4**
Tax Liability	**(ZARm)**	**370.4**	**524.5**	**333.2**	**593.8**	**825.7**	**651.0**	**691.9**	**632.8**	**632.9**
Capital Expenditure	**(ZARm)**	**(311.7)**	**(310.2)**	**(244.9)**	**(212.6)**	**(163.8)**	**(135.0)**	**(33.1)**	**(101.6)**	**(36.5)**
Project	(ZARm)	(170.2)	(121.8)	(64.0)	(62.5)	(32.1)	(31.5)	(33.1)	(34.8)	(36.5)

Ongoing	(ZARm)	(141.5)	(188.4)	(181.0)	(150.1)	(131.7)	(103.5)		(66.9)	
Final Net Free Cash	**(ZARm)**	**1,871.4**	**1,971.4**	**1,808.9**	**1,172.0**	**1,351.2**	**1,018.6**	**1,065.7**	**983.8**	**979.0**
Reporting Statistics Real										
Cash Operating Costs	(ZAR/kg)	69,284	66,428	66,625	67,111	63,786	60,079	58,209	59,712	58,137
Total Cash Costs	(ZAR/kg)	69,284	66,428	66,625	67,111	63,786	60,079	58,209	59,712	58,137
Total Working Costs	(ZAR/kg)	70,292	68,364	69,087	69,560	64,769	66,126	60,438	59,967	60,281
Total Costs	(ZAR/kg)	73,069	71,171	71,611	72,225	66,890	68,416	61,316	61,723	61,172

Financial Year		**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
Project Year	**Units**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**
Production										
Mining										
RoM Tonnage	(kt)	2,207	1,541	466	465	291	160			
Head Grade	(g/t)	7.3	7.9	5.5	5.5	6.0	6.0			
Contained Gold	(koz)	518	393	83	83	56	31			
Processing										
Milled Tonnage	(kt)	2,207	1,541	466	465	291	160			
Milled Grade	(g/t)	7.3	7.9	5.5	5.5	6.0	6.0			
Milled Gold	(koz)	518	393	83	83	56	31			
Metallurgical Recovery	(%)	94.9	95.3	96.7	96.7	96.8	96.8			
Recovered Gold	(koz)	491	374	80	80	54	30			
Clean-up Gold	(koz)	0	0	0	0	0	22			
Saleable Metal	(koz)	491	374	80	80	54	51			
Commodity Sales										
Gold	(koz)	491	374	80	80	54	51			
Silver	(koz)	49	37	8	8	5	5			
Commodity Prices										
Gold Price	(US$/oz)	778	797	816	836	856	876			
	(ZAR/kg)	323,992	340,305	357,439	375,436	394,339	414,194			
Macro Economics										
Exchange Rate	(US$:ZAR)	12.95	13.28	13.63	13.98	14.34	14.70			
US CPI	(%)	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%			
RSA CPI	(%)	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%			
Financial Nominal										
Sales Revenue Gold	**(ZARm)**	**4,950.8**	**3,960.4**	**889.1**	**936.9**	**661.2**	**659.5**			
Operating Expenditures	**(ZARm)**	**(2,977.6)**	**(2,270.8)**	**(1,464.2)**	**(973.1)**	**(712.2)**	**(501.8)**			
Mining	(ZARm)	(2,346.6)	(1,766.1)	(695.1)	(728.2)	(445.9)	(193.4)			
Processing	(ZARm)	(260.2)	(193.9)	(69.2)	(72.6)	(53.9)	(84.8)			
Overheads	(ZARm)	(208.8)	(178.3)	(118.8)	(125.8)	(115.6)	(52.5)			
By-Product Credits	(ZARm)	7.0	5.6	1.3	1.3	0.9	0.9			
Mineral Royalty	(ZARm)	(148.7)	(119.0)	(26.7)	(28.1)	(19.9)	(19.8)			
Environmental	(ZARm)	(14.6)	(15.3)	(16.1)	(16.9)	(17.8)	(10.2)			
Terminal Benefits	(ZARm)		(0.0)	(563.1)		(53.9)	(129.7)			
Net Change in Working Capital	(ZARm)	(5.7)	(3.8)	23.6	(2.6)	(6.2)	(12.3)			

Operating Profit	**(ZARm)**	**1,973.3**	**1,689.6**	**(575.1)**	**(36.2)**	**(51.0)**	**157.7**
Tax Liability	**(ZARm)**	**776.2**	**667.6**	**0.0**	**0.0**	**0.0**	**37.9**
Capital Expenditure	**(ZARm)**	**(38.4)**	**(40.3)**	**(42.3)**			
Project	(ZARm)	(38.4)	(40.3)	(42.3)			
Ongoing	(ZARm)						
Final Net Free Cash	**(ZARm)**	**1,158.7**	**981.7**	**(617.4)**	**(36.2)**	**(51.0)**	**119.8**
Reporting Statistics Real							
Cash Operating Costs	(ZAR/kg)	55,481	52,807	94,914	94,531	89,104	49,232
Total Cash Costs	(ZAR/kg)	55,481	52,807	94,914	94,531	89,104	49,232
Total Working Costs	(ZAR/kg)	55,755	53,167	155,419	96,209	99,173	68,941
Total Costs	(ZAR/kg)	56,581	54,201	157,379	96,470	100,046	70,676

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Table 3.2ES Harmony Equity Value Analysis Scenario 1[1]

Valuation Components	Units	Option A	Option B	Option C
Enterprise Value	**(ZARm)**	**6,744.3**	**8,316.3**	**8,871.4**
Free Gold Tax Entity	(ZARm)	2,351.1	2,351.1	2,351.1
Joel Tax Entity	(ZARm)	(110.5)	(110.5)	(23.2)
West Wits Tax Entity	(ZARm)	3,983.0	3,983.0	3,983.0
Target Tax Entity	(ZARm)	2,329.1	2,329.1	2,329.1
Harmony Free State Tax Entity	(ZARm)	(828.3)	(828.3)	(577.7)
Evander Tax Entity	(ZARm)	(1,979.2)	(407.2)	(213.8)
Orkney Tax Entity	(ZARm)	242.4	242.4	242.4
Welkom Tax Entity	(ZARm)	(36.5)	(36.5)	(12.8)
Kalgold Tax Entity	(ZARm)	51.6	51.6	51.6
Australian Tax Entity	(ZARm)	340.1	340.1	340.1
Papua New Guinea Tax Entity	(ZARm)	401.7	401.7	401.7
Mineral Rights, Exploration Properties and Non LoM Resources	**(ZARm)**	**1,231.8**	**1,231.8**	**1,231.8**
Value of Mining Assets	**(ZARm)**	**7,976.1**	**9,548.1**	**10,103.1**
Interests in Listed Entities	**(ZARm)**	**5,099.5**	**5,099.5**	**5,099.5**
Valuation Adjustments	**(ZARm)**	**(3,614.2)**	**(3,614.2)**	**(3,614.2)**
Equity Value	**(ZARm)**	**9,461.4**	**11,033.4**	**11,588.4**
Ordinary Shares in Issue	**(No)**	**392,993,004**	**392,993,004**	**392,993,004**
Equity Value Per Share	**(ZAR/share)**	**24.08**	**28.08**	**29.49**
Share prices at 1 January 2005	**(ZAR/share)**	**51.20**	**51.20**	**51.20**
Share Price/Equity Value		**2.13**	**1.82**	**1.74**
Mineral Reserves	(koz)	52,186	42,318	33,398
Mineral Resources	(koz)	255,631	255,631	255,631
Equity Value per Mineral Reserve Unit	(US$/oz)	30	44	58
Equity Value per Mineral Resource Unit	(US$/oz)	6	7	8

[1] For detail relating to the values ascribed to: Mineral Rights, Exploration Properties and Non LoM Resources; Interests in Listed Entities; and Valuation Adjustments see Table 14.98, Table 14.99 and Table 14.102, respectively.

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Table 3.3ES Harmony Equity Value Analysis: WACC sensitivity analysis Scenario 1

Discount Factor Sensitivity (%)	Option A (ZAR/Share)	Option B (ZAR/Share)	Option C (ZAR/Share)
20.00%	28.85	31.75	33.76
15.00%	27.51	30.76	32.60
10.00%	26.27	29.81	31.50
5.00%	25.13	28.92	30.47
0.00%	**24.08**	**28.08**	**29.49**
5.00%	23.38	27.55	28.84
10.00%	22.47	26.78	27.95
15.00%	21.62	26.05	27.11
20.00%	20.83	25.35	26.31

Discount Factor Sensitivity (%)	Option A (Share Price/Equity Value)	Option B (Share Price/Equity Value)	Option C (Share Price/Equity Value)
20.00%	1.77	1.61	1.52
15.00%	1.86	1.66	1.57
10.00%	1.95	1.72	1.63
5.00%	2.04	1.77	1.68
0.00%	**2.13**	**1.82**	**1.74**
5.00%	2.19	1.86	1.78
10.00%	2.28	1.91	1.83
15.00%	2.37	1.97	1.89
20.00%	2.46	2.02	1.95

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Table 3.4ES Harmony Equity Value Analysis: twin parameter sensitivity analysis Scenario 1

		Revenue Sensitivity						
Option A (ZAR/Share)		**30%**	**20%**	**10%**	**0%**	**10%**	**20%**	**30%**
	15%	ve	8.07	26.58	43.77	60.25	76.35	92.22
	10%	ve	0.27	19.77	37.48	54.28	70.64	86.52
Operating	**5%**	ve	ve	12.57	30.83	48.24	64.85	80.79
Expenditure	**0%**	ve	ve	5.12	24.08	42.03	58.97	75.10
Sensitivity	**5%**	ve	ve	ve	17.09	35.27	52.79	69.30
	10%	ve	ve	ve	9.81	28.57	46.64	63.43
	15%	ve	ve	ve	2.01	21.69	39.94	57.27

		Revenue Sensitivity						
Option B (ZAR/Share)		**30%**	**20%**	**10%**	**0%**	**10%**	**20%**	**30%**
	15%	ve	14.03	30.86	46.27	60.81	75.10	89.21
	10%	ve	6.79	24.49	40.57	55.50	69.96	84.06
Operating	**5%**	ve	ve	17.76	34.42	50.09	64.83	78.96
Expenditure	**0%**	ve	ve	10.83	28.08	44.47	59.54	73.84
Sensitivity	**5%**	ve	ve	3.44	21.54	38.17	54.04	68.69
	10%	ve	ve	ve	14.73	31.86	48.40	63.41
	15%	ve	ve	ve	7.47	25.42	42.15	57.88

		Revenue Sensitivity						
Option C (ZAR/Share)		**30%**	**20%**	**10%**	**0%**	**10%**	**20%**	**30%**
	15%	7.12	18.52	30.96	46.31	60.86	75.15	89.26
	10%	4.75	13.84	25.81	40.62	55.55	70.01	84.11
Operating	**5%**	3.11	9.27	21.61	34.54	50.15	64.89	79.02
Expenditure	**0%**	2.47	6.88	17.20	29.49	44.53	59.60	73.90
Sensitivity	**5%**	2.20	4.49	12.58	25.48	38.32	54.11	68.75
	10%	2.20	3.18	9.01	21.20	33.36	48.46	63.48
	15%	2.20	2.53	6.65	16.60	29.44	42.32	57.95

		Revenue Sensitivity						
Option A (Share Price/Equity Value)		**30%**	**20%**	**10%**	**0%**	**10%**	**20%**	**30%**
	15%	ve	6.35	1.93	1.17	0.85	0.67	0.56
	10%	ve	187.12	2.59	1.37	0.94	0.72	0.59
Operating	**5%**	ve	ve	4.07	1.66	1.06	0.79	0.63
Expenditure	**0%**	ve	ve	10.01	2.13	1.22	0.87	0.68
Sensitivity	**5%**	ve	ve	ve	3.00	1.45	0.97	0.74
	10%	ve	ve	ve	5.22	1.79	1.10	0.81
	15%	ve	ve	ve	25.41	2.36	1.28	0.89

Revenue Sensitivity

Option B (Share Price/Equity Value)		**30%**	**20%**	**10%**	**0%**	**10%**	**20%**	**30%**
	15%	ve	3.65	1.66	1.11	0.84	0.68	0.57
	10%	ve	7.55	2.09	1.26	0.92	0.73	0.61
Operating	**5%**	ve	ve	2.88	1.49	1.02	0.79	0.65
Expenditure	**0%**	ve	ve	4.73	1.82	1.15	0.86	0.69
Sensitivity	**5%**	ve	ve	14.90	2.38	1.34	0.95	0.75
	10%	ve	ve	ve	3.48	1.61	1.06	0.81
	15%	ve	ve	ve	6.85	2.01	1.21	0.88

		Revenue Sensitivity						
Option C (Share Price/Equity Value)		**30%**	**20%**	**10%**	**0%**	**10%**	**20%**	**30%**
	15%	7.19	2.76	1.65	1.11	0.84	0.68	0.57
	10%	10.77	3.70	1.98	1.26	0.92	0.73	0.61
Operating	**5%**	16.47	5.52	2.37	1.48	1.02	0.79	0.65
Expenditure	**0%**	20.74	7.44	2.98	1.74	1.15	0.86	0.69
Sensitivity	**5%**	23.28	11.40	4.07	2.01	1.34	0.95	0.74
	10%	23.28	16.13	5.68	2.42	1.53	1.06	0.81
	15%	23.28	20.21	7.70	3.09	1.74	1.21	0.88

4.0ES CONCLUDING REMARKS

The Equity Value of the Company as stated in this CPR displays a significant range depending on the various operation Options and valuation Scenarios as described in this CPR. The summary Equity Value of the Company resulting from the matrix of operating Options and valuation Scenarios considered in this CPR is given in Table 4.1ES below.

SRK notes that these Equity Values for the Company should be considered in conjunction with the sensitivity analyses as presented for Scenario 1 (Option A , Option B and Option C). These Equity Values also indicate that the most significant factor is the impact of the projected devaluation of the ZAR against the US$ as reflected in the CMF. Notwithstanding this statement, the readers attention should however be drawn to the impact of the sensitivity to Total Working Costs which in all scenarios has largely been based on the achieved performance in fiscal 2004. Should the operating performance achieved in 2005[H1] prove indicative of long term future performance then the Equity Values as presented herein would be negatively affected.

Table 4.1ES Summary Equity Value and Share Price:Equity Value ratios for the Company

		Operating Options		
Valuation Scenarios	**Units**	**Option A**	**Option B**	**Option C**
Equity Value				
Scenario 1	(ZAR/share)	24.08	28.08	29.49
Scenario 2	(ZAR/share)	27.09	30.61	31.18
Scenario 3	(ZAR/share)	5.01	11.05	17.81
Scenario 4	(ZAR/share)	19.93	23.92	26.01
Scenario 5	(ZAR/share)	3.69	9.74	15.99
Scenario 1 + Alternative Discount Factor	(ZAR/share)	27.30	30.45	32.26
Share Price/Equity Value				
Scenario 1	Ratio	2.13	1.82	1.74
Scenario 2	Ratio	1.89	1.67	1.64
Scenario 3	Ratio	10.21	4.63	2.88
Scenario 4	Ratio	2.57	2.14	1.97
Scenario 5	Ratio	13.88	5.26	3.20
Scenario 1 + Alternative Discount Factor	Ratio	1.88	1.68	1.59

SRK has conducted a comprehensive review and assessment of all material issues likely to influence the future operations of the Mining Assets. The LoM plans for the Mining Assets, as provided to and taken in good faith by SRK, have been reviewed and adjusted by SRK where considered appropriate. SRK notes that the impact of any adjustments (both positive and negative) made by SRK to the underlying LoM plans have not been subjected to re-planning. SRK is of the opinion that there is potential for the Company to address both performance and planning issues at the Mining Assets and through implementing appropriate restructuring to improve the financial situation at those assets which currently display negative NPVs.

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AN INDEPENDENT COMPETENT PERSONS REPORT ON THE MINING ASSETS OF HARMONY GOLD MINING COMPANY LIMITED

1. INTRODUCTION

1.1 Background

Steffen, Robertson and Kirsten (South Africa) (Proprietary) Limited (SRK) is a subsidiary of the international group holding company, SRK Global Limited (the SRK Group). SRK has been commissioned by the directors of Harmony Gold Mining Company Limited (Harmony also referred to as the Company) to prepare an independent competent person s report (CPR) on certain mining assets (the Mining Assets) of the Company. The Mining Assets reviewed by SRK are represented within the following companies:

- A 100% interest in ARMGold/Harmony Freegold Joint Venture Company (Proprietary) Limited (Freegold);
- A 100% interest in Randfontein Estates Limited (Randfontein);
- A 100% interest in Avgold Limited (Avgold);
- A 100% interest in Harmony Free State Operations (Harmony Free State);
- A 100% interest in Evander Gold Mining Company Limited (Evander);
- A 100% interest in African Rainbow Minerals Gold Limited (ARMgold);
- A 100% in Kalahari Goldridge Mining Company Limited (Kalgold);
- A 100% interest in Harmony Gold (Australia) Pty Limited (Harmony Australia); and
- A 100% interest in Abelle Limited (Abelle).

The Mining Assets incorporated within the above companies have been valued by SRK and incorporated into the Equity Value derived for the Company.

The Company holds various interests in listed entities (the Listed Entities) and joint ventures (the Joint Ventures) for which it has no legal right to disclose information to third parties or its advisors. Consequently the Company has secured dispensation from the JSE Securities Exchange South Africa (the JSE) and the Securities Regulation Panel (the SRP) in respect of such interests. Appendix 1 of this CPR includes summary technical information reproduced from public domain documentation. This information has not been verified by SRK and consequently SRK expresses no opinion as to the validity of such information. The interests in listed entities and joint ventures comprise:

A 19.00% interest in African Rainbow Minerals Limited (ARM) held via a 100% interest in Clidet 454 (Proprietary) Limited (Clidet);

A 11.64% interest in Bendigo Mining NL (Bendigo);

A 50.00% interest in the Burnside Joint Venture (Burnside JV);

A 11.50% interest in Gold Fields;

A 18.40% interest in Gold City Industries Limited (Gold City); and

A 13.00% interest in San Gold Resources Corporation (San Gold).

The Listed Entities and Joint Ventures have not been valued by SRK, but have been incorporated into the Equity Value for the Company based on the market capitalisations of the companies as at 1 January 2005.

In addition to the above the Company also holds interests in Direct Subsidiaries, Indirect Subsidiaries, Joint Ventures (Direct and Indirect) and Associate Companies (Direct and Indirect) hereinafter referred to as other assets (the Other Assets). These subsidiaries, joint ventures and associate companies include exploration companies, investment holding companies, marketing companies, mineral right holding companies, mining related services companies and property holding companies. The Company has informed SRK that the Other Assets do not materially contribute to the Equity Value of the Company and accordingly have been excluded.

1.2 Requirement, Structure and Compliance

1.2.1 Requirement

On 18 October 2004, the Company announced a proposal to merge with Gold Fields. The proposal comprised an offer (the Offer) of 1.275 new Harmony share for each Gold Fields share and 1.275 new Harmony American Depositary Share (ADS) for each Gold Fields ADS. The conditions precedent stated in the offer document include, *inter alia*, fulfilling certain obligations in respect of compliance with various sections of the listing requirements of the JSE (the Listing Requirements) and the Securities Regulation Code on Take-overs and Mergers and the Rules of the SRP issued in terms of the Corporation Act (the SRP Code).

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SRK has been informed that a copy of this CPR will be filed with the JSE and the SRP (hereinafter referred to as the Regulatory Authorities) and distributed to Harmony and Gold Fields shareholders.

1.2.2 Structure

For reporting purposes, technical descriptions of the Mining Assets have been grouped into operations that broadly reflect the management structures and/or common geographical entities (Figure 1.1). All entries, including text, tables and other data, are quoted assuming 100% ownership and not on an attributable basis.

The South African Mining Assets are substantially similar and represent the larger contribution to the Mining Assets. This CPR has been structured on a discipline basis (e.g. Geology, Mineral Resources and Mineral Reserves, Mining, Metallurgical Processing, Tailings Storage Facilities, Infrastructure, Human Resources, Occupational Health and Safety, Environmental and Financial Valuation) where Mining Assets are grouped into the following operations:

- Freegold Operations;
- West Wits Operations;
- Target Operations;
- Harmony Free State Operations;
- Evander Operations;
- Orkney Operations;
- Welkom Operations;
- Kalgold Operations;
- Australian Operations;
- Papua New Guinea Operations; and
- Exploration Properties.

In respect of Mineral Resources and Mineral Reserves Appendix 2 includes additional detail in respect of each of the Mining Assets represented within the operations defined above.

For reporting purposes the valuation of the Mining Assets has been grouped in accordance with the following Tax Entities, hereinafter referred to as (the Tax Entities). All entries (including text, tables and other data) are quoted assuming 100% ownership and not on an attributable basis:

The Tax Entity within which Freegold Operations (excepting Joel Mine) are assessed (Freegold Tax Entity hereinafter abbreviated to FTE);

The Tax Entity within which Joel Mine is assessed (Joel Tax Entity hereinafter abbreviated to JTE);

The Tax Entity within which West Wits Operations are assessed (West Wits Tax Entity hereinafter abbreviated to WWTE);

The Tax Entity within which Target Operations are assessed (Target Tax Entity hereinafter abbreviated to TTE);

The Tax Entity within which the Harmony Free State Operations are assessed (Harmony Free State Tax Entity hereinafter abbreviated to HFTE);

The Tax Entity within which the Evander Operations are assessed (Evander Tax Entity hereinafter abbreviated to ETE);

The Tax Entity within which the Orkney Operations are assessed (Orkney Tax Entity hereinafter abbreviated to OTE);

The Tax Entity within which the Welkom Operations are assessed (Welkom Tax Entity hereinafter abbreviated to WTE);

The Tax Entity within which the Kalgold Operations are assessed (Kalgold Tax Entity hereinafter abbreviated to KTE);

The Tax Entity within which the Australian Operations are assessed (Australian Tax Entity hereinafter abbreviated to ATE); and

The Tax Entity within which the Papua New Guinea Operations are assessed (PNG Tax Entity hereinafter abbreviated to PNGTE).

Figure 1.2 and Figure 1.3 present the Company s corporate and business structure, respectively.

1.2.3 Compliance

This CPR has been prepared in accordance with the following:

The Listing Requirements of the JSE, specifically Sections 12.3, 12.6, 12.8, 12.9 and 12.14;

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The March 2000 South African Code for Reporting of Mineral Resources and Mineral Reserves known as the SAMREC Code (SAMREC) and published by the South African Mineral Resource Committee under the auspices of The South African Institute of Mining and Metallurgy; and

The Securities Regulation Code on Take-overs and Mergers and the Rules of the SRP issued in terms of the Corporation Act.

In accordance with the Listing Requirements of the JSE and the contents of the SAMREC Code, this CPR has been prepared under the direction of the Competent Person (the CP) who assumes overall professional responsibility for the document (Section 1.7). The CPR however is published by SRK, the commissioned entity, and accordingly SRK assumes responsibility for the views expressed herein. Consequently with respect to all references to CP and SRK: all references to SRK mean the CP and vice-versa.

In compliance with Section 12.6 of the Listing Requirements, Table 1.1 presents a cross-reference between the Listing Requirements and the primary sections as included in this CPR.

Table 1.1 Compliance cross-reference

CPR Section	Compliance Requirements
Executive Summary	
1 Introduction	12.3(a), (b), (c), (e); 12.6; 12.8(a); 12.9(a), (b), (c), (d), (e), (f); 12.11(a), (b); 12.14(a) (viii) (xi) (xii) (xvi) (xvii) (xviii); 12.14(a); 12.14 (b) (iv), (xvii).
2 Mining Assets	12.10(d), (g), (h) (i), (ii), (iii); (i), (j); 12.11(a), (b); 12.14(a) (ix), (x), (xii), (xvii).
3 Geology	12.10(a) (xi); 12.10(b) (i); 12.10(d).
4 Mineral Resources and Mineral Reserves	12.10(a), (i), (ii), (iii), (iv), (v), (vi), (vii), (viii), (ix), (x), (xii), (xiii), (xv), (xvi); 12.10(b) (ii), (iii), (iv); 12.10(b) (vi) (1), (2), (3), (4), (5), (6), (7), (8), (9); 12.10(d); 12.10(f) (i), (ii); 12.14(a) (ii), (iii), (iv), (xii), (xiv), (xv); 12.14(b) (ii).
5 Mining Engineering	12.10(b) (v); 12.10(d); 12.14(a) (iv), (x), (xii).
6 Metallurgical Processing	12.10(b) (v); 12.14(a) (v), (vi), (vii), (x), (xii); 12.14(b) (iii).
7 Tailings Facilities	12.14(a) (xii)
8 Infrastructure and Capital Expenditure	12.14(a) (viii); 12.14(b) (vi).
9 Human Resources	12.14(a) (xii).
10 Occupational Health and Safety	12.14(a) (xii).
11 Environmental	12.10(c); 12.14(a) (i), (viii), (xii).
12 Technical-Economic Input Parameters	12.14(a) (viii); 12.14(b) (v), (vi).
13 Mining Assets Valuation	12.10(b) (v); 12(b) (i), (iii), (iv), (vi), (viii), (ix), (xi), (xiv), (xv), (xvi), (xvii).
14 Summary Equity Valuation	12.14(a) (ii), (xiii), (xviii), (xix); 12.14(b) (vi), (x), (xii), (xiii), (xvi), (xviii).
15 Concluding Remarks	
Glossary	12.10(k)

In respect of specific compliance items SRK notes the following:

12.10(e) (i),(ii): A detailed list of the Company s mineral and surface rights will be made available at the corporate offices of the company. Dispensation has been granted in this regard from inclusion in the CPR for practical purposes of volume;

12.8(e); 12.10(g): A detailed statement of all legal proceedings which may have an influence on the rights to explore for minerals or an appropriate negative statement has been included in the body of the documents relating to the Offer (the Offer Documents);

12.14(a) (xvi): The Company is in effect, a mature operating company with a track record of operating history and accordingly, other than brief summaries of Directors (as included in the body of the Offer Documents), details relating to qualifications of key technical and managerial staff have been excluded from this CPR. Dispensation has been granted in this regard from inclusion into this CPR for practical purposes relating to volume of information; and

12.10(x)(i), 12.10(d): SRK has during the course of its investigations reviewed technical plans in order to support its opinions on the geology, Mineral Resource and Mineral Reserves, mining schedules and processing facilities, these together with land holdings, lease areas and surface infrastructure. Due to volume and scale of these plans it is not appropriate to include copies into this CPR for all the business units operated by Harmony. Dispensation has been granted in this regard from inclusion into this CPR; however these plans are available for inspection at various Company operating offices where they remain due to the fact that many are working plans required for the continual management of the respective operations. On request copies of specific information will be made available at First Floor, 4 High Street, Melrose Arch North, 2196, Johannesburg, Gauteng province, Republic of South Africa.

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In accordance with Section 12.3(d) of the Listing Requirements this document has undergone regulatory review for assessment and comment by representatives of the JSE comprising an independent technical readers panel. This document has been found to be materially compliant with the Listing Requirements and the SAMREC Code and consequently has been approved for publication by the JSE.

1.3 Effective date, Valuation date and Base Technical information date

The effective date (the Effective Date) of this CPR is deemed to be 1 January 2005, and is co-incident with the Valuation Date and cash flow projections as incorporated herein. The valuation of the Mining Assets is dependent upon the following:

Technical information as generated by the Company in accordance with its annual planning process defined as the Base Information Date (BID), which in the case of the Company is 1 July 2004; and

Appropriate adjustments made by SRK to technical information which, inter alia, includes depletion, historical performance and any additional material information provided by the Company from the BID to the Effective Date.

1.4 Verification, Validation and Reliance

This CPR is dependent upon, technical, financial and legal input. The technical information as provided to and taken in good faith by SRK has not been independently verified by means of re-calculation. SRK has however:

Conducted a review and assessment of all material technical issues likely to influence the future performance of the Mining Assets, which included the following:

inspection visits to the Mining Assets processing facilities, surface structures and associated infrastructure undertaken between October 2004 and January 2005;

discussion and enquiry following access, to key on-mine and head office personnel between October 2004 and January 2005;

an examination of historical information (2002, 2003, 2004 and 2005[(HI)]) and results made available by the Company in respect of the Mining Assets;

a review and where considered appropriate by SRK, modification of the Company s estimates and their classification of Mineral Resources and Mineral Reserves to reflect the position as at 1 January 2005; and

a review and where considered appropriate by SRK, modification of the Company s production forecasts contained in the Life-of-Mine (LoM) plans and one-year budgets;

Obtained market consensus forecasts for certain macro-economic parameters and commodity prices and relied on these as inputs into derivation of the Equity Value of the Company; and

Satisfied itself that such information is both appropriate and valid for valuation as reported herein. SRK considers that with respect to all material technical-economic matters it has undertaken all necessary investigations to ensure SAMREC compliance, in terms of the level of disclosure.

SRK s approach in undertaking a review of the Mineral Resource and Mineral Reserve estimations and classifications is detailed in Section 4 of this CPR, as is its opinion in respect of SAMREC compliance. In summary, SRK has reported Mineral Resource and Mineral Reserve statements based on a review of the LoM plans and the methodologies applied for estimation and classification of Mineral Resources and Mineral Reserves. SRK has not however re-calculated the base information supporting the Mineral Resource estimates as derived from borehole and assay data.

Where fundamental base data has been provided (LoM plans, capital expenditures, operating budgets, etc.) for the purposes of review, SRK recognise the requirements of 12.3(e) and accordingly state that SRK has performed all necessary validation and verification procedures deemed appropriate in order to place an appropriate level of reliance on such information.

1.4.1 Technical Reliance

SRK places reliance on the Company s Competent Persons that all technical information provided to SRK as at 1 January 2005, is both valid and accurate for the purpose of compiling this CPR. The information with respect to Mineral Resources and Mineral Reserves as stated by Harmony has been prepared under the direction of each individual as named below who are employees of Harmony:

Mr Graham Briggs, Pr. Sci. Nat, BSc (Hons) Geology. Mr Briggs is responsible for ore reserve management, organic growth and capital projects on Papua New Guinea operations and is on the executive committee of the Company. He has 29 years experience in the gold mining industry and is a registered geological scientist; and

Mr Jaco Boshoff, Pr. Sci. Nat, BSc (Hons) MSc (Geol). Mr Boshoff is responsible for ore reserve management, organic growth and capital projects on South African Operations and is on the Operational Review Committee of the Company. He has 10 years experience in the gold mining industry and is a registered geological scientist.

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1.4.2 Financial Reliance

In consideration of all financial aspects relating to the Mining Assets and the Equity Valuation of the Company, SRK has placed reliance on the Financial Officers of the Company that the following information for the Tax Entities is appropriate at 1 January 2005:

- Derivation of the Company s weighted average cost of capital (WACC);
- Unredeemed capital balances;
- Assessed losses;
- Opening balances for debtors, creditors and stores;
- Working capital and taxation logic;
- Balance sheet items, specifically cash on hand, debt and mark to market value of derivative instruments and other liabilities required to present the Equity Value of the Company; and
- Values ascribed to interests in unlisted and listed entities.

The financial information referred to above has been prepared under the direction of Ms. Nomfundo Qangule B Comm, B Comm (Hons) CTA, CA(SA), Member of CAIB (SA). Ms Qangule is the Financial Director of the Company and has 15 years experience in financial management, one year of which has been in the gold mining industry.

1.4.3 Legal Reliance

In consideration of all legal aspects relating to the valuation of the Mining Assets, SRK has placed reliance on the legal representatives of the Company that the following are correct as at 1 January 2005:

- In respect of 12.8(e) and 12.10(g) that a statement by the Directors of any legal proceedings that may have an influence on the rights to explore for minerals, or an appropriate negative statement has been included in the body of the various circulars relating to the Offer;
- In respect of 12.10(e) that the legal ownership and of all mineral and surface rights has been verified; and
- In respect of 12.14(a)(xii) that no significant legal issue exists which would affect the likely viability of a project and/or on the estimation and classification of the Mineral Reserves and Mineral Resources as reported herein.

The legal statements referred to above has been prepared under the direction of Mr Gerard Ivan Suzor. Mr Suzor is an employee of the Company and has 24 years experience in the mining industry.

1.5 Valuation Basis

The Equity Valuation of the Company comprises the following:

The LoM plans as provided, but modified to produce three operating Options;

Option A comprising the LoM plans for all the Mining Assets;

Option B which reflects Option A but excludes the Evander Rolspruit and the Evander Poplar Projects; and

Option C which reflects Option B but excludes all assets which currently reflect negative NPV s at the company s WACC.

SRK notes that for practical reasons relating to limiting the volume of this CPR, technical disclosure as included in Section 2 through to Section 12 at the Mining Asset level only reflects Option A . Consolidated Mineral Resource and Mineral Reserve statements and Consolidated TEPs at the Company Level are however provided for all operating options;

The Valuation Scenarios as included in this CPR are:

Scenario 1 based on macro-economic parameters and commodity prices as reflected by the Consensus Market Forecasts (CMF Table 1.2 below);

Scenario 2 based on the CMF and excluding the impact of the Mineral Royalty for South African Assets;

Scenario 3 based on Spot Market Forecasts (SMF defined as the spot macro economic and commodity prices as at 1 January 2005 with nominal forecast exchange rates based on purchase price parity);

Scenario 4 based on Scenario 1 but for compliance purposes excluding Inferred Mineral Resources; and

Scenario 5 based on Scenario 3 but for compliance purposes excluding Inferred Mineral Resources.

SRK note that for practical reasons relating to limiting the volume of this CPR, financial disclosure at the Tax Entity level only reflects Scenario 1. The Mineral Reserves only scenarios (Scenario 4 and Scenario 5) also exclude the impact of silver sales and gold from vamping operations. Consolidated cashflows and valuation results at the Company level are however provided for Scenario 1 and all Operating Options. Equity Values at the company s WACC as derived for the company are presented in summary form for all Scenarios and Operating Options. Table 1.3 below presents a matrix of the Operating Options and the Valuation Scenarios; and

Enterprise Values for each of the Tax Entities. The Enterprise Values are derived using discounted cash flow (DCF) techniques applied to post-tax pre-finance cash flows (commencing 1 January 2005 and reported in financial years ending 30 June) derived from the underlying LoM plans and the associated TEPs. The Enterprise Values are reported as Net Present Values (NPVs) quoted at the company s WACC;

In respect of the Mining Operations, SRK has undertaken a break even analysis in order to assess the economic viability of the accompanying Mineral Reserve statements. This includes the gold price required to return a zero NPV at the Company s WACC and the gold price required equivalent to the real terms cash costs;

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In respect of the projects included in the Mining Assets, SRK has determined the strike gold price for at which various internal rates of return (IRR) are determined. For those projects which have not yet been given board approval for execution this enables the reader to assess the required increase in gold price for such projects to be brought to account. SRK note that no specific company hurdle rate has been defined, however given the Company s WACC an indicative nominal hurdle rate for South African based assets could be 15%;

Market values for interests held in listed entities as at 1 January 2005;

Valuation of certain Exploration Projects; and

Valuation Adjustments including unallocated corporate expenses, net (debt)/cash, mark to market value of derivative instruments and other liabilities as at 1 January 2005.

The post-tax pre-finance cash flows presented for each Tax Entity incorporate the commodity prices and macro-economic projections as presented in Table 1.2 below. These commodity prices and macro-economic forecasts are based on market consensus forecasts and include:

The forward curve for the gold price for 2005, 2006, and 2007;

Consumer Price Indices (CPI) for South Africa, Australia and the United States; and

South African and Australian exchange rates quoted against a denomination of one United States dollar (US$).

Consensus market forecasts beyond this period are not readily available and accordingly SRK has assumed that the US$ gold price remains constant at US$425/oz in real terms from 2008 (inclusive) onwards. Nominal exchange rates for the South African Rand (ZAR) and the Australian dollar (A$) are projected assuming the principal of purchase price parity (PPP), other than for ZAR quoted against the US$ for the periods 2006 and 2007 which assumes a real terms devaluation of 8% and 5%, respectively.

The Mineral Reserve statements as published by the Company in their Annual Report for the year ending 30 June 2004 were based on a ZAR denominated gold price of ZAR92,000/kg (based on a gold price of US$400/oz and an exchange rate of 7.15 ZAR to 1 US$) for the Mining Assets located in South Africa and a A$ denominated gold price of A$540/oz for the Mining Assets located in Australia and Papua New Guinea.

For each Tax Entity SRK has developed Financial Models (FM), the results of which are presented in Section 14 and Section 15 of this CPR. The FMs presented in nominal terms are based on annual cash flow projections determined at end-point, that is to say 30 June of each year and TEPs stated in 1 January 2005 money terms. As the valuation date is 1 January 2005, the cash flow projections for the first period present a six-month forecast to 30 June 2005.

As at 1 January 2005, the gold price and silver as quoted by the London PM fix was US$428/oz and US$6.39/oz, respectively, and the exchange rates were 5.64ZAR to 1 US$ and 1.28 A$ to 1 US$. This yields a gold price of ZAR77,564/kg and A$548/oz.

Taking cognisance of the volatile nature of both the commodity prices and the exchange rates above, SRK presents sensitivities in respect of the following:

NPVs for US$ commodity price ranges between 30% and +30% assuming the forecasts as included in Table 1.2;

NPV s assuming PPP principles and the spot macro-economic and commodity prices as at 1 January 2005; and

Mineral Reserve sensitivities for the South African Mining Assets at the following gold prices: ZAR57,500/kg, ZAR69,000/kg, ZAR80,500/kg, ZAR86,250/kg, ZAR92,000/kg, ZAR97,750/kg, ZAR103,500/kg and ZAR115,000/kg. These high level sensitivities have been derived assuming US$25/oz increments and the parameters as used by the Company in presenting its Mineral Reserve statements dated 30 June 2004 and do not attempt to reflect replanning of the LoM plans at different gold prices.

Table 1.2 Base-case commodity price and macro-economic projections[(1), (2)]

Parameter	Units	2005	2006	2007	2008	2009	2010
Commodity Prices							
Gold	(US$/oz)	428	441	460	462	473	484
	(ZAR/kg)	83,550	95,287	106,799	109,947	115,483	121,298
	(A$/oz)	548	566	592	595	611	627
Silver	(US$/oz)	6.07	6.22	6.37	6.52	6.68	6.84
	(ZAR/kg)	1,185	1,343	1,478	1,552	1,630	1,712
	(A$/oz)	7.78	7.98	8.19	8.40	8.62	8.85
Macro Economics							
US CPI		1.10%	2.50%	2.40%	2.40%	2.40%	2.40%
RSA CPI		2.10%	5.09%	5.04%	5.04%	5.04%	5.04%
AUS CPI		1.30%	2.60%	2.60%	2.60%	2.60%	2.60%
Exchange Rates	(US$:ZAR)	6.08	6.72	7.22	7.41	7.60	7.79
	(US$:A$)	1.28	1.28	1.29	1.29	1.29	1.29

(1) All commodity prices and exchange rates are quoted at the closing period of 30 June.
(2) CPI rates for 2005 are reported for six months only.

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Table 1.3 Operating Options and Valuation scenarios

Valuation Scenarios	Operating Options		
	Option A	Option B	Option C
Scenario 1	LoM @ CMF	Option A (excluding Projects) @ CMF	Option B (excluding Tax Entities with negative NPV) @ CMF
Scenario 2	LoM @ CMF (excluding South African Royalty)	Option A (excluding Projects) @ CMF (excluding South African Royalty)	Option B (excluding Tax Entities with negative NPV) @ CMF (excluding South African Royalty)
Scenario 3	LoM @ SMF	Option A (excluding Projects) @ SMF	Option B (excluding Tax Entities with negative NPV) @ SMF
Scenario 4	LoM @ CMF (excluding Inferred)	Option A (excluding Projects) @ CMF (excluding Inferred)	Option B (excluding Tax Entities with negative NPV) @ CMF (excluding Inferred)
Scenario 5	LoM @ SMF (excluding Inferred)	Option A (excluding Projects) @ SMF (excluding Inferred)	Option B (excluding Tax Entities with negative NPV) @ SMF (excluding Inferred)

(1) Excluding Projects refers to the exclusion of the Evander Rolspuit Project and the Evander Poplar Project.

1.6 Limitations, Reliance on Information, Declarations, Consent and Copyright

1.6.1 Limitations

The Company has agreed that, to the extent permitted by law, it will indemnify SRK and its employees and officers in respect of any liability suffered or incurred as a result of or in connection with the preparation of this report. This indemnity will not apply in respect of any gross negligence, wilful misconduct or breach of law. The Company has also agreed to indemnify SRK and its employees and officers for time incurred and any costs in relation to any inquiry or proceeding initiated by any person except where SRK or its employees and officers are found liable for, or guilty of, gross negligence, wilful misconduct in which case SRK shall bear such costs.

The Company has confirmed in writing to SRK that to its knowledge the information provided by it was complete and not incorrect, misleading or irrelevant in any material aspect. SRK has no reason to believe that any material facts have been withheld and the Company has confirmed in writing that it believes it has provided all material information.

The achievability of LoM Plans, budgets and forecasts are neither warranted nor guaranteed by SRK. The forecasts as presented and discussed herein have been proposed by the Company s management and adjusted where appropriate by SRK and cannot be assured; they are necessarily based on economic assumptions, many of which are beyond the control of the Company. Future cash flows and profits derived from such forecasts are inherently uncertain and actual results may be significantly more or less favourable.

1.6.2 Reliance on Information

SRK believes that its opinion must be considered as a whole and that selecting portions of the analysis or factors considered by it, without considering all factors and analyses together, could create a misleading view of the process underlying the opinions presented in the CPR. The preparation of a CPR is a complex process and does not lend itself to partial analysis or summary.

SRK s Equity Value for the Company is effective at 1 January 2005 and is based on information provided by the Company throughout the course of SRK s investigations, which in turn reflect various technical-economic conditions prevailing at the date of this report. In particular, the Equity Value is based on expectations regarding the gold price and exchange rates prevailing at the date of this report. These and the underlying TEPs can change significantly over relatively short periods of time. Should these change materially the Equity Value could be materially different in these changed circumstances. Further, SRK has no obligation or undertaking to advise any person of any change in circumstances which comes to its attention after the date of this CPR or to review, revise or update the CPR or opinion.

1.6.3 Declarations

SRK will receive a fee for the preparation of this report in accordance with normal professional consulting practice. This fee is not contingent on the outcome of the current Offer and SRK will receive no other benefit for the preparation of this report. SRK does not have any pecuniary or other interests that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to the Mineral Resources, the Mineral Reserves and the Equity Value of the Company.

SRK does not have at the date of this report, and has not had within the previous two years, any shareholding in or other relationship with the Company or the Mining Assets. SRK considers itself to be independent in terms of 12.8(d) of the Listing Requirements.

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In this CPR, SRK provides assurances to the Directors of the Company that the TEPs, including production profiles, operating expenditures and capital expenditures, of the Mining Assets as provided to SRK by the Company and reviewed and where appropriate modified by SRK are reasonable, given the information currently available.

This report includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, SRK does not consider them to be material.

1.6.4 Consent

SRK consents to the issuing of this report in the form and content in which it is to be included in documentation distributed to shareholders of the Company and Gold Fields.

Neither the whole nor any part of this report nor any reference thereto may be included in any other document without the prior written consent of SRK as to the form and context in which it appears.

1.6.5 Copyright

1.6.6 Disclaimers and Cautionary Statements for US Investors

The United States Securities and Exchange Commission (the SEC) permits mining companies, in their filings with the SEC, to disclose only those mineral deposits that a company can economically and legally extract or produce from. Certain terms are used in this report, such as resources , that the SEC guidelines strictly prohibit companies from including in filings.

Ore Reserve (equivalent to Mineral Reserves) estimates are based on many factors, including, in this case, data with respect to drilling and sampling. Ore Reserves are derived from estimates of future technical factors, future production costs, future capital expenditure, future product prices and the exchange rate between the ZAR and the US$ and the A$ and the US$. The Ore Reserve estimates contained in this report should not be interpreted as assurances of the economic life of the Mining Assets or the future profitability of operations. As Ore Reserves are only estimates based on the factors and assumptions described herein, future Ore Reserve estimates may need to be revised. For example, if production costs increase or product prices decrease, a portion of the current Mineral Resources, from which the Ore Reserves are derived, may become uneconomical to recover and would therefore result in lower estimated Ore Reserves.

The LoM plans, the TEPs and the FMs include forward-looking statements in compliance with the requirements of the Listing Requirements. These forward-looking statements are necessarily estimates and involve a number of risks and uncertainties that could cause actual results to differ materially.

1.7 Qualifications of Consultants

The SRK Group comprises 500 staff, offering expertise in a wide range of resource engineering disciplines. The SRK Group s independence is ensured by the fact that it holds no equity in any project. This permits the SRK Group to provide its clients with conflict-free and objective recommendations on crucial judgment issues. The SRK Group has a demonstrated track record in undertaking independent assessments of resources and reserves, project evaluations and audits, CPRs and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining companies and their projects, providing mining industry consultancy service inputs. SRK also has specific experience in commissions of this nature.

This CPR has been prepared based on a technical and economic review by a team of 25 consultants sourced from the SRK Group s offices in South Africa and the United Kingdom over a three-month period. These consultants are specialists in the fields of geology, resource and reserve estimation and classification, underground and open pit mining, rock engineering, metallurgical processing, hydrogeology and hydrology, tailings management, infrastructure, environmental management and mineral economics.

The individuals who have provided input to this CPR, who are listed below, have extensive experience in the mining industry and are members in good standing of appropriate professional institutions.

Andrew Pooley, Pr. Eng, MSAIMM, AMIMM, B.Eng (Mining);

Andrew Smithen, Pr. Eng., MBL, MSAICE, MSAIAE, MSAIMM, MSc;

Allan Goldschmidt, GDE, MGSSA, BSc(Hons);

Awie Swart, MSAIMM, MSANIRE, COM Adv. Rock Eng. Cert. B.Eng.;

Carel Roode, MMSAIMM, MSAICE, MBICE, MMMA, SAASA, B.Com, BSc;

Edward Clark, BSc(Hons);

Fiona Cessford, C Bio (UK), Pr Sci Nat, BSc Hons (Biology), MSc (Environmental Science);

Ian Home, MIAIA, MSc;

Iestyn Humphreys, AM.I.Min.E, AIME, PhD;

Jonathan Suthers, B.Eng.(Hons);

Kenneth Owen, FSAIMM, MAMMSA, MSc Eng;

Kenneth Stanford, Pr Tech. Eng;

Lee Barnes, C.Eng, MIMMM, MSc;

Louie Human, COM Adv. Rock Eng. Cert., NHD (Geology);

Mark Campadonic. FGS,AIQ, MSc;

Mark Wanless, BSc (Hons);

Michael Harley, Pr. Sci Nat., MSAIMM, MAusIMM, PhD;

Peter Munro, MAusIMM, B.Appl. Sc., B. Comm, B. Econ;

Phillip Jankowski, MAusIMM, BSc, MSc;

Robert Wilson, Pr. Eng, FSAIMM, B.Sc.Eng.(Mech);

Roger Dixon, Pr. Eng, FSAIMM, BSc (Mining);

Ross McMillan, MAusIMM, BEng;

Thomas Schrimpf, MAusIMM, DipEng;

Victor Hills, Pr.Eng., MSAIMM, B.Eng.; and

Wally Waldeck, Pr. Eng., MSAIMM, BSc (Mining), MBA.

The Competent Person with overall responsibility for reporting of Mineral Resources is Dr. Michael Harley, Pr. Sci Nat. (SACNASP), MSAIMM, MAusIMM, PhD who is a partner of SRK. Dr. Michael Harley is a mining geologist with 15 years experience in the mining industry and has been responsible for the reporting of Mineral Resources on various properties in Southern Africa and internationally during the past five years.

The Competent Person with overall responsibility for the CPR and for reporting of Mineral Reserves is Mr Roger Dixon, Pr. Eng, FSAIMM, BSc (Mining) who is an employee of SRK. Roger Dixon is a mining engineer with 34 years experience in the mining industry and has been involved in the reporting of Mineral Reserves on various properties in Southern Africa and internationally during the past ten years.

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Figure 1.1 Harmony: Location of Mining Assets

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Figure 1.2 Harmony: Corporate Structure

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Figure 1.3 Harmony: Business Structure

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2. THE MINING ASSETS

2.1 Introduction

This section gives an overview of the Company and its Mining Assets including historical company development, location and property description and operating results. Specifically where reference is made to legal compliance within the regulatory environments in which the Company operates, SRK has placed reliance on the Company.

The historical production and expenditure statistics as reported in this section have, unless otherwise stated been derived from the Company s 20-F filings to the SEC. These statistics are reported in accordance with US GAAP and are accordingly reported on an equity basis and will accordingly differ from that previously stated in SRK s CPR dated 8 April 2004. Further, historical information reported in other technical sections (Section 4.0 through Section 10.0 inclusive) have been sourced from the company s on mine reporting systems (on-mine statistics). These on-mine statistics are not subject to equity reporting principles or such adjustments which may be included for public domain reporting. Therefore the on-mine statistics cannot be directly compared with that reported in this section.

2.2 Harmony Corporate Structure and Business Structure, History and Strategy

2.2.1 Corporate and Business Structure

Harmony is a public listed company. Its primary listing is on the JSE and secondary listings are on the LSE, the Paris Bourse, with International Depositary Receipts (IDRs) traded on the Brussels Bourse and an American Depository Shares (ADS) programme on the New York Stock Exchange (NYSE). The principal executive offices of Harmony are located at 4 High Street, First Floor, Melrose Arch, Melrose North 2196, Johannesburg, Gauteng Province, South Africa.

Harmony and its subsidiaries conduct underground and surface gold mining and related activities, including exploration, development and operation of gold mines, metallurgical processing, smelting and refining. In addition the Company has direct interests in the marketing of gold and indirect interests in the manufacturing and retailing of gold jewellery.

The Company s ownership comprises holdings in Direct Subsidiaries, Indirect Subsidiaries, Joint Ventures (Direct and Indirect) and Associate Companies (Direct and Indirect). These subsidiaries, joint ventures and associate companies comprise dormant companies, exploration companies, gold mining companies, investment holding companies, marketing companies, mineral rights holding companies, mining related service companies and property holding companies (Figure 1.2). In addition the Company holds interests in listed companies and joint ventures (Section 1.1).

The Company s business structure is currently based on eight reporting entities (Figure 1. 3): Free State Growth[(1)], Free State Leverage Shafts[(1)], Elandskraal Operations[(1)], Evander Operations[(1)], Randfontein Operations[(1)], Orkney operations[(1)], Australian Operations[(1)] (also comprising Papua New Guinea Operations) and Surface Operations[(1)].

As of 31 December 2004, Harmony s principal subsidiaries were Freegold[(1)], Randfontein[(1)], Avgold[(1)], Evander[(1)], ARMgold[(1)], Kalgold[(1)], Harmony Australia[(1)]. All subsidiaries are wholly-owned direct subsidiaries incorporated in South Africa, save for Harmony Australia, a direct subsidiary incorporated in Australia.

Note that [(1)] relates to Harmony definitions and are not transposable to similar definitions in this CPR.

In South Africa, Harmony and its subsidiaries have twenty-seven producing mines and three projects:

- Freegold[(1)] (7 mines and one project located in the Free State Province);
- Randfontein[(1)] (5 mines located in the North West an Gauteng Province);
- Avgold[(1)] (one mine in the Free State Province);
- Harmony Free State[(1)] (7 mines in the Free State Province);
- Evander[(1)] (4 mines and two projects in the Mpumalanga Province);
- ARMgold[(1)] (two mines in the North west Province); and
- Kalgold[(1)] (one open-pit mine in the North West Province).

In addition surface mining in the form of waste dump and slimes dam re-treatment operations are in production at Randfontein[(1)].

Ore from the shafts, open-pits and surface sources are treated at ten metallurgical plants:

- Freegold Operations (3 metallurgical plants);
- West Wits Operations (3 metallurgical plants);
- Target Operations (1 metallurgical plant);
- Harmony Free State Operations (2 metallurgical plants);
- Evander Operations (1 metallurgical plant) and

Kalgold Operations (1 metallurgical plant).

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The mining operations managed by ARMgold are toll treated at AngloGold Ashanti Limited s (AngloGold) nearby processing plants (Vaal River Operations).

In 1997 Harmony received regulatory approval to market its own gold, a function that was previously the sole preserve of the South African Reserve Bank (SARB). A refinery was commissioned by Harmony during fiscal 1997 in the Free State province at South Africa. During fiscal 2002, Harmony increased the capacity of its refinery to 100 tonnes per annum, as a result of which Harmony has the capacity to refine all of its gold produced in South Africa.

In Australia, Harmony currently operates two mining operations in Western Australia: Mt. Magnet & Cue Mine and South Kalgoorlie Mine. Underground and surface mining is conducted at each of these Australian operations, with underground access through two declines at Mt. Magnet & Cue Mine and one decline at South Kalgoorlie Mine surface access is principally through open pits. The underground operations of Big Bell ceased in fiscal 2004. Ore from the mining operations are treated at the Checker Metallurgical Plant (Mt. Magnet & Cue Mine) and the Jubilee Metallurgical Plant (South Kalgoorlie Mine).

Harmony is currently the largest producer of gold in South Africa, producing some 30% of the country s gold, and the sixth largest gold producer in the world. As at June 30,2004 Harmony reported total Mineral Reserves containing approximately 62.3Moz of gold (Table 2.2). Subsequent to this publication the Company has made two adjustments to the June 30 2004 declaration:

- A negative adjustment of 3.1Moz comprising depletion and cessation of mining operations at certain of the Mining Assets. This reduced the Company s un-audited Mineral Reserve statement declared as 21 December 2004 to 59.2Moz; and

- A negative adjustment of 3.6Moz comprising 2.5Moz at the Rolspruit Project and 1.1Moz for shaft closures and re-classification of Mineral Resources included in the 21 December 2004 declaration. This reduces the Company s unaudited Mineral Reserve statement declared at 1 January 2005 to 55.6Moz.

SRK note however, that the estimation of Mineral Resources and Mineral Reserves is not an exact science and degrees of subjective uncertainty are inherent in the underlying processes.

In fiscal 2004, Harmony processed approximately 30Mt of ore and sold approximately 3.2Moz of gold, which includes gold production from ARMgold for nine months from October 1, 2003 and Avgold for two months from May 1, 2004. During the first six months of fiscal 2005 Harmony processed approximately 12.5Mt of ore and sold approximately 1.6Moz au.

2.2.2 History

Harmony was incorporated and registered as a public company in the Republic of South Africa on 25 August 1950. Table 2.1 gives the historical company development of the Company to date.

Commercial gold mining in South Africa evolved with the establishment of various mining houses at the beginning of the 1900s by individuals who bought and consolidated blocks of claims until sufficient critical mass could be established to sustain underground mining. The mines were then incorporated, but it was not the practice of the founding mining house to retain a majority shareholding. Instead, the mining house would enter into a management agreement with the mine pursuant to which the mining house would carry out certain managerial, administrative and technical functions pursuant to long-term contracts. Fees were generally charged based on revenues, working costs or capital expenditures, or a combination of all three.

Harmony was operated as a mining operation in this manner and the mining house Randgold & Exploration Company Limited (Randgold) retained the management agreement. In late 1994, Randgold cancelled the management agreement and entered into a service agreement with Harmony to supply executive and administrative services at market rates. In 1997, Harmony and Randgold terminated their service agreement and Harmony began operating as an independent gold mining company.

Harmony s operations have grown significantly since 1995, expanding from a lease-bound mining operation into a large scale gold mining company. Since 1995 the Company has increased its gold sales from approximately 0.7Moz to approximately 3.2Moz in fiscal 2004.

The selected historical operating statistics and financial data as reported in Table 2.2 have been extracted from more detailed information as reported by the Company in its 20-F submissions and the Company s audited financial statements for each of the years ended 30 June 2000, 2001, 2002, 2003, 2004 and from un-audited statements ended 31 December 2004.

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Table 2.1 Company Development

Date	Activity
August, 1950	Harmony incorporated and registered as a public company in South Africa.
1994	Management agreement between Randgold & Exploration Company Limited (Randgold) and Harmony cancelled and replaced with service agreement.
1997	Service agreement between Randgold and Harmony cancelled resulting in Harmony operating as a completely independent gold mining company.
1997	Acquisition of Lydenburg Exploration Limited (Lydex) for a consideration of ZAR204m.
June, 1998	Acquisition of Bissett gold mine from the liquidators of Rea Gold corporation for a consideration of ZAR26m.
July, 1998	The acquisition of Evander Gold Mines Limited for a consideration of ZAR545m.
October, 1999	Acquisition of Kalgold and West Rand Consolidated Mines Limited for a consideration of ZAR321m.
March, 2000	Acquisition of Randfontein for a consideration of ZAR931m.
April, 2001	Acquisition of the Elandskraal mining operations from AngloGold Limited for a consideration of ZAR1,053m.
April, 2001	Acquisition of New Hampton Goldfields Limited for a consideration of ZAR228m.
September, 2001	Acquisition of 31.8% of the issued share capital of Bendigo Mining NL for a consideration of ZAR292m.
December, 2001	Acquisition of 50% of the issued share capital of Freegold Proprietary Limited (Freegold) which purchased the Freegold operations and certain other assets for approximately ZAR1.4bn.
(effective date 3 January 2002)	
April, 2002	Acquisition of Hill 50 Limited for a consideration of ZAR1,419m.
May, 2002	Acquisition of 32.5% of the ordinary share capital of Highland Gold Limited for a consideration of ZAR188m.
October, 2002	Joint acquisition by Freegold of St. Helena Mine from Gold Fields for a gross sale consideration of ZAR120m plus a royalty equal to one per cent of revenue for a period of 48 months beginning on the effective date of the sale (30 October 2002).
November, 2002	Harmony lists on the New York Stock Exchange.
November, 2002	Acquisition of 21% of the ordinary share capital of High River Gold Limited for a consideration of ZAR141m.
January, 2003	Randfontein, entered into agreement with Africa Vanguard Resources (Proprietary) Limited (AVR), in terms of which Randfontein sold 26% of its mineral rights in respect of Doornkop Mining Area to AVR for a purchase consideration of R250m. Randfontein and AVR entered into a JV agreement to jointly conduct mining operations at Doornkop.
February, 2003	Harmony announces offer for Abelle Limited (Abelle) which values Abelle at ZAR689m.
May, 2003	Announcement of merger with ARMgold.
May, 2003	Announcement of an acquisition by Freegold of 34.5% of the shares of Anglovaal Mining Limited (Avmin) for a consideration (100%) of ZAR1,687m in which Harmony and ARMgold each have 50%.
August, 2003	Shareholder approval of the merger between Harmony and ARMgold for which 64,000,000 Harmony shares were issued to ARMgold, in the ratio of 2 Harmony shares for every 3 ARMgold shares.
August, 2003	The arrangements between Randfontein and AVR were implemented, and purchase price paid as per the agreement drawn up in January 2003.

August, 2003	Highland Gold at GBP2.05 per share valuing the shareholding at ZAR830m.
October, 2003	Harmony disposed of its 17.0% shareholding in High River Gold at C$1.75 per share valuing the shareholding at ZAR156.7m.

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Date	Activity
November, 2003	Harmony enters in to an agreement to dispose of its wholly-owned subsidiary Kalgold to Afrikander Lease Limited (Aflease) for a consideration of ZAR250m. The conditions precedent was not met and the contract was subsequently cancelled on 15 March 2004.
November, 2003	Abelle enters into negotiations with Legend Mining Limited (legend) whereby Legend offered to purchase the Gidgee gold project for a consideration of A$6.3m.
November, 2003	Announcement that Avmin will dispose of its entire 42.2% interest in Avgold to Harmony, Harmony will dispose of its Kalplats platinum discovery and associated mineral rights to Avmin.
March, 2004	Harmony completes disposal of 100% of the issued and outstanding shares of Bissett to Rice Lake Joint Venture Inc, a joint venture between San Gold and Gold City (Gold City) for a consideration of US$2.6m in cash plus US$3m in shares of San Gold and Gold City.
March, 2004	Harmony announces offer to holders of ordinary shares, listed options and unlisted options in Abelle valued at approximately ZAR620m. In May 2004, Harmony announced that its bid for all outstanding securities was unconditional and proceeded with a compulsory acquisition of all the securities in Abelle, which resulted in Abelle becoming a wholly-owned subsidiary of Harmony.
April, 2004	Harmony acquired the entire shareholding or ordinary shares in Avgold Limited. Harmony also disposed on it Kalplats platinum project. In May 2004, Avgold became a wholly-owned subsidiary of Harmony.
April, 2004	Harmony announced that it had entered into a joint venture with Network Healthcare Holdings (Netcare). The Joint Venture company is known as Health-Manco and has been formed for the purpose of managing the provision of health care services of the Harmony Group. The agreement between Harmony and Netcare forms the first part of a deal that is expected to eventually see the complete outsoaring of the management of Harmony s healthcare.
May, 2004	Harmony announced that it had raised R1.7billion by way of issue of convertible bonds to international investors, which reduced Harmony s South African interest payments by approximately ZAR85m per annum.
October, 2004	Harmony launches proposal to merge with Gold Fields.
February, 2005	Harmony announced that it had been approached by the financial advisor to a consortium being formed to create a new black empowerment company proposing to purchase Harmony s 20% stake in African Rainbow Minerals Limited for approximately ZAR1.1bn. The consortium is expected to be led by African Rainbow Minerals & Exploration Investments (Proprietary) Limited, a company affiliated with Harmony s chairman Patrice Motsepe. The details of the consortium and of the proposed sale have not yet been finalized and Harmony currently expects to conclude this transaction on or about the end of March 2005.

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Table 2.2 Harmony Mineral Reserve Statement (30 June 2004)[1] unaudited by SRK

Mining Assets	Proven Mineral Reserves Tonnage (Mt)	Proven Grade (g/t)	Proven Gold (Moz)	Probable Mineral Reserves Tonnage (Mt)	Probable Grade (g/t)	Probable Gold (Moz)	Total Mineral Reserves Tonnage (Mt)	Total Grade (g/t)	Total Gold (Moz)
South African Operations u/g									
Elandskraal[4]	11.57	8.2	3.06	21.76	8.1	5.69	33.33	8.2	8.75
Free State[4]	25.25	4.7	3.82	19.09	4.4	2.71	44.33	4.6	6.53
Randfontein[4]	8.99	5.6	1.61	5.57	5.5	0.99	14.56	5.6	2.60
Evander[4]	11.10	6.8	2.42	60.63	6.9	13.39	71.73	6.9	15.81
Avgold[4]	7.79	7.5	1.88	16.44	6.7	3.56	24.23	7.0	5.44
Freegold[4]	23.76	7.6	5.78	51.82	6.9	11.47	75.58	7.1	17.25
ARMgold[4]	3.19	8.0	0.82	0.55	7.3	0.13	3.75	7.9	0.95
Sub-total	**91.65**	**6.6**	**19.39**	**175.86**	**6.7**	**37.94**	**267.51**	**6.7**	**57.33**
South African Operations s/f									
Elandskraal[4]	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00
Avgold[4]	0.00	0.0	0.00	3.45	0.6	0.07	3.45	0.6	0.07
Free State[4]	12.48	0.3	0.13	6.02	0.5	0.10	18.51	0.4	0.23
Randfontein[4]	30.63	0.5	0.47	0.05	6.9	0.01	30.67	0.5	0.48
Evander[4]	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00
Kalgold[4]	5.57	2.1	0.38	0.00	0.0	0.00	5.57	2.1	0.38
Freegold[4]	2.53	0.5	0.04	21.45	0.6	0.38	23.98	0.5	0.42
Sub-total	**51.21**	**0.6**	**1.02**	**30.96**	**0.6**	**0.56**	**82.17**	**0.6**	**1.58**
Australian Operations[2]									
Northern Territory[4]	0.05	11.4	0.02	0.80	3.1	0.08	0.85	3.6	0.10
Mt. Magnet[4]	2.46	1.9	0.15	5.24	4.6	0.78	7.70	3.8	0.93
South Kalgoorlie[4]	1.50	2.7	0.13	1.16	3.8	0.14	2.66	3.2	0.27
Big Bell[3]	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00
Gidgee	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00
Sub-total	**4.01**	**2.3**	**0.30**	**7.20**	**4.3**	**1.00**	**11.21**	**3.6**	**1.30**
PNG Operations	**2.02**	**3.1**	**0.20**	**19.44**	**2.9**	**1.84**	**21.46**	**3.0**	**2.04**
Total	**148.90**	**4.4**	**20.91**	**233.46**	**5.5**	**41.34**	**382.36**	**5.1**	**62.25**

(1) Reproduced from the Company s 20-F submissions for the fiscal year 2004.

(2) Includes Mineral Reserves for underground and surface material.

(3) Operations ceased in July 2003.

(4) Harmony definitions not comparable in all instances to that used in this CPR.

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Table 2.3 Harmony: Salient historical operating and financial statistics[(1), (2), (3), (4)]

Statistics	Units	1999	2000	2001	2002	2003	2004	2005[(H1)]
Production								
Tonnage	**(kt)**	**7,795**	**11,881**	**17,543**	**20,719**	**23,565**	**29,622**	**12,480**
South African Underground Operations	(kt)	7,520	9,366	14,286	12,127	11,153	15,978	7,624
South African Surface Operations	(kt)	275	2,516	3,257	3,808	5,261	8,902	2,925
Australian Operations	(kt)	0	0	0	4,784	7,151	4,742	1,931
Yield	**(g/t)**	**5.1**	**4.3**	**3.8**	**3.6**	**3.1**	**3.4**	**4.0**
South African Underground Operations	(g/t)	5.3	5.1	4.4	5.1	4.7	5.3	5.6
South African Surface Operations	(g/t)	1.3	1.2	1.3	1.1	0.9	0.6	0.9
Australian Operations	(g/t)	0.0	0.0	0.0	1.6	2.2	2.2	2.6
Sales	**(koz)**	**1,286**	**1,626**	**2,140**	**2,380**	**2,366**	**3,225**	**1,621**
South African Underground Operations	(koz)	1,275	1,530	2,008	1,988	1,701	2,702	1,374
South African Surface Operations	(koz)	11	96	132	139	155	185	88
Australian Operations	(koz)	0	0	0	253	510	338	158
Expenditures								
Cash Operating Costs	**(ZARm)**	**1,859**	**2,535**	**3,822**	**4,774**	**5,476**	**8,049**	**3,907**
South African Underground Operations	(ZARm)	1,848	2,394	3,578	3,921	3,883	6,844	3,370
South African Surface Operations	(ZARm)	11	140	244	245	325	444	225
Australian Operations	(ZARm)	0	0	0	607	1,267	761	311
Capital Expenditure	**(ZARm)**	**313**	**191**	**400**	**602**	**1,908**	**872**	**468**
Cash Costs	**(ZAR/kg)**	**46,486**	**50,118**	**57,417**	**64,481**	**74,403**	**80,233**	**77,475**
South African Operations Underground	(ZAR/kg)	46,618	50,306	57,290	63,405	73,381	81,431	78,843
South African Surface Operations	(ZAR/kg)	31,332	47,124	59,339	56,758	67,406	77,166	81,884
Australian Operations	(ZAR/kg)	0	0	0	77,174	79,947	72,342	63,147
Cash Costs	**(ZAR/t)**	**239**	**213**	**218**	**230**	**232**	**272**	**313**
South African Underground Operations	(ZAR/t)	246	256	250	323	348	428	442
South African Surface Operations	(ZAR/t)	40	56	75	64	62	50	77
Australian Operations	(ZAR/t)	0	0	0	127	177	161	161

(1) All statistics from Fiscal 1999 to Fiscal 2004 inclusive are sourced from the Company s 20-F submissions and expenditures converted from US$ to ZAR in according with the accompanying average exchange rates reported: 2004 (6.89); 2003 (9.13); 2002 (10.20); 2001 (7.61); 2000 (6.35); and 1999 (6.04).

(2) All statistics reported for Fiscal 2005[(H1)] are sourced from the Company s December quarterly report.

(3) All statistics take into account equity accounting principles.

(4) Cash costs are determined using the Gold Institute industry standard. The Gold Institute is a non-profit international association of miners, refiners, bullion suppliers and manufacturers of gold products that has developed a uniform format for reporting production costs. The standard was first adopted in 1996 and was revised in November 1999. Cash costs, as defined in the Gold Institute industry standard, include mine production costs, transport and refinery costs, general and administrative costs, costs associated with movements in production inventories and ore stockpiles, costs associated with transfers to deferred stripping and costs associated with royalties. Cash costs have been calculated on a consistent basis for all periods represented.

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2.2.3 Strategy

The international and South African gold mining industries have been in the recent past and continue to be affected by structural and investment trends moving toward the consolidation of relatively smaller operations into larger, more efficient gold producers with lower, more competitive cost structures. This consolidation enables gold producers to be more competitive in pursuing new business opportunities and creates the critical mass (measured by market capitalisation) necessary to attract the attention of international gold investment institutions. The Company s current strategy is predominantly influenced by these investment trends, which have already resulted in significant restructuring and rationalisation in the South African, Australian, and North American gold mining industries.

Operationally the Company continues to implement its unique management structure and philosophy termed the Harmony Way which seeks to establish the following concepts: empowered management teams; active strategic management by the Board; increased productivity; a no-frills, low cost ethic and associated operational systems.

Further the company states its intention to maintain growth through acquisitions in South Africa and internationally which strategy includes: acquisition in addition to pursuing greenfield and brownfields developments which it considers economic; to acquire mature assets with turnaround potential to acquire assets that fit Harmony s management model; and to acquire assets that enhance the Company s overall Mineral Resource base.

Given the prevailing low ZAR denominated gold price environment, Harmony has sought to re-align its management focus in respect of the main operational groupings of leveraged and growth asset portfolio s. Further, in recognition that labour costs constitute some 50% of production costs at the South African operations, Harmony through its restructuring process has focused on the following key areas:

- Re-skilling, re-training and re-deployment of surplus employees for alternative vacant positions that may exist at a particular operation or other Harmony operation;
- Implementation of Continuous Operations (CONOPS) to create additional job opportunities and increase production;
- Transferring of surplus or redundant employees to other Harmony operations that have placement opportunities;
- Opening up voluntary retrenchment to minimize the impact of restructuring and/or closure of shafts/mines; and
- Replacing contractors, who are involved in non-specialized work, with Harmony employees.

In July 2004, Harmony agreed with the National Union of Mineworkers (NUM) to the concept and implementation of CONOPS on a national scale.CONOPS refers to the practice whereby a mine operates on all days of the year,including Sundays but excluding public holidays.Workers operate on a roster shift arrangement which sees them work the same amount of hours per week and therefore companies need to employ more people in order to facilitate working the additional days.

Currently most gold mines in South Africa operate for approximately 273 days per year. The introduction of CONOPS is expected to increase this number to 353 days per year which would result in a 20% increase in labour per stope on the shafts as well as an expected 5% to 8% reduction in unit cost/tonne in due course. Except for Merriespruit 3 Mine, Brand 3 Mine, Unisel Mine, Harmony 2 Mine, Masimong 4 Mine and Masimong 5 Mine, the Company had implemented CONOPS at all its operations in fiscal 2004.

On Friday 7 January 2005, Harmony announced that at a meeting held between management of the Freegold Operations and representatives of NUM to review the annual CONOPS agreement, the Company was informed by NUM that they were not prepared to support an application for Sunday Labour. By not having the necessary support, the Company s application to the Department of Minerals and Energy to work on Sundays in the Free State is unlikely to be approved. CONOPS working arrangements at the Freegold Operations could therefore not take place. Notification for statutory review periods have been issued and surplus employees will have to be redeployed or retrenched.

The Company s gold sales are placed at market prices and as such Harmony does not enter into forward sales, derivatives or hedging arrangements to establish a price in advance for the sale of its future gold production. As a result of this policy, Board approval is required when hedging arrangements are to be entered into to secure loan facilities. Harmony s hedge book in respect of both commodity and currency is managed by a risk and treasury management services company, which is a joint venture between a major South African bank and a black economic empowerment company. Harmony has inherited certain forward exchange contracts with the acquisition of Avgold in May 2004, the details, which are included in Section 14.0 of this CPR.

The mark-to-market value of the commodity contracts, gold lease rates, interest rate swaps and currency contracts as at 31 December 2004 were, negative ZAR230m, positive ZAR20m, negative ZAR32m and negative ZAR288m, respectively. This results in a total negative contribution of ZAR530m.

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2.3 Mining Business

The following sections include descriptions of Harmony s mining business including description of properties, exploration, geology, mining, metallurgical processing, services and supplies and management structure:

2.3.1 Description of Properties

The Company s operational mining authorisation areas total 164,451Ha of which 124,545Ha are represented by South African mining operations and 39,906Ha by Australian mining operations (Table 2.4). Harmony s operational mining areas in Australia comprise the combined active mining leases for Mt.Magnet & Cue Mine and the South Kalgoorlie Mine. Furthermore the Company owns, controls or shares in mineral rights that have not been brought to production (Section 2.6).

In line with the rest of the South African mining industry, Harmony has been rationalizing its mineral rights holdings in recent years. Accordingly over the past three years, Harmony disposed of its shares and participation rights in areas as well as outside of South Africa in which it has not actively pursued mining.

Table 2.4 Harmony: Operational Mining Areas

Mining Assets	Mining Authorisation Area (Active) (Ha)
Freegold Operations	21,204
West Wits Operations	24,266
Target Operations	4,151
Harmony Free State Operations	22,583
Evander Operations	36,898
Orkney Operations	9,317
Welkom Operations	5,511
Kalgold Operations	615
Australian Operations	39,906
Sub-total South African Operations	124,545
Sub-total Australian Operations	39,906
Total	**164,451**

2.3.2 Exploration

Exploration activities at the Company s Mining Assets are focused on the extension of existing orebodies and identification of new orebodies both at existing sites and at undeveloped sites. The Company conducts exploration activities by itself or with joint venture partners.

Harmony s prospecting interests in South Africa measure approximately 100,000Ha which has been reduced from 382,000Ha as regional exploration identified focused areas of mineralisation, requiring more detailed investigation. Harmony s Australian Operations also control prospecting interests (Section 2.6). In addition to ongoing mine site exploration, the Company has a programme of investment in regional exploration. The exploration strategy on these greenstone belts uses geological, geophysical and geochemical techniques to identify broad systems of anomalous gold and associated rock alteration within which gold deposits typically occur as clusters.

In fiscal 2004, the Company spent ZAR109m, excluding contributions from joint venture partners, on exploration and the bulk of exploration expenditure was allocated to activities in Australia, Papua New Guinea, South Africa and Peru with smaller expenditures in West Africa and Madagascar. In fiscal 2005, the Company intends to carry out exploration in South Africa, West Africa, Australia, South America and Papua New Guinea which is budgeted at ZAR80m and which has not been included in the Equity Value of the Company as reported in this CPR.

Harmony s exploration activity in West Africa and South America, excluding Peru, was restricted to project generation and reconnaissance sampling. Site visits and negotiations with potential joint venture partners are ongoing.

During fiscal 2004, the Company continued to evaluate numerous projects in Peru. Two joint venture agreements were entered into with local partners, whereby Harmony could earn-in to prospective projects by undertaking phased exploration expenditure. Both projects are focused on areas with potential to host epithermal gold mineralisation. Analytical results from drilling of the first project and sampling of the second, suggested that they did not confirm to Harmony s investment criteria and the joint ventures were terminated.

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In addition to these joint ventures, Harmony has undertaken a comprehensive target generation program in Peru, supported by surface sampling programs. New projects generated by this program, or coming under negotiation, shall form the focus of an accelerated exploration program in 2005. For this reason, the Company has established a small exploration office in Peru during 2004.

Harmony s Australian Operations conduct prospecting at various sites within their exploration mineral right areas, which include various types of property rights recognized in Australia covering an area of approximately 300,000 Ha.Harmony s exploration strategy in Australia includes exploration on greenstone belts using aeromagnetic, ground magnetic, geochemical, regolith and geotechnical techniques to identify broad systems of anomalous gold and associated rock alteration within which gold mineralisation typically occurs. Thereafter, targets are drilled to test geological structures and establish the presence of gold mineralisation. On discovering gold mineralisation of economic interest the deposits are drilled and sampled systematically to determine metallurgical characteristics and Mineral resources.

Further details on the Company s exploration projects and activities are included in Section 2.4.11 of this CPR.

2.3.3 Geology

The major portion (90%) of the Company s gold production is derived from mines located in the Witwatersrand Basin in South Africa. The Witwatersrand Basin is an elongate structure that extends approximately 300km in a northeast-southwest direction and approximately 100km in a northwest-southeast direction. It is an Archaean sedimentary basin containing 6km thick stratigraphic sequence consisting mainly of quartzites and shales with minor volcanic units.

Conglomerate layers occur in distinctive depositional cycles or packages within the upper, arenacous portion of the sequence, known as the Central Rand Group. It is within these predominantly conglomeritic units that the gold-bearing alluvial placer deposits, termed reefs, are located.

The differences in the morphology and gold distribution patterns within a single reef, and from one reef to the next, are a reflection of the different sedimentary processes at work at the time of placer deposition on erosional surfaces in fluvial and littoral environments.

Within the various goldfields of the Witwatersrand Basin there are major and minor fault systems, and some of the normal faults have displaced basin-dipping placers upwards in a progressive step-like manner, enabling mining to take place at accessible depths.

The majority of the Company s South African gold production is derived from auriferous placer reefs situated at different stratigraphic positions and at varying depths below surface in three of the seven defined goldfields of the Witwatersrand Basin (Section 3.0 of this CPR).

Harmony s production form the Australian Operations and Kalgold Operations are sourced from Archaean greenstone gold deposits. These types of deposits are formed by the interaction of gold-bearing hydrothermal fluids with chemically or rheologically suitable rock types. The hydrothermal fluids are typically focused along conduits termed shear zones. The nature of the shear zone and the host rock determines the style of the mineralisation, which may be narrow veins with high gold grades or wide disseminated mineralisation with low-medium grades. Frequently the two styles occur together.

At the Exploration Properties in the Papua New Guinea Operations, the sedimentary/volcaniclastic rocks of the Owen Stanley Formation that surround the Wafi Diatreme, host the gold mineralisation at the Wafi Gold Project (WGP). Gold mineralisation occurs as extensive high-sulphidation epithermal alteration overprinting porphyry mineralisation and epithermal style vein-hosted replacement gold mineralisation with associated wall-rock alteration.

The Golpu Copper-Gold Project (GCGP) is located about 1km northeast of WGP. It is a porphyry (Diorite) copper-gold deposit. The host lithology is a diorite that exhibits a typical zoned porphyry copper alteration halo and the mineralised body can be described as a porphyry copper-gold pipe .

The Hidden Valley Gold Project (HVGP) comprises low sulphidation carbonate-base metal-gold epithermal deposits within the Morobe Goldfield, in the Morobe Province of Papua New Guinea. In the HVGP area a batholith of Morobe Granodiorite (locally a coarse grained monzogranite) is flanked by fine metasediments of the Owen Stanley Metamorphics. Both are cut by dykes of Pliocene porphyry ranging from hornblende-biotite to feldspar-quartz porphyries. A number of commonly argillic altered gold anomalous breccias are known, including both hydrothermal and over printing structural breccias. The HVGP is dominated by a series of post Miocene faults controlling the gold mineralisation, including an early north trending set and the main northwest faulting.

2.3.4 Mining

The mining process can be divided into two main phases: creating access to the orebody; and mining the orebody. The basic process applies to both underground and surface operations.

- **Access to the orebody:** In Harmony s underground mines, access to the orebody is by means of shafts sunk form the surface to the lowest economically and practically mineable level. Horizontal development at various intervals of a shaft (known as levels) extends access to the horizon of the reef to be mined. On-reef development then provides specific mining access. In Harmony s open pit mines, access to the orebody is provided by overburden stripping, which removes the covering layers of topsoil or rock, through a combination of drilling, blasting, loading and hauling, as required; and

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Mining the orebody: The process of ore removal starts with drilling and blasting the accessible ore. The blasted faces are then cleaned and the ore is transferred to the transport system. In open-pit mines, gold bearing material may require drilling and blasting and is usually collected by bulldozers or shovels to transfer it to the ore transport system. In Harmony s underground mines, once ore has been broken, trains collect ore from the faces and transfer it to a series of ore passes that gravity feed the ore to the hoisting level at the bottom of the shaft. The ore is then hoisted to the surface in dedicated conveyances and transported either by conveyor belts directly or via surface railway systems or roads to the metallurgical processing plants. In addition to ore, waste rock broken to access reef horizons must similarly be hoisted and placed on waste rock dumps. In open pit mines, ore is transported to treatment facilities in off-highway large capacity trucks.

2.3.5 Metallurgical Processing

The Company currently has 10 operating metallurgical plants in South Africa and 2 in Australia which process ore to extract the contained gold. The principal extraction processes used by Harmony are carbon-in-leach (CIL), carbon-in-pulp (CIP), carbon-in-solution (CIS), and also has on old filter plant processing low grade waste rock. The metallurgical plants comprise the following circuits:

Comminution: Comminution is the process of breaking up the ore to expose and liberate the gold and make it available for treatment. Conventionally, this process occurs in multi-stage crushing and milling circuits, which includes the use of jaw and gyratory crushers and rod and tube ball mills. The Company s more modern milling circuits include semi or fully autogenous milling where the ore itself is used as the grinding medium. Typically, ore must be ground to a minimum size before proceeding to the next stage of treatment; and

Treatment: In most of Harmony s metallurgical plants, including the plants at the Freegold Operations and at Hill 50, gold is extracted into a leach solution from the host ore by leaching in agitated tanks. Gold is then extracted onto activated carbon from the solution using the CIL, CIP or CIS Process. In addition, each of Harmony Free State Operations and Freegold Operations has one metallurgical plant that uses the zinc precipitation filter process to recover gold in solution. The Saaiplaas Metallurgical Plant also used the zinc precipitation filter process prior to fiscal 2002, but it was converted to the CIS process during fiscal 2002. During fiscal 2003, however the Saaiplaas Metallurgical Plant was converted to the CIL process in an attempt to lower processing costs and improve metallurgical recovery. The Company is considering a similar conversion for the remaining zinc precipitation plant depending on the metallurgical properties of the ore to be processed.

Gold in solution from the filter plants is recovered using zinc precipitation. Recovery of the gold from the loaded carbon takes place by elution and electro-winning. Because cathode sludge produced from electro-winning is now sent directly to the Company s refinery, however most of the plants no longer use smelting to produce rough gold bars (doré). Harmony Free State Operations zinc precipitation plant, and the zinc precipitation plant at Freegold Operations continue to smelt precipitate to doré. These bars are then transported to Harmony s refinery, which is responsible for refining the bars to a minimum of gold delivery status.

The Company operates the only independent gold refinery in South Africa. In fiscal 2004, all of Harmony s South African production was refined at this refinery. In fiscal 2003, approximately 85% of Harmony s South African gold production was refined at Harmony s refinery and the remainder was refined at Rand Refinery, which is owned by a consortium of the major gold producers in South Africa.

Harmony produces its own branded products at its refinery, including various sizes of gold bars. This has allowed Harmony to sell to markets such as India, the Middle East and East Asia. Harmony s refinery supplies gold alloys and associated products to jewellery manufacturers in South Africa and internationally. In fiscal 2004, Harmony had refinery capacity of 100t per year.

The South African government has emphasized that the production of value-added fabricated gold products, such as jewellery, is an important means for creating employment opportunities in South Africa and has made the promotion of these beneficiation activities a requirement of the Mining Charter (described in Section 2.5.1 below). The Company s beneficiation initiatives have benefited from the expansion and improvement of Harmony s refinery and Harmony supports jewellery ventures in South Africa, including providing facilities for a jewellery school and, in fiscal 2002, Harmony acquired the rights to manufacture and distribute a range of jewellery based on the Lord of the Rings trilogy in South Africa, the United States and Canada. On 11 December 2002, Harmony and Mintek, a South African government research and development organisation, signed a memorandum of understanding to create Musuku Beneficiation Systems (Musuku), an integrated manufacturing and technology group focusing on the beneficiation of precious metals. Musuku will provide management, operational and technical services to integrate value-added processes into the gold mining industry. On 20 June 2004, the Competition Commission approved the Musuku transaction.

2.3.6 Services and Supplies

Mining activities require extensive services, located both on the surface and underground. These services include mining-related services such as mining engineering, planning, ore reserve management, ventilation, provision of supplies and materials and other logistical support. In addition engineering services are required to ensure equipment operates effectively. Such services are provided by a combination of both in-house and external contractors and consultants.

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Harmony also provides medical services to employees at its Freegold operations, Evander Operations and West Wits Operations through local hospitals. During fiscal 2004, Harmony entered into a joint venture agreement with Netcare to outsource the management of Harmony s healthcare.

2.3.7 Management Structure

The Company s management structure is based on a small empowered management team at each production site, which may include one or more shafts or open-pit sites. These management teams are fully responsible for planning and executing the mining at the production site and report directly to Harmony s Executive Committee.

Each management team consists of a mineral reserve manager, a mining manager, a financial manager, and engineering manager and a human resources manager. Each member of the management team has an individual area of responsibility: the mining manager is responsible for rock breaking and safety; the mineral reserve manager is responsible for geology, Mineral Resources and Mineral Reserves; the financial manager is responsible for financial management; the engineering manager is responsible for maintaining equipment; and the human resources manager is responsible for manpower issues. One of the managers is appointed as the team captain and financial incentives are provided for the production team at each site based on the production and the efficiency at the site.

The management structure facilitates the Company s goal of having 60% of its work force being directly involved in actual mining operations.

The Company and the United Association of South Africa (UASA) have signed an agreement to re-define the traditional role of shift boss, or supervisor, to that of coach. This initiative has been implemented at its South African operations. The principal features of this initiative are to allow coaches to focus on safety promotion by transferring line supervision duties to the mine overseers (whose technical expertise will be made available to blasting crews) and changing the compensation structure so that coaches will not receive incentive compensation based on production levels. Further the coaches spend the entire eight-hour working shift underground with the mining team.

Further details regarding Human Resource Management are included in Section 9.0 of this CPR.

2.4 Overview of the Mining Assets

The following sections include Tables which present the design and operating capacities of production units which will be in operation for the duration of the various LoM plans. Since certain operating units have closed during the course of the historical reporting periods; historical production reflected in these tables and reported at an operational level (e.g. Freegold Operation) may exceed the LoM design and operating capacities as presented.

2.4.1 Freegold Operations

Introduction: On 21 November 2001, Harmony and ARMgold reached an agreement in principle with AngloGold to purchase the Freegold assets, subject to specified conditions. Pursuant to the subsequently executed definitive agreements, the Freegold assets were purchased by Freegold (in which Harmony and ARMgold each had a 50% interest) for ZAR2.2bn, plus an amount equal to any liability for taxes payable by

AngloGold in connection with the sale. Freegold assumed management control of the Freegold assets from January 1, 2002, and completed the acquisition on April 23, 2002. ZAR1.8bn of the purchase price, plus accrued interest, was paid by Freegold in April 2002 following the fulfilment of all conditions precedent and ZAR400m was paid by Freegold under an interest-free loan due January 1, 2005. The additional amount relating to taxes was paid by the Freegold when the tax liability became payable by AngloGold. The amount of ZAR682m was paid in June 2003.

The Company accounted for its equity interest in Freegold with effect from 1 May 2002. In connection with the acquisition of the Freegold assets, on 5 April 2002 Harmony and ARMgold entered into a formal joint venture and shareholders agreement relating to Freegold. The agreement provided that Harmony and ARMgold were each responsible for 50% of the expenses associated with operating the Freegold assets. Pursuant to the agreement, an interim executive committee composed of an equal number of representatives appointed by Harmony and ARMgold managed Freegold until the acquisition was completed. Following completion of the acquisition, management of Freegold was vested in a board, which initially was composed of an equal number of Harmony and ARMgold representatives. Since Harmony acquired ARMgold in September 2003, Freegold has been accounted for as a wholly owned subsidiary. Therefore Harmony s interest in the Freegold Company was equity accounted for the first three months of the year, and then consolidated for the remaining nine months.

On 24 May 2002, Harmony, ARMgold and Gold Fields, announced that an agreement in principle had been reached under which St. Helena Gold Mines Limited (St. Helena) would sell St. Helena s gold mining assets to Freegold for ZAR120m, plus a royalty equal to one percent of revenue for a period of 48 months beginning on the effective date of the sale (payable only when pre-tax profits are declared). St. Helena and Freegold concluded a final agreement of sale on 1 July 2002. The sale was completed on 30 October 2002, and Freegold assumed management control on that date. Under the terms of the agreement of sale, Freegold agreed to assume specified environmental liabilities relating to the operation of the St. Helena Mine.

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The Freegold Operations consist of the Tshepong Mine, Bambanani Mine, West Mine, Nyala Mine, Joel Mine, St. Helena Mine, Kudu-Sable Mine, Phakisa Project, Eland Mine, associated infrastructure and other mineral rights in the Free State Province of South Africa. Production from the underground operations and adjacent surface sources is processed through three processing facilities: Free State No.1 Metallurgical Plant (FS1 Plant) ; St. Helena Metallurgical Plant (St. Helena Plant); and Joel Metallurgical Plant (Joel Plant). Table 2.5 presents the design and maximum operating capacities of the production units at Freegold Operations.

In fiscal 2004, Freegold Operations accounted for approximately 23% of Harmony s total gold sales.

History: Exploration, development and production history in the area dates form the early 1900s, leading to commercial production by 1932. Subsequent consolidation and restructuring led to the formation of Free State Consolidated Gold Mine (Operations) Limited, which in addition to HJ Joel, became a wholly-owned subsidiary of AngloGold in June 1998. Freegold acquired the assets from AngloGold in December 2001 and St. Helena Mine from Gold Fields in May 2002. Table 2.6 presents historical and forecast production and expenditure statistics for Freegold Operations.

Location: The Freegold Operations are situated in the Free State province, South Africa, some 270km southwest of Johannesburg. Located at approximately latitude 28º00 S and longitude 26º30 E, the site is accessed via the national highway N1 between Johannesburg and Bloemfontein. Locality plans for the Mining Assets comprising Freegold Operations are included in Figure 2.1, Figure 2.2 and Figure 2.3. Freegold Operations currently operate under a mining authorisation with a total area of 21,204Ha.

Geology *(See Section 3.0 for further detail):* The mines are located in the Free State Goldfield, which is on the south-western edge of the Witwatersrand basin. Tshepong Mine, Bambanani Mine, Eland Mine and St. Helena Mine are located in and around Welkom, while the Joel Mine is approximately 30km south of Welkom. Mining at Tshepong Mine, Bambanani Mine, Eland Mine, Kudu-Sable Mine and Nyala Mine is primarily conducted in the Basal Reef, with limited exploitation of secondary reefs. Mining at Joel Mine is primarily conducted in the Beatrix-VS5 Composite Reef. The reefs generally dip towards the east or northeast while most of the major faults strike north-south, with the most intense faulting in evidence at Eland Mine, Kudu-Sable Mine and Nyala Mine.

Mining Operations *(See Section 5.0 for further detail):* Freegold Operations engage in both underground mining and mining of surface sources. Mining depths range from shallow-intermediate at the Joel Mine to deep at the Bambanani Mine: Tshepong Mine (1,925m); Bambanani Mine (from 1,200m to 3,000m), Kudu-Sable Mine and Nyala Mine (1,700m); Joel Mine (1,000m) and St. Helena Mine (1,489m).

The primary mining challenges at the Freegold Operations are seismic risks, ventilation and fire avoidance. Bambanani Mine, Kudu-Sable Mine and Nyala Mine are classified as seismically active operations with seismic monitoring systems installed in the vicinity of remnant operations and/or geological structures. Seismic systems are managed by external specialists. Following underground fires during the second half of 1999 at the Bambanani Mine, mine management reviewed and modified working practices and the efficiency of the overall fire management system.

Kudu-Sable Mine, Nyala Mine and Eland Mine (collectively, Matjhabeng), are mature operations nearing closure, and production is currently focused on the extraction of remnant pillars and shaft pillars. Due to increased operation costs, the decision was taken to scale down the Eland Mine and then close it down. Nyala Mine was placed on a 60-day review during the quarter ended 31 March 2004.

CONOPS was introduced at the shafts during the quarter ended 31 December 2003 (see comments in Section 2.2.3). Four fires in the higher grade sections during the second half of fiscal 2004 had a negative impact on productivity at Bambanani Mine.

The sub-66 Level decline project at Tshepong mine, which started in April 2003, is proceeding on schedule. This project will add two additional operating levels below the present level of the Tshepong North Shaft. By 30 June 2004 ZAR101m has been expended. A further ZAR165m has been budgeted to complete the project. The Company projects completion of the project by July 2006.

The Phakisa Project comprising a surface vertical shaft, was sunk to access ground up to a depth of 2,241m. Project completion requires sinking of an additional 75m, the sinking of a decline shaft, equipping and commissioning of the shaft with access development and stoping to maximum production build-up at a capital cost of ZAR613m. By end of fiscal 2004, ZAR124m has already been expensed. The project is expected attain full production in 2010.

St Helena Mine No. 2 Shaft was closed during the quarter ended 31 December 2003.

Excess metallurgical plant capacity at the Free State No.1 Metallurgical Plant has been filled by exploiting surface sources, including waste rock dumps, slimes dams, and general clean-up material mined as part of the environmental rehabilitation process. These surface operations include free digging of waste rock dumps and hydraulic mining of slimes dams, which are either transported by the surface rail network or by dedicated pipelines to the individual plants. The majority of surface sources at the Freegold assets were treated at the FS2 Plant, however given the current low ZAR gold price, a decision was taken to suspend treatment of surface sources and commencement of clean-up operations in fiscal 2005.

Processing Plants *(See section 6.0 for further detail):* Three processing plants are currently in operation: FS1 Plant; St. Helena Plant and Joel Plant. FS1, which processes underground ore, waste rock and various surface accumulations, was commissioned in 1986 and is a conventional CIP plant processing ore that has been milled by fully autogenous grinding. Gold is recovered from the eluate solution using zinc precipitation and a precoat vacuum filter. The precipitate recovered from the filter is calcined and smelted to bullion. The St. Helena Plant operates a conventional zinc precipitation filter plant supported by two mills that treat surface sources and surplus capacity material from FS1 Plant. The Joel Plant is a hybrid CIP/CIL plant and was commissioned in 1984. Details regarding the tailings deposition facilities at Freegold Operations are given in Section 7.0.

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Capital Projects: Harmony incurred approximately ZAR280m in capital expenditures at the Freegold Operations in the fiscal year ended 30 June 2004, primarily for underground development at Bambanani Mine, the sub-66 level decline at Tshepong Mine, re-establishing Nyala Mine and the Phakisa Project. Harmony has budgeted ZAR264m for capital expenditures in fiscal 2005, primarily for development at Bambanani Mine and St Helena Mine, the sub-66 level decline at Tshepong Mine, and the continuation of the Phakisa Project.

Table 2.5 Freegold Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Tshepong Mine(1)	165	209	14.5
Bambanani Mine	195	116	7.9
West Mine	80	24	6.5
Nyala Mine	280	32	8.0
Joel Mine	349	58	6.6
St. Helena Mine(2)	180	38	11.5
Kudu-Sable Mine	120	25	1.5
Phakisa Project(3)		165	19.1
Surface Sources	202	202	13.2
FS1 Plant(4)	440	440	20.6
St. Helena Plant	100	39	1.5
Joel Plant	99	53	6.6

(1) Rock in excess of Tshepong Mine s hoisting capacity will be trammed to Nyala Mine for hoisting to surface.

(2) The rock hoisting capacity at St. Helena Mine comprises 80ktpm at No. 4 Shaft and 100ktpm at No. 8 Shaft. The No. 2 Shaft with rock hoisting capacity of 75ktpm was closed During the December 2003 quarter. The No. 10 Shaft with rock hoisting capacity of 150ktpm is also closed.

(3) The Phakisa Project has no rock hoisting facilities and all rock will be trammed to Nyala Mine for hoisting to surface.

(4) The FS2 Plant is currently undergoing clean-up.

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Table 2.6 Freegold Operations: historical and forecast production and expenditure statistics(1), (2), (3), (4), (5), (6)

Statistics	Units	1999	2000	2001	2002	2003	2004	2005(H1)	2005(H2)
Production									
Tonnage	**(kt)**	**6,243**	**6,161**	**4,948**	**4,373**	**9,366**	**8,685**	**2,806**	**3,121**
underground	(kt)	6,243	6,161	4,948	1,977	4,697	4,922	2,254	2,333
surface	(kt)	0	0	0	2,396	4,668	3,763	552	788
Yield	**(g/t)**	**7.1**	**6.8**	**7.0**	**4.0**	**3.8**	**3.7**	**5.0**	**4.8**
underground	(g/t)	7.1	6.8	7.0	7.8	7.1	6.1	6.0	6.3
surface	(g/t)	0.0	0.0	0.0	0.8	0.6	0.6	1.1	0.5
Sales	**(koz)**	**1,429**	**1,339**	**1,110**	**558**	**1,155**	**1,032**	**454**	**485**
underground	(koz)	1,429	1,339	1,110	497	1,067	959	435	472
surface	(koz)	0	0	0	61	89	73	19	12
Expenditures									
Cash Operating Costs	**(ZARm)**	**2,462**	**2,368**	**1,995**	**863**	**2,125**	**2,369**	**1,265**	**1,181**
underground	(ZARm)	2,315	2,294	1,912	787	1,951	2,204	1,219	1,138
surface	(ZARm)	147	74	84	77	174	165	45	43
Capital Expenditure	**(ZARm)**	**0**	**0**	**0**	**32**	**196**	**280**	**112**	**139**
Cash Costs	**(ZAR/kg)**	**55,390**	**56,856**	**57,794**	**49,725**	**59,137**	**73,764**	**89,500**	**78,380**
underground	(ZAR/kg)	52,088	55,087	55,370	50,870	58,805	73,852	90,036	77,441
surface	(ZAR/kg)	0	0	0	40,403	63,118	72,622	77,182	115,073
Cash Costs	**(ZAR/t)**	**394**	**384**	**403**	**197**	**227**	**273**	**451**	**378**
underground	(ZAR/t)	371	372	386	398	415	448	541	488
surface	(ZAR/t)	0	0	0	32	37	44	82	55

(1) Statistics for 1999, 2000, 2001 are sourced from the Companies 20-F submissions and reported in calendar years.

(2) Statistics for 2002 are sourced from the Companies 20-F submissions and comprise six months ending 30 June.

(3) Statistics for 2003, 2004 are sourced from the Companies 20-F submissions for 12-month periods ending 30 June.

(4) Statistics for 2005(H1) are sourced from the Company s quarterly reports for the six months ended December 2004.

(5) Statistics for 2005(H2) are sourced from the FM for FTE and JTE for the six-month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

(6) No capital expenditure statistics are available for fiscal 1999, 2000 and 2001.

2.4.2 West Wits Operations

Introduction: Harmony obtained management control of Randfontein in January, 2000 and by June 30, 2000 had acquired 100% of Randfontein s outstanding ordinary share capital and 96.5% of the warrants to purchase ordinary shares of Randfontein for a consideration of ZAR931m.

Randfontein entered into an agreement with AVR on 21 January 2003, pursuant to which Randfontein sold 26% of its mineral rights in respect of the Doornkop Mining Area to AVR for a consideration of ZAR250m. The consideration comprised cash of ZAR140m and ZAR110m in call options on 290,000 ounces of gold, being equal to 16% of the gold produced at Doornkop during the first 10 years of operation. Randfontein and

African Vanguard Resources (AVR) also entered into a joint venture agreement on the same date, pursuant to which they agreed to jointly conduct a mining operation in respect of the Doornkop Mine. The profits will be shared 84% to Randfontein and 16% to AVR. The agreements were subject to the fulfilment of certain conditions precedent, the last of which was fulfiled on 12 August 2003.

On 31 January 2001, Harmony entered into an agreement to purchase the assets and liabilities of the Elandsrand Mine and Deelkraal Mine (collectively, Elandsdkraal) in the North West and Gauteng provinces of South Africa for approximately ZAR1bn. Harmony and AngloGold jointly managed Elandskraal between 1 February 2001 and 9 April 2001 and Harmony completed the purchase on 9 April 2001.

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The assets and liabilities of Elandskraal include the mineral rights and mining title (excluding a portion of the Carbon Leader Reef horizon, which AngloGold continues to mine), mining equipment, metallurgical facilities, underground and surface infrastructure necessary for the continuation of mining, ore treatment and gold extraction at Elandskraal as a going concern, and contributions to a rehabilitation trust fund equivalent to the current rehabilitation liability of this operation.

On 24 April 2001, Harmony entered into an agreement with Randfontein and Open Solutions, pursuant to which the parties agreed to associate together in a joint venture related to the business of the Elandskraal (the Elandskraal JV). Open Solutions, an empowerment group, undertook to purchase a 10% participation interest in the Elandskraal JV for cash consideration equal to 10% of the historical acquisition costs (including all transaction costs but excluding loan financing costs) of Elandskraal, in an amount estimated to be approximately ZAR114 million. Randfontein retained the remaining 90% participation interest in the Elandskraal JV, continued to own and operate Elandskraal, and had the sole discretion to manage the Elandskraal JV (but was required to consult with Open Solutions prior to effecting a sale or disposal of the material portion of the assets of Elandskraal). Under the agreement, Randfontein also undertook to loan the purchase price to Open Solutions at an interest rate equal to the prime rate less 1%, to be repaid by Open Solutions from the benefits accruing to Open Solutions attributable to its 10% participation interest. As security for the repayment of this loan, Open Solutions ceded and assigned to Randfontein all its right, title and interest in and to its participation interest (other than the right to appoint the representatives described below) until the loan was repaid in full.

Under the agreement, Randfontein agreed to accept liability, as to third parties, for all obligations and liabilities of the Elandskraal JV and Open Solutions agreed to indemnify Randfontein in respect of a pro rata portion of these obligations and liabilities. Open Solutions could not dispose of its participation interest without the prior written consent of Randfontein, or encumber its participation interest other than as provided in the agreement.

Pursuant to the agreement, Open Solutions was granted the right, at any time prior to the repayment in full of Randfontein s loan, to require Randfontein to acquire Open Solution s participation interest at a price equal to the then-outstanding loan balance. With effect from April 1, 2002, Randfontein reacquired this 10% participation interest in the Elandskraal JV from Open Solutions. The aggregate consideration paid by Randfontein to Open Solutions was ZAR210m. This aggregate consideration included the cancellation of the remaining ZAR91m due to Randfontein under its loan of 24 April 2001 to Open Solutions.

The West Wits Operations consist of Elandsrand Mine, Cooke 1 Mine, Cooke 2 Mine, Cooke 3 Mine, Doornkop Mine, Deelkraal Mine and Cooke 4 Mine, associated infrastructure and other mineral rights in the Gauteng and North West Province of South Africa. Production from the underground operations and adjacent surface sources is processed through three processing facilities: Elandsrand Metallurgical Plant (Elandsrand Plant); Cooke Metallurgical Plant (Cooke Plant); and the Doornkop Metallurgical Plant (Doornkop Plant). Table 2.7 presents the design and maximum operating capacities of the production units at West Wits Operations. Harmony has also historically conducted open cast mining at Randfontein, however, these open cast operations were downscaled and discontinued in the six months ended 31 December 2001, as the open pit mine had reached the end of its useful life.

In fiscal 2004, Elandskraal and Randfontein Section (collectively Cooke 1 Mine, Cooke 2 Mine, Cooke 3 Mine, Doornkop Mine and Cooke 4 Mine) accounted for approximately 10% and 12% of Harmony s total gold sales respectively.

History: Exploration, development and production history dates from 1889, leading to commercial production by the 1940s. Gold mining began at Elandskraal in 1978 following approval of the project in 1974 by Elandsrand Gold Mining Company (Elandsrand) for the Elandsrand operations and by Gold Fields of South Africa Limited. for the Deelkraal operations. Two surface shafts and two adjoining sub-vertical shafts were sunk at Elandsrand Mine and Deelkraal Mine. The sub-vertical shafts at Elandsrand Mine were completed in 1984, which accessed a deeper reef in the lease area. The sub shaft deepening project, or SSDP, the deepening of the sub-vertical shafts to approximately 3,400m below surface, is an on-going project to access and exploit a portion of the mine. In 1997, Gold Fields sold Deelkraal to Elandsrand, which later was incorporated into AngloGold and subsequently acquired by Harmony in 2001. Table 2.8 presents historical and forecast production and expenditure statistics for West Wits Operations.

Location: The West Wits Operations are situated in the Gauteng Province and North West Province, South Africa, some 85km southwest of Johannesburg. Located at approximately latitude 26º00 S and longitude 27º00 E, the site is accessed via the national highway N12 between Johannesburg and Kimberley. Locality plans for the Mining Assets comprising West Wits Operations are included in Figure 2.4 and Figure 2.5. West Wits Operations currently operated under a mining authorisation with a total area of 24,266Ha.

Geology *(See Section 3.0 for further detail):* Elandskraal contains three identified main reef groupings, the Ventersdorp Contact Reef (VCR), the Carbon Leader Reef (CLR) and the Mondeor Reef. Only the VCR is economic to mine and has been mined at depths below surface between 1,600m and 2,800m with future production to 3,300m below surface at Elandsrand Mine. The VCR and CLR consist of narrow (20cm to 200cm) tabular orebodies of quartz pebble conglomerates hosting gold, with extreme lateral continuity.

At the Elandsrand Mine, the vertical separation between the VCR and CLR increases east to west from 900m to 1,300m as a result of the relative angle of the VCR unconformity surface to the regional stratigraphic strike and dip. The CLR strikes west-southwest and dips to the south at 25º. The VCR strikes east-northeast and has a regional dip of 21º to the south-southeast. Local variations in dip are largely due to the terrace-and-slope paleotopography surface developed during VCR deposition.

The dip of the VCR at Deelkraal Mine is relatively consistent at 24º, although there is some postulation of a slight flattening of dip at depth. The VCR has a limit of deposition running roughly north-south through the centre of the lease area. The VCR is not developed to the west of this line. Some stoping has occurred to the west of this limit, but this was to exploit reefs from the Mondeor Conglomerates, stratigraphically underlying the VCR.

The Randfontein Section is situated in the West Rand Goldfield of the Witwatersrand Basin, the structure of which is dominated by the Witpoortjie and Panvlakte Horst blocks, which are superimposed over broad folding associated with the southeast plunging West Rand Syncline. The structural geology in the north section of Randfontein Mine is dominated by a series of northeast trending dextral wrench faults. The Randfontein Section contains six identified main reef groupings: the Black Reef; the VCR; the Elsburg Formations; the Kimberleys; the Livingstone Reefs; and the South Reef. Within these, several economic reef horizons have been mined at depths below surface between 600m and 1,260m. The reefs comprise fine to coarse grained pyritic mineralization within well developed thick quartz pebble conglomerates or narrow single pebble lags, which in certain instances are replaced by narrow carbon seams.

Mining Operations *(See Section 5.0 for further detail):* West Wits Operations engage in both underground mining and mining of surface sources. Mining depths range from shallow-intermediate at Randfontein Section to deep at Elandskraal Section: Cooke 1 Mine, Cooke 2 Mine, Cooke 3 Mine, Doornkop Mine (600m to 2,000m); Elandsrand Mine (1,600m to 2,800m). Cooke 4 Mine and Deelkraal Mine are currently closed and operated as service shafts for pumping of water.

The primary mining challenges at the West Wits Operations are seismic risks, ore-pass scaling and blockages and fire, with the majority of these issues concentrated at Elandskraal. In December 2001, a seismic event at Deelkraal Mine caused the deaths of six workers. Another seismic event at Deelkraal Mine in July 2002 fatally injured two workers.

Cooke 1 Mine, Cooke 2 Mine and Cooke 3 Mine are mature mining operations with the mainstay of current production at Cooke 1 sourced from remnant mining operations and production at Cooke 2 Mine and Cooke 3 Mine supplemented by mining of the extensions of the existing orebodies.

Surface mining operations are currently focused on the processing of waste rock dumps and tailings dams (sand and slimes). All surface sources are currently treated at the Doornkop Plant which is dedicated for this purpose. Open pit mining operations ceased during the six months ending 31 December, 2001.

Elandsrand Mine, a mature mine with a declining production profile, has the challenge of a new mine being developed down-dip of the old mine. The nature of the different activities underway negatively impacted on the performance of the shaft during fiscal 2004. Due to scaling of the waste and reef ore passes, a program to rehabilitate the ore pass system was put in place. This resulted in the temporary tipping of waste into the reef ore pass system, which typically results in dilution in recovery grade. The problem was finally resolved in February 2004, and resulted in an improvement in recovery grade. A fire during the quarter ended September 30, 2003 resulted in the loss of three working shifts. Production was also affected by a blockage in the ore pass during the quarter ended June 30, 2004. Seismic events during the quarters ending September 30, 2003 and June 30, 2004 resulted in three fatalities. Development was delayed as a result.

An agreement for the implementation of CONOPS at Deelkraal Mine was reached with the respective unions on 19 December 2003. Due to delays, it was only fully operational by April 2004. Despite this, production at the Deelkraal Mine was stopped in June 2004 as a result of the reduction in the ZAR price of gold which made mining at the shaft uneconomical. During fiscal 2004 Harmony also completed restructuring of Elandskraal Section, which resulted in the retrenchment of approximately 1,450 employees.

The SSDP at Elandsrand Mine, initiated by AngloGold in 1991, is intended to increase the life of mine by exploiting the southern portion of the lease area between 3,000m and 3,600m below surface. This will be achieved by deepening the sub-vertical and ventilation shafts. During fiscal 2004, the payshoot, which was mined on the shallower levels of the old mine, was exposed on levels 102 and 105. Production from level 102 started in January 2004. Development continues on 109 and 113 levels and is expected to be completed by the middle of fiscal 2006. The SSDP seeks to increase production, lower working costs and increase mining flexibility. Harmony expects that the SSDP will be completed by the middle of fiscal 2006.

The DSRP was announced on 22 January 2003. Currently, the Kimberley Reef is mined on the upper levels of the Doornkop Shaft. The South Reef on the lower levels is the target of the proposed shaft-deepening project. The main shaft deepening is to be commissioned in July 2006 and production is expected by October 2008. To access the South Reef resource the main shaft will be deepened to a depth of 2,034m and the spillage incline shaft extended to a depth of 2,082m below surface. Mining at the South Reef at Doornkop was temporarily suspended during the fourth calendar quarter of 2003 to allow for the upgrade of the ventilation with respect to increasing both hoisting capacity and ventilation intake. This caused the overall production on Doornkop to drop. This situation continued until mining commenced in January 2004.

Processing Plants *(See Section 6.0 for further detail):* Three processing plants are currently in operation: Elandsrand Plant; Cooke Plant and Doornkop Plant. As production from the Deelkraal Mine was stopped in June 2004, the Deelkraal Metallurgical Plant was closed at the end of June 2004 and clean up operations are in progress.

Commissioned in 1978, the Elandsrand Plant has milling in closed circuit with primary and secondary hydrocyclones, secondary ball milling in closed circuit with hydrocyclones, thickening and cyanide leaching in a CIP pump cell carousel circuit. The CIP was commissioned after an upgrade of the facility in 1999. Following post-acquisition capital improvements, loaded carbon milled at the Elandsrand Plant is transported by road to the Cooke Plant for elution, electro-winning and smelting to produce gold. Ore from Elandsrand Mine is delivered to the plant for treatment.

Cooke Plant, commissioned in 1977, is a hybrid CIP/CIL plant, which processes the underground ore from Cooke 1 Mine, Cooke 2 Mine, Cooke 3 Mine and Doornkop Mine. The Doornkop Plant, commissioned in 1985, is a conventional CIP plant, which is used to treat waste rock and other surface accumulations. Both plants are serviced by a surface rail network

Details regarding the tailings deposition facilities at West Wits Operations are given in Section 7.0.

Capital Projects: Harmony incurred approximately ZAR159m in capital expenditures at the Randfontein Section in fiscal 2004, of which ZAR98m was for the development of the Doornkop Project. Harmony has budgeted ZAR154m for capital expenditures at the Randfontein Section in fiscal 2005, primarily for the continued development of the DSRP. Harmony incurred approximately ZAR121m in capital expenditures at Elandskraal in fiscal 2004, principally for the SSDP, which amounted to approximately ZAR105m. Harmony has budgeted ZAR111m for capital expenditures at Elandskraal fiscal 2005, primarily for the SSDP.

Table 2.7 West Wits Operations: design and operating capacities[(1), (2)]

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Elandsrand Mine	331	331	21.1
Cooke 1 Mine	176	176	4.5
Cooke 2 Mine	187	187	5.9
Cooke 3 Mine	265	265	10.3
Doornkop Mine	200	200	17.0
Surface Sources	220	220	7.5
Elandsrand Plant	190	190	21.1
Cooke Plant	280	280	17.0
Doornkop Plant	220	220	7.5

(1) Deelkraal Mine currently operates as a Service Shaft and incurring costs as long as Elandsrand Mine operates.

(2) Cooke 4 Mine currently operates as a Service Shaft and incurring costs as long as Cooke 3 Mine operates.

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Table 2.8 West Wits Operations: historical and forecast production and expenditure statistics[(1), (2), (3), (4), (5)]

Statistics	Units	1999	2000	2001	2002	2003	2004	2005[(H1)]	2005[(H2)]
Production									
Tonnage	**(kt)**	**12,392**	**9,669**	**7,456**	**8,083**	**7,863**	**7,038**	**2,900**	**2,902**
underground	(kt)	6,700	6,497	5,158	5,467	4,743	4,426	1,555	1,802
surface	(kt)	5,693	3,172	2,298	2,616	3,121	2,612	1,345	1,100
Yield	**(g/t)**	**3.7**	**4.5**	**3.9**	**4.0**	**3.4**	**3.3**	**3.1**	**3.8**
underground	(g/t)	6.0	6.1	5.1	5.5	5.3	5.0	5.4	5.9
surface	(g/t)	0.9	1.1	1.1	0.8	0.6	0.3	0.4	0.4
Sales	**(koz)**	**1,461**	**1,392**	**926**	**1,038**	**858**	**737**	**286**	**354**
underground	(koz)	1,296	1,283	843	974	802	713	270	339
surface	(koz)	165	109	83	63	56	24	16	16
Expenditures									
Cash Operating Costs	**(ZARm)**	**2,337**	**2,352**	**1,564**	**1,963**	**1,868**	**1,975**	**790**	**899**
underground	(ZARm)	2,133	2,165	1,418	1,854	1,754	1,912	747	854
surface	(ZARm)	203	186	146	109	114	63	44	45
Capital Expenditure	**(ZARm)**	**0**	**85**	**115**	**142**	**174**	**280**	**132**	**131**
Cash Costs	**(ZAR/kg)**	**51,410**	**54,302**	**54,276**	**60,817**	**69,972**	**86,140**	**88,775**	**81,594**
underground	(ZAR/kg)	52,920	54,266	54,048	61,174	70,304	86,211	88,878	81,033
surface	(ZAR/kg)	39,569	54,723	56,598	55,330	65,245	84,042	87,067	93,819
Cash Costs	**(ZAR/t)**	**189**	**243**	**210**	**243**	**238**	**281**	**273**	**310**
underground	(ZAR/t)	318	333	275	339	370	432	480	474
surface	(ZAR/t)	36	59	64	42	37	24	33	41

(1) Statistics for Elandskraal Section for 1999, 2000, 2001 are sourced from the Companies 20-F submissions. As these are reported in calendar years these have been converted on a simplified basis to fiscal years ending 30 June.

(2) Statistics for 2002, 2003, 2004 are sourced from the Companies 20-F submissions for 12 month periods ending 30 June.

(3) Statistics for 2005[(H1)] are sourced from the Company s quarterly reports for the six months ended December 2004.

(4) Statistics for 2005[(H2)] are sourced from the FM the six-month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

(5) No capital expenditure statistics are available for fiscal 1999.

2.4.3 Target Operations

Introduction: On 15 July 2003 Harmony acquired 11.5% in Avgold from Anglo South Africa Capital (Proprietary) Limited. On 13 November 2003 Harmony announced that it had reached an agreement regarding the acquisition of ARM s 42% share in Avgold. In terms of JSE regulations, the offer was extended to the remaining Avgold shareholders by way of a scheme of arrangements. Following a scheme meeting held on May 3, 2004, the High Court of South Africa approved the scheme on 11 May 2004. This resulted in Harmony acquiring the minority shareholding and Avgold becoming a wholly-owned subsidiary. Target Operations have been managed by Harmony since May 2004.

The Target Operations consist of Target Mine and associated infrastructure and mineral rights in the Free State Province of South Africa. Production from the underground operation is processed through the Target Metallurgical Plant (Target Plant). The main exploration properties include Target North and Extensions and Oribi. Table 2.9 presents the design and maximum operating capacities of the production units at Target Operations.

In fiscal 2004, Target Operations accounted for approximately 2% of Harmony s total gold sales.

Location: The Target Operations are situated in the Free State Province, South Africa, some 270km southwest of Johannesburg. Located at approximately latitude 28º00 S and longitude 26º30 E on the northern limit of the Free State Goldfield, the site is accessed via the R30 situated between the towns of Bothaville and Welkom. Locality plans for the Mining Assets comprising Target Operations are included in Figure 2.6. Target Operations currently operated under a mining authorisation with a total area of 4,151Ha.

History: The Target Operations area was initially explored through surface drilling in the late 1980s with further exploration being undertaken from a 5.6km long decline, commenced in 1995, driven from 203 Level at Loraine No.1c shaft. A positive feasibility study

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into the development of a 105ktpm operation was produced in May 1998 resulting in the decision to develop the Target Mine. A detailed mine design was produced in 2000 and the mine officially opened in May 2002. Upon closure of the Loraine Mine in August 1998, the Loraine No. 1 and No. 2 shafts were transferred to the Target Mine. Table 2.10 presents historical and forecast production and expenditure statistics for Target Operations.

Geology *(See Section 3.0 for further detail):* The gold mineralization currently exploited by Target Mine is contained within a succession of Elsburg and Dreyerskuil quartz pebble conglomerate reefs hosted by the Van Heeversrust and Dreyerskuil Members of the Eldorado Formation, respectively. Additional Mineral Resources have been delineated in the Big Pebble Reefs (BPR) of the Kimberley Formation. The majority of the Mineral Reserves at Target Mine are contained within the Eldorado fan, a structure with dimensions of some 135m vertically, 450m down-dip and 500m along strike. The Eldorado fan is connected to the subsidiary Zuurbron fan, located between the Target Mine and Loraine, by a thinner and lower grade sequence of Elsburg reefs termed the Interfan area. To the north of the Eldorado fan, a number of fans have been intersected by surface drilling of which the Siberia and Mariasdal fans are the most significant.

A number of faults that displace the reefs of the Target Mine have been identified of which the most prominent are the north-south trending Eldorado fault and the east-west trending Dam and Blast faults. The Eldorado uplifts the more distal portions of the Elsburg and Dreyerskuil Reefs while the Blast fault forms the northern border of the Target Mine. Target North is sub-divided into the Paradise, Siberia and Mariasdal areas by the east-west trending Siberia and Mariasdal faults. To the north of the Siberia fault, the Eldorado fault continues trending more to the northwest and an additional north-south trending fault, the Twin fault has uplifted the distal portions of the reefs. North of the Mariasdal fault, the reef horizons are at a depth greater than 2,500m below surface. Mineral Resources have been delineated on strike up to 15km north of the Target Mine. Approximately 40km north of Target Mine, surface boreholes have intersected gold bearing reefs in the Oribi area close to the town of Bothaville. Mineral Resources have been delineated at Oribi on the VCR and Elsburg Reefs at depths of approximately 2,750m below surface.

Mining Operations *(See Section 5.0 for further detail):* Target Operations are engaged in underground mining. Mining operations comprise one primary underground mine commissioned in May 2002, making use of information systems and mechanization, combined with process-driven organizational design that relies on a multi-skilled workforce. The majority of the production is derived from mechanized mining; however conventional narrow stoping width is still employed primarily to de-stress areas ahead of the mechanized mining. The mining operations feed one central process facility, namely the Target Plant. Various mining studies have been undertaken on the Target North deposit prior to acquisition by Harmony. These have not yet been updated and SRK has been informed that the projects do not meet the company s hurdle rates at the projected ZAR gold price.

Processing Plants *(See Section 6.0 for further detail):* One processing plant is currently in operation: Target Plant. The plant was commissioned towards the end of 2001 and currently treats only underground ore. The process route comprise primary crushing, open circuit primary SAG milling, secondary ball milling closed with hydrocyclones, thickening, cyanide leaching, CIP adsorption, elution, electro winning, smelting and tailings disposal. The milling circuit incorporates gravity concentration, the concentrates from which are processed via intensive cyanidation and electro winning. Gold bullion is despatched to Harmony s refinery.

Details regarding the tailings deposition facilities at Target Operations are given in Section 7.0.

Capital expenditure: Harmony incurred approximately ZAR8.1m in capital expenditure at Target Operations in the last two months of fiscal 2004, principally for underground development. Harmony has budgeted ZAR83m for capital expenditure in fiscal 2005, primarily for underground development, services and infrastructure to support the operations.

Table 2.9 Target Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Target Mine	110	110	21.8
Target Plant	105	105	21.8

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Table 2.10 Target Operations: historical and forecast production and expenditure statistics(1), (2), (3), (4), (5)

Statistics	Units	1999	2000	2001	2002	2003	2004	2005(H1)	2005(H2)
Production									
Tonnage	(kt)	0	0	492	782	1,068	1,084	632	630
Yield	(g/t)	0.0	0.0	3.0	6.6	8.6	9.8	6.6	6.3
Sales	(koz)	0	0	47	165	294	341	134	127
Expenditures									
Cash Operating Costs	(ZARm)	0	0	290	523	470	483	194	231
Capital									
Expenditure	(ZARm)	0	0	521	102	101	8	25	28
Cash Costs	(ZAR/kg)	0	0	198,377	101,908	51,397	45,627	46,461	58,400
Cash Costs	(ZAR/t)	0	0	589	669	440	446	307	366

(1) Statistics for 2001, 2002, 2003 are sourced from the previous CPR compiled by SRK and published on 8 April 2004.

(2) Statistics for 2004 are sourced from the Company.

(3) Statistics for 2005(H1) are sourced from the Company s quarterly reports for the six months ended December 2004.

(4) Statistics for 2005(H2) are sourced from the FM the six-month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

(5) No information was available for fiscal 1999 and 2000.

2.4.4 Harmony Free State Operations

Introduction: The Harmony Free State Operations began with the Harmony mine, which is an amalgamation of the Harmony, Virginia and Merriespruit mines. Beginning in 1996, Harmony began purchasing neighbouring mine shafts. The Unisel Mine was purchased in September 1996, the Saaiplaas Mine shafts 2 and 3 were purchased in April 1997, the Brand Mine shafts 2, 3 and 5 were purchased in May 1998 and the Masimong complex (formerly known as Saaiplaas shafts 4 and 5) was purchased in September 1998.

The Harmony Free State Operations consist of Harmony 2 Mine, Merriespruit 1 Mine, Merriespruit 3 Mine, Unisel Mine, Brand 3 Mine, Masimong 4 Mine, Masimong 5 Mine and associated infrastructure and mineral rights in the Free State Province of South Africa. Production from the underground operations is processed in two operating plants: the Central Metallurgical Plant (Central Plant) and the Saaiplaas Metallurgical Plant (Saaiplaas Plant). Additional non-operational shafts include: Saaiplaas 3 Mine operated on a care and maintenance basis; Harmony 3 Mine, Harmony 4 Mine, Virginia 2 Mine, Brand 2 Mine and Brand 5 Mine operating as service shafts. Table 2.11 presents the design and maximum operating capacities of the production units at Harmony Free State Operations.

In fiscal 2004, Harmony Free State Operations accounted for approximately 21% of Harmony s total gold sales.

Location: The Harmony Free State Operations are situated in Free State province, South Africa, some 270km southwest of Johannesburg. Located at approximately latitude 28º10 S and longitude 26º30 E the site is accessed via the national highway N1 between Johannesburg and Bloemfontein. Locality plans for the Mining Assets comprising Harmony Free State Operations are included in Figure 2.2 and Figure 2.7. Harmony Free State Operations currently operated under a mining authorisation with a total area of 22,583Ha.

History: Exploration, development and production history in the area dates from the early 1940s. Table 2.12 presents historical and forecast production and expenditure statistics for Harmony Free State Operations.

Geology *(See Section 3.0 for further detail):* The Harmony Free State Operations are located in the Free State Goldfield on the south-western edge of the Witwatersrand Basin. Within this area, the operations are located on the south-western and south-eastern limb of a synclinal closure, with the Brand, Saaiplaas and Masimong shafts occupying northerly extensions of the same structure. The reefs dip inwardly from their sub-outcrop positions in the east and south of the mine to a position close to the western boundary of the original Harmony mine, where the reefs abut against the De Bron fault. To the west of the De Bron fault zone, faulting is generally more intense, resulting in structurally more complex mining conditions.

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Mining Operations *(See Section 5.0 for further detail):* Harmony Free State Operations engage in underground mining. Mining depths range from shallow (500m) to intermediate depths at (1,500m to 2,500m) consequently seismicity and pressure related problems are relatively infrequent with the exception of the Brand 3 Mine. There exists a risk of subterranean water and/or gas intersections in some areas of the operations, however, this risk is mitigated by active and continuous management and monitoring, which includes the drilling of boreholes in advance of faces. Where water and/or gas are indicated in the drilling, appropriate preventative action is taken. The principal challenges at the Harmony Free State Operations are achieving optimal volumes and grades of ore production

In 2002, Harmony began implementing the Masimong Expansion Project (MEP), which includes developing the Basal and B Reef orebodies at the Masimong shafts and shaft equipping. The estimated final capital cost is ZAR153m, with ZAR90m expended as of 30 June 2004.

The Virginia 2 Mine was closed at the end of 2001, and is currently used only as a service shaft. The Company also closed the Harmony 4 Mine in the quarter ended 30 September 2002, following the partial extraction of the shaft pillar. Mining personnel from the Harmony 4 Mine have been transferred to other shafts. The Harmony 3 Mine is currently used only as a service shaft for pumping. In conjunction with the development of the hoisting operations at Masimong 5 Mine, Harmony downscaled the Masimong 4 Mine to a service and small scale mining shaft in the quarter ended 30 June 2001. In the quarter ended June 30, 2002, however, Harmony determined that additional production at the Masimong 4 Mine would become uneconomical under the prevailing market conditions. Additional personnel were then redeployed to access additional areas of the Masimong 4 Mine to facilitate further production in the future. Since June 2004 rationalisation has been undertaken at Masimong 4 and Masimong 5 and production status has been re-established.

Under market conditions prevailing in the quarter ended 30 June 2002, Harmony also decided to commence extraction of the shaft pillar at Saaiplaas 3 Mine, which previously operated as a service shaft. The project has due to technical difficulties and current market conditions been terminated. Merriespruit 3 Mine is nearing the end of its economical life and has been earmarked for closure. Production is being downscaled and will eventually be discontinued all together.

Harmony also decided to place the Brand 2 Mine on care and maintenance. During the quarter ended 30 September 2003, Harmony decided to put the Brand 5 Mine on care and maintenance and to continue with exploration development only, which is being managed from the Unisel Mine. This development was also discontinued during the quarter ended 30 September 2003. Care and maintenance will remain in place until market conditions are more favourable or more economically viable areas of the orebody are discovered. All labour has been transferred to other Harmony operations, where they have augmented natural attrition positions or displaced contractor labour.

Harmony began processing materials from secondary surface sources, primarily waste rock dumps and tailings dams (slimes and sand), at the Harmony Free State Operations in the quarter ended 31 March 2002. The reduction in the ZAR denominated market price for gold during fiscal 2004 resulted in the treatment of surface sources being scaled down significantly. As at 1 January 2005 treatment of surface sources has been discontinued.

Processing Plants *(See Section 6.0 for further detail):* Two processing plants are currently in operation: Central Plant and Saaiplaas Plant. The Central Plant employs CIP/CIL hybrid technology. The Saaiplaas Plant has been converted from the zinc precipitation filter process to the CIL. After the year end for fiscal 2004, the Virginia Plant was closed and clean up operations are in progress. Details regarding the tailings deposition facilities at Harmony Free State Operations are given in Section 7.0.

Capital Expenditure: The Company incurred approximately ZAR58m in capital expenditures at the Harmony Free State Operations in fiscal 2004, principally for shaft development at Saaiplaas 3 Mine, Unisel Mine, Merriespruit 1 Mine, Masimong 4 Mine and Masimong 5 Mine.

Harmony has budgeted ZAR38.4m for capital expenditures at the Harmony Free State operations in fiscal 2005, primarily for development of the Masimong 4 Mine and Masimong 5 Mine with smaller development projects at Unisel Mine and Merriespruit 1 Mine and secondarily to upgrade hostels.

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Table 2.11 Harmony Free State Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Harmony 2 Mine	227	54	4.5
Merriespruit 1 Mine	129	43	18.9
Merriespruit 3 Mine	197	48	4.5
Unisel Mine	137	65	14.4
Brand 3 Mine	120	50	2.1
Masimong 4 Mine	149	27	13.5
Masimong 5 Mine	149	134	14.9
Central Plant	240	220	18.9
Saaiplaas Plant	220	195	14.9

Table 2.12 Harmony Free State Operations: historical and forecast production and expenditure statistics(1), (2), (3), (4)

Statistics	Units	1999	2000	2001	2002	2003	2004	2005(H1)	2005(H2)
Production									
Tonnage	**(kt)**	**5,318**	**5,686**	**5,290**	**4,539**	**5,339**	**6,554**	**2,061**	**2,054**
underground	(kt)	5,318	5,686	5,290	4,307	4,283	4,405	1,836	2,054
surface	(kt)	0	0	0	231	1,056	2,148	224	0
Yield	**(g/t)**	**4.7**	**4.7**	**4.0**	**4.2**	**3.3**	**3.2**	**3.8**	**4.1**
underground	(g/t)	4.7	4.7	4.0	4.3	3.9	4.6	4.2	4.1
surface	(g/t)	0.0	0.0	0.0	1.8	0.7	0.4	0.6	0.0
Sales	**(koz)**	**810**	**857**	**686**	**612**	**563**	**681**	**250**	**272**
underground	(koz)	810	857	686	599	539	654	246	272
surface	(koz)	0	0	0	13	24	27	4	0
Expenditures									
Cash Operating Costs	**(ZARm)**	**1,210**	**1,358**	**1,379**	**1,351**	**1,394**	**1,809**	**729**	**809**
underground	(ZARm)	1,210	1,358	1,379	1,345	1,334	1,744	717	809
surface	(ZARm)	0	0	0	6	60	64	12	0
Capital Expenditure	**(ZARm)**	**0**	**62**	**120**	**95**	**127**	**58**	**35**	**40**
Cash Costs	**(ZAR/kg)**	**48,041**	**50,941**	**64,619**	**70,969**	**79,549**	**85,370**	**93,570**	**95,678**
underground	(ZAR/kg)	48,041	50,941	64,619	72,211	79,555	85,694	93,578	95,678
surface	(ZAR/kg)	0	0	0	15,104	79,419	77,422	93,091	0
Cash Costs	**(ZAR/t)**	**228**	**239**	**261**	**298**	**261**	**276**	**354**	**394**
underground	(ZAR/t)	228	239	261	312	311	396	391	394
surface	(ZAR/t)	0	0	0	27	57	30	52	0

(1) Statistics for 1999 through 2004 are sourced from the Company s 20-F submissions.

(2) Statistics for 2005(H1) are sourced from the Company s quarterly reports for the six months ended December 2004.

(3) Statistics for 2005(H2) are sourced from the FM for the six-month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

(4) No information was available for Capital Expenditures for fiscal 1999.

2.4.5 Evander Operations

Introduction: In July 1998, Harmony acquired the mining assets and liabilities of Evander for a consideration of ZAR545m.

The Evander Operations consist of Evander 2 Mine, Evander 5 Mine, Evander 7 mine, Evander 8 Mine, the Evander Rolspruit Project, the Evander Poplar Project and associated infrastructure and mineral rights in the Mpumalanga Province of South Africa. Production from the underground operations is processed through the Kinross-Winkelhaak Metallurgical Plant (Kinross-Winkelhaak Plant). Evander 9 Mine is currently operating on care and maintenance and Evander 3 Mine has been closed.Table 2.13 presents the design and maximum operating capacities of the production units at Evander Operations.

In fiscal 2004, Evander Operations accounted for approximately 11% of Harmony s total gold sales.

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History: Exploration, development and production history in the area dates from 1903, leading to full-scale production by 1955 when four mining operations were established: Kinross, Bracken, Leslie and Winkelhaak. In 1996, as a result of depletion, all four mining areas were merged to form Evander. Table 2.14 presents historical and forecast production and expenditure statistics for Evander Operations.

Location: The Evander Operations are situated in the Mpumalanga Province, South Africa, some 120km east-southeast of Johannesburg. Located at approximately latitude 28º28 S and longitude 29º06 E, the site is accessed via the local R29 road between Leandra and Bethel in the vicinity of Kinross. Locality plans for the Mining Assets comprising Evander Operations are included in Figure 2.8. Evander Operations currently operated under a mining authorisation with a total area of 36,898Ha.

Geology *(See Section 3.0 for further detail):* The area covered by Evander Operations mining authorisation and mineral rights is situated within the Evander basin, a geologically discrete easterly extension of the main Witwatersrand Basin. Only one economic placer unit, the Kimberley Reef, is mined at Evander Operations. In addition to the faulting of the reef horizon, there are numerous dykes and sills that complicate the mining layouts, the most significant of which is an extensively developed dolerite footwall sill that occasionally intersects the Kimberley Reef, causing displacements within it.

Mining Operations *(See Section 5.0 for further detail):* Evander Operations engage in underground mining. Mining depths range from shallow (300m) to intermediate (2,100m) and as a result seismicity and pressure related problems are relatively infrequent. There exists a risk of subterranean water and/or gas intersections in some areas of the operations, however, this risk is mitigated by active and continuous management and monitoring, which includes the drilling of boreholes in advance of faces. Where water and/or gas are indicated in the drilling, appropriate preventative action is taken.

Evander Operations was affected by two underground fires and the flooding of parts of the mine during fiscal 2000, both of which had a negative impact on production during fiscal 2000. Such incidents are generally infrequent and there were no significant incidents in fiscal 2003 or 2004. On July 12, 2002, a seismic event at the Evander 8 Mine caused injuries to four workers (but no fatalities), significant infrastructure damage and an interruption in production for three weeks. The damage from this incident adversely impacted on the performance of these operations over the 2003 fiscal year due to the fact that Evander 8 Mine is the highest grade operation at Evander Operations, so production and overall recovery grade was significantly affected.

During the quarter ended March 31, 2004, an agreement was reached with the unions for the implementation of CONOPS at Evander. To date, it has been fully implemented at Evander 7 Mine. Due to an initial lack of mining flexibility, CONOPS has only been partially introduced at Evander 8 Mine. The introduction at Evander 2 Mine is progressing well but results from this shaft have been inconsistent to date.

Feasibility studies have been completed on both the Evander Rolspruit Project and the Evander Poplar Project. Both assume the establishment of greenfields operations and require significant capital expenditures, for which neither board approval or funding has been secured, due to the current low ZAR gold price. The Mineral Reserve statements for Evander Operations include the Mineral Reserves for these projects. Should no decision be forthcoming for the execution of these projects the Mineral Reserve statements for Evander Operations would be significantly reduced and the impact of this on the Company s consolidated Mineral Reserve statement is also given in Section 4.0 of this CPR.

Processing Plants *(See Section 6.0 for further detail):* One processing plant is currently in operation: the Kinross-Winkelhaak Plant. This includes two geographically separate operating sections: the Kinross Section and the Winkelhaak Section, with the later comprising only a milling circuit. The bulk of the mine s ore production is treated at the Kinross Section, which is a CIP/CIL hybrid plant. The Winkelhaak Section mills all of the ore from Evander 2 and Evander 3 Mine and pumps the slurry to the Kinross Section for further processing. Details regarding the tailings storage facilities at Evander Operations are given in Section 7.0.

Capital Expenditure: The Company incurred approximately ZAR94m in capital expenditures at the Evander Operations in fiscal 2004, principally for underground declines at Evander 7 Mine and Evander 8 Mine. Harmony has budgeted ZAR59m for capital expenditures at the Evander Operations in fiscal 2005, primarily for development of the decline shafts at Evander 7 Mine and Evander 8 Mine.

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Table 2.13 Evander Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Evander 2 Mine	69	51	7.4
Evander 5 Mine	176	21	8.1
Evander 7 Mine	106	53	14.4
Evander 8 Mine	147	51	30.0
Evander Rolspruit Project	200	129	15.1
Evander Poplar Project	200	181	16.6
Kinross-Winkelhaak Plant	190	148	30.0

Table 2.14 Evander Operations: historical and forecast production and expenditure statistics(1), (2), (3), (4)

Statistics	Units	1999	2000	2001	2002	2003	2004	2005(H1)	2005(H2)
Production									
Tonnage	(kt)	2,108	2,405	2,484	2,353	2,127	2,074	921	887
Yield	(g/t)	6.2	5.1	5.7	5.5	5.3	5.4	6.9	5.3
Sales	(koz)	423	393	458	415	360	362	204	152
Expenditures									
Cash Operating Costs	(ZARm)	559	596	693	723	795	901	434	437
Capital Expenditure	(ZARm)	0	68	69	98	99	94	25	29
Cash Costs	(ZAR/kg)	42,477	48,719	48,619	55,948	70,994	80,067	68,481	92,616
Cash Costs	(ZAR/t)	265	248	279	307	374	434	471	492

(1) Statistics for 1999 through 2004 are sourced from the Company s 20-F submissions.

(2) Statistics for 2005(H1) are sourced from the Company s quarterly reports for the six months ended December 2004.

(3) Statistics for 2005(H2) are sourced from the FM for the six-month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

(4) No information was available for Capital Expenditures for fiscal 1999.

2.4.6 Orkney Operations

Introduction: On 22 September 2003, Harmony and ARMgold consummated a merger, the terms of which were announced on 2 May 2003. Pursuant to the merger agreement, following the respective company shareholder approvals, Harmony issued 2 ordinary shares for every 3 ARMgold ordinary shares acquired. ARMgold also paid its shareholders a special dividend of ZAR6.00 per ordinary share prior to the consummation of the merger. Harmony issued 63,670,000 ordinary shares to ARMgold s shareholders which resulted in ARMgold becoming a wholly-owned subsidiary of Harmony. The results of ARMgold were included from 1 October 2003.

In fiscal 2004, Orkney Operations and Welkom Operations accounted for approximately 6% of Harmony s total gold sales.

The Orkney Operations consist of Orkney 2 Mine, Orkney 4 Mine and associated infrastructure and mineral rights in the NorthWest province of South Africa. Orkney 3 Mine, Orkney 6 Mine and Orkney 7 Mine are currently closed and operating as service shafts. Orkney 5 Mine is closed. Production form the underground operations are treated at AngloGold s Vaal River Operations (VRO). Orkney 1 Mine was given back to AngloGold as per the agreement with them. Table 2.15 presents the design and maximum operating capacities of the production units at Orkney Operations.

History: Exploration, development and production history in the area dates from 1886 and following dormant periods, large-scale production commenced during the 1940 s with the formation of Vaal Reefs Gold Mining and Exploration Company Limited (Vaal Reefs) in 1944. Table 2.16 presents historical and forecast production and expenditure statistics for Orkney Operations.

Location: The Orkney Operations are situated in the NorthWest Province, South Africa, some 175km south-west of Johannesburg. Located at approximately latitude 26º30 S and longitude 26º45 E, the site is accessed via the national highway N12 between local R29 road between Johannesburg and Kimberley. Locality plans for the Mining Assets comprising Orkney Operations are included in Figure 2.9. Orkney Operations currently operated under a mining authorisation with a total area of 9,317Ha.

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Geology *(See Section 3.0 for further detail):* At the Orkney Operations, the Vaal Reef is the most significant reef mined. The reef strikes northeast, dipping southeast and is heavily faulted to form a series of graben structures. The dip is generally less than 30º but can vary locally in direction and magnitude to exceed 45º. The VCR is also exploited, as well as the Elsburg Reef. There are several major faults in the lease area, being Nooitgedacht, Buffelsdoorn, Witkop, WK2, Orkney 3 Mine, Orkney 5 Mine and Orkney 2 Mine Fault. These faults typically have throws of tens of metres and further divide the reef into blocks of up to 100m in width.

Mining Operations *(See Section 5.0 for further detail):* Orkney Operations are engaged in underground mining. Mining depths rage from 1,600m to 2,000m below surface. The primary challenges at the Orkney Operations are directly related to seismic risk, remnant mining conditions and cost containment. Under ARMgold management the operations were operated by contractors, and on completion of the Harmony ARMgold merger all workers became employees of Harmony. Orkney 6 was also earmarked for closure during the quarter ended March 31, 2004. Following a protected strike that lasted from February 12, 2004 to February 16, 2004, Harmony and NUM reached an agreement on annual wage increases. NUM accepted the Company s proposal and these employees have now been included in the bi-annual wage agreement, which will be renegotiated in July 2005. Following recent restructuring, Orkney 2 Mine and Orkney 4 Mine remain in production.

Processing Plants: No processing plants are in operation at Orkney Operations as all underground ore is toll treated at AngloGold s VRO.

Capital Expenditure: The Company incurred approximately ZAR6m in capital expenditures at the Orkney Operations in fiscal 2004, principally for development at the Orkney 3 Mine.

Table 2.15 Orkney Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Orkney 2 Mine	140	45	5.2
Orkney 4 Mine	158	39	11.0

Table 2.16 Orkney Operations: historical and forecast production and expenditure statistics (1), (2), (3), (4), (5)

Statistics	Units	1999	2000	2001	2002	2003	2004	2005(H1)	2005(H2)
Production									
Tonnage	(kt)	0	0	2,060	942	1,761	1,605	425	446
Yield	(g/t)	0.0	0.0	7.1	7.7	7.2	5.6	6.2	6.3
Sales	(koz)	0	0	468	232	408	291	84	91
Expenditures									
Cash Operating Costs	(ZARm)	0	0	730	407	788	696	216	244
Capital Expenditure	(ZARm)	0	0	30	23	6	6	0	5
Cash Costs	(ZAR/kg)	0	0	50,150	56,402	62,095	76,972	82,335	86,540
Cash Costs	(ZAR/t)	0	0	354	432	447	434	509	548

(1) No statistics are available for fiscal 1999 and 2000.

(2) Statistics for fiscal 2001, 2002 and 2003 are sourced from SRK s CPR published on 8 April 2004.

(3) Statistics for fiscal 2004 are sourced from the Company s annual report for the period ending 30 June 2004.

(4) Statistics for 2005[(H1)] are sourced from the Company s quarterly reports for the six months ending December 2004.

(5) Statistics for 2005[(H2)] are sourced from the FM for the six month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

2.4.7 Welkom Operations

Introduction: See comments in the introduction of Section 2.4.6 above which equally apply to Welkom Operations. Production at Welkom Operations has ceased and all mines are currently operating on a care and maintenance basis. The Welkom Operations comprises, Welkom 1 Mine, Welkom 2 Mine, Welkom 3 Mine, Welkom 4 Mine, Welkom 6 Mine, Welkom 7 Mine and associated infrastructure and mineral rights in the Free State Province of South Africa. Table 2.17 presents the design and maximum operating capacities of the production units at Welkom Operations.

History: Exploration, development and production history in the area dates from the 1940 s leading to commercial production by 1947. Table 2.18 presents historical and forecast production and expenditure statistics for Welkom Operations.

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Location: The Welkom Operations are situated in the Free State Province, South Africa, some 270km southwest of Johannesburg. Located at approximately latitude 28°00 S and longitude 26°30 E, the site is accessed via the national highway N12 between Johannesburg and Bloemfontein. Locality plans for the Mining Assets comprising Welkom Operations are included in Figure 2.1. Welkom Operations currently operate under a mining authorisation with a total area of 5,511Ha.

Geology *(See Section 3.0 for further detail):* The Welkom Operations are centrally located within the Free State Goldfield, situated on the southwest rim of the Witwatersrand Basin, in an area containing several other mature operations. The Basal Reef is the main reef exploited here. It strikes north to north-northwest and generally dips to the east between 20º and 40º. Other reefs that are exploited are the Leader Reef, the Saaiplaas Reef and the Middle Reef.

Mining Operations *(See Section 5.0 for further detail):* Welkom Operations were engaged in underground mining. Mining depths raged from 1,000m to 1,200m below surface. Following a protected strike that lasted from February 12, 2004 to February 16, 2004, Harmony and NUM reached an agreement on annual wage increases. NUM accepted the Company s proposal and these employees have now been included in the bi-annual wage agreement, which will be renegotiated in July 2005. Following recent restructuring all operations are currently operating on a care and maintenance basis.

Processing Plants: No processing plants are in operation at Welkom Operations as all underground ore was treated at Freegold Operations processing facilities.

Capital Expenditure: The Company incurred approximately ZAR6m in capital expenditures at the Welkom Operations in fiscal 2004.

Table 2.17 Welkom Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Welkom 1 Mine	67	n/a	n/a
Welkom 2 Mine	53	n/a	n/a
Welkom 3 Mine	54	n/a	n/a
Welkom 4 Mine	54	n/a	n/a
Welkom 6 Mine	67	n/a	n/a
Welkom 7 Mine	67	n/a	n/a

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Table 2.18 Welkom Operations: historical and forecast production and expenditure statistics[(1), (2), (3), (4), (5)]

Statistics	Units	1999	2000	2001	2002	2003	2004	2005[(H1)]	2005[(H2)]
Production									
Tonnage	(kt)	0	0	340	224	577	439	n/a	n/a
Yield	(g/t)	0.0	0.0	5.1	4.9	3.4	3.9	n/a	n/a
Sales	(koz)	0	0	56	35	63	55	n/a	n/a
Expenditures									
Cash Operating Costs	(ZARm)	0	0	144	101	203	178	12	24
Capital Expenditure	(ZARm)	0	0	115	262	169	6	n/a	n/a
Cash Costs	(ZAR/kg)	0	0	82,673	92,778	103,597	104,809	n/a	n/a
Cash Costs	(ZAR/t)	0	0	424	451	352	406	n/a	n/a

(1) No statistics are available for fiscal 1999 and 2000.

(2) Statistics for fiscal 2001, 2002 and 2003 are sourced from SRK s CPR published on 8 April 2004.

(3) Statistics for fiscal 2004 are sourced from the Company s annual report for the period ended 30 June 2004.

(4) Statistics for 2005[(H1)] are sourced from the Company s quarterly reports for the six months ended December 2004.

(5) Statistics for 2005[(H2)] are sourced from the FM the six-month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

2.4.8 Kalgold Operations

Introduction: Harmony purchased Kalgold on 1 July 1999. On November 7, 2003 Harmony announced its intent to sell Kalgold to Afrikaner Lease Limited (Aflease) for a consideration of ZAR250m. Although all the other conditions precedent were met, Aflease could not provide appropriate funding and the contract was cancelled on 15 March 2004. Kalgold experienced operational difficulties normally associated with a changeover of management and control and this was reflected in the production figures.

Kalgold Operations comprises the Kalgold Mine (open pit) and associated infrastructure and mineral rights on the Kraaipan Greenstone Belt in the North West Province of South Africa. Kalgold Operations have one processing plant: the Kalgold Metallurgical Plant (Kalgold Plant) which processes all material mined from the open-pit. Table 2.19 presents the design and maximum operating capacities of the production units at Kalgold Operations.

In fiscal 2004, the Kalgold Operations accounted for approximately 3% of Harmony s total gold sales.

History: The gold deposits at Kalgold were discovered by Shell South Africa (Proprietary) Limited (Shell) in 1991 following an exploration program which focused on the poorly exposed Archaean Greenstone belts of the Kraaipan Group, which occur in the area. In 1995 a feasibility study was conducted by West Rand Consolidated Mines Limited (WRCM) who acquired the mineral and surface rights leading to the development of an open-pit operation in July 1996. Harmony acquired Kalgold on 1 July 1999 and fully incorporated Kalgold into its operations in October 1999. Prior to Harmony s acquisition, the Kalgold mine had operated for more than three years. Table 2.20 presents historical and forecast production and expenditure statistics at Kalgold Operations.

Location: The Kalgold Operations are situated some 50km southwest of Mafikeng in the North-West Province, South Africa, some 300km west of Johannesburg. Located at latitude 26º10 S and longitude 26º14 E, the site accessed via the local R49 between Mafikeng and Vryburg. Locality plans for the Mining Assets comprising Kalgold Operations are included in Figure 2.10. Kalgold Operations currently operate under a mining authorisation with a total area of 615Ha.

Geology *(See Section 3.0 for further detail):* The Kalgold Operations are situated on the Kraaipan Greenstone belt, which is a typical gold bearing greenstone formation. It has undergone intense structural deformation that has led to its dislocation into separate units. Within the mining lease area, six steeply dipping zones of mineralisation have been identified. Several additional zones of mineralisation have been located within this area and are being evaluated. The first zone to be exploited by open cast mining has been an area known as the D Zone. The D Zone orebody has a strike length of 1,400m varying in width between 40m in the south and 15m in the north. Gold mineralization is associated with pyrite and pyrrhotite, which was developed as a replacement mineral within a banded ironstone formation and also within extensional, cross-cutting quartz veins within the ironstone.

Mining Operations *(See Section 5.0 for further detail):* The Kalgold Operations are engaged in open pit mining. Small subterranean water intersections in the pit are common and are actively managed and appropriate action is taken when necessary. The primary mining challenges at the Kalgold Operations are achieving optimal volumes and grades of ore production in addition to the stability of the high-walls.

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Processing Plants *(See Section 6.0 for further detail):* During fiscal 2001, Kalgold Operations had a CIL plant and a heap leach operation. Harmony discontinued the active use of Kalgold s heap leach operation in July 2001 and no gold was recovered through heap leaching in fiscal 2002. Ore is trucked from the pit and stockpiled according to grade categories. Higher grade ore is processed in the CIL plant. Lower grade ore is dumped on heap leach pads. Following the recent commissioning of the pre-primary crusher, the ore now undergoes a four phase crushing process. An additional ball mill and additional leach tanks have been commissioned. Details regarding the tailings deposition facilities at Kalgold Operations are given in Section 7.0.

Capital Expenditure: Harmony incurred approximately ZAR2m in capital expenditures at the Kalgold operations during fiscal 2004, principally for mining operations.

Table 2.19 Kalgold Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Kalgold Mine	127	119	2.8
Kalgold Plant	127	119	2.8

Table 2.20 Kalgold Operations: historical and forecast production and expenditure statistics[(1), (2), (3), (4)]

Statistics	Units	1999	2000	2001	2002	2003	2004	2005[(H1)]	2005[(H2)]
Production									
Tonnage	(kt)	1,463	1,520	959	962	1,084	1,388	804	662
Yield	(g/t)	1.8	1.4	1.6	2.0	2.1	1.9	1.9	2.0
Sales	(koz)	82	69	49	62	75	83	49	42
Expenditures									
Cash Operating Costs	(ZARm)	105	114	98	130	151	196	111	120
Capital Expenditure	(ZARm)	0	16	32	25	52	2	0	2
Cash Costs	(ZAR/kg)	40,849	53,153	63,627	67,123	65,138	76,315	72,312	91,253
Cash Costs	(ZAR/t)	72	75	102	135	139	142	138	181

(1) No capital expenditure statistics are available for fiscal 1999.

(2) Statistics for 1999 through 2004 are sourced from the Company s 20-F submissions.

(3) Statistics for 2005[(H1)] are sourced from the Company s quarterly reports for the six months ending December 2004.

(4) Statistics for 2005[(H2)] are sourced from the FM the six month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

2.4.9 Australian Operations

Harmony has two operational mines in Western Australia, namely the Mt. Magnet & Cue Mine and South Kalgoorlie Mine. These operations were acquired with the acquisition of two Australian gold mining companies: New Hampton, acquired with effect from 1 April 2001, and Hill 50, acquired with effect from 1 April 2002. Table 2.21 presents the design and maximum operating capacities of the production units at the Australian Operations.

Through the New Hampton transaction, Harmony acquired two operations in Western Australia (Big Bell in the Murchison region and Jubilee in the Eastern Goldfields near Kalgoorlie), two processing plants associated with these operations and related exploration rights. The Big Bell operation has subsequently ceased operating during July 2003, with its plant sold in November 2003, and the Jubilee operation was merged with the New Celebration operation, acquired in the Hill 50 transaction, to form the South Kalgoorlie Mine.

Through the Hill 50 transaction, Harmony acquired the Mt. Magnet & Cue Mine in the Murchison region, the New Celebration operations in the Eastern Goldfields near Kalgoorlie, two plants associated with these operations and related exploration rights. Abelle, whose major assets are located in Papua New Guinea, was acquired with effect 1 May 2003. Through the Abelle transaction, Harmony acquired the Gidgee operations in the Murchison region of Western Australia with the plant associated with this operation as well as exploration projects in Australia, Papua New Guinea and Indonesia. In December 2003 Harmony sold its Gidgee operations.

In an effort to increase efficiency and reduce corporate expenditures, in the quarter ended 30 June 2002 Harmony integrated New Hampton s Jubilee operations with Hill 50 s New Celebration operations to form the South Kalgoorlie Mine and combined the corporate offices of New Hampton and Hill 50 in Perth. The Abelle corporate office was also merged with the Harmony corporate office in Perth during the quarter ended 30 September 2003, after the buyout of the Abelle minorities were completed.

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Each of Harmony s Australian operations, Mt. Magnet & Cue Mine and South Kalgoorlie Mine, conducts surface mining (principally through open pit methods) and underground mining, with access through two declines at Mt. Magnet & Cue Mine and one decline at South Kalgoorlie Mine. Mining at Harmony s Australian operations involves more mechanized mining than at Harmony s South African operations with the exception of operations at Target. Outside contractors conduct much of this mechanized mining. The contractors are responsible for provision of the equipment and personnel needed for production of the ore under guidance of Harmony s management.

Table 2.22 presents historical and forecast production and expenditure statistics at the Australian Operations. In fiscal 2004, the Australian Operations accounted for approximately 10% of Harmony s total gold sales.

Mt. Magnet & Cue Mine:

Introduction: Mt. Magnet & Cue Mine comprises three underground and 10 open pit operations and associated infrastructure and mineral rights in the Murchison region of Western Australia, Australia. Mt Magnet & Cue Mine has one processing plant: the Checker Metallurgical Plant (Checker Plant) which processes all material from the underground and open-pit mining operations.

History: Mining at Mt. Magnet began after the discovery of gold in 1896. The current Mt. Magnet & Cue Mine, which Harmony acquired in the Hill 50 transaction, are comprised of the Hill 50 and Star underground mines, production from which commenced in the late 1980s, nearby open pits and the processing of low grade ore from previously accumulated stockpiles.

Location: Mt. Magnet & Cue Mine is located in the vicinity of the townships of Mount Magnet (Latitude 28°04 S and longitude 117°51 E) and Cue (Latitude 27°26 S and longitude 117°53 E) which are 569km and 650km north-east of the city of Perth respectively. The townships are connected to Perth by the sealed Great Northern Highway. Locality plans for the Mt. Magnet & Cue Mine is included in Figure 2.11. Mt. Magnet & Cue Mine currently operates under active mining lease permits with a total area of 15,161Ha.

Geology *(See Section 3.0 for further detail):* The Mt. Magnet & Cue Mine is located in the Murchison region. The geology consists of folded basaltic and komatitic greenstones with intercalated banded iron formations and volcaniclastic units. In addition to having been intensely folded, the area has undergone substantial faulting and later intrusion by felsic intrusives. Mineralisation within the Murchison belt consists of sulphide replacement style (characteristic of the Hill 50 mine) and quartz lode and shear hosted hydrothermally emplaced bodies proximal to fault conduits. Smaller stockwork bodies within felsic intrusives are also common. As is typical of the Yilgarn Region, the deep weathering profile at Mt. Magnet & Cue Mine has resulted in supergene enrichment and hypogene dispersion of gold in the oxidizing environments. These effects create deposits suitable for open pit mining although historically underground mining of primary lodes was the largest contributor to Mt. Magnet & Cue Mine s gold production.

Mining Operations *(See Section 5.0 or further detail):* The Mt. Magnet & Cue Mine is engaged in underground, open pit and waste rock mining. Underground operations at Mt. Magnet & Cue Mine consist of the Hill 50 and Star mines, each of which operates a decline. The Hill 50 mine, which is approaching 1,300m in depth, is currently one of Australia s deepest underground mines. The Star mine is approximately 950m in depth. Underground mining is conducted by decline tunnel access.

The principal challenges facing the Hill 50 underground mine is its continuing depth and the geotechnical, ventilation and cost impediments that increased depth imposes, including increased ground stress and potential increased seismic activity. As a result, maintaining adequate grade remains a critical component of this mine.

The same issues affected the Star underground mine in fiscal 2004, but due to its lower grade and variability of grade, it faced additional challenges. The orebody is difficult to define and requires significantly better mining grades than those achieved in fiscal 2004 to justify further investment in deepening the decline. Therefore, a decision was taken in fiscal 2004 to stop the decline development at Star. With the closure of Star additional underground tonnage will be provided by developing a new underground mine at the St. George open pit, which was one of the open pits mined in fiscal 2004. It is anticipated that the development of the decline at St. George will start in December 2004, with production commencing in the June 2005 quarter.

Surface operations at Mt. Magnet & Cue Mine exploit several medium sized open pits, as well as numerous smaller open pits. Surface materials from areas previously involved in production, including waste rock dumps and tailings dams, are also processed at Mt. Magnet & Cue Mine. The principal challenge facing the Mt. Magnet & Cue Mine operations is that the open pits are situated in small ore bodies, which results in short mine lives. As a result, Harmony must continuously locate, evaluate, plan, develop and bring into production a succession of open pits to access additional reserves. Maintaining grade and managing the increased geotechnical complexities of the Hill 50 and Star underground mines also remains critical.

Production at Hill 50 underground mine was negatively affected during fiscal 2003 as well as most of fiscal 2004 by a series of rockfall incidents starting in February 2003, which blocked the main ventilation raises near the bottom of the mine. These incidents not only affected all of the high grade production stopes but also revealed the need for a redesign of the stope configurations and the positioning of the ventilation system at the deeper levels of the mine. This adversely affected production levels and costs at Hill 50. The new ventilation raises were completed at a cost of A$2.8m by December 2003. The Star underground mine and open pits took up a significant portion of the tonnage shortfall but could not make up for the gold production shortfall from this high grade source.

Processing Plants *(See Section 6.0 for further detail):* The Mt. Magnet & Cue operations include one metallurgical plant, the Checker Plant. This plant was built in 1989 as a CIL plant and was upgraded in late 1999 to a CIP plant. Actual throughputs at the Checker Plant vary based upon the blend of oxide and sulphide ores in their feed. Processing capacity is an estimate of nominal throughput based on a 70% hard (sulphide) and 30% oxide (soft) blend. Details regarding the tailings deposition facilities at the Mt.Magnet & Cue Mine are given in Section 7.0.

Capital Expenditure: Harmony spent approximately A$19m in capital expenditures at the Mt. Magnet & Cue Mine during fiscal 2004, primarily for underground development, exploration and plants. Harmony has budgeted approximately A$22m for capital expenditures at the Mt. Magnet & Cue Mine during fiscal 2005, principally for underground development and infrastructure.

South Kalgoorlie Mine

Introduction: South Kalgoorlie Mine comprises the one underground mine and numerous satellite open-pits and associated infrastructure and mineral rights in the Eastern Goldfields of Western Australia, Australia. South Kalgoorlie Mine has one operating processing plant: the Jubilee Metallurgical Plant (Jubilee Plant) which processes all material from the underground and open pit mining operations.

History: The South Kalgoorlie Mine includes several open pits at Jubilee and New Celebration, as well at the Mt.Marion underground mine at New Celebration. In the Jubilee area, two separate companies commenced gold mining by modern methods in 1987, although some sporadic mining of gold took place in the area in the late nineteenth century. The Jubilee operations were originally comprised of large Jubilee open pit, but in recent years have also drawn on a number of smaller open pits. Harmony acquired the Jubilee operations in the New Hampton transaction. The New Celebration operations were initially developed in 1987 by a third company exploiting the same ore body that hosted the Jubilee Pit, as well as satellite operations. Hill 50 acquired these operations from Newcrest Mining Limited. in June 2001. The Mt. Marion decline, which is the largest underground development in the former New Celebration operations, was established in 1998. Harmony acquired the New Celebration operations, including the Mt. Marion underground mine, in the Hill 50 transaction.

Following the acquisitions of New Hampton and Hill 50, Harmony integrated the Jubilee operations and New Celebration operations to form the South Kalgoorlie Mine.

Location: South Kalgoorlie Mine is located 30km south of Kalgoorlie, Western Australia, Australia. Located at latitude 30º45 S and longitude 121º28 E the site is accessed adjacent to the Kalgoorlie-Kambalda Highway. Locality plans for the South Kalgoorlie Mine is included in Figure 2.11. South Kalgoorlie Mine currently operates under active mining lease permits with a total area of 24,745Ha.

Geology *(See Section 3.0 for further detail)*: The South Kalgoorlie Mine is located in the Eastern Goldfields region of Western Australia. The South Kalgoorlie ore bodies are located in a number of geological domains including the Kambalda and Coolgardie Domains and the Zuleika Shears. At South Kalgoorlie, the mining tenure and geology straddles the three major fault systems or crustal sutures considered to be the main ore body plumbing systems of the Kalgoorlie Goldfield. The geology consists of Archaean greenstone stratigraphy of basalts and komatiites with intercalated sediments, tuffs, volcaniclastics and later felsic intrusives. Late stage and large scale granitic (Proterozoic) intrusion has stoped out large sections of the greenstone. Quartz lode and shear hosted bodies are the most dominant among many 80 mineralisation styles. Large scale stock workbodies hosted in felsic volcanics are an important contributor to bulk tonnage of relatively low grade deposits.

Mining Operations *(See Section 5.0 for further detail):* The South Kalgoorlie Mine is engaged in open pit, underground and waste rock mining. At Jubilee, during fiscal 2004, open cast mining was conducted mainly at the Trojan and Golden Ridge pits and a number of other smaller open pits. Harmony employs contractors who use large earthmoving equipment to extract ore from these pits. The surface operations at New Celebration exploited a number of small short-life and shallow open-cast mines during fiscal 2004. Ore from both surface and underground sources is now treated at the Jubilee Plant.

The primary challenge facing the South Kalgoorlie Mine is that most of the open pits are situated in small ore bodies, which results in short mines lives. As a result, Harmony must continuously locate, evaluate, plan, develop and bring into production a succession of open pits to access additional reserves. Underground operations face challenges similar to those faced by the Mt. Magnet & Cue underground operations; however, depths at Mt. Marion mine are much shallower (740m vertical depth versus 1,300m vertical depth at Mt. Magnet & Cue Mine).

Mt. Marion is a decline mine that has switched to a long-hole sub-level caving methodology. The purpose of this change in mining method is to better manage the geotechnical risks without diminishing returns from the mine. The Mt. Marion mine also is exposed to other risks typical of mechanized mines, including geotechnical issues, mine dilution and unpredictable remedial ground support after mine blasting.

Processing Plants *(See Section 6.0 for further detail)*: The South Kalgoorlie Mine operation includes one active metallurgical plant: the Jubilee Plant. The Jubilee Plant is based on a CIL flowsheet which treats ore from the open pits as well as the Mt. Marion underground mine which is transported by conventional road trains. The New Celebration Plant was commissioned in 1986 as a CIP plant and later upgraded in 1988 by the addition of a larger parallel circuit. In 2003 a decision was taken to use this plant for toll treatment purposes, and it was utilized for this purpose in fiscal 2004. The plant is currently on care and maintenance, and has been put up for

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sale. Actual throughputs of the South Kalgoorlie plants vary based upon the blend of oxide and sulphide ores in their feed. Processing capacity is an estimate of nominal throughput based on a 70% hard (sulphide) and 30% soft (oxide) blend. Details regarding the tailings deposition facilities at the South Kalgoorlie Mine are given in Section 7.0.

Capital Expenditure: In fiscal 2004, Harmony spent approximately A$8m in capital expenditures at South Kalgoorlie Mine, primarily for underground and open pit mine development and exploration, as well as plant major maintenance. Harmony has budgeted approximately A$16.1m for capital expenditures at the South Kalgoorlie Mine during fiscal 2005, principally for underground and open pit mine development and exploration.

Table 2.21 Australian Operations: design and operating capacities

Mining Assets	Design Capacity (ktpm)	Maximum Operating Capacity (ktpm)	Life (years)
Mt. Magnet & Cue Mine	225	194	6.9
South Kalgoorlie Mine	110	109	2.9
Checker Plant	225	194	6.9
Jubilee Plant	110	109	2.9

Table 2.22 Australian Operations: historical and forecast production and expenditure statistics[(1), (2), (3), (4)]

Statistics	Units	1999	2000	2001	2002	2003	2004	2005[(H1)]	2005[(H2)]
Production									
Tonnage	(kt)	0	0	0	4,784	7,151	4,742	1,930	1,823
Yield	(g/t)	0.0	0.0	0.0	1.6	2.2	2.2	2.6	3.1
Sales	(koz)	0	0	0	253	510	338	158	184
Expenditures									
Cash Operating Costs	(A$m)	0	0	0	117	249	159	56	82
Capital Expenditure	(A$m)	0	0	0	28	39	29	14	10
Cash Costs	(A$/oz)	0	0	0	462	488	471	353	442
Cash Costs	(A$/t)	0	0	0	24	35	34	29	45

(1) No statistics are available from the Company s 20-F submissions at the Australian Operations reporting level for fiscal 1999 through fiscal 2001 inclusive.

(2) Statistics for 2002 through 2004 are sourced from the Company s 20-F submissions.

(3) Statistics for 2005[(H1)] are sourced from the Company s quarterly reports for the six months ended December 2004.

(4) Statistics for 2005[(H2)] are sourced from the FM the six-month period ending 30 June 2006. The financial statistics are also reported in 30 June 2006 money terms.

2.4.10 Papua New Guinea Operations

The key business focus of the Papua New Guinea Operations is on the three development properties of the HVGP, the WGP and the GCGP, all of which are located in Papua New Guinea (PNG).

Introduction: Harmony s interests in PNG consist of exploration titles covering some 1,922 square kilometres of prospective gold and copper-gold geology structurally related to the Wau Graben, arc-parallel and transfer faulting. The titles are broken into two groups: the northern and southern group: the northern group being referred to as the Wafi Project Area (WPA), which in turn incorporates the WGP and the GCGP; the southern group is referred to as the HVGP (previously Morobe Gold Project) and incorporates the Hidden Valley, Kaveroi, Hamata and Kerimenge gold and gold-silver deposits. The Papua New Guinea Operations are owned by two separate PNG incorporated companies: Morobe Consolidated Goldfields Limited (Morobe) and Wafi Mining Limited (Wafi), which are wholly-owned subsidiaries of Harmony.

Harmony currently has a corporate office in Port Moresby, the capital of PNG, as well as offices in Lae and Wau, to facilitate the development of the HVGP and perform the pre feasibility work on the WGP.

Geology *(See Section 3.0 for further detail):* Harmony s PNG exploration holdings cover a tract of prospective stratigraphy which is located in the Morobe Province south-west from Lae, the provincial capital. This rugged area is dominated by uplifted Lower Jurassic and Cretaceous sediments known as the Owen Stanley Metamorphics. The Owen Stanley Metamorphics are intruded by the extensive Middle Miocene-age Morobe Granodiorite.

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At the WPA, the bulk of gold mineralisation is located within moderate to steep east-dipping Owen Stanley conglomerates, sandstones and shales that surround a large diatreme. Gold mineralization appears to be controlled by mostly bedding-parallel faults and is associated with complex high-sulphidation hydrothermal alteration assemblages. These assemblages form roughly concentric zones centred on the diatreme. Located near the north-eastern margins of the diatreme, and about 1km north of the Wafi sediment-hosted gold resource, is the Golpu porphyry copper-gold deposit. With a diameter of up to 300m the porphyry forms a discrete, near-vertical fault-bounded pipe that extends from about 100m below the surface to 1,000m down-plunge. The porphyry is dioritic in composition and has undergone late-stage epithermal, high sulphidation alteration. A gold-bearing silica cap is developed directly over the top of the porphyry.

In contrast to Wafi, the Hidden Valley-Hamata deposits in the Wau-Bulolo area to the south are hosted almost exclusively by the Miocene-age Morobe Granodiorite. Gold mineralization in this area is confined to a northwest-trending structural corridor known as the Wau Graben. Sediments belonging to the Owen Stanley Metamorphics overlay the Hidden Valley deposit. The entire sequence is intruded by the Pliocene-age gold-bearing Edie Porphyry.

At Hidden Valley, low-sulphidation gold mineralisation occurs within veins that are distributed in a structurally controlled, flat to moderately-dipping northwest-trending, stockwork within the granodiorite.

At Hamata, which is at a lower elevation than Hidden Valley, the overlying sediments have been stripped away. Mineralisation occurs in at least three subparallel stockwork zones that strike northeast and dip at 45º to 50º southeast.

Hidden Valley Gold Project

On 24 December 2003 Abelle announced to the market that it completed the Hidden Valley Feasibility Study. The development concept for the HVGP as announced by them is a two phase project where Phase 1 mines the known orebodies at the Hidden Valley, Kaveroi and Hamata prospects. This phase carries the full capital, plant and infrastructure impost. Phase 2 progressively extends sustainable production with a concept of a centralised process plant being fed from a number of regional ore sources.

After performing a due diligence process on the Feasibility Study in January 2004, the Harmony board approved the development of the project, and as a consequence Harmony also decided to buy out the minority shareholders of Abelle.

Introduction: The HVGP is 100% owned by Harmony through its wholly owned PNG subsidiary, Morobe. Alluvial gold was first discovered at Hidden Valley in 1928. It was not until the early 1980 s that the area was investigated by CRA Exploration using modern exploration techniques that resulted in the discovery of the Hidden Valley and Kaveroi gold deposits on EL 677. Five Pre-Feasibility and Feasibility Studies have been prepared for the HVGP by the various owners over a number of years commencing in 1998.

Abelle completed a feasibility study in December 2003, which met the specific requirements of the PNG project approval process. Abelle s design concept incorporates a two phase process in which phase one incorporates the Hamata deposit into the development plan with the plant and tailings dam located at Hamata with a crushing facility located at Hidden Valley and 5km overland conveyor delivering ore from Hidden Valley and Kaveroi to Hamata. Phase two contemplates extending project life by pit extensions, underground or near mine development. Phase one included the purchase of the Misima Mines Limited s 537ktpm treatment plant, remaining mining fleet, service infrastructure, stores and spares for A$8.5m.

Location: The HVGP comprises four exploration licenses of 966km^2 in the Wau District of Morobe Province, PNG. The project is located 210km north-northwest of Port Moresby and 90km south-southwest of Lae, the two largest cities in PNG. Access to the project is by sealed road from the deep-water port of Lae to Bulolo, all-weather gravel road to Wau and then by unsealed tracks. Locality plans for the HVGP is included in Figure 2.12.

Project Overview: The definitive feasibility study was completed in December 2003 and incorporates the mining of both the Hamata and Hidden Valley/Kaveroi resources. Harmony is currently optimizing the feasibility study and considering various alternatives which are targeting reduction of the operating cost of the project or reduce the capital requirements.

The ore will be mined in a sequence that sees the low silver Hamata ores mined first with plant and infrastructure development for the project developed in close proximity to the Hamata deposit. The next ore mined will be the Hidden Valley/Kaveroi oxide/transition ores (high silver) followed by the Hidden Valley/Kaveroi primary ores. Harmony is continuing a drilling program to identify additional Mineral Resources around the project area to extend the anticipated mine life of 8 years, which includes an 18 month construction period.

Total capital expenditure for the project is estimated at A$254m, which includes the purchase of a mining fleet and power station, as well as normal plant and infrastructure construction costs. Harmony is currently investigating the various financing alternatives available for the project.

Deconstruction and transportation of the Misima plant commenced in June 2004 and was 50% complete by mid-September 2004 and should be complete by December 2004. The plant will be stored in Lae and components will be transported to Hidden Valley for installation as project development proceeds.

The process plant will process ore at a rate of approximately 295ktpm and has been designed with three distinct process routes that complement the metallurgical characteristics of the three ore types to be mined. The process plant will commence as a primary crushing, grinding, CIL, Merrill-Crowe zinc precipitation, gold room and tailings detox plant for the low silver Hamata ores, revert to a primary crushing, grinding, flotation, concentrate regrind, Counter-Current Decantation (CCD) circuit with Merrill-Crowe zinc precipitation, flotation concentrate and tailing CIL, gold room and tailings detox for the high silver oxide/transition ores and then a similar circuit without flotation tail CIL for high silver sulphide ores from Hidden Valley/Kaveroi ores.

Harmony has lodged environmental permitting and approval documentation and is now awaiting formal response from the relevant PNG authorities.

Exploration Potential: The HVGP revised Feasibility Study considers the mining and development of the Hamata, Hidden Valley and Kaveroi deposits only. While these alone provide for a robust project of 8 to 10 years duration, there is potential to extend the project life from other advanced prospects and mineralisation that are within a 10km radius of any proposed plant site. These include the advanced Kerimenge deposit, Andim, Nosave, Purrawang, Apu Creek prospects that are immediate extensions to the known mineralisation systems at HVGP, the more peripheral Waterfall, Bulldog, Bulldog North and Daulo prospects as well as the Yafo and Yava prospects near Hamata. Harmony currently anticipates that the Project approval process will be completed by December 2004.

Capital expenditure on the project for fiscal 2005 is estimated to be A$80m.

Wafi Project Area

Introduction: The WPA prospect is owned 100% through a subsidiary PNG company, Wafi. The first exploration at WPA dates back to the nationwide porphyry copper search by CRA Exploration Limited in the late 1960 s. Harmony assumed control of the WGP as a result of its acquisition of Abelle.

Location: The WPA is located near Mt.Watut in Morobe Province, Papua New Guinea, 60km southwest of Lae and 60km northwest of Wau. The site is accessed by sealed road (Lae to Bulolo) which comes within 5km of the eastern edge of the tenements. The WPA camp is located at an elevation of approximately 500m above sea level. The terrain is mountainous and forested in most areas. Immediately west of the project area, the Watut Valley makes for relatively simple road access to the project. The WGP and the GCGP themselves lie a further 10km west and at this point are accessed and serviced by helicopter. A dry weather access track was completed between the sealed Lae-Bulolo road and Wafi during fiscal 2004. Locality plans for the WPA is included in Figure 2.12.

Project Overview: The project is held under 4 contiguous exploration licenses totalling 996km^2 and comprises two separate ore systems located within close proximity of each other known as the WGP and the GCGP, respectively. The Wafi gold mineralisation is hosted by sedimentary/volcaniclastic rocks of the Owen Stanley Formation which surround the intrusive Wafi Diatreme. Gold mineralisation occurs as extensive high-sulphidation epithermal alteration overprinting porphyry mineralisation and epithermal style vein-hosted and replacement gold mineralisation with associated wall-rock alteration.

Four main zones (Zone A, Zone B, The Link Zone (between Zone A & B) and to a lesser extent, the Western Zone have been drill tested at WGP revealing substantial gold mineralisation within a mostly high-sulphidation system.

Work undertaken by Abelle included a diamond core drilling program that commenced in late February 2003 aimed at defining the geometry of the higher grade link mineralisation. The cores from these holes revealed that the deeper high grade ore is associated with carbonate and minor base metal mineralisation indicative of a low sulphidation ore system and in places appears to over print previous mineralisation. During 2004 Harmony completed a program of 13,000m of RC drilling to further define the shallower portions of the resource and to explore for additional oxide resources. The Wafi gold mineralisation can be split into three groups from a metallurgical perspective:

Oxide mineralisation with recoveries of 95% by conventional cyanidation;

Transitional mineralisation with recoveries of 86% via conventional cyanidation; and

Primary mineralisation which is further divided into two ore types these being Zones A and B primary mineralisation with conventional cyanidation recoveries of 50% and the high grade (5 g/t) Link Zone mineralisation with conventional cyanidation recoveries of 20%.

The primary mineralisation is refractory. Various oxidative refractory treatment options have been investigated by the various project owners. The main body of testwork was carried from 1989 to 1991.

Testwork showed that gravity and ultra fine grinding are ineffective. Flotation response was also poor. Zone A and B ore and flotation concentrates responded well to pressure oxidation and bacterial oxidation, with recovers of 90% being achieved, while whole ore and concentrate roasting recoveries were slightly lower at 85% to 88%. Only 50% to 60% sulphur oxidation was required. Flotation tailing leach recoveries above 60% were also achieved.

Aurora Goldfields (AGF) undertook characterisation and pressure oxidation testwork on Link Zone mineralisation in 1998, due to the very poor conventional cyanidation recoveries achieved (20%). Pressure oxidation recoveries of 95% were achieved; however AGF went into receivership after this period and further development work stopped. Abelle concluded that whole ore roasting had the best opportunity to produce positive economics, due to the potential to produce sulphuric acid from roaster off gas. Harmony is further investigating the metallurgical process to optimise recoveries.

The GCGP is located approximately 1km northeast of the Wafi gold orebody. The GCGP is a dioritic porphyry copper-gold deposit. The Golpu host lithology is a typical zoned porphyry copper alteration halo grading from potassicphyllic advanced argillic upwards in

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the core. Outwards from the core the alteration grades from the above to argillicpotassic to propylitic. The mineralised body is a porphyry copper-gold pipe with approximately 200m by 200m plan dimensions, a steep north plunge and it remains open at 1.2km depth, the maximum depth to which it has been drilled.

The surface expression is oxidized and leached to about 150m vertical depth resulting in a residual gold only resource from which the copper has been leached. At the oxidation interface a 20m to 30m thick zone of supergene copper enrichment is developed which transitions at depth into a lower grade covellite-enargite ore. Beneath this is a zone of more covellite rich mineralisation that contains lesser enargite and consequently arsenic. From approximately 300m below surface the ore exists in a covellite rich (arsenic poor) form grading into a chalcopyrite-bornite rich zone from approximately 500m to its current known depth of approximately 1.2m. Harmony is currently reviewing all data relating to the Golpu Project with the objective of performing a Pre-Feasibility into the development of the project.

The Wafi Golpu Copper-Gold mineralisation can be split into four principal zones from a metallurgical perspective:

Gold cap: This has had no metallurgical test work, but indications are the ore will be free milling, however the presence of copper will need to be considered;

Supergene/Transitional zone: This consists of an oxidized supergene copper enriched zone overlaying a lower grade covellite-enargite porphyry. Preliminary metallurgical test work undertaken by Rio Tinto has shown that the flotation response is poor with copper recoveries of 70% into a copper concentrate of 25% copper. Blending has been proposed for this ore zone;

High Arsenic Zone: This consists of a complex suite of copper minerals including arsenic rich enargite and tennantite. Flotation response is good, however the arsenic floats with the concentrate resulting in copper concentrates containing 1% to 3% arsenic, which would incur significant smelter penalties. Controlled blending is also proposed for this ore zone; and

Low Arsenic Zone: Copper mineralisation in this zone consists almost exclusively chalcopyrite. The flotation response is excellent with recoveries of 92% into a 30% copper concentrate.

Gold recovery into concentrate is 60% of copper recovery. A scoping study is being undertaken on the WGP and GCGP, in preparation for a pre feasibility study which is to be completed in fiscal 2005.

2.4.11 Other Exploration Properties

Appendix 1 to this CPR includes summary technical information reproduced from public domain documentation. This information has not been verified by SRK and consequently SRK expresses no opinion as to the validity of such information. Specifically these include interests in the Burnside JV (50%) and Bendigo Mining NL (11.64%).

Mt. Muro Project Indonesia: The Mt. Muro project is owned by PT Indo Muro Kencana (PT Indo), in which Harmony has a 30% interest, and is located in central Kalimantan, Indonesia. The project was placed on care and maintenance by Aurora Gold Limited in mid 2002 after a number of successful years.

Abelle reached agreement with Straits Resources Limited (Straits) to form a joint venture to explore and assess the redevelopment of Mt. Muro and Straits assumed the role of manager and operator of the joint venture from 1 May 2003. Under the agreement with Straits, Abelle retains a free carried 30% interest to the recommencement of commercial gold production. Straits must also maintain the plant, equipment and infrastructure in good standing and spend a minimum of US$1m on exploration per annum over and above holding costs. Straits is an Indonesian operator with considerable experience and expertise in operating in the Indonesian environment.

Abelle has a number of exploration projects throughout Australia, inherited from the merger with Aurora, and during fiscal 2004, pursued an active policy to dispose or outsource these projects, as they were considered non core to the PNG development strategy. Most of these interests are managed by third parties. During January 2004, Abelle sold its interest in the Credo project in Western Australia to its joint venture partner, Yilgarn Mining Limited for A$250k and 1.75 million shares in Yilgarn. Various other projects were also farmed out or disposed of during the year.

Harmony also has rights to tenements located north of the well known Kambalda nickel sulphide deposits. Portions of the tenements cover strike extensions of the Kambalda Dome stratigraphy and komatiites along the Wildcatter s Shear Zone and are considered highly prospective for nickel sulphide deposits. Further a number of nickel sulphide deposits have been recognised on the Harmony s tenements surrounding the South Kalgoorlie Mine.

2.5 Mining Title, Law and Taxation

SRK has not reviewed the various agreements (regulatory or third party) relating to mineral rights, surface freeholds, mining authorisations, prospecting licences, exploration licences, claims or other such tenements or titles from a legal perspective. Consequently SRK has relied on advice by Harmony and its legal advisors to the effect that Harmony is entitled to mine all material falling within their respective mineral rights and/or mining rights and that all necessary statutory mining authorisations and permits are in place.

Details relation to relevant environmental permits are included in Section 11.0 of this CPR.

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2.5.1 South Africa

The Mineral and Petroleum Resources Development Act (the MPRDA) came into effect on 1 May 2004. The MPRDA vests the right to prospect and mine in the state (which includes the rights to grant prospecting and mining rights on behalf of the nation) to be administered by the government of South Africa to, among other things, promote equitable access to the nation s mineral resources by South Africans, expand opportunities for Historically Disadvantaged South Africans (HDSA) who wish to participate in the South African mining industry, and advance social and economic development as well as to create an internationally competitive and efficient administrative and regulatory regime, based on the universally accepted principle, and consistent with common international practice, that mineral resources are part of a nation s patrimony. Harmony currently owns substantially all of the mineral rights under the previous regime (the Minerals Act of 1991) for its Mining Assets and will seek to convert these rights into new order mining rights under the MPRDA.

Under the former regulatory regime, mineral rights (which encompass the right to prospect and mine) in South Africa were held either privately or by the government of South Africa. Ownership of private mineral rights was held through title deeds and constituted real rights in land, which were enforceable against any third party. Prospecting and mining are now regulated by the provisions of the MPRDA including the transitional provisions included therein.

The transitional provisions of the MPRDA phase out existing rights to prospect and mine granted under the old legislation. The transitional provisions contemplate three scenarios:

(1) mineral rights in respect of which no prospecting permit or mining authorization has been issued and/or no prospecting or mining activities are taking place;

(2) mineral rights that are the subject of prospecting permits and prospecting is taking place; and

(3) mineral rights in respect of which a mining authorization has been issued and mining is taking place.

The rights described in the above three categories are referred to as old order rights. Under (1) the holders of privately-held mineral rights would need to apply for a prospecting or mining right in their own names to replace their existing mineral rights. Application has to be made within one year of the relevant provision of the MPRDA becoming operational. Under categories (2) and (3) any prospecting permit or mining authorization granted under the old legislation would continue to be valid for the period granted under the old legislation, subject to a maximum period of two or five years, respectively. After the lapse of the one year period referred to in category (1) and the two and five-year periods in categories (2) and (3), respectively, the mineral rights would cease to exist. Within these periods, to continue with its mining or prospecting operations, the holders of mineral rights and prospecting permits or mining authorizations would have to apply for a new prospecting right or mining right in respect of category (1) and for conversion to new prospecting or mining rights in respect of categories (2) and (3). Harmony is entitled to conversion of its existing old order rights provided that it complies with the requirements for conversion, some of which are of a discretionary nature.

Under the MPRDA prospecting rights are initially granted for a maximum period of five years and can be renewed once upon application for a further period not exceeding three years. Mining rights are valid for a maximum period of 30 years and can be renewed upon application for further periods each of which may not exceed 30 years. Provision is made for the grant of retention permits, which would have a maximum term of three years and could be renewed once upon application for a further two years. A wide range of factors and principles including proposals relating to black economic empowerment and social responsibility, the details of which are still being determined, will be considered by the Minister of Minerals and Energy (the Minister) when exercising their discretion whether to grant these applications including, for example, evidence of an applicant s ability to conduct mining operations optimally. Given the discretionary nature of the granting of such applications and the lack of historical cases it is currently difficult to assess whether Harmony might encounter any difficulties when applying for new prospecting rights or mining rights.

The provisions of the MPRDA provide that a mining or prospecting right granted under the MPRDA contains a provision requiring the Minister, within six months of the relevant provision becoming operational, to develop a broad-based socio-economic empowerment charter for effecting entry of HDSA into the mining industry (the Mining Charter). The South African Government appointed a task team which included representatives from mining companies, including Harmony, to develop a Mining Charter. On 11 October 2002, the Minister and representatives of certain mining companies and NUM signed a charter that reflects the consultation process called for by the MPRDA. The Mining Charter became effective on May 1, 2004 and its stated objectives are:

To promote equitable access to South Africa s mineral resources for all the people of South Africa;

To substantially and meaningfully expand opportunities for HDSA, including women, to enter the

Mining and minerals industry and to benefit from the exploitation of South Africa s mineral resources;

To utilise the existing skills base for the empowerment of HDSA;

To expand the skills base of HDSA to serve the community;

To promote employment and advance the social and economic welfare of mining communities and areas supplying mining labour;

To promote beneficiation of South Africa s mineral commodities beyond mining and processing, including the production of consumer products.

The Mining Charter also clarifies that it is not the Government s intention to nationalise the mining industry.

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To achieve these objectives, the Mining Charter requires that each mining company achieves a 15% HDSA ownership of mining assets within five years and a 26% HDSA ownership of mining assets within 10 years. Ownership can comprise active involvement, through HDSA controlled companies (where HDSA own at least 50% plus one share of the company and have management control), strategic joint ventures or partnerships (where HDSA own at least 25% plus one vote and there is joint management and control) or collective investment vehicles (the majority ownership of which is HDSA based) or passive involvement, particularly through broad based vehicles like employee stock option plans. The Mining Charter envisages measuring progress on transformation of ownership by:

- Taking into account, amongst other things, attributable units of production controlled by HDSA;
- Allowing flexibility by credits or offsets, so that, for example, where HDSA participation exceeds any set target in a particular operation, the excess may be offset against shortfalls in another operation;
- Taking into account previous empowerment deals in determining credits and offsets;
- Considering special incentives to encourage the retention by HDSA of newly acquired equity for a reasonable period.

It is envisaged that transactions will take place in a transparent manner and for fair market value with stakeholders meeting after five years to review progress in achieving the 26% target. Under the Mining Charter the mining industry as a whole agrees to assist HDSA companies in securing finance to fund participation in an amount of ZAR100bn over the first five years. Beyond the ZAR100bn commitment HDSA participation will be increased on a willing seller-willing buyer basis at fair market value where the mining companies are not at risk.

In addition, the Mining Charter requires, amongst other things, that mining companies:

- Offer every employee the opportunity to become functionally literate and numerate by the year 2005;
- Outline plans for achieving employment equity at management level with a view to achieving a baseline of 40% HDSA participation in management and 10% participation by women in the mining industry within five years;
- Give HDSA preferred supplier status, where possible, in the procurement of capital goods, services and consumables;
- Identify current levels of beneficiation and indicate opportunities for growth.

When considering applications for the conversion of existing licenses, the government will take a scorecard approach to the different facets of promoting the objectives of the Mining Charter. In February 2003 the Department of Minerals and Energy (DME) published the scorecard, which is intended to facilitate the application of the Mining Charter and measure compliance with the empowerment requirements of the MPRDA for the purpose of determining whether an application for conversion of old order rights to new order rights should be granted. The scorecard sets out the requirements of the Mining Charter in tabular form which allows the DME to check areas where a mining company is in compliance. The scorecard covers the following areas:

Human resource development;

Employment equity;

Migrant labour;

Mine community and rural development;

Housing and living conditions;

Ownership and joint ventures;

Beneficiation; and

Reporting.

The scorecard does not indicate the relative significance of each item, nor does it provide a particular score which an applicant must achieve to be in compliance with the Mining Charter and be granted new order rights. The Mining Charter, together with the scorecard, provides a system of credits or offsets with respect to measuring compliance with HDSA ownership targets. Offsets may be claimed for beneficiation activities undertaken or supported by a company above a predetermined base state , which has not yet been established for each mineral. Offsets may also be claimed for continuing effects of previous empowerment transactions.

The charter also requires mining companies to submit annual, audited reports on progress towards their commitments, as part of an ongoing review process.

Harmony has entered into various transactions and agreements which are intended to meet the Mining Charter s requirement that mining companies achieve a 15% HDSA ownership within five years of the mining charter coming into effect. These include: the sale of 10% of Elandskraal to Khuma Bathong; purchase of equity in Harmony by Simane; sale of 26% of the mineral rights associated with Doornkop Mine to AVR; and the Harmony/ARM/Avmin transactions.

There is no guarantee that any steps Harmony has already taken or might take in the future will ensure the successful conversion of any or all of its existing mining rights or for the grant of new mining rights or that the terms of any conversion or grant would not be significantly less favourable to Harmony than the terms of its current rights.

The Mining Titles Registration Amendment Act (the Mining Titles Act) came into force on 1 May 2004. The Mining Titles Act provides for the registration of rights granted under the MPRDA. The Mining Titles Act repeals certain sections of the current legislation dealing

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with the registration of mineral rights, subject to the transitional provisions of the MPRDA. Until rights held under the previous regime are converted to rights under the MPRDA, rights held under the previous regime that become subject to a change in ownership during the transition period will not be able to be registered under the name of the new owner.

The old order mining rights (mining authorisations), held by Harmony, in force immediately before the MPRDA took effect will continue, in terms of the transitional provisions of the MPRDA, to be in force for a period not exceeding five years from 1 May 2004. Harmony as holder of an old order mining right is currently seeking to convert those rights into mining rights under the MPRDA within this period.

Harmony s conversion program, operating for 18 months, involves the compilation of a mineral asset register and the identification of all of Harmony s mineral and mining rights of economic interest. Harmony strategy has been to secure all strategic mining rights in a region by region basis. The first application for conversion from old order to new order mining rights was for the Evander Operations and was lodged on May 21, 2004. The application covers all operating shafts as well as the Evander Rolspruit Project and the Evander Poplar Project. The application for new order mining licences for the West Wits Operations were approved on 25 October 2004. The application for Orkney Operations and Kalgold Operations was submitted in October 2004 and the application for Harmony Free State Operations will be submitted during the first quarter of calendar 2005.

The Royalty Bill proposes to impose a 3% revenue based royalty on the South African gold mining sector payable to the South African Government. The royalty would be calculated on the basis of published tradable value or, where no published tradable value is available, on an imputed gross sales value of the relevant mineral. The royalty would be deductible as an expense for income tax purposes as opposed to a rebate against income tax.

Under the terms of the proposed Royalty Bill, the royalty is to take effect when companies convert to new order mining rights in accordance with the MPRDA, although the Minister has indicated that the royalty is not expected to take effect until the transitional period for the conversion of mining rights under the MPRDA expires. The Minister of Finance in his Budget Speech in February 2004 indicated that the royalty will be based on revenues and will take effect in 2009. If adopted, in either its current or a revised form, the Royalty Bill could have an adverse effect on Harmony s South African Operations operating results and will have a negative impact on the financial performance and hence valuation of the Mining Assets. The Equity Value as included in Scenario 1 of this CPR gives the impact of the inclusion of a 3% royalty commencing 1 January 2009. Scenario 2 presents the Equity Value assuming a royalty of 0%.

Harmony pays taxes on mining income and non-mining income. The amount of Harmony s South African mining income tax is calculated on the basis of a formula that takes into account Harmony s total revenue and profits from, and capital expenditures for, mining operations in South Africa (see Section 13.0 for further detail). Five percent of total mining revenue is exempt from taxation in South Africa. The amount of revenue subject to taxation is calculated by subtracting capital expenditures from operating profit. The amount by which the adjusted profit figure exceeds 5% of revenue constitutes taxable mining income. Harmony and its subsidiaries each make their own calculation of taxable income.

The tax rate applicable to the mining and non-mining income of a gold mining company depends on whether the company has elected to be exempt from the Secondary Tax on Companies (STC). The STC is a tax on dividends declared and, at present, the STC tax rate is equal to 12.5%. In 1993, all existing South African gold mining companies had the option to elect to be exempt from STC. If the election was made, a higher tax rate would apply for both mining and non-mining income. In each of 2004 and 2003, the tax rates for companies that elected the STC exemption were 46% for mining income and 38% for non-mining income, compared with 37% for mining income and 30% for non-mining income if the STC exemption election was not made. In 1993, Harmony elected to pay the STC tax. All of Harmony s South African subsidiaries, however, elected the STC exemption. To the extent Harmony receives dividends, such dividends received are offset against the amount of dividends; paid for purposes of calculating the amount subject to the 12.5% STC tax.

2.5.2 Australia

In Australia, with few exceptions, all onshore mineral rights are reserved to the government of the relevant state or territory. Exploration for and mining of minerals is regulated by the mining legislation of that state or territory and controlled by the relevant state or territory department. The Western Australian Mining Act 1978 (WA) (the WA Mining Act), is the principal piece of legislation governing exploration and mining on land in Western Australia. Licenses and leases for, among other activities, prospecting, exploration and mining must be obtained pursuant to the requirements of the WA Mining Act before the relevant activity can begin. Application fees and rental payments are payable in respect of each mining tenement. Where native title has not been extinguished, native title legislation may apply to the grant of tenure and some subsequent administrative processes. Heritage legislation may operate to preclude or regulate the disturbance of a particular area. In most Australian states, if the holder of an exploration license establishes indications of an economic mineral deposit and expends a minimum level of investment, it may apply for a mining lease which gives the holder exclusive mining rights with respect to all minerals on the property. It is possible for one person to own the surface of the property and for another to own the mineral rights.

The maximum initial term of a mining lease is 21 years and the holder has the right to renew the lease for a further period of 21 years. Subsequent renewals are subject to the minister s discretion and the lease can only be assigned with the consent of the relevant minister. Royalties are payable as specified in the relevant legislation in each state or territory. A general-purpose lease may also be granted for one or more of a number of permitted purposes. These purposes include erecting, placing and operating machinery in connection with mining operations, depositing or treating minerals or tailings and using the land for any other specified purpose directly connected with mining operations.

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Generally, Australia imposes tax on the worldwide income (including capital gains) of all of Harmony s Australian incorporated and tax resident entities. The current income tax rate for companies is 30%. Exploration costs and the depreciation of capital expenditure may be deducted from income. In addition, other expenditures, such as export market development, mine closure costs and the defence of native title claims, may be deducted from income. With effect from 1 July 1998, mining operations (other than operations on freehold land) are also subject to a 2.5% gold royalty because the mineral rights are owned by the state. All gold production from the Mt. Magnet & Cue Mine is subject to this royalty. Most of the production from the South Kalgoorlie Mine is from freehold land and is, accordingly, exempt from this royalty.

With effect from 1 July 2001, the Australian legislature introduced a Uniform Capital Allowance, which allows tax deductions for depreciation attributable to assets and certain other capital expenditures. In addition, under current Australian tax law, certain grouping concessions are available to companies in the same ultimate control group. These concessions include the ability to group losses and obtain capital gains tax roll-over relief from the transfer of assets among two or more entities if the entities are engaged in the same business or if the entities are wholly owned by the same entity. Harmony s subsidiaries in Australia accordingly qualify to transfer losses from one entity to another in the event that a loss is made in one entity and a profit is generated in another.

Withholding tax is payable on dividends, interest and royalties paid by Australian residents to non-residents, which would include any dividends on the shares of Harmony s Australian subsidiaries that are paid to Harmony. In the case of dividend payments to non-residents, a 30% withholding tax applies. However, where the recipient of the dividend is a resident of a country with which Australia has concluded a double taxation agreement, the rate of withholding tax is generally limited to 15% (or 10% where the dividend is paid to a company s parent company).

Where dividends are fully taxable, an effective credit is allowed against any withholding tax otherwise payable, regardless of whether a double taxation agreement is in place.

2.5.3 Papua New Guinea Law in respect of Mining Title

The mining code is based upon those of Australian states such as Queensland. The Mining Act sets out a detailed regime dealing with the types of tenement available, the making of development contracts, payment of fees and royalties, and compensation for landowners.

Exploration activities are governed by the issue of exploration licences (EXL) which confers on the holder an exclusive right to explore for minerals over the defined area and the exclusive right to apply for a mining tenement. The holder of an EXL may make application for a mining lease or a special mining lease (SML). Most small-scale operations apply for a mining lease, whilst large-scale projects operate under an SML. A mining lease confers on the holder an exclusive right to mine, and to own the product of minerals lawfully mined, for a period of up to 20 years, with an entitlement to apply for a further renewal of up to 10 years. An SML lasts for up to 40 years, with an entitlement to apply for a further extension of up to 20 years. An SML requires an appropriate Mining Development Contract to have been entered into with the State of Papua New Guinea.

It is a common term of most EXL that the State may at any time prior to the commencement of mining elect to make a single purchase of up to a 30% fully contributed interest in the tenement at a price equal to the accumulated exploration expenditure attributable to the interest. Once an interest is acquired by the State, it contributes to the further exploration and development costs on a *pro rata* basis. The State s reservation arises by way of a condition included in all exploration licenses. The policy of the State is not to take equity in small or medium sized mining projects.

A percentage of the States acquired interest is usually provided to provincial governments and landowners from the mine area. Current policy requires that capital for mining developments include at least 25% equity.

Assessable income from mining operations carried out under a SML is taxed at a rate of 35% where the income is earned by a resident company and 48% where the income is earned by a non-resident company. Assessable income from other sources is earned at 25% for resident companies and 48% for non-residents. With some exceptions a dividend withholding tax of 17% applies to dividend payments whether to a resident or non-resident shareholder. Major mining projects are subject to a project basis of assessment commonly known as ring fencing , which means that income from an SML cannot be sheltered by losses or deductions arising from another project. Where mining operations from an SML generate significant profits, further income tax, known as additional profits tax, may become payable.

A royalty of 2% of the net smelter return is payable to the State on minerals produced from a mining operation. PNG introduced a value added tax (VAT) from 1 July 1999 at a rate of 10%. This is accompanied by a reduction in import duties. Under this legislation the export of unprocessed minerals will be zero rated, with full recovery of input tax. However, to compensate for the benefit the mining industry will receive from the lower import duties, the government are also introducing a 4% levy on turnover. The mining industry is currently negotiating with the government for a review of the rate of levy applicable, as it is considered that the impact of the 4% levy will be to increase the cost of mineral exploration, development and mining in Papua New Guinea. The potential impacts of this 4% levy has not been included in the FM for the PNGTE.

The gold and silver production from the HVGP will be subject to a 2% royalty, payable on the net return from refined production if refined in Papua New Guinea or 2% royalty on the realized price if refined out of PNG.

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Pursuant to the sale agreement of EXL677 (the Hidden Valley and Kaveroi deposits) by Rio Tinto to AGF, a royalty payment from refined gold production is payable to Rio Tinto as per the following considerations:

For gold production <200,000oz a royalty of 0% shall apply;

For gold production between 200,001oz and 1,000,000oz a royalty of 2% shall apply;

For gold production between 1,000,001oz and 5,000,000oz a royalty of 3.5% shall apply; and

For gold production greater than 5,000,000oz a royalty of 2% shall apply.

Pursuant to the sale agreement of Wafi to Abelle (via wholly-owned subsidiary companies) from Rio Tinto, a royalty of 2% on gold production or a 2% Net Smelter Return (NSR) from copper-gold concentrates is payable to Rio Tinto as a deferred acquisition cost.

2.6 Mining Title and other rights current status

SRK has not reviewed the legal status of all necessary rights pertaining to the Mining Assets and has relied upon the Company, in respect of the validity of such rights in this regard.

2.6.1 South African Operations

The land holding positions relating to the South African Operations are classified into four main categories: existing mining authorisation; area for which extensions have been applied for; contiguous mineral rights; and non-contiguous mineral rights. On approval of areas currently under consideration for extension Harmony will have mining authorisations totalling 139,554Ha. Harmony s South African Operations are effectively lease bound and therefore do not include any significant mineral rights external to the current lease areas. Details relating to environmental permitting are include in Section 11.0 of this CPR. Table 2.23 summarises the land holding positions for the South African Operations. Figure 2.13 through to Figure 2.22 inclusive show the land holding positions for the South African Operations.

Table 2.23 Land Holdings: South African Operations

Mining Assets	Existing Mining Authorisations (Ha)	Extension Application (Ha)	Contiguous Mineral Rights (Ha)	Non-Contiguous Mineral Rights (Ha)
Freegold Operations	21,204	9,162	4,877	24,484
West Wits Operations	24,266	0	3,006	572
Target Operations	4,151	0	23,200	3,251
Harmony Free State Operations	22,583	1,815	3,256	4,094
Evander Operations(1)	36,898	2,262	2,837	1,462

Orkney Operations	9,317	0	0	0
Welkom Operations	5,511	0	0	0
Kalgold Operations	615	3,810	0	0
Total	**124,545**	**17,049**	**37,176**	**33,863**

(1) Excludes prospecting rights granted of 162,237Ha.

2.6.2 Australia Operations

The land holding position relating to the Australian Operations is classified into five main categories: Mining lease; Exploration Lease; Prospecting Licence; Miscellaneous Licence; and General Purpose Licences.

Most mineral rights in Australia are the property of the government and accordingly mining companies are liable for royalties which are based on production. There, are however, limited areas where the government granted freehold estates without reserving mineral rights. Harmony has freehold ownership of mining assets comprising the Jubilee operations. Current Australian law also requires native title approval prior to granting of a mining license. As of 1 January 2005, Harmony have approved mining leases for most of their Mineral Reserves, however if Harmony were to expand into additional areas under exploration, these operations would need to convert the relevant exploration licences prior to commencement of mining operations which process may also require native title approval. In such circumstances there is no assurance that such approval would be granted.

Harmony controls tenements over a total area of 196,665Ha of which the active mining areas currently total 39,906Ha. Table 2.24 summarises the land holding positions for the Australian Operations including their status in respective those which are active and those pending. Figure 2.23 and Figure 2.24 show the land holding positions for the Australian Operations.

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Table 2.24 Land Holdings: Australian Operations

		Tenements			Area		
Mine	Tenement Type	Total (No.)	Active (No.)	Pending (No.)	Total (Ha)	Active (Ha)	Pending (Ha)
Mt. Magnet and Cue Mine							
	Mining Lease	**89**	60	29	**20,406**	15,161	5,245
	Exploration Lease	**7**	3	4	**31,000**	14,750	16,250
	Prospecting Licence	**34**	21	13	**3,249**	1,328	1,921
	Miscellaneous Licence	**3**	2	1	**94**	3	91
	General Purpose Licence	**1**	1	0	**3**	3	0
South Kalgoorlie Mine							
	Mining Lease	**69**	36	33	**45,018**	24,745	20,273
	Exploration Lease	**17**	10	7	**6,907**	6,907	0
	Prospecting Licence	**67**	50	17	**81,434**	79,397	2,037
	Miscellaneous Licence	**14**	13	1	**162**	145	17
	LOC/SL	**3**	3	0	**8,392**	8,392	0

(1) Harmony holds 100% interest in all of the above Tenements.
(2) All associated expenditures for securing the above tenements have been included in the FM.

2.6.3 Papua New Guinea Operations

The land holding position relating to the Papua New Guinea operations comprise exploration licences for the HVGP and the WPA. Table 2.25 summarises the land holding positions for the Papua New Guinea Operations including their status. Figure 2.12 show the land holding positions for the Papua New Guinea Operations.

EXL 677 (the Hidden Valley Tenement) covers and area of approximately 71Ha and contains two gold-silver deposits, namely Hidden Valley and Kaveroi Creek, and around 17 gold prospects located approximately 15km south-west of Wau. The Wau tenements (EXL 497, EXL1193 and EXL1028) cover an area of 214Ha and contain two gold deposits, namely Hamata and Kerimenge, in addition to a further 23 gold prospects located approximately 12km south-west of Wau and close to the HVGP.

As at 1 January 2005, the EPs for the HVGP had not been converted to mining licences, however all applications and approval documents have been lodged and a final decision is pending, expected during the first half of calendar 2005.

Land title for the HVGP was established by PNG Land Courts in 1987. The HVGP is situated within the territories of three landowner groups; the Nauti, the Kwembu and the Winima. The Nauti people are predominantly located in the Upper Watut Valley and the Winima and Kwembu people occupy the Upper Buololo Valley. Each landowner group represented in the Landowners Association the Nakuwi Association (Na-Nauti, Ku-Kwembue and Wi-Winima). The aspirations of the landowners will require management from the outset of the development of the HVGP and the interests of secondary stakeholders will also need to be considered and managed throughout the operating life of the project. To date, the project has attracted strong support from the landowners as well as the Provincial and the national PNG governments.

Table 2.25 Land Holdings: Papua New Guinea Operations

Project	Tenement	Title	Area (Ha)	Annual Rent (A$k)	Expenditure (A$k)
HVGP			**285**	**58**	**709**
	EXL 497	Mt Kaindi Hidden Valley	67	14	86
	EXL 677	Kuper Range	71	14	495
	EXL 1028	Biaru	72	15	62
	EXL 1193	Mt. Missim	75	15	66
WPA			**284**	**18**	**261**
	EXL 440	Mt.Wanion	27	6	103
	EXL 1103	Zilani	16	1	86
	EXL 1105	Mt Watut	10	2	36
	EXL 1316	Mumeng	231	9	36

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Figure 2.1 Locality Plan: Freegold Operations (North) and Welkom Operations

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Figure 2.2 Locality Plan: Freegold (Central) Operations and Harmony Free (West) State Operations

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Figure 2.7 Locality Plan: Harmony Free State (East) Operations

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Figure 2.11 Locality Plan: Australian Operations

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Figure 2.18 Mineral Rights and Mining Authorisation: Target Operations

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Figure 2.19 Mineral Rights, Mining Authorisation and Surface Freehold: Harmony Free State (East) Operations

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Figure 2.21 Mining Authorisation: Orkney Operations

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Figure 2.22 Mining Authorisation and Surface Freehold: Kalgold Operations

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Figure 2.23 Tenement Map: Australian (Mt. Magnet & Cue Mine) Operations

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Figure 2.24 Tenement Map: Australian (South Kalgoorlie Mine) Operations

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3. GEOLOGY

3.1 Introduction

This section describes the geology of the Mining Assets. The nature and geometry of the orebodies being or planned to be mined, their structural complexity and the variability of grades is also discussed. In addition to this, a brief description of the geological potential is presented.

Detailed plans are available for inspection at various Company operating offices where they remain due to the fact that many are working plans required for the continual management of the respective operations. On request, copies of specific information will be made available at First Floor, 4 High Street, Melrose Arch North, 2196, Johannesburg, Gauteng Province, Republic of South Africa.

3.2 South African Goldfields

3.2.1 Witwatersrand Basin Geology

Witwatersrand Basin operations are mostly deep-level underground mines exploiting gold bearing, shallow dipping tabular bodies, which have collectively produced over 50kt (1,608Moz) of gold over a period of more than 100 years.

The Witwatersrand Basin comprises a 6km vertical thickness of argillaceous and arenaceous sedimentary rocks situated within the Kaapvaal Craton and extending laterally for some 300km east-northeast and 150km south-southeast. The sedimentary rocks generally dip at shallow angles towards the centre of the basin. The Witwatersrand sedimentary rocks crop out to the south of Johannesburg but further to the west, south and east these rocks are overlain by up to 4km of Archaean, Proterozoic and Mesozoic volcanic and sedimentary rocks. The Witwatersrand Basin sediments themselves are considered to be between 2,700 and 3,100 million years old.

Gold mineralisation in the Witwatersrand Basin is hosted within quartz pebble conglomerate bodies, termed reefs. These reefs occur within seven separate goldfields located along the north-eastern, eastern, northern, western and south-western margins of the basin. These goldfields are known as the Evander Goldfield, the East Rand Goldfield, the Central Rand Goldfield, the West Rand Goldfield, the Far West Rand Goldfield, the Klerksdorp Goldfield and the Free State Goldfield (Figure 3.1). Typically within each goldfield, there are one or sometimes two major reef units present, which may be accompanied by one or more secondary reef units. As a result of faulting and other primary controls on mineralisation, the goldfields are not laterally continuous with each other and may also be characterised by the presence or dominance of different reef units. The reefs are generally less than 2m in thickness and are widely considered to represent laterally extensive braided fluvial deposits or unconfined flow deposits, which formed along the flanks of alluvial fan systems that developed around the edge of what was effectively an inland sea.

All major reef units are developed above unconformity surfaces. The extent of unconformity is typically greatest near the basin margin and decreases toward more distal areas within the basin. Complex patterns of syn-depositional faulting have caused variations in sediment thickness within the basin. Sub-vertical to over-folded reef structures are a characteristic feature of the basin margin within certain areas.

Most early theories believed the gold to be deposited syngenetically with the conglomerates, but recent research has confirmed that the Witwatersrand Basin has been subject to metamorphism and massive fluid flow within the meta-sedimentary pile and that some post-depositional redistribution of gold has occurred. Other experts regard the gold to be totally epigenetic and to have been deposited solely by hydrothermal fluids some time after deposition of the reef sedimentary rocks.

Despite these varied viewpoints, the most fundamental control to the gold distribution remains the association with quartz-pebble conglomerates on intra-basinal unconformities. The reefs are laterally continuous, as a consequence of the regional nature of the erosional surfaces. Bedrock (footwall) controls have also been established, these features are interpreted to control the distribution of many of the reefs. Preferential reef development within channel systems and sedimentary features such as facies variations and channel frequency, also assist in mapping out local gold distributions. In all cases the grade of the orebodies varies above and below the pay limit. Consequently, the identification and modelling of the sedimentary features within the reef units and the linkage between is a key activity for in-situ resource estimation.

3.2.2 Free State Goldfield

The Free State Goldfield lies some 270km southwest of Johannesburg on the southwest rim of the Witwatersrand Basin. Exploration within the Free State Goldfield commenced in the early 1930 s when values within the Basal Reef, the predominant economic reef in the district, were intersected by surface drilling.

Structurally, the Free State Goldfield lies within a north-south trending syncline forming an apex in the southwest corner of the Witwatersrand Basin. The shallowly northerly plunging syncline is dissected by two major faults into three major blocks: the Odendaalsrus section to the west of the De Bron fault, the Central Horst, between the De Bron and Homestead faults and the Virginia Section east of the Homestead Fault. The Central Horst was uplifted and the Central Rand Group rocks eroded away prior to deposition of the Ventersdorp Supergroup.

The Central Rand Group in the Free State comprises some 2,000m of discrete sedimentary sequences deposited over successive unconformity surfaces in an expanding depositional basin. The paucity of major faulting and folding of Central Rand Group age has led to the conclusion that subtle tectonic warping of the basin with granite doming on the margins controlled deposition.

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The conglomeratic reef units are most commonly deposited at the base of each depositional sequence, although gold may also occur as scours within a given formation. The principal reefs mined in the Free State are the Basal Reef, the Saaiplaas Reef, the Middle Reef, the Leader Reef, the B Reef, the A Reef, Elsburg Reefs and the Dreyerskuil Reefs.

The Basal Reef is the most extensive, continuous and economically significant reef in the Free State Goldfield, accounting for over one-half of all of the gold produced there to date.

3.2.3 West Rand Goldfield

The Cooke mines and the Doornkop Mine of the West Wits Operations are situated in the West Rand Goldfield, the structure of which is dominated by the influence of the Witpoortjie and Panvlakte Horst blocks which are superimposed over broad folding associated with the southeast plunging West Rand Syncline. The northern limb of the syncline dips in a south-southwest direction and the south limb in an east-southeast direction. The fold axis of the West Rand Syncline is located along a line that runs from the West Rand Consolidated Mines Limited lease area near Krugersdorp and trends southeast through the northern part of the Doornkop section.

The structural geology in the north section of the Cooke Mines is dominated by a series of north-east trending dextral wrench faults. The most significant of these are the Roodepoort/Panvlakte Fault and the Saxon Fault, which have downthrows of 550m to the southeast and the Doornkop Fault which has a 250m down throw to the southeast. Several other smaller scale faults have downthrows ranging from 20m to 150m. Pilanesburg, Bushveld and Ventersdorp age doleritic dykes are present. These dykes strike in a northerly direction, with the exception of some of the Ventersdorp which strike in an easterly direction.

At the Cooke mines two major fault trends are present. The first set parallel the Panvlakte Fault and strike north-northeast. These faults are steeply dipping, generally have small throws and do not have any noticeable lateral movement that displaces payshoots within reef units transacted by these faults. A second major fault system trends north-west to east-west; these faults significantly displace the payshoots within the reef units. These faults have small throws and tend to be water bearing showing a connection to the dolomites and indicating a Transvaal age. Many of them are mylonite or dyke filled.

Six reef groupings have been identified at West Wits Operations on the West Rand Goldfield, the Livingstone Reefs, the South Reef, the Kimberley Reefs, the Bird Reefs, the Mondeor Reefs, the VCR, and the Black Reef. The Black Reef is the basal unit of the Malmani Subgroup, deposited after the extrusion of the Ventersdorp lavas. Within these, a total of nine economic reef horizons have been mined at depths below surface between 600m and 1,260m.

3.2.4 Far West Rand Goldfield

Two primary reefs are exploited in the Far West Rand Goldfield, the VCR located at the top of the Central Rand Group and the CLR near the base of the Central Rand Group. The Middlevlei Reef, which occurs some 50m to 75m above the CLR is the most important secondary reef within the Far West Rand. Other secondary reefs also occur in the area the most significant being individual bands within the Mondeor Conglomerate Reef Zone that sub-crop beneath the VCR at Deelkraal Mine and on the western side of Elandsrand Mine.

The separation between the VCR and CLR increases east to west from 900m to over 1,300m as a result of the relative angle of the VCR unconformity surface to the regional stratigraphic strike and dip. The Carbon Leader Reef strikes west-southwest and dips to the south at approximately 25º. The VCR strikes east-northeast and has a regional dip of about 21º to the south-southeast. In the location of the Mining Assets the Carbon Leader Reef occurs too deep to allow mining from current infrastructure and is lower in grade than elsewhere on the Far West Rand Goldfield. Consequently the VCR is the only reef currently exploited.

There are a series of east trending, north dipping normal faults with throws of up to 40m and a series of north-northeast striking normal faults with generally smaller displacements in the northwest. The original displacements on these faults are occasionally increased as a function of subsequent post-Bushveld displacement but overall faulting is much less prevalent than it is in other Witwatersrand goldfields. There are, for example, no major faults with throws of the order of several hundred metres or more. Moving to the eastern sections of the Far West Rand Goldfield the structure becomes simpler with few major faults. Most faults are high-angle normal faults trending north-northwest and east and having throws of less than 70m.

3.2.5 Evander Goldfield

The Evander Basin is a tectonically preserved sub-basin located outside the main Witwatersrand Basin, and separated from it by the Devon Dome, a large granitoid cupola. The Evander Goldfield is the most easterly mined Witwatersrand gold occurrence. The Basin forms an asymmetric syncline, with the fold axis located between Evander 5 Mine and Evander 6 Mine, plunging to the northwest. The Kimberley Reef is the only economic mineralised unit within the Evander Goldfield.

The Evander Basin was a part of the main Witwatersrand Basin until post Booysens Shale times. It was separated from the East Rand and South Rand Basins by uplift in the areas now marked by the basement Devon and Cedarmont Domes. Deeper within the basin, the Central Rand Group is overlain by Ventersdorp Lavas, Transvaal Sequence sedimentary rocks and Mesozoic Karoo Sequence sedimentary rocks. West Rand Group rocks are present beneath the Central Rand Group. A poorly mineralised reef unit, located stratigraphically above the Kimberley Reef, termed the Intermediate Reef, is also developed but is not economic except where it has eroded the sub-cropping Kimberley Reef in the south and west of the basin.

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The Evander Basin is one of the more structurally complicated parts of the Witwatersrand. The northerly dipping Kimberley Reef is dissected by a series of east, north-east striking, south dipping normal faults. In addition, the southeast margin of the Basin is characterised by vertical to locally overturned Kimberley Reef within the Evander 6 Mine area. Mining and drilling have defined the larger elements of the structure of the shallow southern and eastern basin margins. The northern and north-western extent of the basin is poorly drilled because of the depth to the Kimberley Reef and because of poor grades encountered to the north. The geological structure there has been inferred from two-dimensional seismic survey lines.

3.2.6 Klerksdorp Goldfield

The Klerksdorp Goldfield is located on the northwest margin of the Witwatersrand Basin and lies some 150km south-southwest of Johannesburg. Exploration, development and production history in the area dates from 1886 and following dormant periods, large-scale production commenced during the 1940s.

The Witwatersrand Basin sedimentary rocks are overlain by up to 2,000m of cover rocks and the reefs themselves occur at depths of between 80m and 4,000m.

The most significant structural features of the Klerksdorp Goldfield are northeast striking normal faults, which dip to the northwest and southeast and have throws of several hundred metres. These features break up the stratigraphy containing the stratiform orebodies into a series of horsts and grabens, which vary in width from several hundred metres to over a thousand metres. These horsts and grabens are internally disturbed by small-scale faults sympathetic to the major faults, which typically have throws of tens of metres and break up the reef into blocks of up to 100m in width. These brittle faults can be identified by drilling from access development and as the dip of the stratigraphy is reasonably consistent, can usually be negotiated without significant difficulty. There are, however, smaller-scale faults in the immediate vicinity of these larger faults, which disrupt the reefs and can result in increased losses and dilution.

The majority of mining in the Klerksdorp Goldfield has taken place to the northwest of one of the major northeast-southwest striking normal faults, the Jersey Fault, which has a down throw to the southeast of up to 1,000m, displacing the Vaal Reef down to a depth below surface exceeding 3,000m. Two further sub-parallel faults occur to the southeast of the Jersey Fault displacing the reefs down to more than 5,000m below surface.

Two primary conglomerate reefs are exploited within the Klerksdorp Goldfield namely the Vaal Reef and the VCR. The Vaal Reef and VCR reef horizons occur at depths between 80m and 4,000m. The VCR dips moderately steeply west-northwest, the Vaal Reef generally dips gently to the southeast. Other, secondary reefs, including the Black Reef, Zandpan Marker and Denny s Reef exist, however they are not currently considered to be economically viable.

3.2.7 Western Australia

The Yilgarn Craton is one of the largest tectonic elements in Australia. It is of Archaean age, and comprises an early high grade granite-gneiss metamorphic terrain (the Southwestern Province) and three granite-greenstone terrains, the North Eastern Goldfields Province, the Southern Cross Province and the Murchison Province as shown in Figure 3.19.

Parts of the Yilgarn Craton, especially the Norseman-Wiluna Greenstone Belt, are highly mineralised with gold and nickel. The major gold deposits in the Yilgarn include Kalgoorlie, Kambalda, Mt Magnet, Boddington and Wiluna. The majority of the gold deposits are hosted in greenstone belts, especially in mafic and ultramafic volcanics.

The greenstone belts are linear belts of ultramafic, mafic and felsic volcanics with intercalated sedimentary sequences. BIF are common in the Murchison and Southern Cross provinces but rare in the North Eastern Goldfields Province. The greenstone belts have been multiply deformed and metamorphosed. The Yilgarn has been exposed since at least the end of the Cretaceous, and has been deeply weathered with the development of extensive lateritic profiles.

3.2.8 Papua New Guinea

The island of New Guinea is on the northern edge of the Australian Plate. It has three main geological components: a continental cratonic platform in the southwest, an arc of volcanic islands in the northeast and a central collisional fold belt. The fold belt is composed of Mesozoic sediments, obducted oceanic crust (ophiolite sequences), Tertiary clastic sediments and dioritic intrusions.

Early passive margin extension during the Tertiary was replaced by obduction and continental arc development about 5Ma. During the collision, the Wau Graben, an 850km^2 back-arc rift, was formed in the fold belt. The Wau Graben hosts the major gold-silver deposits.

With the formation of the Wau Graben, there was a phase of volcanic activity including the eruption of the andesitic and dacitic Bulolo Volcanics and the intrusion of andesitic to dacitic Edie Porphyry. The major mesothermal to epithermal precious and base metal mineralisation at Edie Creek, Hidden Valley and Hamata were formed in association with this episode of magmatic activity.

Continued subsidence of the Wau Graben was accompanied by the deposition of fluvial and lacustrine sediments, including extensive auriferous placers.

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3.3 Deposit Geology

Most of the South African Operations can be described as mature mining operations with underlying geological models and grade distributional models based on vast amounts of historical mining and sampling data. The electronic capture of sampling data over the past ten-years has permitted a greater level of data interrogation and modelling leading to enhanced understanding of the grade and payshoot characteristics of the orebodies than was possible previously.

3.3.1 Freegold Operations

Tshepong Mine: The primary reef mined at Tshepong Mine is the Basal Reef with minor contribution from the secondary B Reef, which lies some 140m stratigraphically above the Basal Reef. The Basal Reef mined at Tshepong Mine consists predominantly of the black chert facies , a narrow channel (5cm to 25cm) small-pebble conglomerate to grit, characterised by the abundance of black chert pebbles. The B Reef is highly channelised in nature with a more erratic grade distribution than that displayed by the Basal Reef. The relatively incompetent Khaki Shale overlies the Basal Quartzite, which occurs in the upper portion of the Basal Reef. The Basal Quartzite provides natural support to the Khaki Shale and where the thickness of the Basal Quartzite unit is less than 60cm, mining dilution increases dramatically through collapse of the incompetent hangingwall.

The Basal Reef dips at generally shallow angles to the east and is intersected by two significant north-south striking faults, the Dagbreek and the Ophir Faults. These faults dip at moderate angles to the west and have significant strike-slip and up-dip throws of the order of 1,000m to 2,000m and 200m to 300m respectively.

Economic grades at Tshepong Mine are constrained within a broad pay-shoot, which trends east-southeast.

Four separate reef facies are distinguished and used to constrain the estimation of Mineral Resources at the Tshepong Mine. Geologically, these reef facies are extremely similar in appearance. A method of assigning facies type was developed in conjunction with Leeds University, UK. Scoring is based on geological type (Loraine Facies or Black Chert Facies), presence of Waxy Brown Quartzite (WBQ), which is thought to trap fluids in the underlying reef, and the presence of observed microthrusting, which is thought to encourage fluid flow into the reef and presence of reducing minerals such as sulphides and carbon, which are thought to encourage the precipitation of gold mineralisation.

Bambanani Mine: The primary reef mined at Bambanani is the Basal Reef (Steyn Facies) which covers approximately 90% of the mine area. The Basal Reef is overlain by the Khaki Shale in the northern sector of the lease area; the WBQ is present in the south and separates the Basal Reef and the Khaki Shale. Secondary reefs such as the Leader Reef have been mined on a small scale historically but have always been found to be low grade.

The whole Basal Reef package dips at angles of between 25º and 45º to the east and is generally between 1m and 3m thick.

The lease area is bound to the west by the Stuurmanspan Fault and to the east by the De Bron Fault. Both of these are significant north-south striking normal faults, which dip at moderate angles to the west and have throws of over 100m. Faults sympathetic to these occur with displacements of up to 50m, as do east-west faults with lateral shifts of up to 400m on the northern edge of the mining area.The Harrison Fault, parallel and to the west of the De Bron Fault demarcates the eastern mining limit.

Kudu-Sable Mine, Nyala Mine and Eland Mine: These are contiguous to the south and west of Tshepong Mine and Basal Reef is mined almost exclusively. The geological setting is similar to that described for Tshepong Mine, however, faulting in the mining lease is the most intense to be found at the Freegold Operations. The Dagbreek fault intersects the Eland Mine lease area and the Rheedersdam thrust fault forms the western boundary of the remaining mines. These faults and other generally north striking normal faults including the Eureka, Rietpan and Wesselia faults represent the dominant the structures in the area. The reef in the Rheedersdam fault zone has been multiply repeated by thrusting which has resulted in stacks of as many as eight repetitions of the Basal Reef.

Further variability in reef occurrence has been caused by changes in paleo-topographic slope, which controlled the nature of sedimentation and subsequent mineralisation potential.

The Basal Reef is particularly carbonaceous and the gold tends to concentrate strongly on the kerogen-rich footwall contact and visible gold is commonly observed. The best grades were historically mined at Kudu-Sable Mine. The Nyala Mine area is characterised by marginal grades.

Kudu-Sable Mine is predominantly a remnant operation with a short life. The extensive historical mining and the nature of the remaining Basal Reef Mineral Resources minimise uncertainties regarding grade, structural complexity and loss of ground. Nyala Mine has only recently re-opened and mining is focused on the Basal Reef shaft pillar.

Joel Mine: Joel Mine exploits two distinct forms of a single reef, developed on a single unconformity surface. These are known as the Beatrix Reef and the Beatrix-VS5 Composite Reef. The reef dips to the northeast at 14º and sub-crops against the overlying Karoo Supergroup just to the south of Joel South Shaft, defining the southern limit of the orebody.

The Beatrix Reef conglomerate is found throughout the mine area and generally has multiple basal degradation and internal scour surfaces, sometimes thinning to a single pebble lag on paleo-topographic highs. The Beatrix-VS5 Composite Reef represents a re-working of the Beatrix Reef accompanied by a mixing with lower grade VS5 Reef material. This occupies a 500m to 1,000m wide channel running almost north-south through the centre of the lease area, which is interpreted to widen to the northeast of Joel North Shaft.

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A deep erosional channel of Platberg Group volcano-sedimentary rock, known as the Klippan Channel, truncates the Beatrix Reef some 1.8km to the north of Joel South Shaft. This washout feature is wedge-shaped with its apex to the west and widens to the east. The estimated dimension from the apex to the eastern property boundary is approximately 1.8km. The reef has been shown to be continuous to the north of this feature.

Where unaffected by the Klippan Channel, the reef is bound to the east by the De Bron Fault, which strikes north-northeast. The CD Fault, which strikes northeast and is roughly halfway between the two shafts, has a 320m sinistral lateral displacement, which has moved ground south of the fault towards the northeast.

The complex nature of the reef, with multiple pulses of detrital influx and scouring, non-deposition on paleotopographic highs and the mixing between the Beatrix and Beatrix-VS5 Composite Reef, has resulted in a highly irregular distribution of gold throughout the mining area. There are broad low and high-grade zones on the scale of hundreds of metres, which are considered likely to be repeated within the reef environment beyond the limits of the current development, however, the detailed grade distribution within these zones remains very unpredictable.

For the purposes of resource estimation, a detailed facies model is used and is based on detailed sedimentological observations and absence of well-mineralised reef at paleo-topographic highs.

St Helena Mine: St. Helena Mine has a complex geological structure with faults generally trending north-south with downthrows of up to 2,000m and dips of between 30º and 50º. Reverse and thrust faulting is present, sometimes resulting in local duplication of reef. Two economic reefs are present within the mine property with the Basal Reef being the most economically important unit and the Leader Reef, which lies some 15m above the Basal Reef stratigraphically.

St. Helena Mine is predominantly a remnant operation with extensive historical mining and the nature of the remaining Basal Reef Mineral Resources minimise uncertainties regarding grade, structural complexity and loss of ground.

Phakisa Project: The Phakisa Project is situated immediately to the east of Tshepong Mine. The resources at Phakisa comprise the Basal Reef and represent the down-dip extension from the Tshepong Mine. The present plan is to extract ore mined from Phakisa via the Nyala shaft on 55 Level. The Nyala shaft pillar below this level will be extracted.

Surface Sources: Surface sources at the Freegold Operations comprise numerous waste rock dumps (WRDs) and slimes dams (Slimes Dams), which in addition to various plant clean-up tonnages, are processed at FS1 Plant. WRDs comprise both waste material and reef material, the latter of which is sourced from cross-tramming of mined ore. Typical grades range between 0.5g/t and 1.0g/t, which are either processed directly or pre-screened to ensure Run of Mine (RoM) grades in excess of 1g/t.

Slimes Dams may also contain significant gold grades owing to occasional sub-optimal metallurgical performance, which resulted in gold being sent to tails. Grade distribution within WRDs and Slimes Dams can vary significantly owing to fundamental changes in mining, hoisting and processing methods, which have been implemented over prolonged years of mining.

Figure 3.2 through Figure 3.6 inclusive show plan views of surface boreholes and mining infrastructure and selected geological sections of the deposits mined at the Freegold Operations.

3.3.2 West Wits Operations

Elandsrand Mine and Deelkraal Mine: Elandsrand Mine, and previously Deelkraal Mine exploit the VCR, which unconformably overlies the Mondeor and Elsburg Formations of the Central Rand Group. These footwall sediments primarily comprise siliceous quartzites. There are four major polymictic conglomerate zones within the Mondeor Formation, which have supported minor stoping on Deelkraal. The VCR is overlain by lava of the Alberton Formation, which forms the basal unit of the Klipriviersberg Group of the Ventersdorp Supergroup. The dip of the VCR at Deelkraal Mine is relatively consistent at 24º although there is some postulation of a slight flattening of dip at depth on Elandsrand.

The VCR sits on a highly incised unconformity surface exhibiting a marked palaeotopography. The unconformity (erosion) surface is covered with a residue of mature quartz pebble conglomerates (reef) preserved on fluvial terraces and slopes. These now reflect as local variations in the dip and strike of the reef. Terrace reef (being originally close to horizontal) has the attitude of the regional dip and it tends to be thicker and accompanied by higher gold accumulations. Terraces are preferentially mined. Slope reef is indicated where the attitude of the reef now departs significantly from the regional dip. Slope reef represents the inter-terrace slope areas, the reef is thin, has less conglomerate and less total gold. Slope reef gold values are generally below the paylimit.

The VCR is present throughout the Elandsrand Mine lease area, but at Deelkraal Mine there is a limit of deposition running roughly north-south through the centre of the lease area. The VCR is poorly developed to the west of this line.

The facies and morphological models encompassing the Mining Assets have been developed through reef mapping in stopes and on-reef development mapping. They are used in the estimation of Mineral Resources to constrain the interpolation of grade into geologically homogenous areas.

Mondeor Conglomerate bands sub-crop beneath the VCR on the western side of Elandsrand Mine and on Deelkraal Mine. They have been mined in places underneath or close to their sub-crop on Deelkraal Mine.

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Structures present at Deelkraal Mine and Elandsrand Mine include faults, dykes and sills. The sills occur in the footwall in many areas adjacent to dykes; however, these only affect the reef horizon in old, mined out areas near Elandsrand Mine. The faults and dykes are classified according to the relative geological ages and comprise pre VCR, early Ventersdorp, late Ventersdorp, Bushveld and Pilanesberg Structures.

The structural model at Elandsrand Mine has been developed from information compiled over many years, through structural mapping of footwall haulages and crosscuts and on reef raises, winzes, drives and stopes. At Deelkraal Mine low angle faulting is more commonly developed, however, a relatively poor structural database exists, as these data were previously not consistently recorded at this operation. The economic horizons change from north to south along the length of the Doornkop-Cooke-Western Areas part of the Witwatersrand basin, from a few lower Central Rand unconformities in the north to the development of multiple upper Central Rand unconformities in the south. The structural and depositional history of the goldfield is still not fully understood due to the complicated pattern of stacked sub-cropping reefs and the syndepositional tectonics; however the individual orebodies have detailed grade models that assist evaluation.

Cooke Mines: The Westonaria Formation hosts the gold mineralization within the Cooke mines. Within the Cooke 2 Mine and Cooke 3 Mine, this formation is deformed into a north trending anticline; the eastern limb of the anticline is significantly thicker than the western limb. This wedge-like geometry of formations indicates that syndepositional uplift along the Panvlakte trend (before the anticline developed) had an effect on reef formation. The western limb of the anticline is characterised by the presence of a narrow single band UE1A reef overlying a pronounced unconformity, whereas to the east the Elsburg A1 to A5 stacked package of conglomerate horizons forms a wedge interleaved with barren quartzites. This wedge opens out to the east and to the south with greater thicknesses of barren quartzites separating the individual reef horizons. To the east the conglomerates become increasingly distal in nature, to the south more individual horizons are developed.

The Main orebodies on the Cooke 1 Mine, Cooke 2 Mine and Cooke 3 Mine of the West Wits Operations are the UE1A and the Elsburg A5 Reefs. Cooke 4 Mine, located to the south mined ten individual horizons including Mondeor Reefs, Elsburg Reefs and the VCR. The VCR is sporadically mined on the western portion of Cooke 3 Mine as well, where well mineralised channels are exposed. On Doornkop Mine the Kimberley Reefs and the South Reef are being mined. Moving further east, the primary orebodies on the adjoining Central Rand Goldfield were the Lower Central Rand Group orebodies the Main Reef Leader and the Main Reef.

A pronounced feature of the grade distribution at the Cooke mines is the location of what were previously described as fan entry points into the basin. These pronounced fan shaped grade distributions on the grade plans are due in part to the presentation of the two different aged orebodies, the UE1A and A1, on the same plans; and the lack of palinspastic reconstruction of payshoots that terminate along these younger lateral movements.

The area covered by the original exploration pattern on the Cooke mines has now largely been mined out. Mining is now concentrating on pillars and areas on the periphery of the initial exploration area that are poorly explored from surface drilling.

Doornkop Mine: Doornkop Mine has been mining the Kimberley Reefs but attention is now focusing on the South Reef, which has been previously exploited on adjacent operations, including West Rand Consolidated, Durban Roodepoort Deep, Rand Leases Gold Mine and Randfontein Estates Gold Mine. The South Reef consists of a narrow channel, small pebble conglomerate reef, frequently characterised by the presence of kerogen. The geological model of the South Reef at Doornkop comprises broad southeast trending shoots (paleo-depressions) separated by lower grade zones (paleo-highs). One of these ore shoots, indicated by surface drilling and confirmed by recent stoping, runs through the Doornkop area.

Figure 3.7 through Figure 3.12 inclusive show plan views of surface boreholes and mining infrastructure and selected geological sections of the deposits mined at the West Wits Operations.

3.3.3 Target Operations

The gold mineralisation currently exploited by Target Mine is contained within a succession of Elsburg and Dreyerskuil quartz pebble conglomerate reefs hosted by the Van den Heeversrust and Dreyerskuil Members of the Eldorado Formation respectively. Additional Mineral Resources have been delineated in the Big Pebble Reefs of the Kimberley Formation.

The individual Elsburg Reefs are separated by quartzite beds and form a wedge shaped stacked sequence which strikes north-northwest and comprises some 35 separate reef horizons interpreted to have been deposited in an alluvial fan system similar in nature to present day river deltas. This sequence of Elsburg Reefs and quartzites is truncated by an unconformity surface at the base of the overlying younger Dreyerskuil Member. Immediately below the sub-crop with the Dreyerskuil the Elsburg Reefs and quartzites dip steeply to the east, the dip becoming progressively shallower down dip. This synclinal structure plunges shallowly (10°) to the north. In the more proximal areas to the sub-crop the thickness of the intervening quartzites reduces, where many of the individual Elsburg Reefs coalesce to form composite reef packages that are exploited by the massive mining methods employed at Target Mine. Gold grades in the Elsburg Reefs are also higher in the proximal areas, decreasing down dip until reaching an economic limit between 200m to 450m from the sub-crop.

The majority of the Mineral Resources at Target Mine are contained within the Eldorado fan, a structure with dimensions of some 135m vertically, 450m down-dip and 500m along strike. The Eldorado fan is similar in nature to the fans historically mined at Loraine gold mine to the south. The Eldorado fan is connected to the subsidiary Zuurbron fan, located between Target Mine and Loraine, by

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a thinner and lower grade sequence of Elsburg reefs termed the Interfan area. The economic mineralisation in the Interfan is less persistent distally than within the fans and does not contribute significantly to the Mineral Resources. Significant exploration potential exists to the north of the Eldorado fan where a number of other fans have been inferred from surface drilling by the Avgold projects department, prior to acquisition by Harmony. The Siberia and Mariasdal fans are the most significant of these.

The Dreyerskuil Member consists of a series of stacked reefs, dipping shallowly to the east, that are less numerous but laterally more continuous than the underlying Elsburg Reefs. At Loraine this unit correlates stratigraphically with the Uitkyk Member that consists of an immature conglomerate informally termed the Boulder Beds . These beds did not contain significant gold mineralisation and were therefore not mined at Loraine. Towards the north the Uitkyk Member grades into a series of reworked conglomerates and quartzites, similar in nature to the Elsburgs, which becomes the Dreyerskuil Member in the vicinity of Target Mine. The conglomerate reefs contain economic mineralisation, some of which may have been derived through the erosion and reworking of Elsburg Reefs at the sub-crop.

The BPR are found in the Kimberley Formation, which is overlain by the Eldorado Formation. The BP6a Reef, which has been historically mined at Loraine No. 2 Shaft, lies on the unconformity at the base of the upper member of the Kimberley Formation (the Earl s Court Member). This overlies the Big Pebble Reef Member, the base of which comprises a series of argillaceous quartzites and several well-developed conglomerates. These are collectively referred to as the Big Pebble Zone (BPZ), which varies in thickness between 1m and 15m. The BPZ conglomerates are well developed at Target Mine and Loraine and coalesce into thick multiple conglomerate reef units close to their western subcrop position. Although resources have been delineated in the BPZ in the Loraine and Target Mine areas, these are not exploited in the current LoM plan.

A number of faults that displace the reefs at Target Mine have been identified of which the most prominent are the north-south trending Eldorado fault and the east-west trending Dam and Blast faults. The Eldorado uplifts the more distal portions of the Elsburg and Dreyerskuil Reefs while the Blast fault forms the northern boundary of Target Mine. The structure is known to a reasonable degree of confidence through a combination of underground drilling and mapping augmented by surface seismic surveys.

The plunging synclinal feature at Target continues northwards, where the geological setting is similar and additional non-LoM resources have been delineated on the Elsburg, Dreyerskuil and BPR Reefs. In the Target North area low-grade mineralisation has also been intersected on the Mariasdal Reef and the Sun Reef, which are thought to be the equivalent of the B Reef and Basal Reef respectively elsewhere in the Free State Goldfield.

An erratically developed reef has been intersected in some surface boreholes in an area to the far north of the Target Mine at the base of the Ventersdorp Conglomerate Formation, which overlies the Eldorado Formation. This is interpreted to be the VCR, which is present in the Klerksdorp, West Rand and Far West Rand Goldfields but not elsewhere in the Free State Goldfield. The VCR is a coarse to very coarse quartz pebble conglomerate, which appears to be highly channelised and varies in thickness from almost zero to 4m.

Target North is sub-divided into the Paradise, Siberia and Mariasdal areas by the east-west trending Siberia and Mariasdal faults. To the north of the Siberia Fault, the Eldorado Fault continues trending more to the northwest and an additional north-south trending fault, the Twin fault has uplifted the distal portions of the reefs. North of the Mariasdal fault the reef horizons are at a depth greater than 2,500m below surface and a farm boundary sub-divides this area into Mariasdal and Kruidfontein. The large-scale structure in the Target North area is known to a reasonable degree of confidence through the surface boreholes and extensive three-dimensional seismic surveys. Resources have been delineated on strike up to 15km north of Target Mine.

Approximately 40km North of Target Mine, surface boreholes have intersected gold bearing reefs in the Oribi area close to the town of Bothaville. Resources have been delineated at Oribi on the VCR and Elsburgs at depths of approximately 2.75km below surface.

Figure 3.13 shows a plan view of mining infrastructure at Target Operations.

3.3.4 Harmony Free State Operations

At these operations mining was originally established to exploit the Basal Reef, but, as reserves become depleted, production is being increasingly sourced from the more erratically mineralised and lower grade secondary reef units including the Leader Reef, Middle Reef, A Reef and the B Reef. The Basal Reef is a high grade, generally thin (<100cm) reef, which has been payable across most of its exposed extent. In the south, at both Harmony 2 Mine and Unisel Mine, the reef pinches out against elevated footwall and grades deteriorate. The Leader Reef, A Reef, and B Reef are only payable in distinctive and sometimes extensive payshoots and discrete pods where these reefs overlie the Basal Reef. Where the Leader Reef truncates the Basal Reef east of the so-called line of coalescence at Harmony, it is more uniformly payable.

Harmony 2 Mine: The two conglomerate horizons at Harmony 2 Mine, the Basal Reef and A Reef, are separated by 140m of mostly quartzites and conglomerate. The reefs dip 5º to 15º towards the west, becoming steeper to the west approaching the De Bron Fault. Numerous east-west trending dykes cut the reef, resulting in up throw and lateral shift. The Basal Reef occurs as thin bands of upward fining conglomerates, with full channel widths of up to 120cm developed. The payable reefs frequently contain kerogen in association with the gold. Weak shales overlie the Basal Reef and must either be undercut or removed with the reef. The footwall to the A Reef at Harmony 2 Mine is the 1m to 15m thick Big Pebble Marker, which, where thinnest, is associated with better developed A Reef. Better gold grades are associated with thicker channels greater than 1m thick.

Merriespruit 1 Mine and Merriespruit 3 Mine: The Merriespruit area is structurally complex with extensive north-south and east-west trending faults, with vertical displacements of up to 650m. Dykes are also present within the structurally complex areas. In general, the reefs strike northeast-southwest and dip 20º to the north. The Basal Reef is typically thin (<100cm) and channelised, with payable grades located in northeast-southwest trending payshoots. This upwardly fining conglomerate is poorly to well mineralised with the local occurrence of buckshot pyrite. Locally mineralised Middle Reef, found above the Basal Reef in the hanging wall quartzites, is only payable when adjacent to Basal Reef or overlying the Leader Reef. The Leader Reef comprises a series of conglomerate bands separated by pebbly quartzite bands that are variably mineralised, with typically poor to moderate grades. Payable grades are often located in northeast-southwest trends. In general the gold is dispersed throughout the package, with gold associated with the pyrite.

Unisel Mine: The reefs at Unisel Mine dip 30º to the east and are structurally complex due to fault intersections and the presence of sills in the vicinity of the Basal Reef. The principal reefs mined are the Basal Reef and the Leader Reef. The Basal Reef has been divided into three distinct sedimentological facies, with gold mainly associated with moderate-to-well developed buckshot pyrite. The Leader Reef is highly channelised with limited sedimentological information and shows an erratic grade distribution.

Brand 3 Mine: Brand 3 Mine is characterised by large north-south trending faults with lateral movement. The A Reef is the predominantly targeted reef and is found in wide fault displaced east-west pay trends. The Basal Reef belongs to the former Basal Placer facies and is predominantly found in the form of a thin reef, rich in carbon. Pebbles are not always present. The reef thickness seldom exceeds 20cm and is generally less than 10cm.

Masimong 4 Mine and Masimong 5 Mine: The mineralised conglomerates mined at Masimong are the Basal Reef, B Reef and A Reef. The Basal Reef is mined at both Masimong operations while the A Reef is mined at Masimong 4 Mine and the B Reef at Masimong 5 Mine. At Masimong 4 Mine and Saaiplaas 3 Mine the Basal Reef is present as the Steyn facies, comprising three to four upward fining sedimentary cycles. The lower cycle, being the primary gold carrier comprises a basal conglomerate with an overlying protoquartzite. Kerogen rich bands, which carry most of the gold, occur locally on the bottom contacts. Channel widths are generally below 70cm but in places only the carbon contact between the hanging wall and footwall exists. A north-south trending payshoot extending through the Saaiplaas 3 Mine towards the north along the western side of Masimong 4 Mine forms the main target area for the Basal Reef.

The black chert facies Basal Reef at Masimong 5 Mine comprises two upward fining cycles, of which the lower carbonaceous unit is the primary gold carrier. Channel widths average 60cm. The target area for this facies is a northwest-southeast trending payshoot that cuts through the shaft and is truncated to the east by younger leader quartzites.

The A Reef at Masimong 4 Mine lies 140m to 160m above the Basal Reef and is characterized by a highly channelised series of conglomerate bands that are generally only payable in locations where one or more bands exist within the channel itself. These oligomictic conglomerates are dark in colour with abundant, mostly fine pyrite and occasional carbon. Channel thickness is highly variable but can be up to 1.8m, with gold values highly dependent on the reef thickness and the presence of carbon.

The B Reef, lying 110m above the Basal Reef, comprises complex sedimentologically controlled gold mineralisation within a wide east-west trending channel that cuts through the Masimong 5 Mine area. Within this channel very high grade lenticular gravel bars contain abundant visible gold, in association with kerogen and form the principal targets for selective mining. Gold grades within the B Reef are highly erratic, while the channel widths also vary from zero to approximately 1.8m.

Surface Sources: Surface sources at the Harmony Free State Operations comprise numerous WRDs, Slimes Dams and other sources, which in addition to various plant clean-up tonnages, were processed at the Central, Virginia and Saaiplaas Plants. WRDs comprise both waste material and reef material, the latter of which is a result of cross-tramming of mined ore. Typical grades range between 0.4g/t and 1.0g/t. Slimes Dams may also contain significant gold grades owing to occasional and historical sub-optimal metallurgical performance, which resulted in gold being sent to tails. Grade distribution within WRDs and Slimes Dams can vary significantly owing to fundamental changes in mining, hoisting and processing methods, which have been implemented over prolonged years of mining.

Figure 3.14 shows plan views of surface boreholes and mining infrastructure of the deposits mined at the Harmony Free State Operations.

3.3.5 Evander Operations

Within the Evander Operations lease area the Kimberley Reef dips predominantly northwards. There are several distinct fault styles developed within the mine lease. Earliest faults tend to have thrust movements, resulting in duplication of the reef. These faults strike northwards to westwards and are generally consistent with thrust movement into the basin. Throws of up to 150m have been encountered within the mine workings. The resulting shallow-dipping faults trend west-northwest and have up throws to the north. This is an extremely fortuitous situation as the successive up throws maintain the Kimberley Reef at a consistently shallow depth below surface throughout the main part of the Evander lease. Significant fault losses are, however, associated with these faults. There has been only minor lateral movement along these faults. Channels can normally be traced across them with only minor displacements.

Vertical and overturned Kimberley Reef is present in the Evander 6 Mine area in the southeast corner of the mine. This structurally complex area represents a basin margin structure, in many ways analogous to the structural regimes observed on the Western Margin of Free State Goldfield. The vertically dipping reef sub-crops against the overlying Karoo Sequence rocks. Complex wrench faulting is also developed within the Evander 6 Mine area.

Ventersdorp, Bushveld and Karoo age dykes and sills are present within the mining lease. Bushveld age intrusives occur as dykes and sills, Ventersdorp and Karoo intrusives occur as predominantly north trending dykes. By far the most problematic is a doleritic footwall sill that varies from 30m to 70m in thickness. In several areas this sill steps upwards and occupies the same stratigraphic position as the Kimberley Reef, in places splitting the reef into two separate components. Fortunately interference from the sill is generally localised in areas such as the southern portion of the previous Winkelhaak mine and specific areas in the western part of Kinross.

Gold in the Kimberley Reef is associated with heavy minerals on re-activation surfaces specifically associated with the more robust, clast supported oligomictic quartz pebble conglomerates, or in association with flyspeck carbon. Pyrite, chromite, rutile, zircon and leucoxene have been identified within the Kimberley Reef. Pyrite dominates the heavy mineral suite and displays several distinct forms. Pyrite grains displaying detrital characteristics are common. Rounded balls of porous pyrite are also recognised, as are secondary remobilised pyrites. These latter minerals may occupy fractures across pre-existing pebbles, as well as overgrowing existing detrital pyrites within the sand matrix. Uraninite is present within the Kimberley Reef, but in concentrations so low that routine sampling for uranium is not practiced.

Carbon is generally rare within the more robust Kimberley Reef, becoming common in the distal areas as flyspeck carbon on the footwall contact. This has an effect on gold grades. As the channel width of the reef decreases the gold accumulation (cmg/t) does not change significantly. This is attributed to high gold grades associated with the carbon.

Evander Rolspruit Project is a project area situated down-dip of Evander 8 Mine along the projected trend of the major Kinross pay shoot and contiguous with the Evander Mineral Lease area. Exploration was completed using 47 surface drill holes. In addition, underground channel sample data (principally from Evander 8 Mine) have been used to assist in the understanding of the local geology.

Evander Poplar Project is a second project situated in the Evander Basin. The Poplar Project is located about 15km northeast of Evander 8 Mine. The project evaluation is based on 57 surface drill holes that have intersected the Kimberley Reef within the approximately 10km by 2.5km project area.

Figure 3.15 through Figure 3.16 shows plan views of surface boreholes and mining infrastructure and selected geological sections of the deposits mined at the Evander Operations.

3.3.6 Orkney Operations

The mining area is bounded to the east and north by the North West Operations owned by Durban Roodepoort Deep, Limited (DRD) and to the west and south by the Tau Lekoa Mine and the Vaal River Operations (VRO) of AngloGold.

The major faults within the lease area are: the Nooitgedacht and Buffelsdoorn faults occurring in Orkney 6 Mine and Orkney 7 Mine areas; the Witkop fault between Orkney 6 Mine and Orkney 7 Mine; the WK22 and Orkney 3 Mine faults between Orkney 7 Mine and Orkney 3 Mine; the Orkney 5 Mine Fault; and the Orkney 2 Mine South Fault. The horsts and grabens are further disturbed by faults sympathetic to the major faults which typically have throws of tens of metres and further divide the reef into blocks of up to 100m in width. Drilling from access development can identify these brittle faults, as the dip of the stratigraphy is reasonably constant (15º to 20º).

The Vaal Reef is by far the most significant reef mined at the Orkney Operations and is the major contributor to gold production. The reef strikes northeast, dipping to the southeast and is heavily faulted to form a series of graben structures. The dip is generally less than 30º but can vary locally in direction and magnitude to exceed 45º. Gold is present throughout the reef horizon; however it tends to be concentrated close to the basal contact where carbon commonly occurs as thin seams. Well-mineralised carbon seams occur most commonly in three stacked sequences.

The VCR is exploited at Orkney 3 Mine, Orkney 6 Mine and Orkney 7 Mine and, like the Vaal Reef, can occur as a composite reef consisting of several distinct sedimentary packages. A terrace and slope-based geological model was developed by AngloGold for the VCR and has been retained by the geologists employed by Harmony. The model divides the orebody into a main channel; lower; middle and upper terraces and also involves delineation of certain higher-grade reworked channels. The reef is clearly identifiable and its location at the contact between the overlying Klipriviersberg Lavas and the underlying Witwatersrand Supergroup rocks renders the footwall and hangingwall rocks distinct from the reef, except in areas where Elsburg conglomerates sub-outcrop against the VCR. The contrasting lithology aids fault negotiation and have facilitated the use of three-dimensional seismic survey techniques to image the gross reef topography in the past.

The Elsburg Reefs are exploited at Orkney 6 Mine and Orkney 7 Mine, usually in conjunction with the overlying VCR, against which it sub-outcrops along a northeast trending band, south of and sub-parallel to the Buffelsdoorn Fault. The sedimentological characteristics of the Elsburg Reefs in the region of the sub-outcrop are similar to those exhibited by the VCR.

Figure 3.17 shows plan views of mining infrastructure related to deposits mined at the Orkney Operations.

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3.3.7 Welkom Operations

The Welkom Operation lease area is centrally located within the Free State Goldfield in an area containing several other mature operations. The property is bounded to the south by the St. Helena Mine (Freegold Operations), the President Brand Mine (Harmony Free State Operations) and the President Steyn Mine (President Steyn Gold Mines Limited). In addition, the property is bounded to the north by the Eland Mine, Kudu-Sable Mine, Nyala Mine and Tshepong Mine (all of Freegold Operations).

The Basal Reef is the main reef historically exploited at Welkom Operation. In addition to the Basal Reef, Welkom 6 Mine also exploited the Leader Reef, lying some 15m above the Basal Reef. The Saaiplaas Reef or pyrite stringers , as it is commonly referred to, is present at Welkom 7 Mine. This consists of thick (up to 6m), low-grade channels superimposed on the Basal Reef.

The Basal Reef strikes north to north-northwest and generally dips to the east between 20º and 40º. The reef is bounded on the west by the north trending Rheedersdam Fault system and sub-crops against the Karoo Supergroup along a north trending line representing the basin margin. To the east the north trending De Bron Fault bounds the reef. Two major faults, the Dagbreek and Ararat further dissect the reef into three contiguous blocks.

Welkom 1 Mine and Welkom 2 Mine are situated within the easternmost of these three blocks, between the De Bron and the Ararat Faults. Welkom 3 Mine and Welkom 4 Mine are situated within the central block between the Dagbreek and Ararat Faults and Welkom 6 Mine and Welkom 7 Mine are situated within the western most block.

The Leader Reef also varies in thickness between 0.3m and 1.7m and comprises a well-packed, small-to-medium pebble conglomerate with white quartz and black chert clasts and a moderate percentage of buckshot and crystalline pyrite.

One other reef, the Middle Reef, has been exploited in a very small, opportunistic way. The Middle Reef is an impersistent, lensoid, cherty and/or quartz-pebble conglomerate unit within the Middling Quartzite of the Harmony formation. While sometimes of very high grade, individual lenses are typically less than 30m in planar dimensions and as such too small to systematically drill for, generally resulting in serendipitous discovery.

3.3.8 Kalgold Operations

Kalgold Operations are situated within the Kraaipan Greenstone Belt located approximately 60km south of Mafikeng. The Kraaipan Greenstone Belt is part of the larger Amalia-Kraaipan Greenstone terrain in northwest South Africa. The northern sector of this terrain consists of three north trending linear belts of Archaean meta-volcanic and meta-sedimentary rocks separated by granitoid units that outcrop intermittently over a strike of 100km. Exposure of the Kraaipan belt is characteristically poor and the geology is extensively covered with Kalahari sands and calcrete horizons. The Kraaipan belt consists of three broad formational units termed the Gold Ridge Formation, the Ferndale Jasperlite Formation and the Khunwana Chert Formation. All three formations consist of resistant iron-formation and jasperlitic units interlaminated with poorly exposed metavolcanic rocks.

Mineralisation at Kalgold consists of shallowly dipping narrow quartz veins that occur in clusters or swarms within the steeply dipping magnetite-chert banded iron formation lithologies of the Ferndale Jasperlite Formation. Disseminated sulphide mineralization, dominated by pyrite with lesser pyrrhotite occurs around and between the shallowly dipping quartz vein swarms. The D Zone is the largest orebody located and has been extensively mined within a single open pit operation over a strike length exceeding 1,300m. The D Zone mineralisation is linked to a steeply westerly dipping thrust fault in the immediate footwall of the banded iron formation. The iron formation unit ranges in width from 10m to 40m. In addition to the D Zone, gold mineralisation has been mined from the oxide ore within the Mealie Field Zone, a small satellite body adjacent to the D Zone. Mineralisation has also been identified within the A Zone and the parallel A Zone West deposits, located along strike to the north of the D Zone. The Watertank and Windmill orebodies are situated north of the A Zone; the Watertank body is on strike with the A Zone, whereas the Windmill body is offset approximately 500m to the west of the Watertank body.

Figure 3.18 shows plan views of ultimate pit limits mined at the Kalgold Operations.

3.3.9 Australian Operations

Mt Magnet & Cue deposits: The Mt Magnet Greenstone Belt in the Murchison Province of the Archaean Yilgarn Craton is a complexly deformed sequence of ultramafic, mafic and felsic volcanics with interbedded Banded Iron Formations (BIF) and other sediments.

The majority of the gold mineralisation is hosted by BIFs that are cross-cut by faults, at or near the contact of ultramafic and mafic rocks with felsic intrusions. These BIF units are locally termed bars . Fault zones and shears are generally north-south to north-northeast trending and selective fracturing appears to form a major focus for gold mineralisation. Crossing of several shear directions appears to enhance mineralisation which is often characterised by an epigenetic pyrrhotite-pyrite alteration. Other gold deposits occur in quartz reefs and mineralised shear zones.

Gold mineralisation occurred late in the regional deformational history, post dating the folding event. The mineralised BIFs and cherts were disrupted during faulting, and lenses of mineralised and non-mineralised sequences were stacked on top of each other. Leaching of the primary mineralisation and secondary enrichment in structurally favourable locations and in the oxidised zone occurred subsequently. The more material deposits are summarised as follows:

Hill 50 Deposit (underground operation): The bulk of the mineralisation is hosted in the Sirdar Formation, a thick sequence of intercalated sedimentary BIF with both komatiitic and tholeiitic volcanics and associated ultramafic volcanics and mafic tuffs. Mineralisation is characterized by pyrrhotite-pyrite replacement of BIF. The BIFs are locally offset by faults with offsets ranging from 1m to up to tens of metres;

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St George Deposit (underground operation): The resource is hosted in a sequence of felsic volcanics, BIF/chert units chloritised laminated shales and graphitic shales. Two distinct shoots are present. The southern shoot is developed in the hinge zone of a steep southwest plunging fold. The northern shoot is located on the fold limb and hosted by thin north trending, steep westerly dipping chert lenses. Gold is present as very fine, free particles in the chert beds. Below the water table gold is associated with sulphides in narrow BIFs and in secondary sulphide veins;

Comet Deposit (underground operation): A cluster of deposits in the Comet-South Tuckabianna area, of which Comet is the largest, hosted principally by iron rich sediments within a dominantly mafic sequence. Gold mineralisation at Comet strikes at 030º magnetic and dips between 45º and 55º to the southeast. There are two mineralised horizons, the footwall and hangingwall lodes, separated by a massive fine grained barren basalt unit ranging between 0.5m and 1m in thickness. Gold mineralisation is intimately associated with pyrrhotite in both lodes and the distribution of gold within the mineralised zones is variable with the higher grades occurring in well defined steeply dipping shoots; and

Great Fingall Region: The dominant geological feature of the Great Fingall region is the Great Fingall Dolerite, a large differentiated tholeiitic sill intruding a basaltic sequence. It strikes at 030º, dips at 70º to the northwest and is approximately 530m thick. It is truncated to the north by a gabbroic and a tonalitic intrusion and to the south by the Cuddingwarra Shear. The Great Fingall Dolerite hosts numerous gold deposits, predominantly in quartz reefs, which crosscut the dolerite striking around 120º and dipping 55º the southeast. The two deposits in the LoM plan are:

The Great Fingall quartz reef which strikes northwest and dips 60º to 65º to the southwest in the upper areas of the mine, flattening to 50º to 45º to the southwest at depth. The width of the quartz reef varies and can be up to 13m thick but averages between 2m and 3m. The thickest reef is usually hosted with the units 1 to 3 of the Great Fingall Dolerite;

The Golden Crown deposit (500m to the south of Great Fingall) which is hosted by the same rock units but is a more complex arrangement of reefs. The Alimak reef was the highest-grade reef developed, averaging 23.4g/t over a mining width of 1.6m.

Movement on both the Great Fingall and Golden Crown structures have been interpreted as sinistral oblique slip, with the northwest block down relative to the southwest block. The observed offset is possibly the result of over 200m of oblique-sinistral movement;

South Kalgoorlie deposits: In comparison to other greenstone belts in the Yilgarn Craton, the Archaean Norseman-Wiluna Belt is highly mineralised, particularly in gold and nickel. The rock types comprise abundant tholeiitic and komatiitic volcanic rocks, chert, sulphidic and albitic sedimentary rocks, and a chain of discrete felsic volcanic centres. There is relatively little BIF compared with the Mt Magnet Greenstone Belt.

There was a complex and long-lasting series of structural deformations during and after the metamorphism, during which the majority of the economic gold deposits were formed. Metamorphism has affected all rock types and ranges from low temperature prehnite-pumpellyite facies to high temperature and pressure amphibolite and granulite facies.

The stratigraphy in the South Kalgoorlie project area comprises mafic to ultramafic rocks with intercalated sediments, conformably overlain by felsic volcanics and associated sediments. Gold mineralisation is found in a range of settings including brittle-ductile shear contacts, brittle shears in granite, shears in felsic porphyry, in biotite-tremolite schist, in shears in quartz dolerite and gabbro or porphyry; and in Tertiary paleochannels. The more material deposits are summarised as follows:

Hampton-Boulder Jubilee: Hampton Boulder Jubilee forms part of a major 4km strike length mineralised system that includes the Celebration, Mutooroo, Hampton Boulder, Mt Martin, Dawns Hope, White Hope and Golden Hope open-pit and underground mines. There are numerous sub-parallel north-south trending mineralised shear zones hosted in mafic to ultramafic units. Mineralisation is found in a variety of structural settings, with rheology contrasts being generally important for the formation of deposits. Most of the deposits are one of three types:

altered and mineralised porphyries at the contacts between mafic and ultramafic rocks (e.g. Hampton-Boulder Jubilee, Mutooroo);

shear-hosted mineralisation in mafic rocks (e.g. Pernatty); and

quartz-vein mineralisation (e.g. Triumph).

The deposit is localised by the strongly sheared contact between a hangingwall of foliated mafic schists and a footwall of foliated talc-carbonate altered ultramafic schists. Mineralisation consists principally of north trending sigmoidal and stockwork quartz-carbonate-pyrite vein arrays which are generally metres to tens of metres in dimension and cross-cut the pervasive S2 foliation; and

Mt Marion: At Mt Marion, mineralisation is hosted in a rock locally termed the lode gneiss along the Kunanalling Shear, within a sub-vertical package of gneiss and ultramafic rocks. The mineralisation bifurcates in the thickest parts into a footwall and hangingwall lode, each up to 8m thick each, with a weakly mineralised low grade core up to 10m thick. In places, mineralisation extends from the hangingwall gneiss into the ultramafic hangingwall, and this hangingwall halo appears to be increasing in width at increasing depth. The footwall contact of mineralisation generally coincides with the footwall contact of the gneiss and is more consistent. The mineralisation plunges steeply to the west, and is open with depth.

Figure 3.20 through Figure 3.22 shows plan views and selected geological sections of the deposits mined at the Australian Operations.

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3.3.10 Papua New Guinea Operations

Hidden Valley Deposit: The Hidden Valley Deposit (HVD) is a low-sulphidation epithermal gold-silver vein-stockwork deposit with minor base metals, predominantly hosted by the Morobe Granodiorite. The HVD is bounded and structurally controlled by a series of northwest to north-northwest striking faults.

The HVD is divided into two fault-bounded structural zones; the Hidden Valley Zone (HVZ) and the Kaveroi Creek Zone (KCZ). Within these zones are numerous other faults, both parallel to the bounding faults and at high angles to them.

Gold and silver mineralisation in the HVD is contained in carbonate + adularia + quartz + sulphide vein-stockworks, crackle breccias and rare hydrothermal breccias. These veins occur in dilational structures formed by normal movement on major faults, such as the Hidden Valley Fault, and others occurring in the hanging wall of this structure.

Individual mineralised veins are generally less than 10mm wide, with occasional thicker veins up to 1m to 2m wide. Mineralised veins have been coded and classified in a system, which is based on the dominant gangue mineralogy and relative sulphide content. Mineralised veins in the HVZ show a predominant northeast dip; mineralised veins in the KCZ show a predominant west-southwest dip.

Weathering is variable and partly controlled by lithology and structure. The oxide zone typically extends 25m below the surface. The partially oxide zone is a mixture of fresh and oxidised rock with secondary oxide minerals and typically extends to 55m below the surface, below which the fresh zone consists of unweathered rock.

Hamata Deposit: The Hamata Deposit is broadly similar to the HVZ, and is also hosted in the Morobe Granodiorite. Similarly to Hidden Valley, mineralisation is largely controlled by faulting. Three main fault orientations have been recognised: steep north-northeast dipping, shallow east dipping and steep north dipping. The steep north-northeast sets are reverse faults. The faults can be as wide as 10m and rapidly thin to less than 0.5m. These faults were a focus for flow of the mineralised fluids, and narrow zones of gold mineralisation can occur within these faults. Associated with these faults are shallow east dipping tensional zones that host the main mineralisation.

Three main stages of mineralisation are recognised at Hamata with different vein types. The majority of the gold was deposited during the second stage. The progression from Stage I to Stage III mineralisation reflects a transition from magmatic-dominated hot mineralising fluids to meteoric dominated cooler fluids.

Wafi Deposit: WPA comprises two geologically distinct orebodies: the Golpu porphyry copper-gold deposit and a high-sulphidation epithermal gold deposit peripheral to this porphyry-diatreme complex.

The Golpu porphyry copper-gold deposit comprises a deep-seated, disseminated pyrite-chalcopyrite-chalcocite vein-stockwork system overprinted, at shallower depth, by a high-sulphidation, silica-alunite-clay capping hosting a complex mineralogical assemblage of copper and arsenic sulphides. The deposit is hosted by a pipe shaped porphyry intrusion, with plan dimensions of approximately 200m by 200m and a down-plunge length of at least 1.2km.

The oxidised zone from the surface to about 150m vertical depth is a gold only resource, from which the copper has been leached. Beneath this is a 50m to 150m complex zone of covellite-enargite rich ore, parts of which are high arsenic. Beneath this is an approximately 200m thick covellite ore zone, which grades into a chalcopyrite bornite zone which continues to the limit of current drilling.

The peripheral gold deposits are largely sulphide-refractory and occur as replacement disseminations and fine quartz vein-stockworks in advanced argillic clay altered siltstone and sandstone units in the surrounding metasedimentary country rock. Pods of intense sulphidation occur throughout the deposit.

Figure 3.23 through Figure 3.26 shows plan views and selected geological sections of the deposits mined at the Papua New Guinea Operations.

3.4 Exploration Potential

3.4.1 South African Operations

The majority of the South African operations are mature and well explored and as such SRK considers there to be limited opportunity for discovering any new mineralised horizons or areas within the existing property boundaries within South Africa. The scope for exploration activities on South African operations will focus on conversion of Inferred Mineral Resource to Indicated Mineral Resource categories. Some potential does however exist for the Target Operations, Freegold Operations, and Evander Operations, specifically:

- The eastern extension in the Dreyerskuil Reefs at Target Mine; and
- The southern extension in Basal Reef at Bambanani Mine, the northern extension of certain facies at Tshepong Mine and extensions in the northern portion of the Joel Mine.

3.4.2 Australian Deposits

Both the Mt Magnet & Cue and South Kalgoorlie areas are mature mining districts with a long history of exploration and production. Potential for further significant discoveries within the tenements currently owned by Harmony is considered by SRK to be low; however because most of the deposits are open at depth some do offer potential for existing resource extensions at below the extent of current workings and infrastructure.

3.4.3 Papua New Guinea Deposits

The Morobe Goldfields is considered by SRK to be prospective for the following range of precious and base metal deposits:

- Early hydrothermal gold mineralisation associated with intrusion of the Morobe Granodiorite;
- Later mesothermal (Hamata) to epithermal mineralisation (Hidden Valley, Edie Creek, Upper Ridges) associated with intrusion of the Edie Porphyry, including possible porphyry Cu-Mo-Au mineralization;
- Replacement mineralisation where fluids have been focused by structural corridors (Kerimenge deposit);
- Alluvial deposits (Edie Creek, Bulolo River); and
- Potential skarn deposits.

Hidden Valley: Hidden Valley, Hamata and Kerimenge have significant soil geochemical anomalies, and numerous other anomalous areas have been recognised in the near vicinity. The highest priority targets are either extension of Hidden Valley or within a 4 km radius. Table 3.1 summarises the regional exploration targets in the vicinity of Hidden Valley.

Table 3.1 Papua New Guinea Operations: Summary High Priority Exploration Targets

Tenement	Prospect	Target
EXL677	Apu Creek	Southeast extensions to the KCZ.
	Nosave	Northwest strike extension of the HVZ.
	Andim	Straddles the Hidden Valley and KCZ.
	Puruwang	Possible parallel mineralised system to the KCZ.
	Big Wau	Porphyry copper and gold targets.
	Upper Bulolo/Salembaini	Porphyry related base metal-gold target.
	Salemba	Strong geochemical evidence for Hidden Valley type gold mineralisation below metasediment caprock.
	Tais Creek	Possible parallel mineralised system to the HVZ.
EXL497	Yafo	Fault controlled silica-pyrite and magnetite-pyrite-quartz veining.

The area between Hamata and Hidden Valley is prospective for further gold mineralisation. Gold stream sediment sampling has been completed over some of the area and additional follow-up work has been completed at the Bulldog and Yafo Prospects. The potential in the Hamata area for discovery of additional Hamata-type mineralisation is considered by SRK to be high. Magnetite-haematite-pyrite mineralisation is ubiquitous within a $5km^2$ area around Hamata. A large part of this area has been geochemically sampled for gold using soil, power auger and wacker techniques. On a 100m by 20m grid soil programme, the Hamata Deposit is clearly recognised using a 0.10ppm Au contour; however this programme failed to recognise the Yafo Prospect. No other similar scale anomalies were recognised within the programme; however the potential is high for discovery of smaller or hidden gold mineralised systems using other techniques.

Numerous porphyry intrusions occur in the area immediately surrounding Wafi, as well as numerous anomalous Au samples.

Regional Prospects: Regional reconnaissance exploration conducted by CRAE and RGC in the 1980 s identified a number of anomalous areas within the project area. Very limited work has been completed on these prospects since 1990. Table 3.2 summarises the regional exploration targets in the vicinity of Hidden Valley.

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Table 3.2 Harmony PNG: Summary Regional Exploration Targets

Tenement	Prospect	Target
EXL 677	Moa Creek	Strongly anomalous gold geochemistry.
	Udat Creek	Strongly anomalous gold and base metal geochemistry.
	Kalamansi Creek	Stream sediment anomaly.
	Tumbe Creek	Stream sediment anomaly.
	Moka Creek	Stream sediment anomaly.
	Indiwi River Group	Stream sediment anomaly.
EXL 497	Webiak	Northwest strike extensions of the Edie Creek vein systems / Possible diatreme.
	Upper Little Wau Creek	Anomalous rock chip results to 8.80g/t Au.
	Kulang	Hydrothermal breccias associated with porphyry intrusion.
	Kaure	Hydrothermal breccias associated with porphyry intrusion.
	Big Wau Creek	Hydrothermal breccias associated with porphyry intrusion.
	Mungowe	Fault controlled carbonate-base metal veining.
EXL 1193	White Cat	Stream sediment anomaly.
	Mossy Knoll	Stream sediment anomaly.
	Kobiak/ Iwalewi	Fault controlled quartz-pyrite veining.
EXL 1028	Kudjeru	Stream sediment anomaly.
	Upper Waria	Stream sediment anomaly.
	Allens Lode	Stratabound and structurally controlled replacement style gold mineralisation.

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4. MINERAL RESOURCES AND MINERAL RESERVES

4.1 Introduction

This section summarises the methods used by Harmony to derive and classify the Mineral Resource and Mineral Reserve estimates for the Mining Assets. It also presents SRK s comments and opinions on the reasonableness of these estimates and presents Mineral Resource and Mineral Reserve statements as appropriate. In addition, this section sets out SRK s view regarding the potential for proving up further Mineral Resources and Mineral Reserves at the Mining Assets.

Detailed plans are available for inspection at various Company operating offices where they remain due to the fact that many are working plans required for the continual management of the respective operations. On request copies of specific information will be made available at First Floor, 4 High Street, Melrose Arch North, 2196, Johannesburg, Gauteng Province, Republic of South Africa.

4.2 SRK Review Procedures

SRK has not re-estimated the Mineral Resources and Mineral Reserves as estimated by Harmony for each of the Mining Assets. SRK has, however, undertaken sufficient check calculations and where appropriate, made necessary adjustments to the estimates to derive the statements presented herein and incorporated into the respective LoM plans.

The tables in this section summarise SRK s statements of Mineral Resources and Mineral Reserves. The terms and definitions are those given in the March 2000 South African Code for Reporting of Mineral Resources and Mineral Reserves. This is known as the SAMREC Code (SAMREC) and is published by the South African Mineral Resource Committee under the auspices of the South African Institute of Mining and Metallurgy.

In presenting the Mineral Resource and Mineral Reserve statements the following points apply:

Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce Mineral Reserves. Accordingly Mineral Resource statements are sub-divided into those Mineral Resources which have been modified to produce Mineral Reserves (designated by the suffix [1]) and those which have not (designated by suffix [2]);

Mineral Resources are quoted at an appropriate in-situ economic cut-off-grade with tonnages and grades based on the planned mining width;

Mineral Reserves for South Africa Operations are based on a gold price of ZAR92,000/kg. Mineral Reserves for the Australian Operations and the Papua New Guinea Operations are based on a gold price of A$540/oz (See Section 1.0 for spot commodity prices as at 1 January 2005);

Mineral Resources and Mineral Reserves were estimated as part of Harmony s annual planning cycle dated 1 July 2004. Notwithstanding various Mineral Reserve adjustments as declared by Harmony in the interim period the statements as reported herein have been adjusted for the following: reclassification of the boundary between Inferred Mineral Resources and Indicated

Mineral Resources; cessation of mining operations at certain operations primarily due to economic considerations and depletion that has occurred during the six-months that have elapsed between 1 July 2004 and the Effective Date. Consequently all Mineral Resources and Mineral Reserves are dated as at 31 December 2004;

Unless otherwise stated all Mineral Reserves and Mineral Resources are quoted as 100% and not attributable with respect to ownership;

All Mineral Reserves are quoted in terms of RoM grades and tonnage as delivered to the metallurgical plants and are therefore fully diluted and account for mining extraction;

Mineral Reserve statements include only Measured and Indicated Mineral Resources modified to produce Mineral Reserves and planned for extraction in the LoM plans;

Mineral Reserve sensitivities, where reasonable to estimate, have been derived from application of the relevant cut-off-grades to the underlying block listings. Accordingly, these have not been based on detailed depletion schedules and should be considered as incremental changes to the declarations as reported herein;

All references to Mineral Resources and Mineral Reserves are stated in accordance with the SAMREC Code; and

In respect of exploration properties and/or mineral rights located in South Africa Mineral Resources are not reported. Mineral Resources are reported for the international exploration properties and are limited to the WGP and the GCGP.

In respect of Harmony s Australian Operations the following additional comments apply:

Mt. Magnet & Cue Mine: The individual deposits that materially contribute to the 31 December 2004 Mineral Resource Statement are Hill 50, St George & Water Tank Hill, Comet, Spearmont and Great Fingall. These five resource estimates, which contribute some 55% of the contained gold reported as Mineral Resources and 100% of the contained gold reported as Mineral Reserve, were reviewed by SRK. Based on materiality, and contribution to the Equity Value of the Company the other 97 Mineral Resource estimates included in the Mineral Resource Statements for the Australian Operations, have not been reviewed to the same level of detail; and

South Kalgoorlie Mine: Currently, the individual deposits that materially contribute to the 31 December 2004 Mineral Resource Statement, as reported herein are Mt Marion, Hampton-Boulder-Jubilee, Rose Hill and Inclined Shaft. These four resource estimates, which contribute some 71% of the contained gold reported as Mineral Resources and 100% of the contained gold reported as Mineral Reserve, were reviewed by SRK. Based on materiality, and contribution to the Equity Value of the Company the other 50 Mineral Resource estimates included in the Mineral Resource Statements for the Australian Operations, have not been reviewed to the same level of detail.

In respect of Harmony s Papua New Guinea Operations the following additional comments apply:

HVGP: For both the Hidden Valley and Hamata deposits the data and geological resource models were reviewed and during the site visit to the properties selected core intervals and outcrops were visually inspected. For Hidden Valley, a sensitivity test of the resource estimate was completed and the results extended to Hamata by analogy; and

WGP: For the Wafi deposit the data and geological resource models were reviewed and during the site visit to the property selected core intervals and outcrops were visually inspected.

Surface sources at the Mining Assets comprise WRDs, Slimes Dams and other surface sources such as spillage and small stockpiles. WRDs are notoriously difficult to sample, given the range of particle sizes commonly present and the resultant heterogeneity of grade encountered during small-scale sampling operations. In the majority of instances, SRK has classified those WRDs with sufficient information as Indicated Mineral Resources. In instances where the grade and/or the density are known with insufficient confidence, SRK has classified these as Inferred Mineral Resources. In contrast to WRDs, Slimes Dams, in general tend to have more homogeneously distributed grades and the smaller particle size facilitates derivation of more reliable grade estimates from less onerous sampling programs. With adequate sampling and in-situ density determinations, SRK considers that slimes dams as such may be classified as Measured Mineral Resources. In instances where the grade and/or the density are known with insufficient confidence, SRK has classified these as Indicated Mineral Resources.

4.3 South African Operations Mineral Resource and Mineral Reserve Estimation Methodologies

Mineral Resource and Mineral Reserve estimation and classification is dependent upon the quality and quantity of data, block definition, grade and tonnage estimation, grade control and reconciliation. Such parameters are considered by SRK to be typical of Witwatersrand Basin gold mines.

Unlike most other Witwatersrand deposits, the stacked nature of the reefs at Target Mine in combination with the bulk mining methods utilised, are conducive to three-dimensional computerised geological modelling. As a result of this and the fact that a significant amount of close-spaced drilling has been completed at Target Mine relative to other mines, the approach used to estimate the Mineral Resources and Mineral Reserves at Target Mine differs in most regards from that used at most other Witwatersrand mines.

The majority of resources in the Target North and Oribi areas have been estimated using standard two-dimensional classical statistical methods employed at other Witwatersrand mines where the reefs have been intersected by surface drilling only. At Loraine and to the immediate north of Target additional underground information has enabled a three-dimension computerised approach to be used similar to that employed at Target Mine.

Given the similar nature of the majority of the South African Mining Assets, the following sub-section summarises the general techniques commonly used by Harmony for estimation.

4.3.1 Quality and Quantity of Data

The resource estimation process at the underground operations is based on surface drilling, underground drilling and underground channel sampling. Unless outcropping, the orebodies are initially explored by drilling from surface on regular 500m to 2,000m grids. Once underground access is available, infill development drilling may be undertaken from access haulages and crosscuts to provide a grid of intersections that may range from 30m to 60m. Evaluation is then by extrapolation from or interpolation between stoping and development sampling.

In the case of surface drill holes, the core is halved using a diamond saw, one-half is retained as a geological record and one-half is assayed. For underground drill holes, the core diameter is considered to be too small to allow the core to be split and to yield a sufficiently large sample to allow assaying and, in this instance, the entire core is assayed.

Within the underground operations, exposures of the reef are channel sampled. Individual channels are cut perpendicular to the reef units, using a hammer and chisel. The sample cuttings are collected using steel pans. A detailed sampling record is kept showing the reef geometry at each section and the location of the section. Metal accumulation and channel width are recorded, typically within electronic database.

Current channel sampling standards comprise development sampling at 2m intervals and stope face sampling at 5m intervals. There is, however, considerable variation on this standard to reflect reef grade variability. Tshepong Mine and Bambanani Mine only sample every 4m on development, Nyala Mine only samples every 3m on development and on a 6m grid while stoping. St Helena Mine has a 5m by 5m sampling grid within the stope environment and sample the development at 3m intervals. Channels are defined perpendicular to the reef plane and individual sample lengths of 10cm to 30cm are taken to reflect the internal geometry of the reef. The sample size collected is in the order of 0.3kg. Two adjacent samples spanning the footwall contact may be taken in order to double the sample volume of this part of the reef that frequently contains the highest grades. This is particularly important where the reef is bottom-loaded , or consists of a narrow grit zone containing carbon.

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The Free State Operations make use of Harmony s Free State Laboratory Services (Not South African National Accreditation System SANAS accredited). Pre-determined standards (South African Bureau of Standards SABS) are included in sample batches, tolerance levels are determined and constant monitoring of the various analyses is done. A round robin sample check system is also applied, using Performance Laboratories Randfontein (SANAS T0265) and Beatrix Laboratory (Not SANAS accredited). Target Mine subcontracts to Performance Laboratories, as do Kalgold Operations and Evander Operations.

SRK considers that the inclusion of Mineral Reserves that are based on analyses from a non-accredited laboratories is justified in that there has been no significant change in the procedures used at the laboratories since the previous Mineral Reserve Statement that would have a material effect on the current Mineral Reserve Statement. In other words SRK are satisfied that the non-accreditation of the laboratories has not had a material affect on the Mineral Reserve Statement. Furthermore the South African Mining Assets have a significant history of gold production and reconciliation. Accordingly SRK do not consider that the accompanying Mineral Resource statements would be significantly biased due to the non-accreditation of the laboratories.

Two different assaying techniques are utilised at the Mining Assets. The Aztec Analysis is a largely automated instrumental technique for analysing underground chip samples using non-destructive energy dispersive X-Ray analysis (EDXA) that gives rapid quantitative analyses for gold and uranium. Variations within the sample matrix, as well as differences in mineralogy necessitate the use of correction factors that calibrate the X-Ray response from a sample to the true sample grade. These correction factors vary from operation to operation and may even differ between different reef types, depending on the regression curve derived from regression analysis of the Aztec results with fire assay results. Bambanani Mine and Nyala Mine, however, have recently discontinued the use of the correction factor as it was felt that low-grade samples were being over evaluated and high-grade samples (>30g/t) were being under evaluated. Check assaying is carried out on a proportion of the samples, which are analysed by fire assay with gravimetric finish. The fire assay method is used for the analysis of reef and waste dump samples as well as for checking Aztec analysis results. The samples are dried, sorted, crushed and pulverised then approximately 180g flux is used for a 50g-sample aliquot. A gravimetric finish is used for reef samples and atomic absorption finish is used for waste samples.

As part of Quality Control and Quality Assurance procedures checks are conducted on the assay laboratories and sample preparation plants. Blank samples and repeat assays are part of the external check process undertaken regularly which ensures that the laboratory adheres to assaying standards and procedures.

Harmony is in the process of rationalising and updating its mining software systems. Currently a range of separate computer systems are being used for survey pegs, sampling data, measuring, geological structure, facies, geozones, ore reserve management and mine planning. These systems comprise different versions of commercial packages and proprietary systems. The proprietary systems are being phased out (for support reasons) in favour of the commercial products, and a well-known Generalised Mining Software Package (GMSP) is being introduced as the standard geological modelling and mining software.

The majority of the Mining Assets have their sampling data in digital format. MS Excel workbooks (workbooks) are used for Mineral Reserve and Mineral Resource data management. In this respect a proprietary suite of workbooks have been developed which comprise data logic for reporting of Mineral Resources and Mineral Reserves.

Bambanani Mine, West Mine, Joel Mine and Tshepong Mine, West Wits Operations, Evander Operations, and certain of the Free State Operations use established 3D CAD-based computer systems, which have been developed to suit the tabular nature of the Witwatersrand gold deposits. At all these operations all survey data and sampling information is captured digitally and stored in electronic databases.

The Mineral Resource at Target Mine is primarily based on underground exploration drilling. Limited surface drilled intersections also exist as well as chip sampling in areas of the mine with underground development. The underground exploration holes were drilled from a footwall decline on sections lines 50m apart. The holes were drilled on a fan pattern at 15º intervals resulting in drill coverage of between 15m and 80m. Due to the fan nature of the drilling the broader coverage occurs in stratigraphically higher reefs as well as more proximal and distal areas to the sub-crop. Over 35 individual reef horizons have been intersected within the Eldorado Fan and include between 20 and 200 drill hole intersections per reef. The use of underground drilling has resulted in a significantly larger amount of sampling data being available in areas not yet accessed by underground development compared to most other Witwatersrand deep-level operations.

The Mineral Resource at Target North and Oribi is primarily based on surface exploration drilling. At Loraine, a total of 33 underground exploration drill holes and small quantities of chip samples form the basis of the Mineral Resource. The surface drill holes in the Target North area have been drilled on an irregular pattern, forming a drill hole grid spacing of between approximately 500m in the south up to 2,000m in the north. In the Oribi area 7 surface boreholes have been drilled over a strike length of 10km. Due to the geometry and geological characteristics of the individual reefs and reef packages these surface drill hole grids do not necessarily apply to all reefs or reef packages.

Arithmetic means of the short deflections in each surface borehole have been used for the true thickness and gold accumulation value of that borehole. Long deflections were treated as separate intersections; however, data were declustered by taking the arithmetic mean of borehole values for the same reef falling within 100m of each other on plan.

Assaying on the exploration samples was undertaken using fire assay techniques by ISO accredited laboratories with the use of blanks, standards and check assays for quality control. Inter laboratory checks were also performed with the full process having been independently audited by external consultants.

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At Kalgold Mine the D Zone orebody has been mined to 160m deep (bench 36) in the south pit and to 140m deep (level 28) in the north pit. All the deposits have been explored on an average 50m by 20m by surface drilling. The D Zone and A Zone West deposits have been drilled to a spacing of 25m by 20m along and across strike, respectively. The exploration drill hole data is augmented by blast hole data to facilitate grade control during mining. Assays of the blast hole samples are undertaken at the mine laboratory. Periodic round robin assay tests have been completed to maintain laboratory quality control. In addition, the exploration geology department periodically sends duplicate samples to the laboratory to monitor reproduction of the assays.

4.3.2 Geological Modelling and Block Definition

Once the geological structure of an area and reef have been defined, the resource is blocked out on 2-D plan projections using major geological features such as faults, facies boundaries, channel structures and payshoots to define zones of homogeneity. These initial macro-scale blocks are referred to as geozones .

Mining blocks are determined once the geozones have been defined. Stoping is blocked out per panel in 30m mining blocks; development will be blocked out for 10m. Areas of broadly similar grade and channel width characteristics are statistically delineated, and also used to define geozones. In some circumstances, the intersection line between the reef and a certain access elevation (e.g. a mine level) may also be used to delineate blocks.

The geozones are used to define and separate data populations within the sampling database for further statistical and geostatistical studies. Once geozones and mining blocks have been defined they are digitised for use in computer aided grade and tonnage evaluation.

At Target Mine a computerised three-dimensional geological model of the reefs and interbedded quartzites has been developed using stratigraphic correlation between the boreholes. Underground geological mapping and high-resolution seismic surveys are also used to supplement the stratigraphic and structural data from the drilling. This enables the reef and quartzite models to be truncated against faults and dyke contacts maintaining the three-dimension volume integrity of the model.

The geological model is subsequently used to constrain a block model into which grades are interpolated. This model utilises a block size of 20m along strike, 10m normal to strike and 5m vertically. Volume integrity is maintained through the use of 2m by 1m by 1m sub cells, which are assigned the grade of the parent block.

At Target North and Oribi the geometry of the orebodies is difficult to interpret with a high-level of confidence given the relative sparsity of the reef intersections from the surface boreholes. The Mineral Resources are as such appropriately classified as either Indicated or Inferred. Fans similar in geometry to the Eldorado Fan at Target have therefore been postulated to exist at reasonable north-south intervals. The characteristics and geometry of this fan together with the borehole intersections have been used to define the limits of the Elsburg and Dreyerskuil Reefs.

For the Big Pebble Reefs the syncline has been subdivided into four zones from west to east to account for the separation of the distal reefs. This enables the resource estimation process to account for the probability that in the west the reefs would be mined in a single cut, while in the east the reefs would be mined individually in separate cuts.

In the case of the VCR the geological models have been based solely on the coverage of the surface borehole intersections on that reef.

The geological models developed as described above have been used as the basis of two-dimensional resource polygons constrained by surface borehole coverage and the regional structural model for each reef or reef package.

Where more information is available at Loraine and immediately to the north of Target Mine, computerised three-dimensional geological models of the reefs and interbedded quartzites or total reef packages have been developed using stratigraphic correlation between the boreholes and underground mapping if available. In these cases the three dimensional models have been used to constrain a block model into which grades are interpolated as at Target Mine.

At Kalgold Mine the digital orebody models are generated using three-dimensional geological modelling software. The oxidised zones of the mineralised orebodies are differentiated from the non-oxidised zones and modelled separately where this is considered applicable. The geological model is built up from a set of wire frame models that are developed on the basis of the exploration borehole intersections. For the D Zone, in particular, blast hole sample data and geological mapping within the pit contributes to the modelling process. The geological model is updated periodically as new information becomes available. The southern sector of the operation has a distinctly different characteristic to the northern sector, the boundary between these two zones is approximately coincident with a fault zone that cross-cuts the BIF unit. Variograms of metal grade are different for these two sectors and the estimation of the Mineral Resources occurs separately for the northern and southern sectors of the open pit.

4.3.3 Grade and Tonnage Estimation

The estimation methodology and approach at the majority of Harmony s South African Operations follows a fairly standardised practice that is partly centralised, although some operations undertake their own estimations following the methodology approved by the company. On some of the acquired mines, however, the estimation methodology retains either aspects of, or may predominantly reflect practices in place prior to Harmony s acquisition. The following section describes the estimation practices followed.

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All underground operations undertake a variety of checks on the basic data used for the development of the Mineral Resource estimates. Data are validated and any extreme values investigated to ensure these are not a result of data transcription errors. Grade capping has been extensively applied throughout the operations to assist with further statistical and geostatistical evaluation. In the majority of operations the metal accumulation data are capped to the 98th percentile of the raw data, and the channel width data capped to the 99th percentile of the data. This level of data truncation has been found to assist in the derivation of variograms from the untransformed data. On certain of the orebodies, particularly where there are exceptionally high outlier grades, typically the kerogen rich reefs, a lower percentile value may be used, as a capping value after more detailed statistical analysis.

Another common activity on all underground operations is the delineation of geozones prior to any form of estimation process. This particular activity is described in some detail here because of its significance in controlling all subsequent aspects of the estimation process. This is followed by descriptions of the methodologies applied at the underground operations.

Geozones are defined within each reef environment, the objective of this subdivision is to partition the available grade data into homogenous populations which may form a valid basis for statistical and geostatistical analysis. The criteria for the delineation of geozone boundaries varies widely and may include consideration of channel width, grade zonation, footwall geology, nature of the conglomerate reef and observed paleocurrent directions. Where grade data are captured digitally each mine uses its defined geozones to subdivide the reef data into discrete populations that are considered to have distinct grade distributional characteristics. Statistical analyses of the metal accumulation values are undertaken so as to substantiate the different grade populations in each domain. In some cases other parameters such as channel width and stope width will be analysed, to look for trends that could be investigated further with geostatistics. The role played by geozone boundaries in the evaluation process is a major one. Changes to geozone boundaries, arising from changes in model interpretation from the basic data result in changes to the variograms and histograms within each geozone boundary. This may also result in changes to the grade-tonnage relationships within each geozone. Additionally, the changes in geozone boundary may also affect the classification applied to resource blocks.

Tshepong Mine, Phakisa Project, Bambanani Mine and West Mine: At these mines and projects ordinary kriging is constrained within each of the defined geozones. Channel sample data are used to interpolate metal accumulation values into 10m by 10m blocks using ordinary kriging. This estimator makes use of variograms based on the channel sample data and the search radius employed is equal to the short range of the variogram structure. Only those blocks with a high statistical confidence (classified using a theoretical regression relationship derived from the kriging system and expressing the slope of regression between the unknown actual value and the estimate, Z|Z*, where the slope must be greater than 0.6) are evaluated by this method.

Areas not estimated by the 10m by 10m ordinary kriging are then divided into 30m by 30m blocks, and these entities are evaluated using a simple kriging interpolation process. Simple kriging differs from ordinary kriging in that it incorporates the local area mean value (which in this case is based on the ordinary kriged values) within the estimation process. The search radius employed in the simple kriging estimation is also quite restrictive; only data that are included within the eight blocks surrounding the block being estimated (as well as the block itself) are retained for the estimation.

Areas that are not estimated using the 30m by 30m simple kriging estimates are subdivided into 120m by 120m blocks and evaluated using a macro-cokriging process. This procedure uses data from two supports, namely regularised data within 120m by 120m blocks, as well as isolated drill hole data. Channel sample data are regularised (i.e. averaged) into 120m by 120m blocks. This regularisation is performed for each of the geozones in turn; blocks that are based on too few (<20 data values) are disregarded for the remaining estimation procedure. Variograms are developed for the regularised block data, as well as for the point data and the regularised block values and widely spaced drill hole data are co-estimated. The basic principle behind this estimation method is that long range extrapolation of regularised block grades is possible, but benefits significantly from the inclusion of drill hole data remote from the areas covered by dense information.

The blocks from each of the three block models are combined so as to result in high confidence estimates in the vicinity of the channel sampling using 10m by 10m and 30m by 30m blocks which contribute to the Measured Mineral Resource and well founded long range estimates which contribute to the Indicated Mineral Resource and the Inferred Mineral Resource further from the channel sampling.

For the remaining of Harmony s South African Operations a slightly different evaluation process is employed to that above. Three block models are created prior to grade estimation, a 15m by 15m model, a 30m by 30m model and a 60m by 60m model. Metal accumulation and channel width values are interpolated into these block models in accordance with a set of prescribed procedures. In all instances estimates are restricted within, and only use data from within the individual geozones.

The search neighbourhood for kriged estimates interpolated within the 15m by 15m block model is restricted to the longest range structure of the semi-variogram. Additionally a minimum of 15 sample points must be contained within the search radius for a block to be estimated.

Within the 30m by 30m block model, the search neighbourhood employed in the interpolation of accumulation and channel width is set at twice the range of the semi-variogram structure and a minimum of 10 sample points must be located within the search radius for a block estimate to be developed. In geozones where there are sparse data, estimation may be undertaken using the inverse distance squared (ID2) estimation technique. The arithmetic mean of the capped data within each geozone is inserted into the 60m by 60m block model. The three block models are then combined to form a single model. If a data value exists within the 15m by 15m model, it is preferentially retained in the final model, if there is no value from the 15m by 15m block model, the value for that area is accepted from the 30m by 30m block model. If no kriged estimate exists, the capped mean grade is used, from the 60m by 60m block model.

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For the South Reef at the Doornkop Mine the basic geological model relies heavily on extrapolation of the grade distribution patterns observed on Cooke Mines. The broad, southeast pay shoot pattern has been extrapolated across the Witpoortjie Horst into the Doornkop area. Surface diamond drill holes are available over the Doornkop Mine, as well as two smaller areas covered by development and stoping. The geozones used for the interpolation of metal accumulation and channel width consist of generally higher-grade pay shoots oriented in an east-southeast direction separated by generally lower-grade intermediate areas. For the areas covered by underground stoping and development, kriged estimates have been developed for the Measured Mineral Resource and Indicated Mineral Resource categories, as described above. The areas of the high-grade geozones that fall outside twice the range of the semi-variograms, have been assigned the average grade of the ordinary kriged estimate within that geozones. The lower-grade geozones have been assigned a value derived from a Sichels t estimate using all the surface borehole intersections, including those that fall within the higher-grade pay shoots.

Resource blocks consist of large areas that are blocked out as part of the Mineral Resource and mine planning process. These blocks are typically bounded by geological structures such as faults and dykes and other dimensions of the blocks are frequently expressed in terms of typical face advance rates. These resource blocks are assigned grades from the underlying block models using computerised modelling software packages. Resource blocks are kept as an inventory listing with several attributes recorded for each. Availability and status record whether or not the ground has been abandoned, whether the area is currently accessible and the time required accessing a currently inaccessible area.

Each block is assigned a stoping width, which is based on the expected mining width in virgin ground, or otherwise the stoping widths encountered historically in the vicinity of that block which accounts for the hangingwall dilution often incurred at these mines. In addition, the square metres of the block are corrected for dip and are discounted for fault losses on some operations. Some operations do not discount the Mineral Resource areas to account for fault losses and it is assumed that the losses are accounted for within the blocking procedure. For the operations situated in the Welkom area, the geological fault loss factors applied differ across the mines as the fault frequency varies. The factors are also associated with the Mineral Resource classification e.g. at Tshepong Mine, the following figures are used: Measured 3% Indicated 10% and Inferred 20%. At Bambanani Mine the following fault discount values are applied: Measured, as per mapped geology on mining faces, Indicated 7% and Inferred 15%. Although no standard has been adopted across the group, the values used at each mine have been values actually encountered or are the result of fractal analysis of fault frequency and displacement.

At the Orkney Operations, Welkom Operations, Eland Mine, Kudu-Sable Mine, Nyala Mine and St. Helena Mine, Harmony do not use a computerised system for resource estimation. The Eland Mine shaft pillar has been kriged using 30m by 30m blocks, using separate runs for each of the two facies identified in that area, namely the Geduld and the BCF. The Nyala Mine shaft pillar was estimated separately from the rest of the Nyala Mine. Using underground chip sampling from surrounding areas, and underground drill holes, 10m by 10m blocks were estimated using ordinary kriging. The data was then regularised to 30m by 30m and 60m by 60m grid spacing, and 30m by 30m and 60m by 60m blocks, respectively, populated using ordinary kriging. The variograms were derived from the point data only. Large blocks to the north of Nyala Mine, where sampling is relatively scarce have been estimated using a Sichel s t estimate. All other areas are estimated using either a weighting method or simple stretch averages. These methods are considered to be adequate given the high pillar content of the resource and therefore the high density of sampling information available. At Nyala Mine, data has been collected in an electronic database. Harmony plans to convert this manual approach to that incorporating GMPS which will be the primary tool for both geological modelling and grade estimation. Mineral Resource block list data are managed using spreadsheets, including standardised company template spreadsheets that automate simple calculations and present data in common formats.

The **Evander Rolspruit Project** is contiguous with Evander 8 Mine and the **Evander Poplar Project** is situated approximately 15km northwest of Evander 8 Mine.

At the Rolspruit Project, the data from the 47 surface drill holes as well as the underground channel sample data from Evander 8 Mine have been included within the geostatistical evaluation of the project area. The area has been sub-divided into geozones that attempt to segregate the project area into zones of similar reef width, sulphide content within the reef and presence of carbon within the reef. These geozones are contiguous with geozones in Evander 8 Mine. A total of eight separate geozones have been delineated within the project area. Evaluation of each geozone has been completed using Sichel s t estimator using data within the geozone boundary only.

At Evander Poplar Project the area has been similarly divided into three geozones, which are based on the footwall lithology beneath the Kimberley Reef and on trends interpreted from examination of the drill-hole data. Evaluation of each of the geozones was based on a Sichel s t estimate that accesses the drill-hole data contained within each geozone.

At **Target Mine** the assay data for each reef have been analysed statistically following the production of reef composites using the geological model. The reef grade populations exhibit positively skewed distributions therefore the capping of high-grades has been applied to the dataset prior to grade estimation in order to limit the influence of the highest grades samples. The individual reefs within the reef packages demonstrate variable statistical characteristics supporting their evaluation as separate entities.

The capped composites have been subject to geostatistical spatial analyses using semi-variograms calculated in a best-fit plane for the reefs and reflective of the spatial variability of the reef grade. These analyses indicate the presence of two structures with minor ranges in the order of 40m to 100m and major ranges from 100m to 200m. A relative nugget effect of approximately 20% has been observed within most of the reefs. As with the statistical characteristics the individual reefs display marked geostatistical differences in range and anisotropy.

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Grade has been directly interpolated into the blocks by means of ordinary kriging using parameters derived from the semi-variogram analyses. Each individual reef horizon has been separately estimated. The search parameters in the plane of the reef correspond closely to the semi-variogram ranges. The search normal to the reef plane varies between 50m and 80m in order to accommodate the throw of the faults and the synclinal structure of the fan (although only data within the reef plane are accepted for inclusion within the estimate). A second longer range kriging run has been used to interpolate grades into peripheral blocks not assigned a grade by the initial run. Grade has also been interpolated into the intervening quartzite horizons in order to assess the diluting grade of this material when it is incorporated as internal dilution into the massive stopes.

In the case of the two-dimensional resource estimates the declustered gold accumulation data which falls within each resource polygon are plotted on a log-normal probability plot. If deemed necessary a third constant beta parameter is estimated and a three parameter log-normal distribution assumed. If necessary using the log-probability plots any high outliers are then capped to fit the distribution. The gold accumulation estimate (cmg/t) is then derived for each resource polygon using the lower value of the arithmetic mean and a Sichel s t estimate.

In the case of the three-dimensional models at Loraine and Target North a similar methodology is used as at Target Mine. However, due to the sparser nature of the data, grade is interpolated into the blocks by means of a Sichel s t estimate using search radii derived from the variography of each reef horizon. In the case of Target North the semi-variograms used at Target Mine form the basis of the search radii, while at Loraine semi-variograms have been modelled using the limited underground chip sampling available (although this is not used in the estimation itself). A minimum of three samples is required for the block to be estimated. As at Target Mine, a second longer range run is used to interpolate grades into peripheral blocks not assigned a grade by the initial run.

For the two-dimensional polygons an average dip for the steeper west limb and shallower east limb of the syncline has been estimated, together with a proportional split between the two, from cross-sections to derive a true reef area for each polygon. The arithmetic mean of the declustered data is used to derive an average thickness and therefore a volume. If the thickness is below 100cm a minimum mining width of 100cm is used in this process.

As the small-scale structure in the Target North, Loraine and Oribi is not as well-known as at Target Mine and the estimates are based on two-dimensional models, a 10% tonnage discount factor has been applied to all resources in these areas to account for reef losses.

At **Kalgold Mine**, the density of the ore lithology is variable depending on proportion of magnetite within the banded-iron formation that hosts the mineralisation. Kalgold Mine has built up a large density database through density measurements of individual samples from the drill-holes in the D Zone orebody. A single average value for the density of ore is applied to the orebody as a whole. For the A Zone, A Zone West and Water Tank orebodies, density measurements have not been undertaken and a comparable density value has been applied for Mineral Resource estimates based on extrapolation from the D Zone.

For each orebody, the drill hole data are captured in a database and displayed in the software to allow for geological interpretations of the extensions of the orebodies in three-dimensional space. Wireframe models of the orebody model are generated and are then filled with blocks of dimensions 20m by 5m by 5m.

Computerised geostatistical estimation methods are used for the evaluation of the Mineral Resources. Block grades are estimated by means of ordinary kriging using variogram parameters derived from sample data inclusive of exploration boreholes, and blast hole data. All data are composited into 2.5m intervals. High values within the data value (in excess of 8g/t) are not capped, but are treated within the estimation process by restricting their range of influence during the interpolation process. The Mineral Resources are derived from block models of the orebodies.

Table 4.1 presents the densities used in derivation of Mineral Resources for the South African Operations. These are used to derive the in situ tonnages and grades associated with the underlying Mineral Resources. However at Freegold Operations Joel Mine has a density of 2.75tm^{-3} and St. Helena Mine has a density of 2.70tm^{-3}. At West Wits Operations the Cooke 1, Cooke 2, Cooke 3, Cooke 4 and Doornkop (South Reef 2.70tm^{-3}) have a density of 2.75tm^{-3}.

Table 4.1 South African Operations: Densities used for Mineral Resource estimates

Mining Assets	Density (tm^{-3})
Freegold Operations	2.78
West Wits Operations	2.78
Target Operations	2.78
Harmony Free State Operations	2.72
Evander Operations	2.70
Orkney Operations	2.78
Welkom Operations	2.78
Kalgold Operations	3.10

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4.3.4 Classification

Historically, the classification boundary between Indicated Mineral Resources and Inferred Mineral Resources at the South African Operations was established using a standardised set of criteria (franchise rules) and efforts were made to apply these criteria to all Witwatersrand operations managed by Harmony. Specifically, Indicated Mineral Resources were only estimated using search ranges equal to twice the variogram range, additionally a minimum of 10 samples were required to be located within the search neighbourhood for a block to be estimated and classified as Indicated Mineral Resources.

Following comments made by SRK in its previous CPR (published 8 April 2004) the Company has reviewed its franchise rules and consequently portions of Inferred Mineral Resources have been upgraded to Indicated Mineral Resources through consideration of additional factors, specifically including geological confidence usually related to the location of the blocks relative to known or projected payshoots. In some cases these upgrades have been accompanied by the addition of new data, including underground drill data, as well as on-reef development. In other cases, the upgrading has been attempted purely following re-examination of the geological environment and consideration of the confidence that may be attached to a block, given the likely behaviour of the reef unit and the present understanding of the grade distribution and payshoot trends, as reflected by variograms.

During the review process, SRK considered that the application of the standardised criteria, as described above, failed to recognise the clear differences between geology and also grade distribution patterns within different reefs of the Witwatersrand. This issue has been addressed by Harmony through a series of exercises (completed during the second and third quarter of fiscal 2005) in which the classification criteria applied in many of the operations were reviewed in detail in the light of the geological understanding of the reef.

The previous classification system applied by Harmony on these operations was to block Measured Mineral Resources out to 30m or against structures and geozones boundaries where they are adjacent to sampled information. Indicated Mineral Resources were blocked out to 60m from sampled stoping and within geozones. The Inferred Mineral Resources classification remains the large blocks defined by facies, structure and mining lease boundaries.

At the Bambanani Mine, Joel Mine, Masimong 5 Mine, Elandsrand Mine, Cooke 3 Mine, and Doornkop Mine South Reef additional material has been included in the Indicated Resource Category that would previously (pre-Harmony s 30 June 2004 declaration) have been classified as Inferred Mineral Resources. These are generally longer life operations, with large open areas still to be mined. Areas on these shafts that are extensions of known pay shoots and where there is underground or surface drilling that confirms the extension of the facies or payability have been upgraded to Indicated Mineral Resources. The areas that have been upgraded have been terminated on major structures that may affect the continuity of the facies or payshoots.

These reclassification issues have been reviewed by SRK and accepted where these changes were deemed appropriate, in light of known reef behaviour or volume/quality of data available. It is however important to note that not all the reclassification undertaken by Harmony has been accepted by SRK. The individual resource blocks have been classified on a block by block basis as Measured, Indicated or Inferred Mineral Resources as defined by the SAMREC Code.

Classification of Indicated Mineral Resources and Inferred Mineral Resources at Tshepong Mine and Phakisa Project is based on the kriging variance applied to the resource block. This is used to derive percentage values, which represent the maximum theoretical difference between the estimated grade and the actual grade of a block at 95% confidence. The limit of the Measured Mineral Resource blocks is determined by the extent of the simple-kriged 30m by 30m blocks.

Harmony Free State Operations, Joel Mine, Bambanani Mine, West Mine, West Wits Operations and Evander Operations classify resource blocks based on the following criteria. Measured Mineral Resources are blocked out to the longest range of the semi-variogram, for each geozone, where there are at least 15 sample points within this range. Indicated Mineral Resources are blocked out to twice the longest range of the semi-variogram, for each geozone, where there are at least 10 sample points within this range. Inferred Mineral Resources are within large blocks defined by facies, structure and the mining lease boundaries.

Where paper-based estimation methods are employed resource blocks that are adjacent to sampled developments, including current production and ongoing sampling, are classified as Measured Mineral Resources. Blocks that are generally close to sampled development, but are themselves usually sampled by only a few underground drill-holes, are classified as Indicated Mineral Resources. The remaining blocks, remote from underground development where the estimation of tonnage and grade is based upon extrapolation of known geological features such as payshoots/channels as well as faults, are thus classified as Inferred Mineral Resources.

At Target Mine blocks are classified as Measured Mineral Resources where the drill hole spacing is less than that which equates to the point on the semi-variograms where the variance is equal to 66% of the total sample variance. Indicated Mineral Resources extend beyond the Measured Mineral Resource to include all those remaining blocks estimated by the first interpolation run. Inferred Mineral Resources comprise blocks estimated by the second longer range interpolation run and also resource areas with very limited sample data.

At Target North and Loraine where the resources have been modelled in three-dimensions Indicated Mineral Resources are defined as those blocks into which grade is interpolated in the first estimation run and Inferred Resources are defined as those blocks estimated by the second longer range interpolation run.

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In the case of the resources modelled in two-dimensions at Target Mine the resource polygons, and therefore the basis of the classification, have generally been delineated based on borehole coverage. Indicated Mineral Resources are broadly defined as those blocks containing a reasonable coverage of surface borehole intersections (usually a minimum of 10 intersections on a minimum approximate borehole grid spacing of 1km). Inferred Mineral Resources are those containing fewer intersections and where the continuity of blocks has been inferred using geological interpretation to major structural features. The Inferred Mineral Resources are therefore generally situated in the far north of Target North and at Oribi or closer to Target Mine on reefs that have not been intersected by many surface boreholes.

4.3.5 Selective Mining Units

Theoretically the minimum selective mining unit (SMU) applied at Target Mine is the individual 20m by 10m by 5m blocks used for the grade estimation. However, in practice the reserve is defined through the superimposition of practical stope designs on the block model. While the individual blocks are used to determine the margins of these stopes they are not planned to be mined in isolation but rather as aggregations of blocks within the stope design.

For the remaining mines, the choice of SMU is dependent upon the mining method to be applied. In the case of narrow reef mining used at the Mining Assets, the SMU is an agglomeration of contiguous panels, each of dimension 30m by 30m. For practical reasons at this block size, mining of both pay and unpay material is unavoidable and the halting of stope faces is only triggered by unacceptably high levels of unpay ore being mined.

For remnant extraction, the individual pillar dimensions define the individual SMU dimensions. Due to the relatively small volumetric size of such remnant and/or pillar area, the sampling density available from previous mining activities facilitates a high degree of confidence for grade estimation.

4.3.6 Grade Control and Reconciliation

At the majority of Harmony s Witwatersrand operations, grade control and reconciliation practices follow similar procedures to those applied elsewhere in Witwatersrand Basin gold mining operations. The reefs and the hangingwall and footwall lithology are visually identifiable and channel sampling ensures that the face grade is monitored accordingly. As part of the reconciliation exercises, physical factors, including stope widths, dilution, Mine Call Factors (MCFs) and Block Factors (BFs) are recorded on a monthly basis. The results are used to reconcile Mineral Reserve estimates with actual mined tonnages and grades.

As stopes are mined, surveyors monitor the stope width and face advance to provide an accurate stope tonnage estimate. The channel samples taken within the stope are reconciled against the pre-mining grade estimate based on the kriging described above. The difference in gold metal is recorded as a BF, which is a combination of bias in the resource estimate and mining losses. BFs tend to approximate 100% and accordingly no further adjustment has been made.

Belt samplers at the shaft head also record grade and tonnages as monitored by belt weightometers. These figures are compared back to the surveyed estimates on a monthly basis to give a Shaft Call Factor (SCF), which multiplied with the Plant Call Factor (PCF) gives the MCF. Generally SRK considers that the underlying grade control and reconciliation processes are appropriate and do not materially affect the underlying Mineral Resource estimates as presented herein.

Grade control practices at Target Mine are based on the results of development chip sampling and underground infill drilling and are used primarily to aid stope definition especially in areas where the fan drilling has resulted in larger spaced sample coverage. In the areas where conventional narrow reef mining methods are applied such as in the Dreyerskuil Reefs, stope face sampling and surveying is undertaken as is standard practice on other Witwatersrand mines. In the massive Elsburg stopes a cavity monitoring system is employed which assess the degree of stope over break and resulting dilution. Hoisted grade is reconciled back to the mined grade to derive a SCF. The grade reported by the mill is compared to the hoisted grade to derive a PCF. These two factors are then combined to derive a MCF.

SRK considers the grade control and reconciliation practices employed at Target Mine to be appropriate for the nature of the orebody and mining methods employed. One of the reasons for the high MCF may well be a function of underestimation of the grade in the higher-grade proximal areas of the Eldorado fan as a result of the smoothing inherent in the grade interpolation procedure. In SRK s opinion this is likely to reduce over time as mining progresses to lower grade, more distal areas.

4.3.7 Mineral Reserve Estimation

The procedure for estimating Mineral Reserves at the majority of Harmony s South African Operations comprises the following key items:

Finalisation of the Mineral Resource Inventory: Blocks are appropriately classified in respect of reef type, block availability and Mineral Resource Classification. Block availability is primarily defined with respect to time based constraints which reflect blocks available for mining within 1, 6, 12, 24 and >24 months. Blocks classified as >24 months are also referred to as X blocks. A further category exists in respect of availability termed Z blocks. In these instances, blocks have been ascribed such coding in recognition of difficulties in mining and/or where sufficient uncertainty exists that such blocks are not converted to Mineral Reserves in the company s declarations. This is not to say however that such blocks will not be transferred in due to course to Mineral Reserve

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status (See Section 4.5 SRK Comments). The physical attributes by which blocks are defined are: block area defined as the area of the block in the plane of the reef unit; block width (BW) normally equated to stoping width (SW also referred to as the minimum mining width) measured in centimetres; block value defined as gold accumulation and measured in cmg/t; density measured in tm^{-3}. From these physical attributes block tonnage, block grades (g/t) and block content (kilograms of contained gold) are derived. SRK notes that whilst BFs are measured these are not routinely applied to adjust the underlying block content, thereby assuming that these remain at 100%;

Finalisation of the Modifying Factors: For those blocks which are to be considered for conversion to Mineral Reserves, the following modifying factors are then established to process and extract the recoverable gold content of the block; BF; MCF, dilution and Metallurgical Recovery Factor (MRF). The BF is a correction factor used to account for variance between the in-situ estimate of the gold content of the mining block and the average block gold content derived by subsequent interpolation using post sampling data gathered during block depletion. MCF is the estimated ratio between: the back allocated head grade derived from the metallurgical accounting of recovered gold and gold contained in residue, otherwise known as Gold Accounted For (GAF) and that estimated to have been broken from the stoping faces, otherwise know as Gold Called For (GCF). Dilution is defined as the difference between the milling width (MW measured in centimetres and estimated as the total tonnage delivered to the plant from underground divided by the product of the total stope area depleted over the same period and the in-situ density) expressed as a ratio to MW. MRF is estimated as the ratio between recovered gold and the GAF. All ratios are expressed in percentage terms;

Finalisation of the Economic Parameters: These include the following; operating costs (ZAR/t) based on the anticipated total mining and processing method, specific costs including all appropriate overheads necessary to mine, process and sell the recoverable gold; and the price of gold quoted in local currency and derived from the Company s long term view of gold price quoted in US$ and the exchange rate between the US$ and the ZAR;

Cut-off-grade Optimisation: The cut-off grade policy as applied at Harmony s South African Mining Operations is largely based on establishing operating in-situ cut-off grades which coincides with the point of maximum present value (PV). PVs are determined by application of the modifying factors and the economic parameters (as defined above) to the quantum of material (defined by tonnage, grade and content) derived from the Mineral Resource Inventory at specific cut-off grades. The result of this process is then projected graphically, with the optimal cut-off grade chosen corresponding to the maximum PV derived. The resolution at which this process is applied varies between individual operations and may range from all Measured and Indicated Mineral Resources (excluding z blocks) at mine level, to block groupings with common attributes (block availability, reef type and block classification). Completion of this exercise then generally results in reef specific optimal cut-off grades, other than those instances where an alternative cut-off grade is employed termed an executive cut-off grade which over-rides that determined as the optimal cut-off grade. SRK considers this approach to be appropriate for the Harmony Operations however in the absence of detailed scheduling of stoping and development there is a risk that areas below the cut off may have to be mined in order to access the areas above the cut off. In respect of selectivity, SRK notes that the current approach on application of the optimal cut-off grade does not account for the potential to be selective within large blocks, the average grade of which falls below the cut-off grade.

Mineral Reserve Declaration: For each reef type the optimal cut-off grade is then used to report in-situ tonnages and grades for all blocks reporting to Mineral Reserve status. Such reports are stored in the Classifier or otherwise known as CLS files which contain the in-situ Measured and Indicated Mineral Resources reported at the cut-off grade. The results contained in the CLS files are then subject to application of the relevant modifying factors as incorporated into the ore-flow calculations which result in the declared Mineral Reserve reported on a mill delivered basis. Diluting tonnage expressed as a percentage of total mill tonnage and comprise, gully tonnes, development tonnes, sundry items, vamping tonnage (Section 4.5), sludge tonnage and discrepancy tonnage. Gold grades are generally attributed to development tonnage, vamping tonnage and sludge tonnage which then report to the overall Mineral Reserve declaration.

The Mineral Resources at Target Mine together with the survey outlines of the existing stopes, excavations and development tunnels form the basis of the engineering design of the Mineral Reserves. The Mineral Reserves are based on the Measured Mineral Resources and Indicated Mineral Resources that exceed a cut-off grade, which is determined for each mining method, and that have been the subject of engineering design and have consequently been classified into Proved Mineral Reserves and Probable Mineral Reserves.

Datamine is used for all Geographic Information System (GIS) and 3D modelling of the orebody outlines and stope design at Target Mine and the survey outlines are imported from a GMPS. In terms of the mechanised section a mining method is assigned to a particular area of ground within a block and the design parameters applicable to the method are used as a basis for developing the stope outline. The stope design considers aspects such as maximum drill hole length, the angle of repose, location of drill drive and loading drive as well as backfill, ventilation and equipment resource constraints. The stope outline may in places not be coincident with the orebody outline and result in planned dilution and/or ore losses. Internal waste between reef packages is also incorporated into the stope design where necessary. Once the design is complete the material contained within the stope outline becomes an Engineered Resource and subsequent to the application of further factors associated with un-planned dilution and ore loss with for the Mineral Reserve. Mineral Reserves associated with the mining of narrow sections of the orebody are determined in a similar but simpler manner in that an appropriate stoping width is selected and the planned dilution represents the difference between this width and the channel width of the Mineral Resource.

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In respect of surface sources Mineral Reserves are defined by application of cut-off grades to specific WRD and/or Slimes Dams. In such instances the decision to process and thereby convert to Mineral Reserve status may not necessarily be focused on a pure economic decision, specifically where the associated environmental liabilities and potential reduction through processing becomes an important consideration. Where this is not the case, the Company currently applies an economic filter on an overall surface source basis and no other significant adjustments in respect of tonnage or grade is applied.

The modifying factors as given below in Table 4.2 through Table 4.16 inclusive present historical modifying factors and those incorporated into the current LoM plans and accompanying Mineral Reserve statements as reported in this CPR. The tables also report the weighted (per reef) average cut-off grade as used for determination of Mineral Resources and Mineral Reserves by Harmony per mine and the equivalent weight average pay-limit as calculated by SRK and derived from the LoM plan. SRK has where considered appropriate made adjustments to modifying factors presented by the Company to better reflect future forecasts in the LoM plans.

The variances between the cut-off grades as determined by the Company and that produced for comparative purposes by SRK result from the following factors:

- The cut-off grade as generated by the Company is the result of the inputs to the Optimizer process as applied by Harmony;
- The cut-off grade as generated by SRK is equivalent to the paylimit and includes the impact of the royalty; and
- The inputs into the cut off grade as generated by SRK generally include lower MCFs and higher unit costs.

SRK considers that the approach incorporated into the cut-off grade policy is appropriate.

The Modifying Factors are based on historical reconciliation exercises and as such are considered valid for the purpose of reporting Mineral Reserves for the Mining Assets. The large range in certain modifying factors is as a result of mining several different reef types and under different operating conditions combining virgin ground, remnant pillars and delivering ore to one or a selection of processing plants. Historical factors have been sourced from the Company s on-mine reporting systems and are reported for fiscal 2002, 2003, 2004 and 2005(H1). In certain instances data records prior to this period are available and have been assessed, but due to their relative degree of completeness have been excluded form this report. In addition, weighted averages for 42 months, 30 months and 18 months are reported with the last reporting month being December 2004. The LoM plans and Mineral Reserve statements are largely based on the 18 month weighted average as reported. In respect of new projects where no historical information is available, Modifying Factors have been selected on the basis of proxy operations (those with comparable reef units and similar mining environments). Modifying Factors reported as LoM Plan may be different that that reported as the 18-month weighted average due to the following:

- SRK has where considered appropriate included future improvements where appropriate technical rational has been presented;
- The LoM Plan statistics are weighted averages which depend on the overall contribution of each reef unit incorporated in the LoM plan. As such the future contribution may be different to that achieved in the past;

Future milling widths will also be dependent upon the planned contribution of future development, which may be more or less than that achieved historically;

For Mining Assets which are currently operating as care and maintenance operations cut-off grades have been derived based on factors achieved under prior operating conditions, save for gold price;

The cut-off grades reported for surface sources are quoted in g/t and not cmg/t; and

Where no block factor information was available for the purpose of calculating weighted averages SRK has assumed that this was 100%.

As Target Operations are substantially different in respect of mining methods and the three dimensional nature of the orebodies mined only the modifying factors represented by MCF and BF are applicable. Furthermore dilution is already incorporated into the majority of the stope designs with unplanned dilution being derived through application of a factor which ranges from 7% to 10% on a tonnage basis with diluting grade being forecasted at 0.0g/t.

In respect of the LoM cut-off grade reported the values included in the following tables largely reflect the average LoM pay-limit based on the key physical and economic parameters incorporated into the LoM Plan as modified and presented by SRK (generally higher costs and lower MCF). Whilst SRK recognise the approach incorporated into the Optimiser , it is however apparent that the inputs used in derivation of the optimal cut-off grade are substantially improved when compared with history and that incorporated into the LoM plans as adjusted by SRK and presented herein. The likely impact of a revised optimal cut-off grade based on the parameters derived by SRK has not been established.

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Table 4.2 Freegold Operations: Modifying Factors

Operating Mine	Units	2002	2003	2004	2005(H1)	42 month	30 month	18 month	LoM Plan
Block Factor									
Tshepong Mine	(%)	100	100	97	96	98	98	97	100
Bambanani Mine	(%)	100	103	101	97	101	101	100	100
West Mine	(%)	100	100	92	91	95	95	92	100
Nyala Mine	(%)	100	100	97	100	99	99	99	100
Joel Mine	(%)	100	100	107	99	102	103	104	100
St. Helena Mine	(%)	100	100	103	117	104	104	107	100
Kudu-Sable Mine	(%)	100	100	105	105	103	103	105	100
Phakisa Project	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
MCF									
Tshepong Mine	(%)	92	81	71	71	77	75	71	75
Bambanani Mine	(%)	75	71	67	75	71	70	70	72
West Mine	(%)	54	75	81	81	77	79	81	81
Nyala Mine	(%)	n/a	n/a	75	77	76	76	76	76
Joel Mine	(%)	87	88	80	74	83	82	79	79
St. Helena Mine	(%)	n/a	67	80	70	74	74	78	78
Kudu-Sable Mine	(%)	78	83	70	71	75	75	71	71
Phakisa Project	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	83
Stoping Width									
Tshepong Mine	(cm)	99	101	101	103	101	102	102	101
Bambanani Mine	(cm)	159	162	165	189	167	168	172	185
West Mine	(cm)	165	171	164	152	163	163	160	175
Nyala Mine	(cm)	n/a	n/a	155	142	149	149	149	149
Joel Mine	(cm)	135	130	144	154	140	141	147	147
St. Helena Mine	(cm)	n/a	134	161	176	151	151	165	137
Kudu-Sable Mine	(cm)	181	179	177	188	180	180	180	180
Phakisa Project	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	102
Milling Width									
Tshepong Mine	(cm)	141	136	130	132	134	133	131	133
Bambanani Mine	(cm)	231	213	216	215	217	215	216	220
West Mine	(cm)	170	178	166	146	165	165	159	205
Nyala Mine	(cm)	n/a	n/a	176	172	174	174	174	193
Joel Mine	(cm)	213	196	198	216	202	200	203	186
St. Helena Mine	(cm)	n/a	208	307	236	251	251	288	168
Kudu-Sable Mine	(cm)	270	230	208	237	222	220	216	222
Phakisa Project	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	129

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Table 4.3 Freegold Operations: Cut-off grades, LoM pay-limits and extraction ratios[(1), (2)]

Mine	Mineral Resource COG (cmg/t)	Mineral Reserve COG (cmg/t)	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)	ER (%)
Tshepong Mine	718	755	868	430	95.5	75	22	71
Bambanani Mine	1,061	1,070	1,745	492	95.7	72	15	73
West Mine	682	680	1,267	442	95.7	81	12	40
Nyala Mine	890	890	1,607	579	95.7	76	18	57
Joel Mine	630	630	1,007	397	93.2	79	11	36
St. Helena Mine	805	740	1,292	569	95.5	78	9	64
Kudu-Sable Mine	936	936	1,651	470	95.6	71	15	22
Phakisa Project	740	740	843	473	95.7	83	19	58
Eland Mine	1,200	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Surface Sources	0.30	0.30	0.61	51	94	100	0	85

(1) ER is the Extraction ratio determined as that portion of the centares estimated at the cut-off grade applied included in the LoM plan.
(2) Dilution is based on the LoM weighted average milling width (exclusive of vamping sources).

In respect of the LoM modifying factors as incorporated into the above tables for Freegold Operations SRK notes the following:

Block Factors: These have been planned at 100% at all Mining Assets;

Mine Call Factors: MCF for Tshepong Mine and Bambanani Mine are higher than the 18 month average. At Tshepong Mine SRK recognises that certain actions undertaken in the past two years have negatively impaired the MCF and accordingly consider that the impacts of such actions can be reversed by implementation of improved mining practices. The technical ability to achieve this improvement is supported by the 30-month and 42-month weighted averages. The projected improvement at Bambanani Mine is considered to be technically achievable by SRK, provided that the recommended course of action is implemented. At the Phakisa Project the MCF is planned at 83%. In accordance with the project development programme no mining has occurred thus far, however achievement of this MCF, whilst assisted by the construction of a new mine will be challenging due to the long tramming routes through to Nyala Mine and that the nearest proxy is Tshepong Mine which is planning to achieve 75% (currently the 18-month average is 71%);

StopingWidths: At Bambanani Mine the SW is planned in accordance with that achieved in 2005[(H1)] as this has been considered to be more reflective of mining conditions than the 18-month average. At West Mine there is an increased contribution from the Leader Reef being mined which is stated at a higher SW. At St. Helena Mine the reduction in planned SW results from the cessation of mining the Leader Reef at St. Helena 8 Mine which has to date been mined at a higher SW;

Milling Widths: At both West Mine and St. Helena Mine the impacts on the LoM MW are directly related to different contributions of Leader Reef being mined as stated for the SW. At Nyala Mine there is a planned increase in the vamping contribution and at Joel Mine there is a planned reduction in contribution from vamping sources;

LoM cut-off grade: The values included in Table 4.3 largely reflect the average LoM pay-limit based on the key physical and economic parameters incorporated into the LoM Plan as modified and presented by SRK. Whilst SRK recognise the approach incorporated into the Optimiser , it is however apparent that the inputs used in derivation of the optimal cut-off grade are substantially improved when compared with history and that incorporated into the LoM plans presented herein. The likely impact on the optimal cut-off grade based on the parameters derived by SRK has not been established; and

Extraction Ratio (ER): The ER is based on that proportion of Mineral Resources reporting above the Mineral Reserve cut-off grade (in certain instances inclusive of Inferred Mineral Resources) included in the LoM Plan. This does not reflect a geotechnically constrained ER but rather reflects appropriate practical considerations in the absence of detailed planning. Note that in respect of West mine, Joel Mine and Kudu-Sable Mine, the low extraction ratios are reflective of the impact of pillar mining considerations and the decision not to proceed with certain capital investments.Accordingly these should not be considered as indications of substantial potential to increase the life of such mines as currently presented herein.

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Table 4.4 West Wits Operations: Modifying Factors

Operating Mine	Units	2002	2003	2004	2005(H1)	42 month	30 month	18 month	LoM Plan
Block Factor									
Elandsrand Mine	(%)	100	100	103	102	101	102	103	100
Cooke 1 Mine	(%)	100	100	104	106	102	103	105	100
Cooke 2 Mine	(%)	100	100	135	106	111	115	128	100
Cooke 3 Mine	(%)	100	100	104	101	101	102	103	100
Doornkop Mine	(%)	100	100	114	96	104	105	108	100
Deelkraal Mine	(%)	100	100	100	100	100	100	100	100
Cooke 4 Mine	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MCF									
Elandsrand Mine	(%)	85	87	79	69	82	81	76	85
Cooke 1 Mine	(%)	79	84	84	69	81	81	79	79
Cooke 2 Mine	(%)	79	63	55	60	65	59	56	56
Cooke 3 Mine	(%)	85	64	68	65	72	66	67	67
Doornkop Mine	(%)	92	89	83	82	87	85	83	75
Deelkraal Mine	(%)	93	107	86	n/a	96	97	86	n/a
Cooke 4 Mine	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Stoping Width									
Elandsrand Mine	(cm)	127	132	134	134	131	133	134	138
Cooke 1 Mine	(cm)	159	165	167	176	164	168	170	175
Cooke 2 Mine	(cm)	151	152	163	176	157	160	166	165
Cooke 3 Mine	(cm)	173	222	176	185	190	198	179	168
Doornkop Mine	(cm)	202	206	249	268	226	235	256	128
Deelkraal Mine	(cm)	134	146	151	n/a	143	148	151	n/a
Cooke 4 Mine	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Milling Width									
Elandsrand Mine	(cm)	157	166	168	158	163	167	168	164
Cooke 1 Mine	(cm)	198	214	220	213	211	219	223	219
Cooke 2 Mine	(cm)	203	243	216	179	220	228	217	237
Cooke 3 Mine	(cm)	206	212	236	205	219	225	235	228
Doornkop Mine	(cm)	328	298	350	288	321	319	333	145
Deelkraal Mine	(cm)	210	219	220	n/a	216	220	220	n/a
Cooke 4 Mine	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 4.5 West Wits Operations: Cut-off grades, LoM pay-limits and extraction ratios(1), (2)

Mine	Mineral Resource COG (cmg/t)	Mineral Reserve COG (cmg/t)	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)	ER (%)
Elandsrand Mine	925	925	1,108	535	97.1	85	10	79
Cooke 1 Mine	916	901	1,173	409	96.1	79	11	43
Cooke 2 Mine	1,328	1,306	1,376	388	96.1	56	3	70
Cooke 3 Mine	677	868	1,168	377	96.2	67	7	79
Doornkop Mine	849	955	728	336	96.3	75	9	85
Deelkraal Mine	1,200	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cooke 4 Mine	1,854	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Surface Sources	0.30	0.30	0.57	44	87	100	0	44

(1) ER is the extraction ratio determined as that portion of the centares estimated at the cut-off grade applied included in the LoM plan.
(2) Dilution is based on the LoM weighted average milling width (exclusive of vamping sources).

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In respect of the LoM modifying factors as incorporated into the above tables for West Wits Operations SRK notes the following:

Block Factors: These have been planned at 100% at all Mining Assets;

Mine Call Factors: At Elandsrand Mine SRK considers that the concentration of mining activity in the SSDP should, over a period of time enable Elandsrand Mine to re-establish the levels attained in 2002 and 2003. Accordingly SRK have over a 5-year period increased the MCF from the current 18 month average of 76% to 85%. At Doornkop Mine where mining is currently concentrated on the Kimberley Reefs, the LoM plan projects mining predominantly on the South Reef where historical MCFs in the region have not bettered the 75% projected;

Stoping Widths: At Cooke 3 Mine the planned reduction in SW is based on the reduction in mining from areas of higher SW, namely the UE1AB and the UE1AT. At Doornkop Mine the cessation of mining the higher SW Kimberley Reefs and the commencement of mining of the South Reef at lower SW is the key reason for the reduction in the LoM plan weighted average;

Milling Widths: At both Cooke 3 Mine and Doornkop Mine the reasons stated for the changes in the SW weighted averages equally apply to the associated MW;

LoM cut-off grade: In contrast to the Freegold Operations the variances between the optimal cut-off grade (the Mineral Reserve cut-off grade) and the LoM cut-off grade is limited, except for Cooke 3 Mine where similar reasons as given for the Freegold Operations apply; and

Extraction Ratio (See general comments as stated for Freegold Operations): Other than for Cooke 1 Mine the ERs incorporated into the LoM Plan are relatively high and potential for further increases in the operating life are limited save for those mines which have not included Inferred Mineral Resources in the LoM plan.

Table 4.6 Target Operations: Modifying Factors

Operating Mine	Units	2002	2003	2004	2005(H1)	42 month	30 month	18 month	LoM Plan
Block Factor									
Target Mine	(%)	100	100	100	100	100	100	100	100
MCF									
Target Mine	(%)	100	100	107	104	103	103	106	92

Table 4.7 Target Operations: Cut-off grades, LoM pay-limits and extraction ratios[1]

Mine	Mineral Resource COG (cmg/t)	Mineral Reserve COG (cmg/t)	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)

Target Mine	5.1	5.1	4.8	379	96.6	92	0
Surface Sources	0.30	0.30	0.00	0	0	100	0

(1) ER is the extraction ratio determined as that portion of the tonnage estimated at the cut-off grade applied included in the LoM plan.

In respect of the LoM modifying factors as incorporated into the above tables for Target Operations SRK notes the following:

Block Factors: These have been planned at 100% at all Mining Assets; and

Mine Call Factors: At Target Mine the LoM MCF has been planned at 92% which is lower than the 107% currently reflected in the 18-month weighted average. SRK considers this prudent due to increased future contribution of the narrow mining operations rather than the open stopes. In the massive open stopes that are mining multiple reefs, overbreak tends to contain other reef bands and therefore grade. Overbreak in narrow mining operations is limited to the waste bands above and below the individual reef band and as a result does not contain grade.

Note that owing to the nature of mining operations at Target Mine consideration of SW and MW is less relevant and mining focus is accordingly concentrated on controlling planned and unplanned dilution measured on a % basis when compared to the 3D design stopes. Further, the opportunity to be selective in respect of cut-off grade is also limited (save for some the narrower sections) due to the constrained mining geometry of the Target orebody.

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Table 4.8 Harmony Free State Operations: Modifying Factors

Operating Mine	Units	2002	2003	2004	2005(H1)	42 month	30 month	18 month	LoM Plan
Block Factor									
Harmony 2 Mine	(%)	110	116	121	100	114	115	114	100
Merriespruit 1 Mine	(%)	n/a	n/a	98	101	44	60	99	100
Merriespruit 3 Mine	(%)	n/a	n/a	117	112	47	68	116	100
Unisel Mine	(%)	n/a	n/a	97	94	40	57	96	100
Brand 3 Mine	(%)	n/a	n/a	110	97	66	106	106	100
Masimong 4 Mine	(%)	n/a	n/a	106	103	67	67	105	100
Masimong 5 Mine	(%)	115	115	110	104	112	111	108	100
Saaiplaas 3 Mine	(%)	n/a	n/a	107	93	106	106	106	n/a
Brand 2 Mine	(%)	100	100	100	n/a	100	100	n/a	n/a
Brand 5 Mine	(%)	n/a	100	100	n/a	42	67	67	n/a
MCF									
Harmony 2 Mine	(%)	77	75	68	67	72	70	67	67
Merriespruit 1 Mine	(%)	91	91	96	80	91	91	91	91
Merriespruit 3 Mine	(%)	75	67	66	78	70	69	70	70
Unisel Mine	(%)	91	84	96	83	86	84	83	83
Brand 3 Mine	(%)	78	n/a	68	65	52	44	67	67
Masimong 4 Mine	(%)	n/a	94	87	80	88	88	85	85
Masimong 5 Mine	(%)	92	92	91	77	90	89	87	87
Saaiplaas 3 Mine	(%)	78	n/a	69	82	70	70	70	n/a
Brand 2 Mine	(%)	87	69	n/a	n/a	78	69	n/a	n/a
Brand 5 Mine	(%)	n/a	70	84	n/a	73	73	84	n/a
Stoping Width									
Harmony 2 Mine	(cm)	177	183	184	180	181	183	183	179
Merriespruit 1 Mine	(cm)	171	171	168	170	170	170	169	169
Merriespruit 3 Mine	(cm)	198	213	200	198	203	205	200	202
Unisel Mine	(cm)	167	154	167	177	165	164	170	165
Brand 3 Mine	(cm)	185	192	178	178	183	183	178	176
Masimong 4 Mine	(cm)	n/a	n/a	139	135	138	138	138	135
Masimong 5 Mine	(cm)	n/a	132	132	135	133	133	134	134
Saaiplaas 3 Mine	(cm)	n/a	n/a	n/a	176	194	194	194	n/a
Brand 2 Mine	(cm)	182	192	n/a	n/a	187	192	n/a	n/a
Brand 5 Mine	(cm)	n/a	208	199	n/a	206	206	199	n/a
Milling Width									
Harmony 2 Mine	(cm)	175	189	186	190	185	188	188	198
Merriespruit 1 Mine	(cm)	181	198	195	209	194	199	199	201
Merriespruit 3 Mine	(cm)	218	233	224	246	227	231	230	229
Unisel Mine	(cm)	193	197	176	165	186	183	173	198
Brand 3 Mine	(cm)	242	204	210	187	212	204	204	212
Masimong 4 Mine	(cm)	n/a	150	193	197	176	176	195	189
Masimong 5 Mine	(cm)	170	160	169	178	168	167	172	170
Saaiplaas 3 Mine	(cm)	n/a	n/a	223	289	230	230	230	n/a
Brand 2 Mine	(cm)	256	222	n/a	n/a	239	222	n/a	n/a
Brand 5 Mine	(cm)	242	204	210	187	255	255	330	n/a

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Table 4.9 Harmony Free State Operations: Cut-off grades, LoM pay-limits and extraction ratios[(1), (2)]

Mine	Mineral Resource COG (cmg/t)	Mineral Reserve COG (cmg/t)	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)	ER (%)
Harmony 2 Mine	962	1,266	1,202	359	95.0	67	7	55
Merriespruit 1 Mine	596	602	904	402	95.4	91	4	67
Merriespruit 3 Mine	761	800	1,239	336	95.3	70	8	73
Unisel Mine	637	602	985	398	95.4	83	6	71
Brand 3 Mine	858	800	1,115	319	94.3	67	11	0
Masimong 4 Mine	620	610	1,146	442	90.8	85	25	57
Masimong 5 Mine	759	754	887	401	90.9	87	15	85
Saaiplaas 3 Mine	842	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brand 2 Mine	850	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brand 5 Mine	850	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Surface Sources[(3)]	0.30	n/a	n/a	n/a	n/a	100	n/a	n/a

(1) ER is the Extraction ratio determined as that portion of the tonnage estimated at the cut-off grade applied included in the LoM plan.
(2) Dilution is based on the LoM weighted average milling width (exclusive of vamping sources).
(3) Cut-off grade stated in g/t.

In respect of the LoM modifying factors as incorporated into the above tables for Harmony Free State Operations SRK notes the following:

Block Factors: These have been planned at 100% at all Mining Assets;

Mine Call Factors: These have all been planned at the 18-month weighted averages;

Stoping Widths: At Harmony 2 Mine the lower SW results form the increased contribution from the Basal Reef at lower SW;

Milling Widths: At Harmony 2 Mine the higher MW results from the increased contribution from A Reef which incurs higher dilution. At Unisel Mine and Brand 3 Mine the increased MW are direct results of increased vamping tonnages included in the LoM plans;

LoM cut-off grade: Similar comments to that stated for Freegold Operations equally apply at Harmony Free State Operations; and

Extraction Ratio (See general comments as stated for Freegold Operations): Other than for Masimong 4 Mine and Harmony 2 Mine the ER incorporated into the LoM Plan are relatively high and potential for further increases in operating life are limited save for those mines which have not included Inferred Mineral Resources in the LoM plan.

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Table 4.10 Evander Operations: Modifying Factors

Operating Mine	Units	2002	2003	2004	2005(H1)	42 month	30 month	18 month	LoM Plan
Block Factor									
Evander 2 Mine	(%)	100	100	107	89	101	101	102	100
Evander 5 Mine	(%)	100	100	124	115	110	113	121	100
Evander 7 Mine	(%)	100	100	107	100	102	102	104	100
Evander 8 Mine	(%)	100	100	108	106	103	105	107	100
Evander 9 Mine	(%)	100	100	158	100	121	131	151	100
Evander Rolspruit Project	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
Evander Poplar Project	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
MCF									
Evander 2 Mine	(%)	59	70	66	73	66	69	68	68
Evander 5 Mine	(%)	66	74	77	80	74	77	79	79
Evander 7 Mine	(%)	78	71	71	81	75	73	74	74
Evander 8 Mine	(%)	73	69	63	84	71	70	70	70
Evander 9 Mine	(%)	53	51	47	45	50	48	47	n/a
Evander Rolspruit Project	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	75
Evander Poplar Project	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	75
Stoping Width									
Evander 2 Mine	(cm)	180	170	176	176	175	173	176	171
Evander 5 Mine	(cm)	99	105	108	110	105	107	109	109
Evander 7 Mine	(cm)	121	146	146	138	136	145	143	136
Evander 8 Mine	(cm)	119	120	120	118	119	120	120	118
Evander 9 Mine	(cm)	110	124	131	142	123	129	132	n/a
Evander Rolspruit Project	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110
Evander Poplar Project	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100
Milling Width									
Evander 2 Mine	(cm)	245	226	218	222	228	222	219	216
Evander 5 Mine	(cm)	211	201	180	186	195	189	182	180
Evander 7 Mine	(cm)	198	228	259	269	230	248	262	221
Evander 8 Mine	(cm)	170	187	173	184	177	180	176	176
Evander 9 Mine	(cm)	147	164	187	211	168	179	190	n/a
Evander Rolspruit Project	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	129
Evander Poplar Project	(cm)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	117

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Table 4.11 Evander Operations: Cut-off grades, LoM pay-limits and extraction ratios[(1), (2)]

Mine	Mineral Resource COG (cmg/t)	Mineral Reserve COG (cmg/t)	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)	ER (%)
Evander 2 Mine	985	985	1,724	497	96.7	68	16	17
Evander 5 Mine	618	660	1,154	534	96.7	79	26	48
Evander 7 Mine	780	780	1,270	451	96.7	74	25	91
Evander 8 Mine	830	830	1,278	481	96.7	70	27	69
Evander 9 Mine	750	0	0	0	0.0	0	0	0
Evander Rolspruit Project	600	600	764	384	94.5	75	13	85
Evander Poplar Project	700	700	634	352	94.5	75	12	88
Surface Sources[(3)]	0.30	0	0	0	0.0	100	0	0

(1) ER is the extraction ratio determined as that portion of the tonnage estimated at the cut-off grade applied included in the LoM plan.

(2) Dilution is based on the LoM weighted average milling width (exclusive of vamping sources).

(3) Cut-off grade stated in g/t.

In respect of the LoM modifying factors as incorporated into the above tables SRK notes for Evander Operations the following:

Block Factors: These have been planned at 100% at all Mining Assets;

Mine Call Factors: These have all been planned at the 18-month weighted averages. The MCFs for the Evander Rolspruit Project and the Evander Poplar Project are based on Evander 8 Mine but with improvements to cater for the benefits of new mining infrastructure;

Stoping Widths: At Evander 7 Mine the planned reduction is considered by SRK to be technically achievable. At the Evander Rolspruit Project and the Evander Poplar Project, given that Evander 8 Mine is the proxy, there is some risk that these SWs will not be achieved;

Milling Widths: At Evander 7 Mine there is also a planned reduction in the contribution from vamping sources. At the Evander Rolspruit Project and the Evander Poplar Project, given that Evander 8 Mine is the proxy, there is some risk that these MWs will not be achieved;

LoM cut-off grade: Similar comments to that stated for Freegold Operations equally apply at Evander Operations; and

Extraction Ratio (see general comments as stated for Freegold Operations): Other than for Evander 2 Mine and Evander 5 Mine the ER incorporated into the LoM Plan are relatively high and potential for further increases in operating life are limited, save for those mines which have not included Inferred Mineral Resources in the LoM plan.

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Table 4.12 Orkney Operations: Modifying Factors

Operating Mine	Units	2002	2003	2004	2005[H1]	42 month	30 month	18 month	LoM Plan
Block Factor									
Orkney 2 Mine	(%)	n/a	100	100	100	100	100	100	100
Orkney 4 Mine	(%)	n/a	100	100	100	100	100	100	100
Orkney 3 Mine	(%)	n/a	100	n/a	n/a	100	100	n/a	n/a
Orkney 1 Mine	(%)	n/a	100	100	100	100	100	100	n/a
Orkney 6 Mine	(%)	100	100	n/a	n/a	100	100	n/a	n/a
Orkney 7 Mine	(%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
MCF									
Orkney 2 Mine	(%)	n/a	79	79	81	79	79	80	80
Orkney 4 Mine	(%)	n/a	86	86	80	85	85	84	84
Orkney 3 Mine	(%)	n/a	89	n/a	n/a	89	89	n/a	n/a
Orkney 1 Mine	(%)	n/a	n/a	79	81	39	39	80	n/a
Orkney 6 Mine	(%)	86	84	n/a	n/a	85	84	n/a	n/a
Orkney 7 Mine	(%)	104	100	n/a	n/a	101	100	n/a	n/a
Stoping Width									
Orkney 2 Mine	(cm)	n/a	161	157	166	160	160	160	160
Orkney 4 Mine	(cm)	n/a	122	124	125	123	123	124	123
Orkney 3 Mine	(cm)	n/a	229	n/a	n/a	229	229	n/a	n/a
Orkney 1 Mine	(cm)	n/a	161	157	166	160	160	160	n/a
Orkney 6 Mine	(cm)	194	187	n/a	n/a	189	187	n/a	n/a
Orkney 7 Mine	(cm)	138	148	n/a	n/a	145	148	n/a	n/a
Milling Width									
Orkney 2 Mine	(cm)	n/a	217	239	243	230	230	245	248
Orkney 4 Mine	(cm)	n/a	182	188	165	183	183	183	180
Orkney 3 Mine	(cm)	n/a	277	n/a	n/a	277	277	n/a	n/a
Orkney 1 Mine	(cm)	n/a	217	239	243	230	230	245	n/a
Orkney 6 Mine	(cm)	195	195	n/a	n/a	195	195	n/a	n/a
Orkney 7 Mine	(cm)	168	179	n/a	n/a	176	179	n/a	n/a

Table 4.13 Orkney Operations: Cut-off grades, LoM pay-limits and extraction ratios[(1), (2)]

Mine	Mineral Resource COG (cmg/t)	Mineral Reserve COG (cmg/t)	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)	ER (%)
Orkney 2 Mine	1,152	1,152	1,966	565	95.0	80	32	72%
Orkney 4 Mine	725	725	1,144	468	95.0	84	30	54%
Orkney 3 Mine	1,200	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Orkney 1 Mine	1,200	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Orkney 6 Mine	500	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Orkney 7 Mine	1,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a

(1) ER is the extraction ratio determined as that portion of the tonnage estimated at the cut-off grade applied included in the LoM plan.
(2) Dilution is based on the LoM weighted average milling width (exclusive of vamping sources).

In respect of the LoM modifying factors as incorporated into the above tables for Orkney Operations SRK notes the following:

Block Factors: These have been planned at 100% at all Mining Assets;

Mine Call Factors: These have all been planned at the 18-month weighted averages;

Stoping Widths: These have all been planned at the 18-month weighted averages;

Milling Widths: These have all been planned at the 18-month weighted averages;

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LoM cut-off grade: Similar comments to that stated for Freegold Operations equally apply at Orkney Operations save for Orkney 4 Mine; and

Extraction Ratio (see general comments as stated for Freegold Operations): Other than for Orkney 4 Mine the ER incorporated into the LoM Plan are relatively high and potential increases in operating life are limited, save for those mines which have not included Inferred Mineral Resources in the LoM plan.

Table 4.14 Welkom Operations: Modifying Factors

Operating Mine	Units	2002	2003	2004	2005(H1)	42 month	30 month	18 month	LoM Plan
Block Factor									
Welkom 1 Mine	(%)	100	100	n/a	n/a	100	100	n/a	n/a
Welkom 2 Mine	(%)	100	100	n/a	n/a	100	100	n/a	n/a
Welkom 3 Mine	(%)	100	100	n/a	n/a	100	100	n/a	n/a
Welkom 4 Mine	(%)	100	100	n/a	n/a	100	100	n/a	n/a
Welkom 6 Mine	(%)	100	100	n/a	n/a	100	100	n/a	n/a
Welkom 7 Mine	(%)	n/a	100	n/a	n/a	100	100	n/a	n/a
MCF									
Welkom 1 Mine	(%)	70	61	n/a	n/a	65	61	n/a	n/a
Welkom 2 Mine	(%)	79	66	n/a	n/a	72	66	n/a	n/a
Welkom 3 Mine	(%)	n/a	111	n/a	n/a	111	111	n/a	n/a
Welkom 4 Mine	(%)	64	81	n/a	n/a	72	81	n/a	n/a
Welkom 6 Mine	(%)	105	79	n/a	n/a	85	79	n/a	n/a
Welkom 7 Mine	(%)	n/a	80	n/a	n/a	80	80	n/a	n/a
Stoping Width									
Welkom 1 Mine	(cm)	112	115	n/a	n/a	114	115	n/a	n/a
Welkom 2 Mine	(cm)	140	151	n/a	n/a	145	151	n/a	n/a
Welkom 3 Mine	(cm)	n/a	132	n/a	n/a	132	132	n/a	n/a
Welkom 4 Mine	(cm)	162	155	n/a	n/a	159	155	n/a	n/a
Welkom 6 Mine	(cm)	135	163	n/a	n/a	155	163	n/a	n/a
Welkom 7 Mine	(cm)	n/a	191	n/a	n/a	191	191	n/a	n/a
Milling Width									
Welkom 1 Mine	(cm)	158	173	n/a	n/a	166	173	n/a	n/a
Welkom 2 Mine	(cm)	149	193	n/a	n/a	170	193	n/a	n/a
Welkom 3 Mine	(cm)	n/a	337	n/a	n/a	337	337	n/a	n/a
Welkom 4 Mine	(cm)	226	256	n/a	n/a	239	256	n/a	n/a
Welkom 6 Mine	(cm)	170	193	n/a	n/a	186	193	n/a	n/a
Welkom 7 Mine	(cm)	n/a	244	n/a	n/a	244	244	n/a	n/a

Table 4.15 Welkom Operations: Cut-off grades, LoM pay-limits and extraction ratios(1), (2)

Mine	Mineral Resource COG	Mineral Reserve COG	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)	ER (%)

	(cmg/t)	(cmg/t)						
Welkom 1 Mine	1,200	0	0	0	n/a	0	0	n/a
Welkom 2 Mine	1,450	0	0	0	0.0	0	0	n/a
Welkom 3 Mine	1,100	0	0	0	0.0	0	0	n/a
Welkom 4 Mine	1,200	0	0	0	0.0	0	0	n/a
Welkom 6 Mine	900	0	0	0	0.0	0	0	n/a
Welkom 7 Mine	880	0	0	0	0.0	0	0	n/a

(1) ER is the extraction ratio determined as that portion of the tonnage estimated at the cut-off grade applied included in the LoM plan.
(2) Dilution is based on the LoM weighted average milling width (exclusive of vamping sources).

In respect of Welkom Operations no Mineral Reserves are declared. Accordingly all modifying factors used to determine an appropriate cut-off grade for Mineral Resources have been largely based on the actual results reported for the last operating period with cost inputs inflated to 1 January 2005 money terms.

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Table 4.16 Kalgold Operations: Cut-off grades, LoM pay-limits and extraction ratios[(1)]

Mine	Mineral Resource COG (cmg/t)	Mineral Reserve COG (cmg/t)	LoM COG (cmg/t)	Opex (ZAR/t)	MRF (%)	MCF (%)	Dilution (%)
Kalgold Mine	0.7	0.8	2.0	158	85.3	107	8

In respect of Kalgold Operations the Mineral Reserve declaration is largely driven by the application of open-pit optimisation techniques. In this instance the Mineral Reserve cut-off grade largely denotes that applicable to the in-pit mining exclusive of waste stripping requirements. The LoM cut-off grade reported in Table 4.16 includes the waste stripping requirement. The MCF is greater than 100%, however this is largely a combination of the reconciliations between the exploration model (wide spaced drilling), the grade control model (close spaced drilling), the RoM stockpiles and the Kalgold Plant and is reasonably well established over a considerable period of time.

4.4 Australian Operations Mt. Magnet & Cue Mine

4.4.1 Quality and Quantity of Data

On acquisition of the Mt Magnet & Cue Mine, Harmony inherited a large amount of historic data from previous owners and operators. The current databases therefore comprise a combination of historic data and current drilling and sampling data from a variety of drilling and sampling methods (undertaken by Harmony), including openhole, reverse-circulation (RC), diamond-drilling (DD) and face sampling.

Limited information is available on historic QA/QC procedures; however Harmony accepts the available data at face value and carries out ongoing data validation procedures when completing geological modelling and resource estimation. The descriptions of sampling and assaying methods reported therefore only relate to current standards as managed by Harmony. Four methods have been employed to gather sufficient data to support the current estimates:

RC Drilling: RC percussion drilling uses a 127mm face-sampling hammer that minimises downhole contamination. One sample is taken for each metre drilled. Sample return lines are cleaned with compressed air after each metre drilled, and the cyclone sample collector is cleaned following each rod. Samples are riffle split through a three tier splitter. Hole collars are surveyed for surface location, but there are no downhole surveys due to the short hole depth in the open-pits (up to 30m);

Diamond Core Drilling: Two sizes of diamond core are drilled underground: NQ2 (45.1mm core diameter) and LTK48 (36.1mm nominal core diameter). Core recovery is generally 97% to 100%. The core is geologically logged and then cut in half. One half is assayed, and the other half retained. The drill hole collars are surveyed and gyroscope surveys are used as a preference to determine both dip and azimuth. The dip of the holes is occasionally determined using Eastman single shot camera; however the Eastman cannot be used for azimuth due to magnetic interference from the BIFs;

Underground Face Sampling: Every development drive is chip sampled along the side walls and across the face. A horizontal sample channel is cut using a hammer. The sampling intervals are selected depending on the specific geology, and range in length between 0.3m and 1.2m. Approximately 3kg (as a maximum) of rock is collected for any one sample, and the particle size of the rock chips average 40mm. The locations of the face samples are measured initially by a laser rangefinder from survey stations, with the position adjusted after the final survey pickup; and

Sludge Drilling: For underground orebody definition, infill percussion holes (64mm diameter) are sampled to provide additional data to that determined by the wider spaced diamond drill holes. These holes are always drilled upwards to enable them to be flushed with water after each sample interval. The mixed sample and flush water is collected by a crude collar device and piped into a bucket, from which a grab sample of up to 2kg is sent for assay. This drilling method can be severely affected by the loss of fines in the water, and recovery only averages 50%. The hole collar location is surveyed, however no down hole survey is conducted for drill hole direction.

Two analytical methods are employed to assay the samples obtained during the drilling and sampling campaigns described above:

Fire Assays: Samples are dried and riffle split if larger than 3kg and then jaw crushed and the total sample (up to a maximum of 3kg) is pulverised in a ring mill pulveriser to a nominal 90% passing 75µm. A 30g charge of the analytical pulp is fused at 1,050ºC for 45 minutes with litharge. The resultant metal prill is digested in aqua regia and the gold content determined by atomic absorption spectrometry with a detection limit of 0.01g/t. One in twenty samples is routinely duplicated, as are assays with gold content above 30g/t. Fire assays are used for RC, diamond core and face samples; and

PAL (LeachWell): Samples are wet split to a 0.8kg to 1kg sub sample which is agitated between 30 and 45 minutes with a combination of water, grinding balls and two LeachWell tablets. The LeachWell tablets comprise sodium cyanide and leaching accelerants. The resultant liquor is centrifuged and an aliquot drawn off for atomic absorption spectrometry, with a detection limit of 0.01g/tAu. Unlike fire assay, this technique is a partial assay as it can only measure cyanide soluble gold. PAL is used for underground sludge-hole samples and most open-pit grade control samples.

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For the samples taken from the open pit grade control drilling, both fire assay and PAL are used. One in 50 samples is re-split at the drill rig. If the re-split assays are not acceptably close to the original sample, the batch is re-assayed. One in 10 of the LeachWell samples is assayed by fire assay as a comparison.

A comparison of 9,440 repeat assays in the Hill 50 database shows a high variance between originals and repeats (averaging 17% difference) although there is no identified bias between the two sets of assays. A similar level of repeat precision was observed for Watertank Hill open-pit. In general terms, a precision of 5% to 10% is considered achievable for gold deposits.

Routine grade control samples are assayed at the SGS laboratory situated in Mt. Magnet. Fire assay and PAL samples have been repeated at an external National Association of Testing Authority (NATA) (3,244) ratified umpire laboratory (Genalysis in Perth), however given the low number of repeated assays (148 fire assay and 118 PAL), SRK considers that no firm conclusion can be drawn from this study, although the precision is observed to be the same level as the repeated assays.

SRK considers that several hundred repeat samples for each sample type would be required to draw a firm conclusion from this type of study. This low level of precision adds an element of uncertainty to local estimates. SRK considers that a study be undertaken to better understand the implications (if any) of not achieving an increased level of precision in repeat assays. The effects of assay imprecision are likely to be more important for assisting management and short-term scheduling of mining rather than affecting long-term financial performance.

The SGS Mount Magnet laboratory is not accredited to ISO9001 or NATA. This facility does however participate in an internal SGS inter-laboratory round robin, as well as an external round robin conducted by Geostats Pty Limited.

SRK considers that the inclusion of Mineral Reserves that are based on analyses from a non-accredited laboratories is justified in that there has been no significant change in the procedures used at the laboratories since the previous Mineral Reserve Statement that would have a material effect on the current Mineral Reserve Statement. In other words SRK are satisfied that the non-accreditation of the laboratories has not had a material affect on the Mineral Reserve Statement. Furthermore the Mt. Magnet & Cue Mine has a significant history of gold production and reconciliation. Accordingly SRK do not consider that the accompanying Mineral Resource statements would be significantly biased due to the non-accreditation of the laboratories.

4.4.2 Geological Modelling and Grade and Tonnage estimation

Resource wireframes are constructed for each resource model at Mt Magnet & Cue Mine. These interpretations are based on a combination of the site geologist understanding of the orebody and a drill hole assay cut-off to select intersections.

Drill hole composites within the wireframes, usually 1m downhole length, are chosen for estimation; generally only composites from within a wireframe are used for estimating that wireframe. Top-cuts are chosen either on the basis of distributions (97.5th percentile, subjectively chosen breaks in populations) or from historical precedent e.g. the 30g/t top-cut at Hill 50. Grades are estimated mostly by ID2, with a small proportion of the models (but including Hill 50) estimated by ordinary kriging. Comet and Rubicon Laterite and Primary Deposits have been estimated by ID^3.

The maximum number of composites used per block ranges between 10 and 25, while the minimum is usually either 2 or 3.

Density factors are a mixture of data from ongoing testing in active operations to historically derived factors. The average bulk density values range from 1.8tm^{-3} for oxide material to 3.25tm^{-3} for fresh BIF.

4.4.3 Classification

Mineral Resources are classified on the basis of different measures of data density and geological continuity, both subjective and objective, with a different set of criteria applied to each individual deposit model:

Hill 50: Measured Mineral Resources are based on sludge holes, face sampling and development drilling; Indicated Mineral Resources are based on development drilling only; Inferred Mineral Resources based on down plunge extrapolation of 500m;

St George: Indicated Mineral Resources based on 12.5m spacing, 3 samples within 25m search radius; Inferred Mineral Resources based on blocks with fewer than 3 samples within 25m radius; and

Comet: Indicated Mineral Resources based on 2 samples within 60m; and Inferred Mineral Resources based on blocks with fewer than 2 samples within 60m.

4.4.4 Selective Mining Units

One of the most important resource risk factors is estimating blocks that are too small relative to the drilling grid. This is usually a result of trying to estimate grades of blocks that are of a similar volume to the SMU. By estimating blocks that are too small, the true variability of small blocks, which is a key parameter for selectivity, could be distorted. Kriging of small data from relatively sparse data will always overestimate the recoverable tonnage for a cut-off below the mean and underestimate the tonnage for a cut-off higher than the mean, leading to a misclassification of ore as waste and waste as ore. A more appropriate method is to estimate blocks of at least half the drilling grid on the horizontal axes and preferably the same size as the drilling grid, and to determine the grade-tonnage curves for the SMUs within these panels using an appropriate geostatistical method such as Uniform Conditioning or Multiple Indicator Kriging (MIK). The block size in the vertical axis should be related to the bench height in an open pit model. In an underground model, the vertical axis should be based on a subset of the stope height, although sampling patterns in underground operations tend to be much more irregular than open pits, and any single block size is unlikely to be optimal for all parts of the mine.

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The easting and northing block sizes for the underground operations at Hill 50 are appropriate for the maximum data density, which includes development face sampling every 3m and sludge samples on an irregular grid of roughly 5m. The vertical dimension is 10m, or one-third the level interval.

The blocks in some of the block models are considered by SRK to be too small relative to the sample spacing.

4.4.5 Grade Control and Reconciliation

Monthly head grades are back calculated from the total gold produced, sampled tailings grade and estimated change in the gold content in circuit divided into the tonnes as recorded by the mill weightometer. Based on the feed blend, the tonnes milled from each ore source are back-assigned from the total weightometer tonnage. Different sources have different metallurgical recoveries, and these are also factored into the estimated head grade.

The comparison between the mine claim (based on open pit grade control or underground sampling) and the head-grade is used to produce a grade mine call factor for each source.

Open-pit Reconciliation: The open pit reconciliations for the last year show a varied pattern of results. Some (e.g. Windbag, Hill 60, Watertank Hill) have produced (mill allocated) more tonnes at a lower grade than the Mineral Reserve, however good correlation exists in respect of the total metal content estimated. Other pits have production from areas that were not originally included in the Mineral Reserve statement, (e.g. St George, Boomer) therefore they appear to have highly positive tonnage and metal reconciliations and resulting comparisons are not necessarily valid for assessing current risks to the block estimates; and

Underground Reconciliation: Historical underground (Hill 50) reconciliation shows poor results between projected and actual production. Significant shortfalls in tonnage, grade and ounces have occurred. This performance was discussed and related to a combination of poor mining conditions around previously mined stopes, with consequent poor recovery and excessive dilution, as well as the resource model being based on downwards projections from higher levels as opposed to the latest block models using more appropriate data sets.

In terms of the appropriateness of drilling density, sampling, assaying or geological interpretation, SRK considers that, with the exception of Great Fingall, no material short-comings exist in the underlying data supporting the resource models. The drilling density at Great Fingall Deeps, may be insufficient and produce an underestimation in grade.

Underground reconciliations have historically been poor; however mining around previous workings and the basic estimation methodology used probably contributed to the poor reconciliation. The estimation methodology has now been replaced as previously described. Current mining has now advanced away from these remnant areas and the depletion from the deep mining areas will be reconciled against the new block model. Previous performance is therefore unreliable as an indicator of the likely future performance. The reconciliation for the current mining areas (although not yet sufficiently representative) is 98% for tonnes and 88% for grade (in line with historical underachievement), and as such the new block model may still require some calibration once an appropriate level of reconciliation data is available.

The open pit reconciliation shows that commonly open pits produce more tonnes at a lower-grade than the planned resource to reserve conversion would suggest. SRK considers that this poor reconciliation performance may in part, be attributable to the resource estimation methodologies used, particularly when applying cut-offs in the higher range of the mineral inventory grade distribution. In respect of certain of the open pit properties located at distances ranging between 60km and 80km from the current plan (but not included in the LoM plan), it is likely that higher cut-off grades will be required and accordingly the risk of overestimating the reserve grade will be increased.

4.4.6 Mineral Reserve Estimation

Open pits: For conversion to Mineral Reserves the available open pit Mineral Resources are prioritised according to grade, stripping ratio and location to the plant (between 30km and 100km). The aim is to achieve optimal mill throughput from the combined underground, stockpiles and viable open-pits ore sources. Currently, only Indicated Mineral Resources are available for open-pit mine planning, the resultant Mineral Reserves are modified to Probable Mineral Reserves by either the completion of detailed pit designs or by factorisation, in both instances the final optimal pit shells, as produced utilising Whittle4X, are used. Of the 11 open-pits planned to be production between January and financial year-end June 2005, only 2 had completed designs at the start of the year.

The primary focus area of the Mt Magnet & Cue Mine is the viability and sustainability of the primary ore source, namely Hill 50 underground mine and this has resulted in a material planning gap in terms of modification of open-pit Mineral Resources to Mineral Reserves. The focus has been and still is on reserve replacement and short-term planning (12 months). There are over 60 open pit deposits with Indicated Mineral Resources within the tenement area, of which only 11 have been adequately assessed for Mineral Reserve conversion for the current financial year.

The modification assumptions are standard mining factors (10% dilution at zero grade and 5% mining loss of the contained ounces, no MCF is applied) and economic cut-off grades (utilising the agreed contract rates for mining and surface transportation between pit and the gold plant and the previous years processing and allocated administration costs on a unit rate per tonne basis). For the current Probable Mineral Reserves a gold price of A$540/oz was used. Because of the short-term nature of the open-pits (generally less than 1 year) the Whittle optimisations are not discounted. The historical reconciliation data is not considered by SRK to be sufficiently reliable to support these factors alone, however SRK considers that they are in-line with other open-pit gold mining operations in the region, working similar styles of mineralisation and in terms of the pit-scale, selectivity, and mining equipment used are considered reasonable.

Because of the planning gap and 12-month reserve replacement policy the average conversion from Mineral Resources to Mineral Reserves in terms of contained ounces is only 23%. However this reflects the level completed technical studies. Beyond the 12-month reserve status, the policy is to project continued open-pit operations by assuming that of the outstanding Indicated Mineral Resources, a similar tonnage and grade will be sustained, at least of the period of planned underground production.

SRK concurs that unmodified Indicated Mineral Resources should allow for sustained production beyond the 12-month Reserves at a similar RoM tonnage and grade for at least five years. The primary issue relating to the planning gap is however the increased haulage distance between the unmodified target deposits situated in the Cue area. Without completion of detailed technical studies to ensure that the deposits are collectively robust under a range of gold prices and/or sustainable head-grades, there exists a risk to profitability.

Underground Mines: In the underground mines, resources are converted to reserves by designing stopes on a panel-by-panel basis using different cut-off-grades, determining a practical extraction and adding a percentage for mining dilution. Stopes and development outlines are designed using computerised mine design software. Cross-sections, long-sections and plans are generated as required that reflect a combination of drilling results, assays and geology and interpretations and are used to reflect the stopes, development ends and Mineral Reserves.

The overall interpretation of the lower levels (below 15 Level) increased in confidence during the past year with the ongoing drilling to infill the deeps zones from the 16A sublevel. Since the 2003 Mineral Reserve declaration a comprehensive statistical analysis has been completed by a contract Resource geologist validating preliminary work conducted by site personnel. This completed technical study supported the use of the mixed diamond and face datasets. The resource is now in a block model format.

Continuing refinement of the stoping sequence has occurred in conjunction with external consultants. Access to the ore zones has been modified to reduce dilution and manage the risks associated with seismicity. Current recoveries are now based on a sill pillar approximately every 90m for 40% recovery and 90% in the remaining levels for an average mining recovery of 84%. In the 2003 declaration the Mineral Reserve were calculated using a mining recovery of 73% for the Main and 83% for the 17Nth orebodies, respectively.

The modification assumptions incorporated into the design for Hill 50 (63% of the total reserve by contained ounces) assumes a 20% dilution at a dilution grade of 0.2g/t and an average mining recovery of 84% (as a result of planned sill pillars at every 90m of which 40% will be recovered). The planned dilution is approximately 7% higher than the Star Decline and reflects the difficult mining environment encountered at Hill 50.

4.5 Australian Operations South Kalgoorlie Mine

4.5.1 Quality and Quantity of Data

On acquisition of the South Kalgoorlie Mine, Harmony inherited a large amount of historic data from previous owners and operators. The current databases therefore comprise a combination of historic data and current drilling and sampling data from a variety of drilling and sampling methods. Diamond core is usually halved, one-half used for sampling and assaying. At the Mt. Marion mine; however the full drill core is sampled.

Limited information is available on historic QA/QC procedures; however Harmony accepts the available data at face value and carries out ongoing limited data validation procedures when completing geological modelling and resource estimation. The descriptions of sampling and assaying methods reported therefore only relate to current standards as managed by Harmony.

Three methods are/have been employed to gather sufficient data to support the current estimates:

RC Drilling: In addition to that described for Mt. Magnet & Cue Mine in Section 4.4.1, reverse circulation percussion drilling uses a 127mm or 140mm face-sampling hammer. Drill hole collars greater than 30m depth are surveyed downhole by an electronic multi-shot tool at 5m intervals. The magnetic interference from the host rocks appears to be negligible;

Diamond Core Drilling: In addition to that described for Mt. Magnet & Cue Mine in Section 4.4.1, hole collars were surveyed, and surveyed down-hole at approximately 30m intervals by Eastman single-shot camera or electronic camera; and

Underground Face Sampling: As described for Mt. Magnet Mine & Cue Mine in Section 4.4.1.

The drilling type varies across the deposits, with many having a combination of RC and Diamond core, and some having only RC. Certain of the deposits have used aircore as well.

Two analytical methods are employed to assay (at the same laboratory facilities for Mt. Magnet & Cue Mine) the samples obtained during the drilling and sampling campaigns described above, namely Fire Assays and PAL (LeachWell™) as described for Mt. Magnet & Cue Mine.

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The ALS Chemex Kalgoorlie laboratory is not accredited to ISO9001 or NATA. This facility does however participate in an internal ALS inter-laboratory round robin, as well as an external round robin conducted by Geostats Pty Limited. In respect of non-accreditation similar comments apply here as for Mt. Magnet & Cue Mine.

At South Kalgoorlie, Harmony use a computerised QA/QC system for mine and exploration drilling and sampling programmes that facilitates regular checking, monitoring and quality control. The system controls and/or defines the use of standards, blanks, checks, defines the grind size, fire assay charge weight, density, drill hole surveys, photographing of core and provides standard rules for data capture.

In the open pit operations, externally prepared standards and assay pills are used. An assay pill contains a measured amount of gold and is added to a barren sample. Currently, 1 in 40 assay pill samples plus a succeeding barren sample are added to grade control samples.

External pulp standards are submitted with every assay batch. Since March 2003,1,070 pulp standards have been submitted. Of these, 97% were returned within twice the recommended standard deviation.

A comparison of 1,740 repeat assays in the Mount Marion database shows a good level of precision, with no identified bias between the two assays.

4.5.2 Geological Modelling and Grade and Tonnage

The common aspect of the resource estimation work undertaken at South Kalgoorlie Mine are summarised followed by deposit specific comments for the four estimates reviewed in detail.

Current resource models for the South Kalgoorlie Mine are mainly estimated by ID^2 or ordinary kriging methods, with top cutting used in most situations. Some of the deposits have however been estimated by ID^3, or polygonal methods. Some of the open-pit block models are based on information from historical sampling campaigns, which do not have adequate documentation on QA/QC.

Domaining is generally based on drillhole assay, although the domains in the Hampton Boulder Jubilee (HBJ) model have an element of geological control. For most of the models (Except HBJ and Mt Marion), the minimum and maximum numbers of composites used to estimate blocks are considered by SRK to be potentially inadequate and in many cases the block size may be too small in relation to the size of the sampling grid.

For open pit mines with a low cut-off these factors represents a low to medium risk to the grade produced, but for underground projects or for open pit mines with a high cut-off they represent a medium to high risk to the grade prediction. Examples of these are Louis and Josephine, both of which have poor grade reconciliation between reserve and production.

In many of the open pits considerable nugget effects occur, dense sampling grids are needed to estimate resources with a high degree of confidence. The search neighbourhoods employed during estimation are of critical importance.

4.5.3 Classification

Mineral Resources are classified on the basis of a combination of different measures of data density and geological continuity, both subjective and objective, with a different set of criteria applied to each individual deposit model.

Mt Marion: Measured Mineral Resources are based on information derived from developed and grade control drilled levels; Indicated Mineral Resources are based on development drilling below current levels; and Inferred Mineral Resources are based on 60m extrapolation past the limits of development drilling;

Freddo: Indicated Mineral Resources are based on 25m spaced drilling and a subjective assessment of geological and grade continuity as good but some uncertainty over high grade zones; and Inferred Mineral Resources are based on drill spacing 50m by 50m or greater; and

HBJ: Measured Mineral Resources are based on a combination of estimation variance, estimation pass and sample density, usually around previous underground workings; Indicated Mineral Resources are based on a combination of estimation variance, estimation pass and sample density, usually within the currently drilled area; and Inferred Mineral Resources are based on a combination of estimation variance, estimation pass and sample density, usually extrapolation from current drilled area.

4.5.4 Selective Mining Units

For the most material resource models in the South Kalgoorlie Mine area, the block size is appropriate to the current or expected mining methods (sub-level caving or open pit mining on 2.5m flitches) and the data density.

4.5.5 Grade Control and Reconciliation

The end of month head grade is calculated by the metal poured plus the change in gold in circuit plus the gold to tails. This monthly head grade is compared to the grade assigned to the feed, which is based on grade control models in the open pits and grab samples in the underground.

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Due to the multiple ore sources and the blending required to maintain consistent grade and ore hardness, it is usually problematic to reconcile accurately to any one ore source. Any monthly overcall is usually attributed equally to all sources on the basis of tonnes fed; undercalls are either attributed equally or may be attributed to one of the sources if there is evidence of a specific dilution issue.

Open pit reconciliations show that overall the reserve is somewhat conservative for tonnes and contained metal and reasonably accurate for grade, however there is a wide variety of results from an undercall of both grade and tonnes (e.g. Louis, Noble 5, Josephine) to an overcall of grade and tonnes (e.g. Gala, Dawns Hope). This reconciliation result justifies the classification of most of the resources as Indicated rather than Measured. The resource for both Louis and Josephine has been estimated by ID2 into small blocks relative to the drill spacing.

These models have not been tested for sensitivity of the resource to alternative estimation algorithms and representative block sizes. This has not been completed and may pose a risk to short-term scheduling of mining but is unlikely to affect the long-term financial performance.

Reconciliations for the Mount Marion underground mine show that the reserve estimation has been conservative in terms of tonnes and contained metal, grade estimation has been appropriate for the designated estimation classification

4.5.6 Mineral Reserve Estimation

Open pits: For conversion to Mineral Reserves the available open pit Mineral Resources are prioritised according to grade, stripping ratio and location to the plant (between 10km and 30km). The aim is to achieve optimal mill through put from the combined underground, stockpiles and viable open-pits ore sources. Currently, only Indicated Mineral Resources are available for open pit mine planning, the resultant Mineral Reserves are modified to Probable Mineral Reserves by the completion of detailed pit designs utilising the final optimal pit shells, as produced utilising Whittle4X. Both open pits planned to be production between January and financial year-end June 2005 have completed designs.

The primary focus area of the South Kalgoorlie Mine is the viability and sustainability of the primary ore source, namely Mt Marion underground mine and this has resulted in a planning gap in terms of modification of open-pit Mineral Resources to Mineral Reserves. The focus has been and still is on reserve replacement and short-term planning (12 months) seeking a high ore tonnes in view of the available mill capacity and the restricted underground production. There are 15 open pit deposits with Indicated Mineral Resources within the tenement area, of which only 2 have been adequately assessed for Mineral Reserve conversion for the current financial year.

The modification assumptions are standard mining factors (10% dilution at zero grade and 5% mining loss of the contained ounces, no MCF is applied) and economic cut-off grades (utilising the agreed contract rates for mining and surface transportation between pit and the gold plant and the previous years processing and allocated administration costs on a unit rate per tonne basis). For the current Probable Reserves a gold price of A$540/oz was used. The historical reconciliation data is not considered by SRK to be sufficiently reliable to support these factors alone, however SRK considers that they are in-line with other open pit gold mining operations in the region, working similar styles of mineralisation and in terms of the pit-scale, selectivity, and mining equipment used are considered reasonable.

Because of the planning gap and 12 month reserve replacement policy the average conversion from Mineral Resources to Mineral Reserves in terms of contained ounces is only 3% however reflects the level completed technical studies. Beyond the 12 month reserve status, the policy is to project continued open pit operations by assuming that of the outstanding Indicated Mineral Resources, at similar tonnage and grade will be sustained, at least of the period of planned underground production.

SRK concurs that unmodified Indicated Mineral Resources should allow for sustained production beyond the 12-month period at a similar RoM tonnage and grade for at least three years. The primary issue relating to the planning gap is however the increased haulage distance between the unmodified target deposits and technical restrictions such as relocation of infrastructure such as water pipe-lines. Without completion of detailed technical studies to ensure that the deposits are collectively robust under a range of gold prices and/or sustainable head-grades, there exists a risk to profitability.

Underground Mines: The Mineral Reserve process at Mt Marion involves a 7 step process as follows: Step 1 Collates the latest geological data for inclusion into the block model; Step 2 Involves the creation of ore drives based on geological contact; Step 3 Stope designs are created on 10m sections using geological contact, ore drives and the block model; Step 4 Reports the block model using Surpac Partial Percent function and created mining shapes; Step 5 Uses the block model to estimate block value (revenue costs) and therefore determines positive mining blocks; Step 6 Manual check on mineability; and finally Step 7 reports out all economic blocks that are deemed practical, feasible and safe to extract by sub-level caving methods.

In summary for a mining block to be classified as Mineral Reserves, the block has to demonstrate a positive contribution to cash flow following economic and safe access.

A 100 point moving average of historical data has been utilised to illustrate trends, which results in a stope tonnage factor of 107% and net grade factor of 83.5% for the sub-level caving operations, these factors were unchanged from the previous years Mineral Reserve Estimate. The historical data represents a data-set accumulated over the previous 7 stoping levels, and is deemed appropriate by SRK to support the Mineral Reserves as declared. A gold price of A$540/oz has been used for Mineral Reserve estimation, together with mining cost from the BCM contract which commenced in January 2004.

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4.6 Papua New Guinea Operations Hidden Valley and Hamata

4.6.1 Quality and Quantity of Data

Some 323 diamond drill holes have been drilled at the Hidden Valley project, resulting in a total length of 83,321m of core. Holes were started at PQ gauge (85mm diameter) from the surface, and sized down to HQ gauge (63.5mm diameter) in fresh rock. The core was photographed, oriented where possible, and recovery and Rock Quality Description (RQD) measurements made in the core barrel. Drill hole density varies between the HVZ and KCZ:

- HVZ drilling was based on a 25m east-west by 25m north-south grid. MCG completed in-fill drilling on 50m north-south spaced sections and occasionally on 25m spaced sections. A notional drill spacing for the Hidden Valley zone is 25m east-west by 30m north-south; and

- KCZ is less intensely drilled with initial vertical holes completed by CRA Exploration on a 50m east-west by 100m north-south grid. MCG completed in-fill and step-out drilling at 50m east-west by 50m north-south.

Drill collars and topography has been surveyed by GPS. Drill holes are stated to be accurate to ±15cm, sampled benches to ±50cm and topographic contours to ±3m for northing and easting and to ±5m for elevation.

Downhole surveys have been completed in 291 diamond drill holes or approximately 92% of the total holes drilled at Hidden Valley and Kaveroi. During the diamond drill programme undertaken by MCG all holes have been surveyed at regular 50m intervals downhole.

Drillhole recovery is routinely recorded by comparing length of core recovered with the hole length. Average recovery in the igneous lithologies which host the mineralisation is between 95% and 97.5%. The metasediment return marginally lower mean recoveries of between 92% and 95%. Surficial materials have a relatively poorer recovery of 90%.

Sample intervals and sample number and net core loss for each interval were noted on core markers attached to the core tray. The sampling direction was marked on both the core and core tray the core has been photographed. Most of the core was split in half (sometimes quartered) by diamond core saw. One half of the core was assayed and the other half was retained. A limited number of holes were whole core sampled.

During the course of the project, multiple laboratories, sample preparation methods and analytical techniques have been applied. Fire assay and/or screen fire assay has been the most commonly used analytical technique, usually with an atomic absorption spectrometry finish. Sample sizes have differed, as has the sample interval and suite of elements analysed. No indication of the whether the multiple laboratories were accredited has been recorded by the company.

The ALS Chemex Townsville laboratory is not accredited to ISO9001 or NATA. This facility does however participate in an internal ALS inter-laboratory round robin, as well as an external round robin conducted by Geostats Pty Limited.

MCG commissioned consultants to investigate the relationship between sample mass, comminution size and riffle-split increments and compile a statistically optimum sample preparation flow chart. Hidden Valley high-grade ore demonstrated the greatest degree of error and the protocol was designed to be appropriate for this material. The review of previous sample preparation regimes showed that all previous sampling methods had used appropriate sampling procedures.

MCG acquired the digital database from the previous tenement holders. The majority of pre-1999 data was collected by CRA Exploration between 1984 and 1993. To validate this data, hard copies of original analytical reports were used to check data entry and to add laboratory quality control information to the database.

There has been a variety of QA/QC measures used as a result of multiple property owners and changes in laboratory. During 1999 MCG commissioned external consultants Geostats Pty Ltd to audit the QC data for all Hamata and Hidden Valley resource drilling. A round robin test of Astrolabe Laboratory, Madang and Analabs, Lae did not identify any issues. A batch of 389 pulps was resubmitted by MCG to Australian Laboratory Services, Townsville. With a few exceptions it was demonstrated that the results for Au could be successfully repeated at a separate laboratory.

The analytical precision and accuracy of Analabs, Lae and Analabs, Townsville from 1999 to 2004 was measured by the use of Au, Ag and Cu standards. Analysis of the Au standards results recorded in the database shows no systematic issues with either the accuracy or precision of assaying for the Analabs Lae and Townsville Au. No indication of the whether the multiple laboratories were accredited has been recorded by the company.

There are 1,127 repeat assays of the sample pulps for Au, generated from several different sample campaigns. A scatter plot and Q-Q analysis show the poor repeatability at lower grades, but no apparent systematic bias.

Two types of density measurements were made: sample specific gravity and bulk density. Specific gravity was measured by weighing the sample dry, weighing the sample immersed in water and reweighing it after immersion when saturated. Bulk density was measured by drying the sample in an oven, sealing it with wax and weighing it in air and water. A total of 4,068 specific gravity measurements were obtained. The results for all MCG specific gravity and bulk density measurements show a decrease in density with increasing oxidation for all major rock types.

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A total of 72 bulk density measurements were obtained. The bulk density in the partial and fracture oxidised samples is 3% less than the specific gravity. The bulk density of the oxidised samples is 6% less, with a much poorer correlation. Only nine bulk density measurements were determined for fresh granodiorite. The SG averages were factored to produce the bulk densities used in the block model.

In selecting samples for density measurements, there is a bias towards competent pieces of core. In the major fault zones, the significant clay component will be relatively undersampled. A bulk density value of 2.2 was used for these faults.

The Hidden Valley area was geologically mapped in 1998 at a scale of 1:1,000 by both MCG and SRK, at a scale of 1:1,000. This mapping was integrated with historical CRA Exploration and AGF surface data to produce a fact map. The surface data collected by CRA Exploration and AGF suffered from poor survey control and its use was restricted to those areas remapped. An interpretative geology map was produced from the fact map, together with a survey reliability diagram.

Field procedures, data collation and geological interpretation methodology were audited on site by external consultants in November 1999, March 2000 and again in March 2002.

SRK considers the geology procedures to be adequate and of a good standard and not to represent a significant risk to the resource estimate.

During their tenure of the project, RGC, Placer, Minenco, CRAE and AGF amassed an extensive archive of physical and digital data. MCG collected all available historical data into a consolidated archive in Wau consisting of maps, reports and digital data. Data validation has concentrated on Hidden Valley, Hamata and immediately surrounding minor prospects. Where possible the final digital version compiled by the previous license holders was used as the starting point from which validation was carried out. Limited additional data entry has been added from hard copy archive material.

4.6.2 Geological Modelling and Grade and Tonnage Estimation

HiddenValley: The HVD resource model is based on all information available to the end of February 2002. The grade estimate and resource confidence classification were carried out by external consultants n 2003. The sample populations of both Au and Ag in the mineralised zones were mixed and highly skewed. A MIK approach was adopted to de-skew the data before estimation and to control the metal contribution of the high-grade population.

Using a combination of grade, vein orientation, geology and structure, the main mineralised zone wireframes were created using the following criteria:

Using a 1g/tAu boundary assay, the drill data was composited to achieve an average grade =1g/tAu with the inclusion of up to 10m of lower-grade assays. This interval was refined to include a maximum of 3m of lower-grade assays; and

Intervals in adjacent drill holes on each section were joined honouring interpreted orientations of the mineralised zones and the locations of structures. The sectional interpretations were joined in 3D to honour the assumed orientation of the dominant mineralised veins.

In the HVD the mineralised zones are interpreted to form eight stacked flat-dipping regions and two steep tabular regions. The KCZ is divided into six stacked mineralised envelopes.

The drill holes were intersected with the mineralised zone wireframes, and Au and Ag composited to 2m downhole, to match the average sample length of the drillhole database. Intervals outside the mineralised wireframes were tagged as part of the background mineralization.

The composites were reviewed to determine the population statistics and the shape of the distribution. All of the mineralised envelopes and the background have mixed positively skewed populations of both Au and Ag. A comparison of silver statistics shows the same trends as those described for the gold data. For variography and estimation, zones in the HVD with similar Au tenor and variability were grouped. All KCZ zones were treated as a single group.

Modelling of the variography from the HVD and KCZ is difficult. The mineralised veins have mapped continuities considerably less than the drill hole spacing. Variograms could not be modelled at all for the 95th and 97.5th percentiles. Well-structured variograms could be generated for the low-grade background outside the mineralised zones. The modelled variograms all had moderate to high nugget effects, representing 40% to 50% of the total variability.

A block model was constructed for the Hidden Valley Deposit with 15m by 15m by 5m parent cells, sub-blocked to 5m by 5m by 2.5m. Grade of Au and Ag was estimated into the block model using MIK. Each mineralised zone was treated as a hard boundary; blocks within each zone were estimated only from composites within them. The specific gravity in the fresh granodiorite and metasediment in both the HVD and KCZ was estimated using the large dataset by ordinary kriging. After assignment of specific gravity (SG), the bulk density was estimated by factoring the SG of oxidised by 0.94 and partially and fracture oxidised material by 0.97.A default BD of $2.2tm^{-3}$ was applied to the major fault zones in the HVD.

The grade estimation was validated using by visual comparison of the block grade estimates with the drill hole sample grades; comparison of composite statistics with the estimated grades, and conditional simulation of gold grades.

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Hamata: The Hamata Deposit resource model was created in July 2003, using a dataset that had not changed since November 1999. MCG created wireframes of mineralised lodes, while the grade estimate and resource confidence classification were carried out by external consultants. The drill data used by comprised of a total of 267 diamond holes from five drilling campaigns.

An unknown number of specific gravity measurements were made by the immersion method. The average for each oxidation type was used as a bulk density, but not factored as was the case at Hidden Valley, although the lithology and weathering are similar.

After Abelle merged with Aurora in 2002, an assessment of previous feasibility study work was conducted. Abelle were confident that it was possible to interpret more selective, higher grade zones within the previous broader mineralisation zones interpreted by Aurora. The reliability of the model is highly dependant on the interpretation of high-grade zones, which is based on downhole assays and a subjective inclusion of lower-grade assays in a high nugget environment.

The re-interpretation reduced continuity in the model, reflected in a reduced proportion of Measured Resource compared to the previous estimate. Eight alteration-related mineralisation zones and five fault-related mineralisation zones were produced. The remainder of the data was put into a background domain.

Drill holes were composited downhole to 2m lengths and intersected with the solid models representing the mineralised envelopes. Within the alteration zones, the larger zones generally received priority over the smaller zones whilst faults received higher-priority in the compositing process than the alteration zones.

Due to the similarities in grade statistics and geological controls, mineralisation zones were aggregated into two groups for variography. Experimental logarithmic variograms were modelled, and the models back-transformed into normal space. The variogram models have high relative nuggets of between 49% and 60%.

The population of each zone with sufficient composites was assessed separately for top cutting. The assessment used percentiles and change in coefficient of variance to assign top cuts. For smaller domains, a blanket value of 20g/t was applied.

A block model was constructed for the Hamata Deposit the same block size as the Hidden Valley deposit model. Au grade was estimated in the block model by ordinary kriging. Two nested octant searches were used to capture data for each block, with a minimum of 2 and a maximum of 20 composites used for each. The grade estimation was validated by visual comparison of the block grade estimates with the drill hole sample grades.

4.6.3 Classification

Hidden Valley: The resource classification was based on input data quality and quantity, validity of the geological interpretation, validity of the statistical and variographical analysis, application of an appropriate grade estimation technique, and scale of the assessment and mining parameters.

In HVD, a combination of interpreted geological confidence and block relative error was used to define resource confidence. The Indicated Mineral Resource class is broadly equivalent to a 50m by 50m drill density, whereas the Measured Mineral Resource is broadly equivalent to a 25m by 50m drill density. All other estimated material is classified as Inferred.

The allocation of confidence for the KCZ was based on a similar style of analysis as for the HVD. Three zones were considered to be poorly defined and were classified Inferred Mineral Resources. The other five were ranked by the number of drill holes that intersected each zone on each 50m section line. None of the KCZ resource was classified as Measured Mineral Resources.

Hamata: The resource classification was based on subjective confidence in the geological interpretation, the kriging variance of the estimate, the number of holes and composites used per block, the search used and the average distance to samples used similar to HVD. Three zones were considered to be poorly defined and were classified Inferred Mineral Resources. The other five were ranked by the number of drill holes that intersected each zone on each 50m section line. If a zone was intersected by at least three drill holes on a section, or by two drill holes on a section straddled on either side by sections with three drill hole intercepts, then the calibrated relative error was used to classify these sections as Indicated Mineral Resources. All other estimated material is classified as Inferred Mineral Resources.

4.6.4 Mineral Reserve Estimation

Mineral Reserve estimation at the HVGP is based on the application of pit optimisation techniques to the block model supporting the Mineral Resource estimate. On choosing the appropriate pit shell, detailed pit designs are undertaken which account for pit access and practical mine planning considerations. The metal prices included in the pit optimisation analysis were A$540/oz for gold and A$6.92 for silver.

For model dilution, ore blocks were re-blocked to 5m cubes, which effectively adds 11% to the tonnes and decreases the grade by 8% at the 1.0g/t cut-off. A study of the blocks likely to be unminable was carried out on the year 2000 model. The results indicated that 2% of the HVD and 4.5% of the smaller KCZ ore would be ore loss. These ore loss figures are used in the latest Mineral Reserve statement.

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4.7 Papua New Guinea Operations Wafi Gold Deposit

Additional drilling and a reinterpretation of the mineralisation by Harmony in fiscal 2004 has resulted in the production of a new interim Mineral Resource. Sectional interpretation of gold mineralisation on 50m and 25m spaced east-west sections used a 1g/t lower cut-off. This process identified 20 individual zones within A Zone, B Zone and the Link Zone. These zones varied in width from 2m to 20m and occurred over a strike length up to 300m. Zones are open along strike and at depth.

Drill hole assays were composited to 2m downhole lengths in the interpreted zones. Drillhole intercepts outside the interpreted zones were assigned to the background domain. Au topcuts of 15g/t were assigned based on the 98th percentile of the population and the reduction in the CV. A different topcut was applied to Ag in each zone, based on similar criteria. Historic data was used as recorded by previous tenement holders; no quality data is available.

Grades were estimated by ordinary kriging into 25m by 25m by 5m blocks, using only composites within a domain to estimate blocks within that domain. The block size is appropriate for the drilling density and intended mining method. Two estimation passes were completed; blocks captured in the first pass were classified as Indicated Mineral Resources, blocks captured in the second pass were classified as Inferred Mineral Resources. At the time of reporting, the data did not support any classifiable Measured Mineral Resources. Densities were also modelled, using ID2 and ranged from $2.2tm^{-3}$ to $2.6tm^{-3}$.

4.8 Papua New Guinea Operations Golpu Copper Deposit

The Mineral Resource for the Golpu Copper Deposit, part of the WPA in PNG, has been estimated after an interpretation of the copper mineralisation by Abelle. Copper mineralisation is associated with a porphyry intrusion and cross-cutting structures. Using the known orientation of the porphyry, mineralisation was interpreted into five zones based on grades of copper, gold and arsenic within the primary and weathered parts of the porphyry system. There was no attempt to model the geology or structure apart from acknowledging that the >1% copper mineralisation is restricted to the contact of the porphyry.

The drill holes were composited downhole to 2m lengths and intersected with the solid models representing the mineralised zones. The wireframes were constructed as sectional projections with the majority being mutually exclusive however where one wireframe enclosed another the internal wireframe was given a higher priority in the compositing. Assays not inside a mineralised wireframe were put into a Background domain. In total there are 12 domains. Historical data was used as recorded by previous tenement holders; no quality data is available.

The style of mineralisation and the grade zonation makes grade top cutting unnecessary for most of the variables estimated. The only topcuts applied were for Cu in one domain (topcut to 0.58%); Au in another (topcut to 2.40g/t); and Au in the Background Domain (topcut to 1.50g/t).

Grades were estimated by $1D^2$ into 25m by 25m by 10m blocks. Although this size is smaller than preferable, the results in a mass mining scenario are the same regardless of the block size. Two searches were used; blocks estimated in the first search were classified as Indicated Mineral Resources. The second search was twice the size of the first search; blocks estimated in the second search were classified as Inferred Mineral Resources. After estimation, classifications were adjusted by a complex scheme depending on the number of samples, the number of drill holes captured and the mineralisation domain. At the time of reporting, the data did not support any classifiable Measured Mineral Resources.

Little information is available on bulk density information. A single value was used for each weathering type: Oxide (from surface to 150m): $2.2tm^{-3}$; Fresh (below 150m): $2.65tm^{-3}$.

4.9 SRK Comments

The following section includes SRK s comments in respect of the process followed by the Company in the estimation and derivation of its Mineral Resources and Mineral Reserves. In the majority of instances the comments apply to the South African Operations, however where specific comments apply to the Australian Operations and Papua New Guinea Operations these have been separately identified.

4.9.1 Mineral Resource Estimation and Classification

The Company has established a centralised service to assist and or undertake the Mineral Resource estimation for the mining operations. In this respect SRK considers that the estimation process requires additional resources and that further geological input from on-mine specialists should be secured to ensure, consistency of approach and ownership of the Mineral Resource Management at the operational level. A key issue in this regard is the derivation of interpolation boundaries based on either a combination of or separate consideration of geological and geostatistical criteria.

In respect of Mineral Resource classification, the comments in previous CPR s (8 April 2004) in respect of conservatism in the Indicated Mineral Resource and Inferred Mineral Resource boundary have been largely removed. Consequently SRK considers that further upgrading of Inferred Mineral Resources to the Indicated Mineral Resource category will not readily occur without substantive additional geological work and/or additional geological data obtained through the process of exploration and or mining activity.

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In respect of selectivity, SRK notes that the current approach on application of the optimal cut-off grade does not account for the potential to be selective within large blocks, the average grade of which falls below the cut-off grade. This potential exists for reefs where clearly observable geological features can be associated with payable ore grades. This potential has at the Effective Date not been addressed with a sufficient degree investigation and technical assessment to support inclusion of any of this material in the LoM plans. This potential will only be addressed following completion of appropriate technical work comprising, *inter alia,* historical relationship between cut-off grades, mining methods, average pay and un-pay grades, the extent to which selective mining was achieved at various cut-off grades. Given the general increase in cut-off grades at the prevailing ZAR gold price then it is likely that the required degree of selectivity may be substantially higher than that historically achieved.

In respect of fault losses, SRK notes that application of fault discounts is not consistently applied. In certain instances it is instead assumed that the blocking of the Mineral Resources along known faults accounts for all the geological losses that exist. Whilst this may be the case in areas immediately adjacent to the areas of active mining, delineation of the more distal estimation areas cannot logically include consideration of all faults, these are just not known well enough beyond the active mining faces. Accordingly, SRK has included factors representing geological losses within certain of the Mineral Resource categories where considered appropriate.

In respect of Mineral Resource data management, SRK recognises the data management limitations that are incurred by operating within the spreadsheet environment, however throughout the process a number of issues were highlighted. These include and are not limited to the following: inconsistency between block widths and stope widths as reported in the LoM plans; inconsistent application of density factors; and general data management issues in respect of the degree of adherence to Harmony group practices. These areas have been corrected by SRK in the underlying estimates as presented in this CPR and the Company has instigated a process (described below) which will ensure that such aspects are addressed in the future.

In respect of Mineral Resource reconciliation between reporting periods, data management issues highlighted above introduce certain difficulties in facilitating the ease of identifying key variances and hence the overall reconciliation process. At certain of the mining operations reconciliation in respect of Mineral Resources was completed in accordance with best practice, however at others this is not the case. Reconciliation should record features such as geozone boundary changes and the impacts of such changes to the geostatistical estimation parameters that are applied in the estimation process. The impact of geozone boundary changes to reef parameters, such as channel width and metal accumulation need to be carefully monitored.

In respect of Z block categorisation, SRK notes that some of the blocks do not satisfy the criteria of potentially economically mineable on technical grounds and should be excluded from the Mineral Resource inventory. Certain of the LoM plans assume the extraction of certain portions of the Z blocks and accordingly have been reported as Mineral Reserves. In such circumstances SRK notes that despite their mineral resource classification and their average grade above cut-off, there remains a technical risk (specifically where high extraction ratios are assumed) that following completion of detailed planning that these blocks may not be extracted. In these circumstances Harmony has commenced on the rollout of the Ore Reserve Cleanup Operations (ORCO) as developed by ARMgold. This system seeks to address on a block by block basis the conversion of Mineral Resource blocks which meet the required criteria to Mineral Reserve status as well as potential exclusion from the Mineral Resource inventory. Further, SRK considers that a further filter should be applied specifically in respect of a minimum mining area, i.e. that blocks which comprise lower centares than this minimum be excluded from the Mineral Resource inventory and that such minimum be based on operational experience at each of the Mining Assets. Furthermore, use of the Z block classification is not limited to pillars, and in certain instances the Z block classification has been applied to demarcate blocks which are not associated with the current LoM plans irrespective of grade. Examples of these include the outlying areas of Target Mine and certain of the surface sources at West Wits Operations.

In respect of material classified as either vamping source or other sources (sludge gold) SRK considers that the quantification of residual material within mined stopes and developments, suitable for the declaration of a Mineral Resource is extremely difficult. Such quantification would require determination of the tonnage accumulation as determined from area measurements, thickness measurements and density determinations of the accumulations. In addition sufficient samples must also be taken to permit grade determination. Harmony has not, in SRK s opinion undertaken sufficient level of detailed sampling to support a valid estimate for inclusion in a Mineral Resource statement. Reference to historical statistics does not in SRK s opinion provide a valid substitute for the collection of empirical data suitable to support determination of a Mineral Resource estimate.

The continuity of Witwatersrand orebodies is frequently considered in terms of kilometres. Whilst the geology may however be continuous at face value, local variabilities that control grade distributions are frequently more extreme. As cut-off values increase, the grade continuity of the orebody also degrades significantly. With respect to the mineralization within the BCF of the Basal Reef, the visual distinction between high-grade reef and lower-grade reef is very subtle, to the extent that one cannot rely on visual grade control practices. The ability to selectively mine within blocks whose average grade is below the pay limit appears to be limited in these instances.

Tshepong Mine, Phakisa Project, Bambanani Mine and West Mine include a tonnage discount factor within their Resource estimates. This factor varies between areas as well as with proximity to active mining areas.

For both the **Evander Rolspruit Project** and the **Evander Poplar Project**, the estimates are based on small data sets of surface drill holes. These datasets are further subdivided into sub-sets through the application of geozone boundaries. Estimates are then made from each of the geozone data subsets. The estimate is therefore a composite of several individual estimates, some of which are based on very small data sets. Consequently the reliability of some of the estimates is considered to be poor, although the geological confidence attached to the projection of the main Kinross payshoot is high.

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At **Mt Magnet & Cue Mine** SRK considers that until the sensitivity of the open pit resource estimates to variations in estimation methodology are tested there remains a risk of over-estimation at higher cut-off grades. All of the open-pit Mineral Reserves are scheduled for depletion during 2005 with future production sourced from advancing ongoing technical studies from the more prospective Mineral Resources.

SRK also considers that the use of relatively small block sizes combined with a restricted numbers of samples and ID^2 methods for what are regarded as high-nugget orebodies may result in conditional bias. The risk is that the in-situ grade of high-grade blocks will be overestimated, whereas the grade of low-grade blocks will be underestimated. In terms of the current economic cut-off applied, SRK considers that any estimation upside (considering the designated classification) is already built-in and that there is moderate potential for downside risk in achieving the average resource grade as presented.

An exception to this opinion is the estimate presented for the Great Fingall deposit, for which SRK considers that some upside potential exists. It is generally recognised that in high nugget, coarse gold orebodies it is often difficult to accurately predict the grade from exploration drilling, which has a tendency to understates the grade, and that to gain a representative sample by drilling may not be economically justified in terms of the number of drill-holes required. This is considered by SRK to be case for the Great Fingall estimate, which to a degree is supported by the reported but not verified historical mining grades.

At **South Kalgoorlie Mine** the overall production reconciliation for the open-pits suggest that historical modification to Mineral Reserves may have been slightly optimistic, although individual deposits have a widely varying reconciliation performance. In some cases, the current estimation procedures may be contributing to underperformance and as such the current open-pit resources have moderate potential for downside grade risk when modified to Mineral Reserves.

At **Hidden Valley** an inspection of the core and exposures for Hidden Valley and Hamata revealed that the mineralised zones defined on the basis of downhole assay and an arbitrary number of lower grade assays do not correlate to any distinct geological feature. Given the high nugget effect of the 2m assays (~50%), and the choice of a assay cut-off near the economic cut-off, SRK considers that this method of selecting mineralised intervals carries a high of risk that closer-spaced grade control drilling will be unable to reproduce these zones and hence produce a different grade-tonnage relationship in the deposit.

It is documented in the latest resource model report (compiled by external consultants) that the model cannot be used for any form of local grade estimation, due to the wide spaced sampling relative to the grade continuity. Notwithstanding these comments, SRK notes that the blocks in the HVZ have been classified as Measured and accordingly carry some degree of risk.

SRK consider that there will be substantial amounts of lower-grade material produced from the pit that has not been considered in the current mine plan. SRK considers therefore that the current resource model potentially under-estimates the contained metal, mainly due to the excessively restrictive wireframing used. Given a detailed grade control programme, it should be possible to produce the grade and tonnage reported in the January 2005 statement at the mining rate planned; however provision should be made for the stockpiling of the lower grade material for future treatment.

At **Hamata** the estimation methods are similar to those used at the HVD. SRK considers that the Hamata deposit has a similar potential for additional low grade tonnes over and above the current mine plan.

At the **WGP** the estimation methods are similar to those used at HVD. SRK considers that the Wafi gold deposit has a similar potential for additional low grade tonnes and this should be considered as and when further technical studies are implemented and particularly when developing a mine schedule.

At the **GCGP** the Mineral Resource estimate is robust at a global scale and can be using for scoping type mining studies. With the low data density, the local grade estimate has a low level of confidence, and hence the model is not yet appropriate for scheduling or short term planning purposes as would be required for Mineral Reserve classification.

4.9.2 Mineral Reserve Estimation

Historical Mineral Reserve estimation processes (the Process) included in the Company s declarations for its South African Operations have largely followed the approach outlined in Section 4.3.7. SRK considers that the main deficiency in respect of this Process can be broadly grouped into that which the SAMREC Code considers to be appropriate assessments which should be undertaken to support conversion of Mineral Resources to Mineral Reserve. Furthermore, whilst not explicitly stated in either the SAMREC Code or the listing requirements SRK interprets this as follows:

- **For operating underground mines:** An appropriately detailed LoM plan which ensures that all technical disciplines as indicated by the discipline structure of this CPR have been adequately addressed both in respect of scope and detail. Specifically in respect of the mining engineering component of such LoM plans, SRK considers that a mining depletion schedule accompanied with appropriate development schedules to be a requirement to ensure compliance. In respect of pillar mining operations SRK further recognise that it is not common practice to develop such detail beyond what is termed the business risk planning window (normally 2 years) and that beyond this mine area specific extraction ratios based on historical experience is appropriate; and

- **For underground mines at the project level:** An appropriately detailed technical study which ensures that all technical disciplines as indicated by the discipline structure of this CPR have been adequately addressed both in respect of scope and detail. In summary, SRK considers the minimum requirement to be a technical study which has attained Pre-Feasibility study status i.e. not Conceptual Study or Scoping Study.

In respect of the former (Harmony s underlying projections which constitute the LoM plans) SRK has where practically possible ensured that both mine access and production rates have been appropriately addressed. In respect of mine scheduling however the level of supporting detail is considered inadequate. In respect of the prevailing ZAR gold price SRK recognise that the situation is somewhat fluid, however this does not militate compliance with such requirements.

SRK considers that the completion of suitably detailed mine planning and scheduling should permit the contribution of each mineral resource block to be identified within an annual production schedule. These schedules should then form the basis from which the Mineral Reserve statements are derived; including quantification of Mineral Resources included in the LoM plan but for one reason or another have not been translated to Mineral Reserve status. Application of cut-off grades to in-situ Mineral Resources and subsequent application of the modifying factors does not in our opinion substitute for detailed planning and scheduling.

With respect to the Evander Poplar Project, the Evander Rolspruit Project, the Doornkop Project, the Phakisa Project and the HVGP, SRK are of the opinion that the Feasibility Studies undertaken satisfy the requirements of appropriate assessments as stipulated in the SAMREC Code.

In respect of the surface sources included in the Mineral Reserve statements, SRK note that the detail of planning in surface source depletion is also inadequate, specifically in respect of addressing the geographical distribution of such sources, utilisation of residual capacities at the various processing facilities and the determination of the resulting transportation costs. This deficiency however leads more to uncertainty in respect of economic viability which is additive to the general issues relating to underlying estimates and projected recoveries which are inherently associated with such surface sources.

In respect of the term economically mineable as stipulated in the SAMREC Code, SRK notes the following: *the term economic implies that extraction of the Mineral Reserve has been demonstrated to be viable and justifiable under reasonable financial assumptions* . In this regard such *reasonable financial assumptions* as reflected in the LoM plan are considered by SRK to be a range that is based on the Consensus Market Forecasts (CMF) as included in Section 1.2 of this CPR. Furthermore, SRK interprets the criteria by which economic viability is defined as that indicated by a positive NPV determined at appropriate discount factors and at an appropriate level of resolution. The level of resolution considered in this CPR is the Tax Entity. SRK have applied sensitivity analysis to the post-tax pre-finance cash flows with increments of 10% up and down for revenue and increments of 5% up and down for total working costs. Considering the volatility of the Rand gold price over the last three years and the changes in working costs that can be achieved with volume changes (brought about by increase in revenue received in ZAR terms) SRK consider that the range in sales revenue, operating expenditure and capital expenditure included as sensitivities reflect reasonable financial assumptions . On this basis Mineral Reserves which are included in LoM plans with negative NPV s at the Company WACC warrant inclusion in the Mineral Reserve statement reported as Option A in this CPR. SRK notes, however that this statement allowing inclusion is made in the context of a larger operating group (the Company) which contains assets whose Mineral Reserve statements under the CMF and the Company WACC do have a positive NPV.

In keeping with principles of transparency and materiality on which the SAMREC Code is based the consolidated Mineral Reserve Statements for operating Options B and C are presented. Option C excludes both the Evander Projects and all Tax Entities with negative NPVs determined at the Company WACC. Further, SRK has determined a range of strike gold prices at which point the Mineral Reserves associated with the Tax Entities define a positive NPV and also the strike gold prices corresponding to various hurdle rates.

Notwithstanding the above, it is