HARMONY™

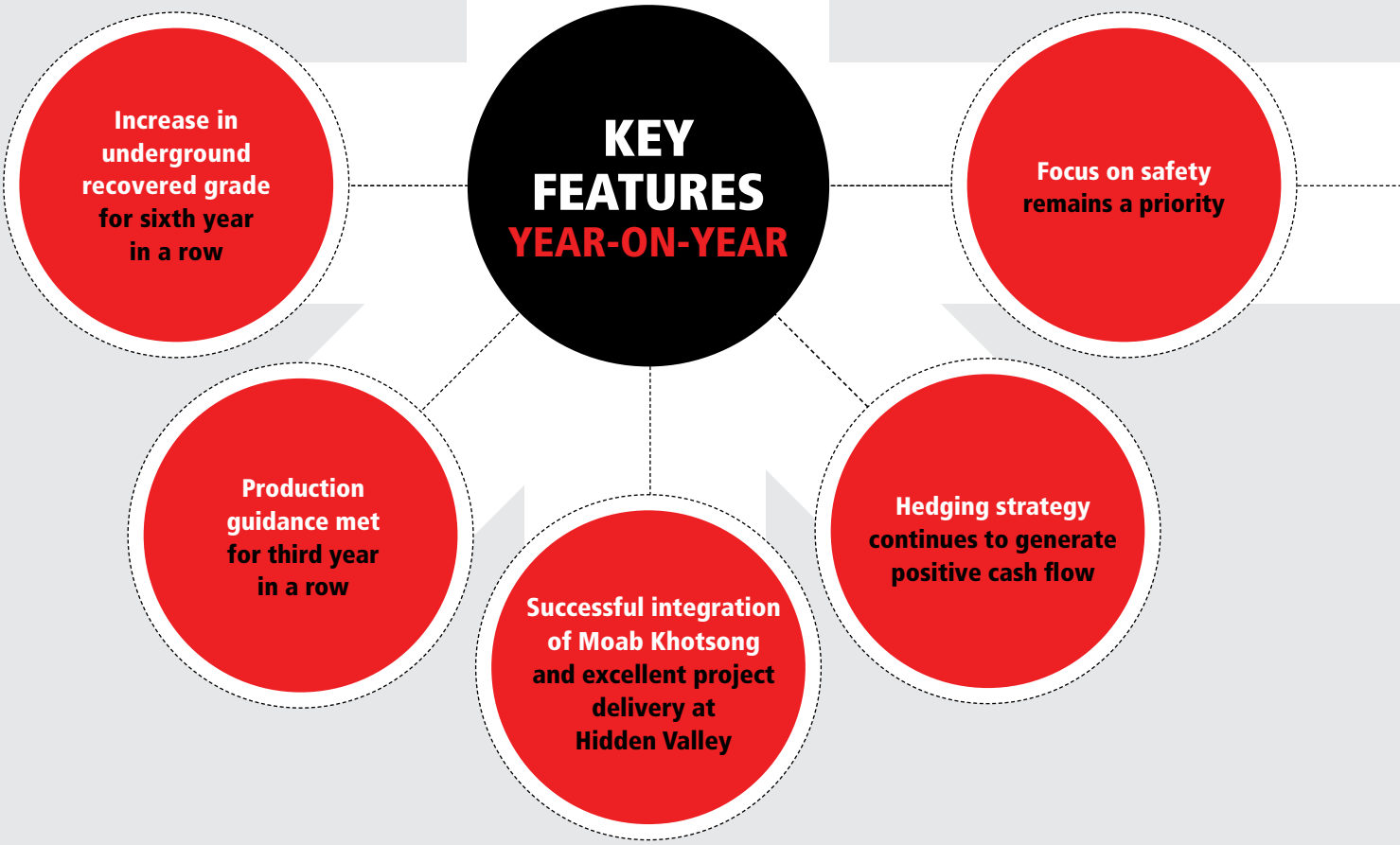
MINERAL RESOURCES AND MINERAL RESERVES

Supplement to the Integrated Annual Report 30 June 2018

2018

Harmony Gold Mining Company Limited (Harmony), a gold mining and exploration company with 68 years of experience, has operations in South Africa, one of the world's best known gold mining regions, and in Papua New Guinea, a premier new copper-gold region.

At Harmony, we understand the impact that our company has on the lives of the people we employ, the communities that surround our mines and the environment, as well as the economic contribution that we make to the countries in which we operate.



OUR 2018 REPORTS

Our suite of reports for the financial year 2018 (FY18) records our activities and the progress we have made for the year running from 1 July 2017 to 30 June 2018. The full suite of reports includes:

- Integrated Annual Report 2018
- Financial Report 2018
- Mineral Resources and Mineral Reserves 2018
- Report to Shareholders 2018

HARMONY™

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OUR REPORTS ONLINE

Harmony's full set of 2018 reports and supporting documents are available at www.har.co.za.

The electronic reports are interactive pdfs, with links to sections within the document and to external websites. The interactive links are indicated by text in red italics.

CORPORATE PROFILE

WHO WE ARE

Harmony, a gold mining and exploration company, conducts its activities in South Africa, one of the world's best-known gold mining regions, and in Papua New Guinea, one of the world's premier new gold-copper regions. With 68 years of experience, Harmony is South Africa's second largest gold producer.

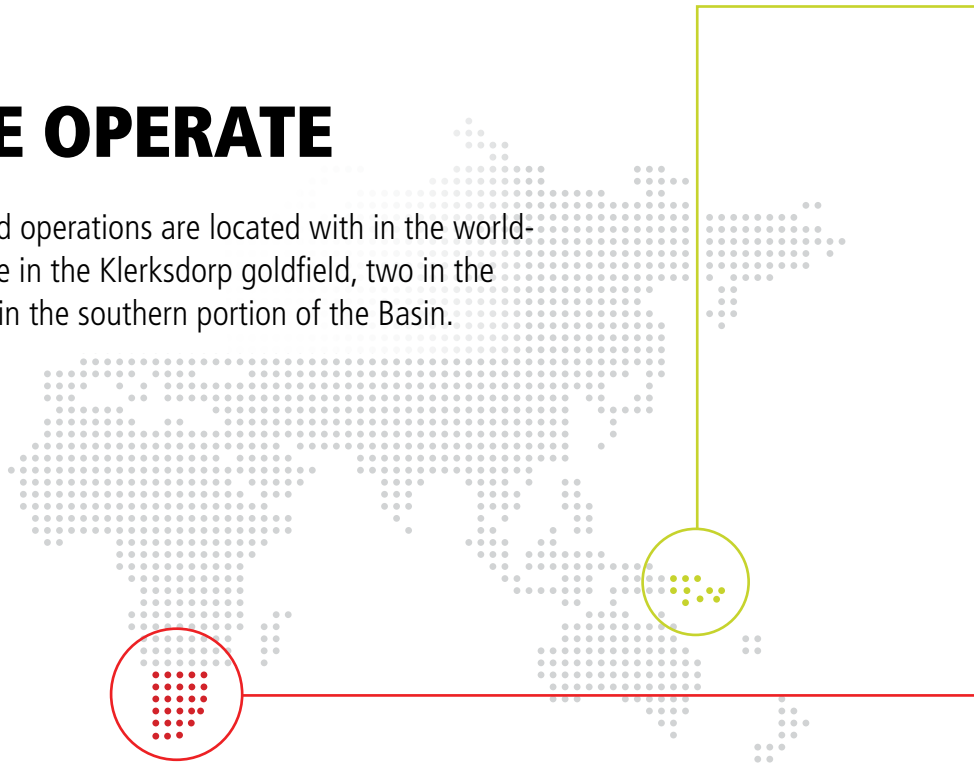
Headquartered in Randfontein, South Africa, Harmony is listed on the Johannesburg Stock Exchange and on the New York Stock Exchange, on which its shares are quoted as American Depositary Receipts. At 30 June 2018, our market capitalisation was R10.6 billion (US$774 million) FY17: R9.5 billion; US$728 million)

WHERE WE OPERATE

In South Africa, our nine underground operations are located with in the world-renowned Witwatersrand Basin – one in the Klerksdorp goldfield, two in the West Rand and six in the Free State, in the southern portion of the Basin.

In addition, we have an open-pit mine on the Kraaipan Greenstone Belt as well as several surface sources treatment operations.

In Papua New Guinea, Hidden Valley is an open-pit gold and silver mine. Our significant gold-copper portfolio includes a 50% stake in the Wafi-Golpu project in the Morobe Province, through a 50:50 joint venture with Newcrest Mining Limited (Newcrest).



OPERATING STATISTICS

Gold production increased to

1.23Moz
(FY17: 1.09Moz)

- 13% increase year on year
- Exceeded guidance

Costs contained

All-in sustaining cost of R508 970/kg and US$1 231/oz
(FY17: R516 687/kg and US$1 182/oz)

Underground recovered grade improved by

8% to 5.48g/t
(FY17: 5.07g/t)

- Sixth consecutive year of higher grade at South African underground operations

Mineral resources increased 13.0% to

117.8Moz at year-end
(FY17: 104.3Moz)

- Inclusion of Moab Khotsong
- Underground resources and reserves for South African operations increased by 31.4% and 11.6% respectively

CORPORATE PROFILE CONTINUED

WHAT WE DO

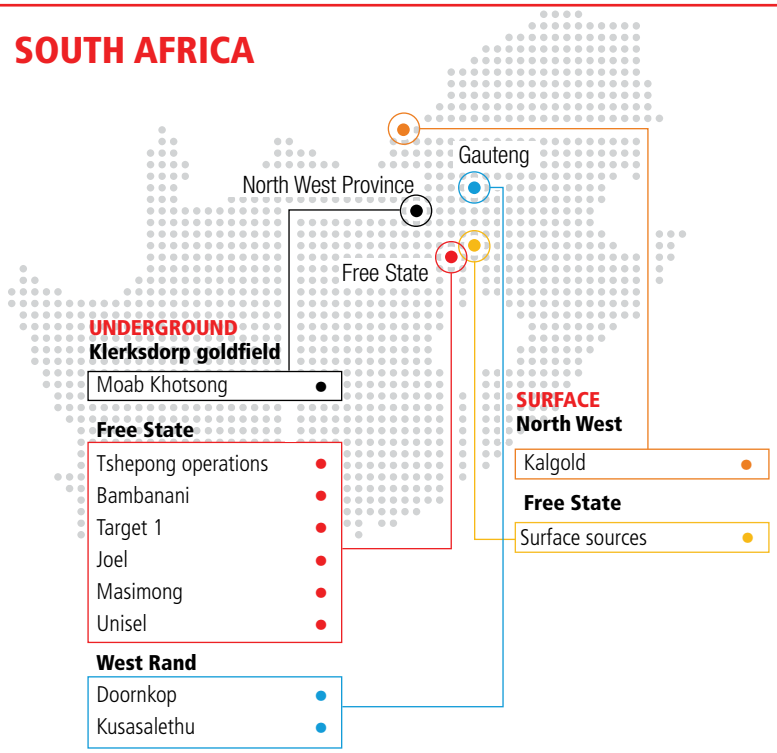
Exploration and acquisition
Exploring for and evaluating economically viable orebodies and/or value-accretive acquisitions

Mining and processing
Establishing, developing and operating mines and related processing infrastructure. Ore mined is milled and processed by our gold plants to produce gold dóre bars

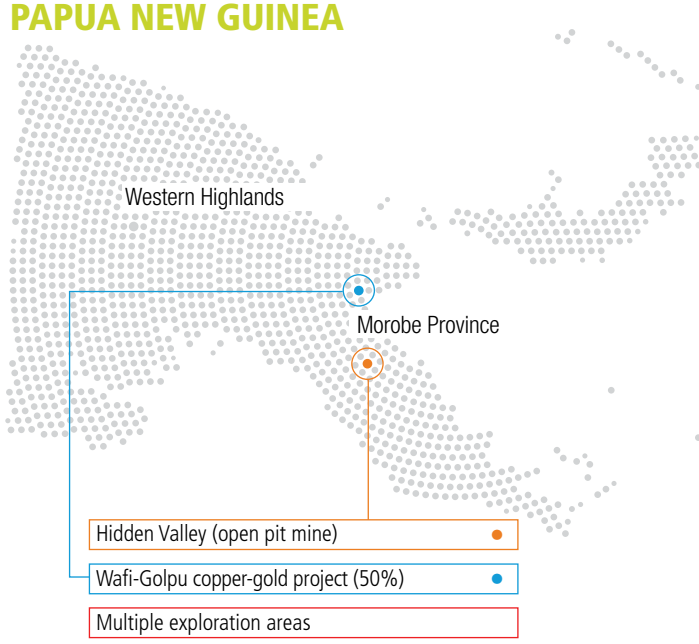
Sales and financial management
Generating revenue through the sale of gold produced and optimising efficiencies to maximise financial returns

Land rehabilitation and mine closure
Restoring mining impacted land for alternative economic use post-mining and having in place approved mine closure plans

SOUTH AFRICA



PAPUA NEW GUINEA



Harmony's equity interest 100% unless otherwise indicated

EXTERNAL OPERATING CONTEXT

Factors affecting our ability to generate value:

Globally:
- Gold market fundamentals
- Global economic outlook and geo-political climate
- Rand-dollar exchange rate

South Africa:
- Regulatory uncertainty
- Industrial relations climate
- Stakeholder expectations

Papua New Guinea:
- Regulatory uncertainty
- Industrial relations climate
- Stakeholder expectations

See *Our business context* for further detail on the external environment in which we operate.

COMPLIANCE AND SUMMARY

As at 30 June 2018

ABOUT THIS REPORT

This statement of Harmony's mineral resources and mineral reserves as at 30 June 2018 is produced in accordance with the South African Code for the Reporting of Mineral Resources and Mineral Reserves (SAMREC) and the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC). In this statement, mineral resources include mineral reserves.

In our reporting, certain terms are used such as 'measured', 'indicated' and 'inferred' resources, which the United States' Securities and Exchange Commission guidelines strictly prohibit US-registered companies from including in their filings with the United States' Securities and Exchange Commission. United States investors are urged to consider the disclosure in this regard in our Form 20-F which is available on our website at www.harmony.co.za/investors/reporting/20f.

REPORTING CODE AND COMPLIANCE

The SAMREC code was developed and established in 1998 by the South African Institute of Mining and Metallurgy and is the recommended guideline for mineral resource and mineral reserve reporting for companies listed on the JSE.

Harmony's reporting of mineral resources and mineral reserves in Papua New Guinea complies with the Australiasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code), which is endorsed by the Australasian Institute of Mining and Metallurgy. As the SAMREC code is modelled on the JORC Code, they are materially the same.

The first version of the SAMREC Code was issued in March 2000 and adopted by the JSE in its Listings Requirements later that year; this was similarly the basis for the JSE Ongoing Reporting Requirements promulgated in 2005. The SAMREC Code was reviewed in 2004, updated in 2007 and amended in July 2009. The latest update of the SAMREC Code was launched on 19 May 2016 with this version superseding previous versions. In addition, Section 12.11 of the JSE Listings Requirements was subsequently updated with the revised SAMREC and SAMVAL Codes that came into effect on 1 January 2017.

The latest edition of the SAMREC Code includes an updated Table 1 template, which provides an extended list of the main criteria to be considered and reported when reporting on exploration results, mineral resources and mineral reserves. In complying with the principles of the code, comments relating to the items in the relevant sections of Table 1 must be provided on an 'if not, why not' basis within the competent person's report. Guidelines for the compilation of Table 1 are for (i) the first-time declaration of exploration results, a mineral resource or a mineral reserve, and (ii) instances where this information has changed materially since last publicly reported for significant projects.

Reporting on an 'if not, why not' basis ensures that it is clear to an investor or other stakeholders whether items have been considered and deemed of low consequence or are not yet addressed or resolved. Harmony has adopted the compilation and updating of Table 1 as a standard to complement internal reports.

Harmony has written confirmation from the lead competent person that the information disclosed in this report is compliant with the SAMREC Code and, where applicable, with the relevant JSE Section 12 and SAMREC Table 1 requirements, and that it may be published in the form, format and context in which it was intended.

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

OUR STRATEGY

Maintaining and growing our margins efficiently is essential to sustaining our business and meeting our strategic objectives. This includes delivering safely on our operational plans, reducing costs, improving productivity and maximising revenue. We are devoted to improving the company's operational performance.

Our values are entrenched in everything we do – safety, accountability, achievement, being connected and honest – and they inform our decisions and our actions. Realistic planning supports our strategy to optimise assets – our orebodies, our infrastructure and our people. This will ensure safer, more profitable production. Our life-of-mine plans are prepared in line with this approach.

MINERAL RESOURCES AND MINERAL RESERVES

Harmony's total attributable gold equivalent mineral resource of 117.8Moz was declared as at 30 June 2018, a 13.0% increase year on year from the 104.3Moz declared on 30 June 2017. Gold contained in the mineral resources at the South African operations represented 60% of Harmony's total, with the Papua New Guinea assets representing 40% of total gold and gold equivalent mineral resources as at 30 June 2018.

Harmony's total attributable gold and gold equivalent mineral reserves amounted to 36.8Moz of gold, a 0.3% increase on the 36.7Moz declared at 30 June 2017. Gold reserve ounces at our South African operations accounted for 46% while the Papua New Guinea gold and gold equivalent ounces represented 54% of Harmony's total mineral reserves as at 30 June 2018.

South Africa

Underground operations

Harmony's mineral resources at the South African underground operations as at 30 June 2018 totalled 61.3Moz (216.7Mt at 8.79g/t), an increase of 31.4% year on year from the 46.6Moz (159.4Mt at 9.10/t) declared as at 30 June 2017. This increase was due to mineral resources added from the Moab Khotsong acquisition and from the Kimberley Reef at Doornkop.

Mineral reserves at the South African underground operations as at 30 June 2018 totalled 10.1Moz (52.4Mt at 6.02g/t), an increase of 11.6% year on year from the

COMPLIANCE AND SUMMARY CONTINUED

As at 30 June 2018

9.1Moz (50.4Mt at 5.61g/t) declared as at 30 June 2017. The increase in ounces and grade is due to the mineral reserves added from the Moab Khotsong acquisition.

Surface operations (including Kalgold)

Mineral resources at Harmony's South African surface operations as at 30 June 2018 were 9.4Moz (1 070.8Mt at 0.27g/t). The 6.9% increase was due to the inclusion of surface sources following the Moab Khotsong acquisition.

Mineral reserves at the South African surface operations as at 30 June 2018 were 6.8Moz (814.2Mt at 0.26g/t), a decrease of 5.6% due to depletion.

Papua New Guinea

Operations

Attributable gold and gold equivalent mineral resources at our Papua New Guinea operations as at 30 June 2018 were 47.1Moz, a decrease of 3.5% year on year from the 48.8Moz declared as at 30 June 2017. This decrease was mainly due to depletion and the new commodity prices used that negatively affected the gold equivalent ratio.

Attributable gold and gold equivalent mineral reserves as at 30 June 2018 are 19.9Moz, a decrease of 2.7% year on year from the 20.5Moz declared as at 30 June 2017.

Independent review

Harmony's South African mineral resources and mineral reserves at the Tshepong Operations, Surface Sources and Target as well as the group's SAMREC statement were independently reviewed by The Mineral Corporation for compliance with SAMREC.

EXPLORATION

Our exploration strategy is to pursue brownfields exploration targets close to existing infrastructure. This will drive short to medium term organic ore reserve replacement and growth to support our current strategy of increasing quality ounces and to mitigate the risk of a depleting ore reserve base. Key work streams underpinning the FY18 exploration programme includes brownfield exploration at:

- Hidden Valley and Kalgold to optimise existing open pit operations and extend mine life
- Our underground operations in South Africa

In South Africa, key areas of focus included:

- **B-Reef:** High-grade B Reef areas have been identified at Tshepong which will become part of the life of mine plan. B Reef exploration began at Phakisa during FY18.
- **Doornkop:** The seismic survey and 3D modelling completed for Doornkop results in a geological model that significantly improves the confidence in the structure of the orebody.
- **Kalgold:** A total of 20 872m of drilling was completed for the Kalgold Phase 1 exploration programme. Drill results have been very encouraging and a mineral resource update was done. A prefeasibility study to optimise the Kalgold operation based on the results of the exploration drilling is underway.
- **Target North:** Three exploration boreholes are planned for FY19.

ASSUMPTIONS

In converting our mineral resources to mineral reserves, the following commodity prices and exchange rates were applied:

- A gold price of US$1 275/oz
- An exchange rate of R/US$13.42
- These parameters result in a rand gold price of R550 000/kg for the South African assets
- The Hidden Valley mine and Golpu project in the Morobe Mining Joint Ventures used commodity prices of US$1 275/oz Au, US$17.00/oz Ag, US$7.00/lb Mo and US$3.00/lb Cu at an exchange rate of US$0.76 per A$
- Gold equivalent ounces are calculated assuming US$1 275/oz Au, US$3.00/lb Cu and US$17.00/oz Ag, and assuming a 100% recovery for all metals

Note: Au = gold; Cu = copper; Ag = silver; Mo = molybdenum

For more information on Harmony's reporting code, our SAMREC compliance and the definitions used, refer to the section, ***Harmony standard for SAMREC compliance reporting***.

Doornkop gold pour

COMPLIANCE AND SUMMARY CONTINUED

As at 30 June 2018

COMPETENT PERSON'S DECLARATION

In South Africa, an ore reserve manager is appointed at each operation to take responsibility for the compilation and reporting of their operations' mineral resources and mineral reserves. In Papua New Guinea, competent persons are appointed for the mineral resources and mineral reserves for specific projects and operations.

The mineral resources and mineral reserves reported are based on information compiled by the following competent persons, as at 25 October 2018.

Mineral resources and mineral reserves of South Africa:

Jaco Boshoff, BSc (Hons), MSc, MBA, who has 23 years' relevant experience and is registered with the South African Council for Natural Scientific Professions (SACNASP), is a member of the South African Institute of Mining and Metallurgy (SAIMM) and of the Geological Society of South Africa (GSSA).

Mr Boshoff is Harmony's Lead Competent Person.

Physical address:
Randfontein Office Park
Corner Main Reef Road and Ward Avenue
Randfontein
South Africa

Postal address:
PO Box 2
Randfontein
1760
South Africa

Mineral resources and mineral reserves of Papua New Guinea:

Gregory Job, BSc, MSc, who has 30 years' relevant experience and is a member of the Australian Institute of Mining and Metallurgy (AusIMM).

Physical address:
Level 2
189 Coronation Drive
Milton, Queensland 4064
Australia

Postal address:
PO Box 1562
Milton, Queensland 4064
Australia

Both these competent persons, who are full-time employees of Harmony, consent to the inclusion in this report of the information in the form and context in which it appears.

Administrative information for professional organisations

Australasian Institute of Mining and Metallurgy (AusIMM)
PO Box 660, Carlton South, Vic 3053, Australia
Telephone: +61 3 9658 6100
Facsimile: +61 3 9662 3662
www.ausimm.com.au

South African Council for Natural Scientific Professions (SACNASP)
Private Bag X540, Silverton, 0127, Gauteng, South Africa
Telephone: +27 12 841 1075
Facsimile: +27 86 206 0427
www.sacnasp.org.za

Southern African Institute of Mining and Metallurgy (SAIMM)
PO Box 61127, Marshalltown, 2107, Gauteng, South Africa
Telephone: +27 11 834 1273/7
Facsimile: +27 11 838 5923/8156
www.saimm.co.za

Geological Society of South Africa (GSSA)
CSIR Miningtek
Carlow and Rustenburg roads
Melville, Johannesburg
South Africa

Details of the professional registrations of our competent persons can be obtained from the company secretary at companysecretariat@harmony.co.za

LEGAL ENTITLEMENT TO MINERALS REPORTED

Harmony's South African operations operate under new order mining rights in terms of the Minerals and Petroleum Resources Development of Act (MPRDA) of 2002 (Act No. 28, of 2002).

In Papua New Guinea, Harmony operates under the Independent State of Papua New Guinea Mining Act 1992. All required operating permits have been obtained and are in good standing. The legal tenure of each operation and project has been verified to the satisfaction of the accountable competent person.

ENVIRONMENTAL MANAGEMENT AND FUNDING

Harmony's environmental strategy aims to optimise our environmental performance by managing our environmental impacts, focusing on effective risk controls, reducing environmental liabilities, ensuring responsible stewardship of our products within our scope of influence, complying with environmental legislation and regulations. For further information regarding Harmony's approach to sustainability and environmental performance refer to the Integrated Annual Report 2018, which is available at www.har.co.za.

Details relating to the provision for environmental rehabilitation and funding can be found in note 26 in Harmony's audited annual financial statements that are presented in a separate report, the Financial Report 2018. This is also available online at www.har.co.za.

Central 1 Plant

HARMONY STANDARD
FOR SAMREC COMPLIANCE REPORTING

DEFINITIONS AS PER THE SAMREC CODE 2017

Exploration results include data and information generated by mineral exploration programmes that might be of use to investors but which do not form part of a declaration of mineral resources or mineral reserves.

An exploration target is a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes and a range of grade or quality, relates to mineralisation for which there has been insufficient exploration to estimate Mineral Resources.

Mineral resources

A **'mineral resource'** is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

An **inferred mineral resource** is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Resource has a lower level of confidence than that applying to an indicated mineral resource and must not be converted to a mineral reserve. It is reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources with continued exploration.

An **indicated mineral resource** is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

A **measured mineral resource** is that part of a mineral resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A measured mineral resource has a higher level of confidence than that applying to either an indicated mineral resource or an inferred mineral resource. It may be converted to a proved mineral reserve or to a probable mineral reserve.

Mineral reserves

Modifying factors are considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

A **mineral reserve** is the economically mineable part of a measured and/or indicated mineral resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at prefeasibility or feasibility level as appropriate that include application of modifying factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which mineral reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

A **probable mineral reserve** is the economically mineable part of an indicated, and in some circumstances, a measured mineral resource. The confidence in the modifying factors applying to a probable mineral reserve is lower than that applying to a proved mineral reserve.

A **proved mineral reserve** is the economically mineable part of a measured mineral resource a proved mineral reserve implies a high degree of confidence in the modifying factors.

A **scoping study** is an order of magnitude technical and economic study of the potential viability of mineral resources that includes appropriate assessments of realistically assumed modifying factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a prefeasibility study can be reasonably justified.

A **prefeasibility study** is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined it includes a financial analysis based on reasonable assumptions on the modifying factors and the evaluation of any other relevant factors which are sufficient for a competent person, acting reasonably, to determine if all or part of the mineral resource may be converted to a mineral reserve at the time of reporting. A prefeasibility study is at a lower confidence level than a feasibility study.

A **feasibility study** is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable modifying factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a prefeasibility study.

HARMONY STANDARD
FOR SAMREC COMPLIANCE REPORTING CONTINUED

ESTIMATION

To meet SAMREC's requirements that this solid material reported as a mineral resource should have 'reasonable and realistic prospects for eventual economic extraction', Harmony has determined an appropriate cut-off grade which has been applied to the quantified mineralised body according to a process incorporating a long-term view on future economic modifying factors. In applying this process, Harmony uses a gold price of R635 000/kg to derive a cut-off grade to determine the mineral resources at each of its South African underground operations.

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

To define that portion of a measured and indicated mineral resource that can be converted to a proved and probable mineral reserve, Harmony applies the concept of a cut-off grade. At our underground South African mines, this is done by defining the optimal cut-off as the lowest grade at which an orebody can be mined such that the total profits, under a specified set of mining parameters, are maximised.

The cut-off grade is determined using the company's Optimiser software, which requires the following as input:

- the database of measured and indicated resource blocks (per shaft section)
- an assumed gold price which, for this mineral reserve statement, was taken as R550 000/kg
- planned production rates
- the mine recovery factor which is equivalent to the mine call factor multiplied by the plant recovery factor
- planned cash operating costs (rand per tonne)

Rand per tonne cash operating costs are historically based but take cognisance of distinct changes in the cost environment such as restructuring, right-sizing, and other cost-reduction initiatives, and for below-infrastructure ounces, an estimate of capital expenditure.

The block cave reserve at Golpu in Papua New Guinea uses proprietary block cave optimisation software to define the optimal mine plan and sequencing. The open-pit reserve at Hidden Valley in Papua New Guinea is using the Whittle optimisation programme to guide the most efficient mine design given the commodity prices and cost inputs assumed.

The mineral reserves represent that portion of the measured and indicated resources above the cut-off grade in the life-of-mine plan and have been estimated after consideration of the factors affecting extraction, including mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors.

A range of disciplines, including geology, survey, planning, mining engineering, rock engineering, metallurgy, financial management, human resources management and environmental management, have been involved at each mine in the life-of-mine planning process and the conversion of resources into reserves.

The modifying factors related to the ore flow that are used to convert the mineral resources to mineral reserves through the life-of-mine planning process are stated for each shaft. For these factors, historical information is used, except if there is a valid reason to do otherwise. As a result of the depth at which mining occurs and the resulting rock engineering requirements at our South African underground mines, some shafts include stope support pillars into the design of their mining layouts which accounts for discounts of 7% to 10%. A further 15% discount is applied as a life-of-mine factor to provide for unpay and off-reef mining. In general, life-of-mine plan extraction factors do not exceed 85% and are reflected in the mineral reserves.

For further information on Harmony's sampling procedures, see page 142.

INDEPENDENT AUDIT OPINION

THE MINERAL CORPORATION

Mr A J Boshoff
Executive: Mineral Resources and Reserves
Harmony Gold Mining Company Limited
Randfontein Office Park
Corner Main Reef Road and Ward Avenue
Randfontein

7 September 2018

Dear Mr Boshoff

INDEPENDENT AUDIT OF MINERAL RESOURCES AND RESERVES 2018

The Mineral Corporation completed an audit (the Audit) of Harmony Gold Mining Company Limited's (Harmony or the Group) Mineral Resource and Reserve Statement for 2018. The objectives of the Audit were to provide assurance that Harmony's policies and procedures, if followed, would result in the reporting of Mineral Resources and Reserves in terms of the SAMREC Code (2016), and to provide assurance that the Mineral Resource and Reserve estimates have been compiled in accordance with Harmony's policies.

The Mineral Corporation has found that the Group's policies and procedures are well established and managed. Appropriate levels of scrutiny and sign-off of the geological data are sought by the Group from its operations. A sound methodology for undertaking statistical and geostatistical analysis is in place. In addition, the methodology for assessing geological losses, the methodology for considering Mineral Resource classification and the determination of reasonable prospects for eventual economic extraction are sound. The Mineral Corporation reviewed Harmony's planning process, which was found to align with industry best practice.

Tshepong, Phakisa and the Tswelopele Beneficiation Operation were identified as being suitable representative sites at which to test whether Harmony's policies and procedures were being followed. A review of the updated methodology advised in the 2016/2017 Audit for Target 1 was also completed. Site visits and detailed technical audits were undertaken at these three operations.

The Modifying Factors and planning parameters developed for Tshepong and Phakisa were reviewed and were found to align with the Harmony planning procedures and are supported by historical performance. No material issues were identified with the implementation of the planning process and the Life of Mine (LoM) plans comply with the requirements of the SAMREC Code (2016).

No material issues were identified with the process of converting the LoM plans into the primary Mineral Reserve Statements, and then into the Consolidated Mineral Reserve Statements. The Mineral Corporation is satisfied that the technical inputs contained in the Group financial model can be reconciled. In addition, the operations have been demonstrated to be economically viable.

The Mineral Corporation concludes that Harmony's policies and procedures for Mineral Resource and Reserve estimation would result in the reporting of Mineral Resources and Reserves in terms of the SAMREC Code (2016). Based on the detailed audits undertaken, The Mineral Corporation concludes that the Harmony procedures are generally being followed. We note that this opinion does not imply that The Mineral Corporation has accepted the role of Competent Person for the Mineral Resources and Reserves estimation. Such role resides with the nominated personnel of Harmony.

Yours faithfully

STEWART NUPEN
Director
BSc (Honours), MBA, Pr.Sci.Nat. (400174/07), FGSSA

DIRECTORS: JE Murphy (Managing), FH Gregory, AH Hart, RA Heins (British), C Madamombe (Zimbabwean), SRQ Nupen

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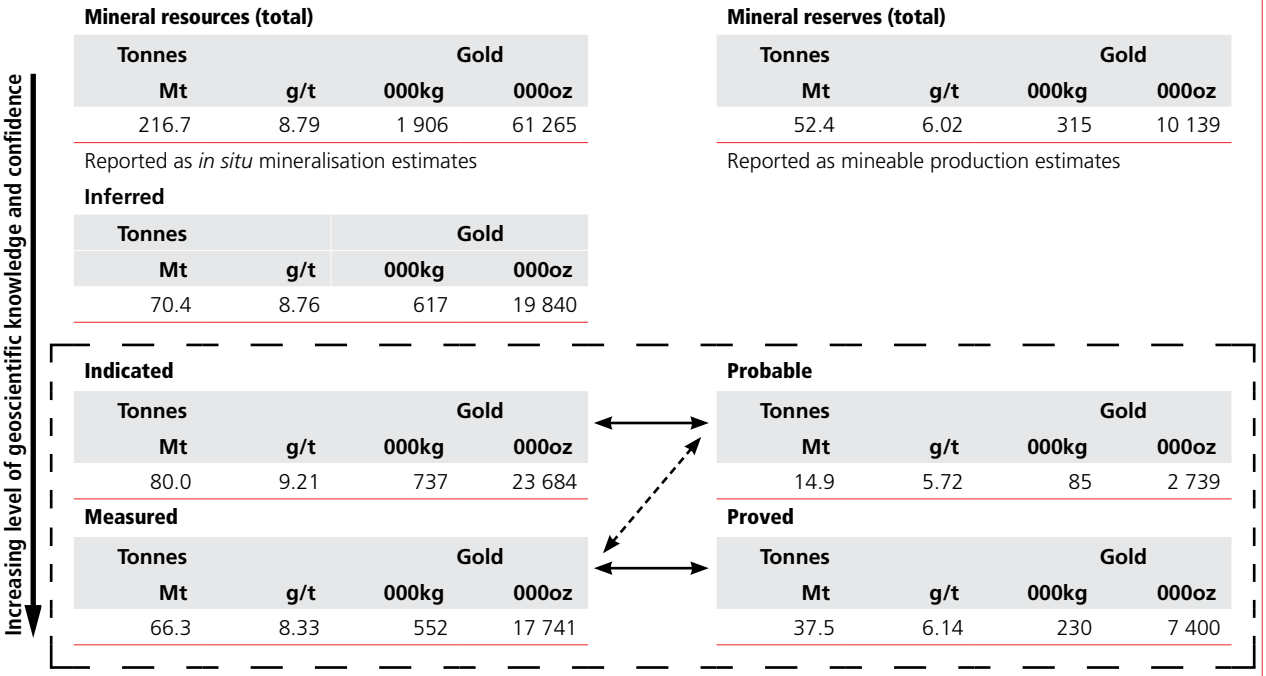
> ADVISORS TO THE MINERAL BUSINESS

RELATIONSHIP BETWEEN HARMONY'S MINERAL RESOURCES AND MINERAL RESERVES

SOUTH AFRICA UNDERGROUND



Mineral resources (total)

Tonnes	Gold		
Mt	g/t	000kg	000oz
216.7	8.79	1 906	61 265

Reported as *in situ* mineralisation estimates

Inferred

Tonnes	Gold		
Mt	g/t	000kg	000oz
70.4	8.76	617	19 840

Mineral reserves (total)

Tonnes	Gold		
Mt	g/t	000kg	000oz
52.4	6.02	315	10 139

Reported as mineable production estimates

Indicated

Tonnes	Gold		
Mt	g/t	000kg	000oz
80.0	9.21	737	23 684

Measured

Tonnes	Gold		
Mt	g/t	000kg	000oz
66.3	8.33	552	17 741

Probable

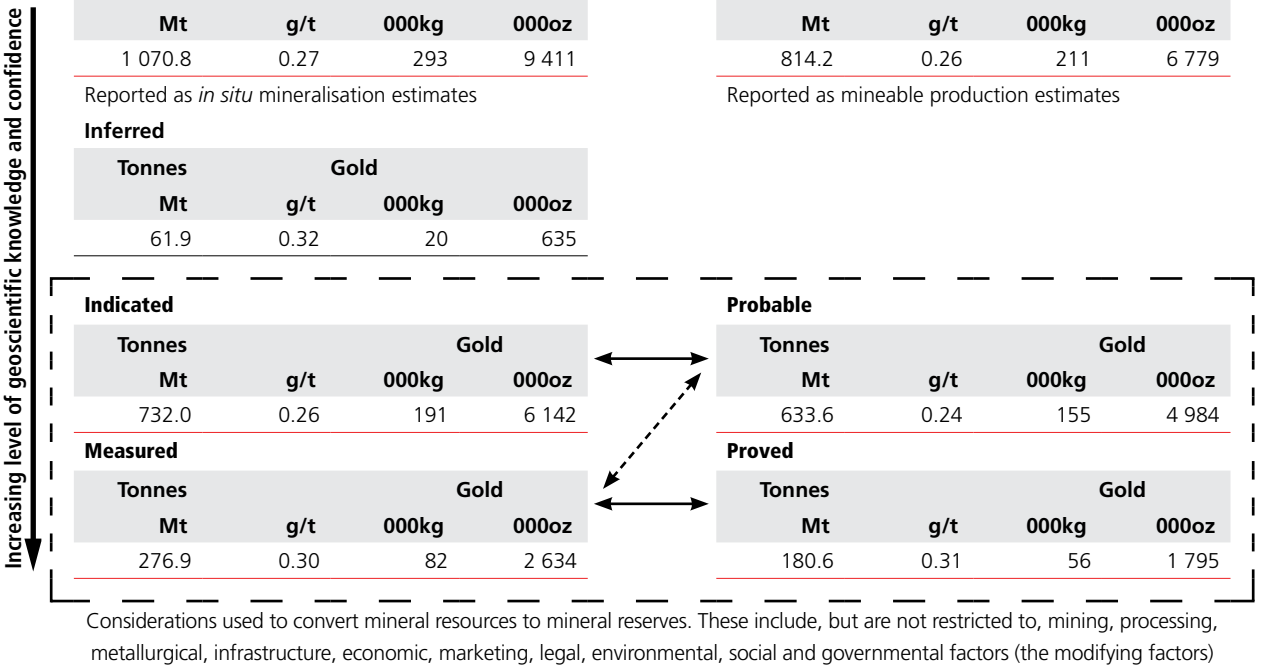
Tonnes	Gold		
Mt	g/t	000kg	000oz
14.9	5.72	85	2 739

Proved

Tonnes	Gold		
Mt	g/t	000kg	000oz
37.5	6.14	230	7 400

Considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors (the modifying factors)

SOUTH AFRICA SURFACE (INCLUDING KALGOLD)



Mineral resources (total)

Tonnes	Gold		
Mt	g/t	000kg	000oz
1 070.8	0.27	293	9 411

Reported as *in situ* mineralisation estimates

Inferred

Tonnes	Gold		
Mt	g/t	000kg	000oz
61.9	0.32	20	635

Mineral reserves (total)

Tonnes	Gold		
Mt	g/t	000kg	000oz
814.2	0.26	211	6 779

Reported as mineable production estimates

Indicated

Tonnes	Gold		
Mt	g/t	000kg	000oz
732.0	0.26	191	6 142

Measured

Tonnes	Gold		
Mt	g/t	000kg	000oz
276.9	0.30	82	2 634

Probable

Tonnes	Gold		
Mt	g/t	000kg	000oz
633.6	0.24	155	4 984

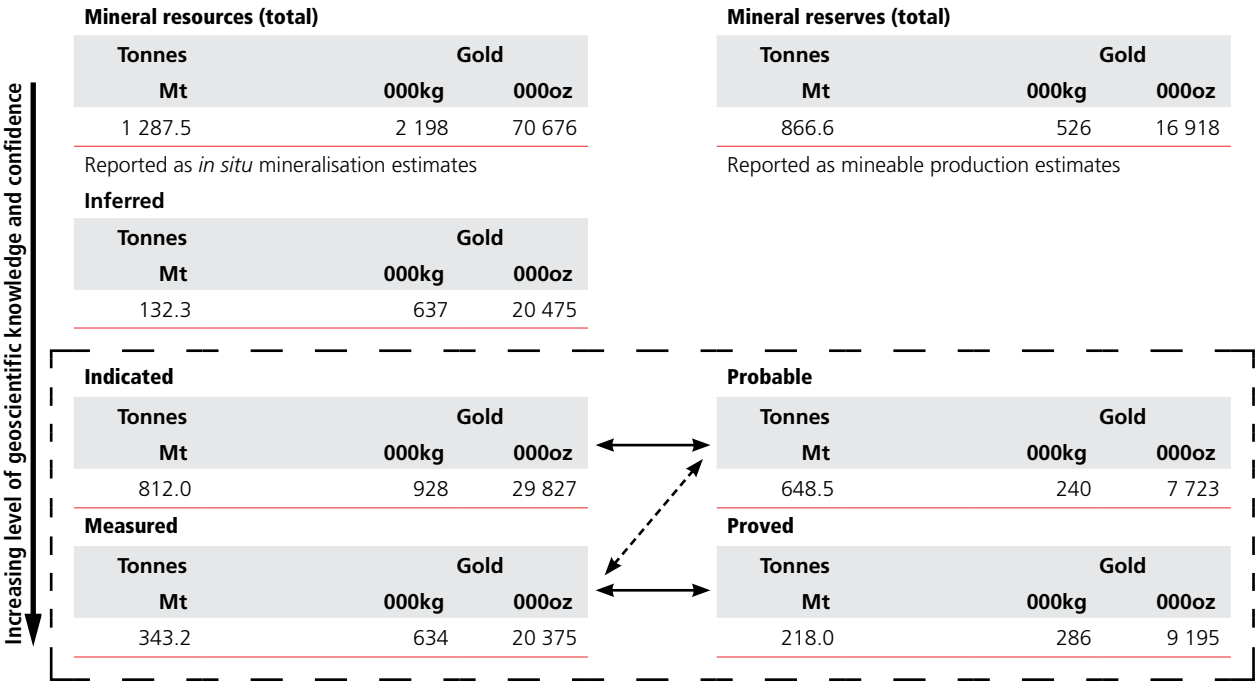
Proved

Tonnes	Gold		
Mt	g/t	000kg	000oz
180.6	0.31	56	1 795

Considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors (the modifying factors)

RELATIONSHIP BETWEEN HARMONY'S MINERAL RESOURCES AND MINERAL RESERVES CONTINUED

SOUTH AFRICA TOTAL



Mineral resources (total)

Tonnes	Gold	
Mt	000kg	000oz
1 287.5	2 198	70 676

Reported as *in situ* mineralisation estimates

Inferred

Tonnes	Gold	
Mt	000kg	000oz
132.3	637	20 475

Mineral reserves (total)

Tonnes	Gold	
Mt	000kg	000oz
866.6	526	16 918

Reported as mineable production estimates

Indicated

Tonnes	Gold	
Mt	000kg	000oz
812.0	928	29 827

Measured

Tonnes	Gold	
Mt	000kg	000oz
343.2	634	20 375

Probable

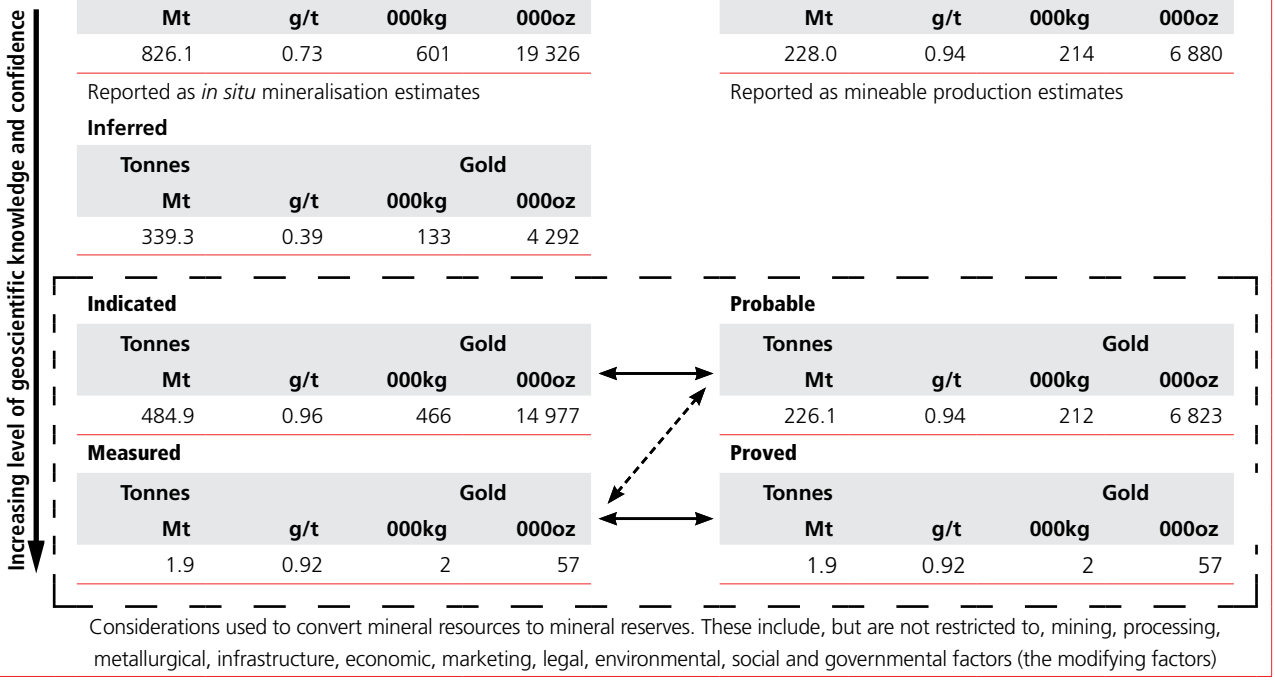
Tonnes	Gold	
Mt	000kg	000oz
648.5	240	7 723

Proved

Tonnes	Gold	
Mt	000kg	000oz
218.0	286	9 195

Considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors (the modifying factors)

PAPUA NEW GUINEA – ATTRIBUTABLE GOLD



Mineral resources (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
826.1	0.73	601	19 326

Reported as *in situ* mineralisation estimates

Inferred

Tonnes		Gold	
Mt	g/t	000kg	000oz
339.3	0.39	133	4 292

Mineral reserves (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
228.0	0.94	214	6 880

Reported as mineable production estimates

Indicated

Tonnes		Gold	
Mt	g/t	000kg	000oz
484.9	0.96	466	14 977

Measured

Tonnes		Gold	
Mt	g/t	000kg	000oz
1.9	0.92	2	57

Probable

Tonnes		Gold	
Mt	g/t	000kg	000oz
226.1	0.94	212	6 823

Proved

Tonnes		Gold	
Mt	g/t	000kg	000oz
1.9	0.92	2	57

Considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors (the modifying factors)

RELATIONSHIP BETWEEN HARMONY'S MINERAL RESOURCES AND MINERAL RESERVES CONTINUED

TOTAL ATTRIBUTABLE GOLD – HARMONY UNDERGROUND AND SURFACE

Increasing level of geoscientific knowledge and confidence

Mineral resources (total)

Tonnes	Gold	
Mt	000kg	000oz
2 113.6	2 799	90 002

Reported as *in situ* mineralisation estimates

Inferred

Tonnes	Gold	
Mt	000kg	000oz
471.6	770	24 767

Mineral reserves (total)

Tonnes	Gold	
Mt	000kg	000oz
1 094.6	740	23 797

Reported as mineable production estimates

Indicated

Tonnes	Gold	
Mt	000kg	000oz
1 296.9	1 394	44 803

Measured

Tonnes	Gold	
Mt	000kg	000oz
345.1	635	20 432

Probable

Tonnes	Gold	
Mt	000kg	000oz
874.6	452	14 546

Proved

Tonnes	Gold	
Mt	000kg	000oz
220.0	288	9 252

Considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors (the modifying factors)

TOTAL ATTRIBUTABLE GOLD AND GOLD EQUIVALENTS – HARMONY UNDERGROUND AND SURFACE

Increasing level of geoscientific knowledge and confidence

Mineral resources (total)

Tonnes	Gold Equivalents	
Mt	000kg	000oz
2 113.6	3 664	117 809

Reported as *in situ* mineralisation estimates

Inferred

Tonnes	Gold Equivalents	
Mt	000kg	000oz
471.6	1 001	32 176

Mineral reserves (total)

Tonnes	Gold Equivalents	
Mt	000kg	000oz
1 094.6	1 146	36 840

Reported as mineable production estimates

Indicated

Tonnes	Gold Equivalents	
Mt	000kg	000oz
1 296.9	2 028	65 188

Measured

Tonnes	Gold Equivalents	
Mt	000kg	000oz
345.1	636	20 445

Probable

Tonnes	Gold Equivalents	
Mt	000kg	000oz
874.6	858	27 572

Proved

Tonnes	Gold Equivalents	
Mt	000kg	000oz
220.0	288	9 269

Considerations used to convert mineral resources to mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors (the modifying factors)

Tshepong

MINERAL RESOURCES STATEMENT (METRIC)

Operations	Measured resources			Indicated resources			Inferred resources			Total mineral resources		
Gold	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
SOUTH AFRICA UNDERGROUND												
Free State												
Tshepong operations	23.3	11.32	264	11.8	9.95	117	36.9	9.63	356	72.0	10.23	736
Bambanani	0.8	16.78	14	–	–	–	–	–	–	0.8	16.78	14
Unisel	0.3	7.90	3	0.1	8.41	1	–	–	–	0.5	8.05	4
Joel	3.5	7.89	28	3.7	8.30	31	0.7	7.37	5	8.0	8.04	64
Masimong	2.7	8.01	22	0.3	6.84	2	0.01	5.99	0.03	3.0	7.89	24
Target 1	7.9	4.68	37	5.8	6.67	38	3.2	5.45	18	16.9	5.50	93
Target 3	0.6	9.19	6	2.9	10.17	30	1.2	8.66	11	4.8	9.66	46
Total	**39.2**	**9.49**	**373**	**24.6**	**8.92**	**220**	**42.1**	**9.24**	**389**	**106.0**	**9.26**	**981**
West Rand												
Doornkop South Reef	3.2	8.29	27	3.6	8.38	30	5.2	8.48	44	12.0	8.40	101
Doornkop Main Reef	0.1	5.38	0.4	0.05	5.51	0.3	0.02	5.32	0.1	0.1	5.41	1
Doornkop Kimberley Reef	18.1	3.36	61	12.1	3.15	38	10.1	3.28	33	40.3	3.28	132
Kusasalethu	2.5	12.48	32	20.2	8.87	179	3.5	9.46	33	26.3	9.30	244
Total	**24.0**	**4.99**	**120**	**36.0**	**6.89**	**248**	**18.8**	**5.87**	**111**	**78.8**	**6.07**	**478**
Klerksdorp goldfield												
Moab Khotsong	3.0	19.55	60	19.4	13.89	269	9.5	12.39	117	31.9	13.99	446
Total	**3.0**	**19.55**	**60**	**19.4**	**13.89**	**269**	**9.5**	**12.39**	**117**	**31.9**	**13.99**	**446**
South Africa underground – total	**66.3**	**8.33**	**552**	**80.0**	**9.21**	**737**	**70.4**	**8.76**	**617**	**216.7**	**8.79**	**1 906**
SOUTH AFRICA SURFACE												
Kraaipan Greenstone Belt												
Kalgold open pit	12.1	0.85	10	29.6	0.80	24	3.3	0.71	2	44.9	0.81	36
Kalgold tailings dam	–	–	–	–	–	–	23.8	0.26	6	23.8	0.26	6
Total	**12.1**		**10**	**29.6**		**24**	**27.1**		**9**	**68.7**		**42**
Free State surface												
Phoenix	62.7	0.29	18	–	–	–	–	–	–	62.7	0.29	18
St Helena	191.3	0.27	52	–	–	–	–	–	–	191.3	0.27	52
Central Plant	–	–	–	64.6	0.27	17	–	–	–	64.6	0.27	17
Other:												
– Waste rock dumps	–	–	–	3.9	0.51	2	19.3	0.43	8	23.3	0.44	10
– Tailings	–	–	–	553.3	0.22	124	15.5	0.19	3	568.8	0.22	126
Total	**254.0**	**0.27**	**69**	**621.9**	**0.23**	**143**	**34.8**	**0.32**	**11**	**910.7**	**0.25**	**223**
Klerksdorp goldfield												
Mispah	–	–	–	73.0	0.30	22	–	–	–	73.0	0.30	22
Kop Paydam	10.8	0.20	2	0.2	0.23	0.03	–	–	–	11.0	0.20	2
Moab MOD	–	–	–	7.4	0.37	3	–	–	–	7.4	0.37	3
Total	**10.8**	**0.20**	**2**	**80.6**	**0.31**	**25**	**–**	**–**	**–**	**91.4**	**0.30**	**27**
South Africa surface – total	**276.9**	**0.30**	**82**	**732.0**	**0.26**	**191**	**61.9**	**0.32**	**20**	**1 070.8**	**0.27**	**293**
SOUTH AFRICA – TOTAL (underground and surface)	**343.2**		**634**	**812.0**		**928**	**132.3**		**637**	**1 287.5**		**2 198**
PAPUA NEW GUINEA												
Hidden Valley	1.9	0.92	2	81.7	1.44	118	3.0	1.18	4	86.6	1.42	123
Hamata	0.03	1.03	0.03	2.4	1.90	5	0.2	1.41	0.3	2.6	1.85	5
Wafi [1]	–	–	–	56.7	1.72	98	11.3	1.30	15	68.1	1.65	113
Golpu [1]	–	–	–	344.0	0.71	246	67.9	0.63	43	411.9	0.70	289
Nambonga [1]	–	–	–	–	–	–	19.9	0.79	16	19.9	0.79	16
Kili Teke	–	–	–	–	–	–	237.0	0.24	56	237.0	0.24	56
PAPUA NEW GUINEA – TOTAL	**1.9**	**0.92**	**2**	**484.9**	**0.96**	**466**	**339.3**	**0.39**	**133**	**826.1**	**0.73**	**601**
HARMONY – TOTAL	**345.1**		**635**	**1 296.9**		**1 394**	**471.6**		**770**	**2 113.6**		**2 799**

MINERAL RESOURCES STATEMENT (METRIC) CONTINUED

Operations	Measured resources		Indicated resources		Inferred resources		Total mineral resources	
Gold equivalents [2]	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)
Silver								
Hidden Valley	1.9	0.4	81.7	32	3.0	1	86.6	33
Copper								
Golpu [1]	–	–	344.0	602	67.9	93	411.9	695
Nambonga [1]	–	–	–	–	19.9	7	19.9	7
Kili Teke	–	–	–	–	237.0	129	237.0	129
Total	**–**	**–**	**344.0**	**602**	**324.8**	**229**	**668.8**	**832**
Silver and copper – total	**1.9**	**0.4**	**425.7**	**634**	**327.7**	**230**	**755.4**	**865**
PAPUA NEW GUINEA – TOTAL (including gold equivalents)	**1.9**	**2**	**484.9**	**1 100**	**339.3**	**364**	**826.1**	**1 466**
HARMONY – TOTAL (including gold equivalents)	**345.1**	**636**	**1 296.9**	**2 028**	**471.6**	**1 001**	**2 113.6**	**3 664**

Other metals

PAPUA NEW GUINEA

	Tonnes (Mt)	Grade (g/t)	Ag (000kg)	Tonnes (Mt)	Grade (g/t)	Ag (000kg)	Tonnes (Mt)	Grade (g/t)	Ag (000kg)	Tonnes (Mt)	Grade (g/t)	Ag (000kg)
Silver												
Hidden Valley	1.9	19.61	37	81.7	27.50	2 247	3.0	29.21	87	86.6	27.38	2 371
Golpu [1]	–	–	–	344.0	1.29	443	67.9	1.06	72	411.9	1.25	515
Nambonga [1]	–	–	–	–	–	–	19.9	2.87	57	19.9	2.87	57
Total	**1.9**	**19.61**	**37**	**425.7**	**6.32**	**2 691**	**90.8**	**2.38**	**216**	**518.4**	**5.68**	**2 944**

	Tonnes (Mt)	Grade (%)	Cu (000t)	Tonnes (Mt)	Grade (%)	Cu (000t)	Tonnes (Mt)	Grade (%)	Cu (000t)	Tonnes (Mt)	Grade (%)	Cu (000t)
Copper												
Golpu [1]	–	–	–	344.0	1.09	3 734	67.9	0.85	577	411.9	1.05	4 311
Nambonga [1]	–	–	–	–	–	–	19.9	0.21	43	19.9	0.21	43
Kili Teke	–	–	–	–	–	–	237.0	0.34	802	237.0	0.34	802
Total	**–**	**–**	**–**	**344.0**	**1.09**	**3 734**	**324.8**	**0.44**	**1 421**	**668.8**	**0.77**	**5 155**

	Tonnes (Mt)	Grade (ppm)	Mo (000t)	Tonnes (Mt)	Grade (ppm)	Mo (000t)	Tonnes (Mt)	Grade (ppm)	Mo (000t)	Tonnes (Mt)	Grade (ppm)	Mo (000t)
Molybdenum												
Golpu [1]	–	–	–	344.0	94	32	67.9	72	5	411.9	90	37
Kili Teke	–	–	–	–	–	–	237.0	168	40	237.0	168	40
Total	**–**	**–**	**–**	**344.0**	**94**	**32**	**304.9**	**146**	**45**	**648.9**	**118**	**77**

SOUTH AFRICA

	Tonnes (Mt)	Grade (kg/t)	U_3O_8 (Mkg)	Tonnes (Mt)	Grade (kg/t)	U_3O_8 (Mkg)	Tonnes (Mt)	Grade (kg/t)	U_3O_8 (Mkg)	Tonnes (Mt)	Grade (kg/t)	U_3O_8 (Mkg)
Uranium												
Free State surface	–	–	–	178.8	0.10	18	–	–	–	178.8	0.10	18
Klerksdorp goldfield surface	10.8	0.13	1	73.1	0.12	9	–	–	–	83.9	0.12	10
Moab Khotsong underground	–	–	–	22.4	0.67	15	9.5	0.64	6	31.9	0.66	21
Total	**10.8**	**0.13**	**1**	**274.4**	**0.15**	**42**	**9.5**	**0.64**	**6**	**294.7**	**0.17**	**49**

[1] *Harmony's 50% attributable portion*

[2] *Gold equivalent ounces are calculated assuming a US$1 275/oz Au, US$3.00/lb Cu and US$17.00/oz Ag with 100% recovery for all metals*
Rounding of numbers may result in slight computational discrepancies
Note: 1 tonne = 1 000kg = 2 204lb
1 troy ounce = 31.10348 grams

MINERAL RESERVES STATEMENT (METRIC)

Operations	Proved reserves			Probable reserves			Total mineral reserves		
Gold	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
SOUTH AFRICA UNDERGROUND									
Free State									
Tshepong operations	19.7	5.93	117	3.7	4.84	18	23.5	5.76	135
Bambanani	1.0	12.08	12	–	–	–	1.0	12.08	12
Unisel	0.3	4.89	1	0.1	5.69	0.3	0.3	5.02	2
Joel	2.5	4.74	12	1.8	5.33	9	4.3	4.99	21
Masimong	1.7	4.28	7	0.1	3.42	0.4	1.8	4.23	8
Target 1	3.2	4.32	14	2.0	4.29	9	5.2	4.31	23
Total	**28.4**	**5.75**	**163**	**7.7**	**4.79**	**37**	**36.1**	**5.55**	**200**
West Rand									
Doornkop South Reef	3.0	5.01	15	4.0	5.07	20	7.0	5.05	35
Kusasalethu	3.7	7.26	27	0.6	5.34	3	4.3	7.00	30
Total	**6.6**	**6.26**	**42**	**4.6**	**5.11**	**23**	**11.2**	**5.79**	**65**
Klerksdorp goldfield									
Moab Khotsong	2.5	10.32	25	2.6	9.50	25	5.1	9.90	50
Total	**2.5**	**10.32**	**25**	**2.6**	**9.50**	**25**	**5.1**	**9.90**	**50**
South Africa underground – total	**37.5**	**6.14**	**230**	**14.9**	**5.72**	**85**	**52.4**	**6.02**	**315**
SOUTH AFRICA SURFACE									
Kraaipan Greenstone Belt									
Kalgold	9.4	0.95	9	11.8	1.05	12	21.1	1.01	21
Free State surface									
Free State (Phoenix)	62.7	0.29	18	–	–	–	62.7	0.29	18
Free State (St Helena)	108.6	0.27	29	–	–	–	108.6	0.27	29
Free State (Central Plant)	–	–	–	64.6	0.27	17	64.6	0.27	17
Free State (other):									
– Waste rock dumps	–	–	–	3.9	0.51	2	3.9	0.51	2
– Tailings	–	–	–	553.3	0.22	124	553.3	0.22	124
Free State surface	**171.2**	**0.27**	**47**	**621.9**	**0.23**	**143**	**793.1**	**0.24**	**190**
South Africa surface – total	**180.6**	**0.31**	**56**	**633.6**	**0.24**	**155**	**814.2**	**0.26**	**211**
SOUTH AFRICA – TOTAL (underground and surface)	**218.0**		**286**	**648.5**		**240**	**866.6**		**526**
PAPUA NEW GUINEA									
Hidden Valley	1.9	0.92	2	23.3	1.62	38	25.2	1.57	40
Hamata	0.03	1.03	0.03	0.5	2.11	1	0.5	2.06	1
Golpu [1]	–	–	–	202.3	0.86	173	202.3	0.86	173
PAPUA NEW GUINEA – TOTAL	**1.9**	**0.92**	**2**	**226.1**	**0.94**	**212**	**228.0**	**0.94**	**214**
HARMONY – TOTAL	**220.0**		**288**	**874.6**		**452**	**1 094.6**		**740**

MINERAL RESERVES STATEMENT (METRIC) CONTINUED

Operations	Proved reserves		Probable reserves		Total mineral reserves	
Gold equivalents [2]	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)
Silver						
Hidden Valley	1.9	1	23.3	11	25.2	11
Copper [1]						
Golpu	–	–	202.3	395	202.3	395
Silver and copper – total as gold equivalents	**1.9**	**1**	**225.6**	**405**	**227.5**	**406**
PAPUA NEW GUINEA – TOTAL (including gold equivalents)	**1.9**	**2**	**226.1**	**617**	**228.0**	**620**
HARMONY – TOTAL (including gold equivalents)	**220.0**	**288**	**874.6**	**858**	**1 094.6**	**1 146**

Other metals

PAPUA NEW GUINEA

	Tonnes (Mt)	Grade (g/t)	Ag (000kg)	Tonnes (Mt)	Grade (g/t)	Ag (000kg)	Tonnes (Mt)	Grade (g/t)	Ag (000kg)
Silver									
Hidden Valley	1.9	19.61	37	23.3	32.12	749	25.2	31.18	786
	Tonnes (Mt)	Grade (%)	Cu (000t)	Tonnes (Mt)	Grade (%)	Cu (000t)	Tonnes (Mt)	Grade (%)	Cu (000t)
Copper									
Golpu [1]	–	–	–	202.3	1.21	2 446	202.3	1.21	2 446
	Tonnes (Mt)	Grade (kg/t)	U_3O_8 (Mkg)	Tonnes (Mt)	Grade (kg/t)	U_3O_8 (Mkg)	Tonnes (Mt)	Grade (kg/t)	U_3O_8 (Mkg)
Uranium									
Moab Khotsong	2.5	0.35	1	2.6	0.40	1	5.1	0.38	2

[1] *Harmony's 50% attributable portion*

[2] *Gold equivalent ounces are calculated assuming a US$1 275/oz Au, US$3.00/lb Cu and US$17.00/oz Ag with 100% recovery for all metals*
Metal figures are fully inclusive of all mining dilutions and gold losses, and are reported as mill delivered tonnes and head grades
Metallurgical recovery factors have not been applied to the reserve figures
Rounding of numbers may result in slight computational discrepancies
Note: 1 tonne = 1 000kg = 2 204lb
1 troy ounce = 31.10348 grams

MINERAL RESOURCES STATEMENT (IMPERIAL)

Operations	Measured resources			Indicated resources			Inferred resources			Total mineral resources		
Gold	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
SOUTH AFRICA UNDERGROUND												
Free State												
Tshepong operations	25.7	0.330	8 474	13.0	0.290	3 766	40.7	0.281	11 434	79.4	0.298	23 674
Bambanani	0.9	0.489	457	–	–	–	–	–	–	0.9	0.489	457
Unisel	0.4	0.230	81	0.1	0.245	36	–	–	–	0.5	0.235	118
Joel	3.9	0.230	895	4.1	0.242	997	0.8	0.215	172	8.8	0.234	2 064
Masimong	3.0	0.234	696	0.3	0.199	64	0.01	0.175	1	3.3	0.230	761
Target 1	8.8	0.136	1 195	6.3	0.195	1 235	3.6	0.159	567	18.7	0.160	2 996
Target 3	0.7	0.268	178	3.3	0.297	965	1.3	0.253	340	5.3	0.282	1 483
Total	**43.3**	**0.277**	**11 976**	**27.2**	**0.260**	**7 063**	**46.4**	**0.269**	**12 513**	**116.9**	**0.270**	**31 553**
West Rand												
Doornkop South Reef	3.5	0.242	857	4.0	0.244	975	5.7	0.247	1 415	13.3	0.245	3 247
Doornkop Main Reef	0.1	0.157	14	0.1	0.161	8	0.02	0.155	3	0.2	0.158	25
Doornkop Kimberley Reef	20.0	0.098	1 957	13.4	0.092	1 226	11.1	0.096	1 066	44.5	0.096	4 249
Kusasalethu	2.8	0.364	1 020	22.3	0.259	5 768	3.9	0.276	1 072	29.0	0.271	7 861
Total	**26.4**	**0.146**	**3 848**	**39.7**	**0.201**	**7 978**	**20.8**	**0.171**	**3 556**	**86.9**	**0.177**	**15 382**
Klerksdorp goldfield												
Moab Khotsong	3.4	0.570	1 916	21.3	0.405	8 643	10.4	0.361	3 771	35.1	0.408	14 331
South Africa underground	**73.0**	**0.243**	**17 741**	**88.2**	**0.269**	**23 684**	**77.6**	**0.256**	**19 840**	**238.8**	**0.257**	**61 265**
SOUTH AFRICA SURFACE												
Kraaipan Greenstone Belt												
Kalgold	13.3	0.025	332	32.6	0.023	758	3.6	0.021	74	49.5	0.023	1 164
Kalgold tailings dam	–	–	–	–	–	–	26.2	0.008	201	26.2	0.008	201
Total	**13.3**		**332**	**32.6**		**758**	**29.8**		**276**	**75.8**		**1 365**
Free State surface												
Phoenix	69.1	0.008	575	–	–	–	–	–	–	69.1	0.008	575
St Helena	210.9	0.008	1 656	–	–	–	–	–	–	210.9	0.008	1 656
Central Plant	–	–	–	71.2	0.008	552	–	–	–	71.2	0.008	552
Other:												
– Waste rock dumps	–	–	–	4.3	0.015	64	21.3	0.012	265	25.6	0.013	329
– Tailings	–	–	–	609.9	0.007	3 971	17.0	0.006	94	627.0	0.006	4 065
Total	**280.0**	**0.008**	**2 231**	**685.5**	**0.007**	**4 587**	**38.4**	**0.009**	**359**	**1 003.8**	**0.007**	**7 177**
Klerksdorp goldfield surface												
Mispah	–	–	–	80.4	0.009	708	–	–	–	80.4	0.009	708
Kop Paydam	11.9	0.006	70	0.2	0.007	1	–	–	–	12.1	0.006	72
Moab MOD	–	–	–	8.2	0.011	89	–	–	–	8.2	0.011	89
Total	**11.9**	**0.006**	**70**	**88.8**	**0.009**	**798**	**–**	**–**	**–**	**100.7**	**0.009**	**868**
South Africa surface – total	**305.2**	**0.009**	**2 634**	**806.9**	**0.008**	**6 142**	**68.2**	**0.009**	**635**	**1 180.3**	**0.008**	**9 411**
SOUTH AFRICA – TOTAL	**378.3**		**20 375**	**895.1**		**29 827**	**145.8**		**20 475**	**1 419.2**		**70 676**
PAPUA NEW GUINEA												
Hidden Valley	2.1	0.027	56	90.1	0.042	3779	3.3	0.034	113	95.5	0.041	3 948
Hamata	0.03	0.030	1	2.6	0.055	146	0.2	0.041	10	2.9	0.054	157
Wafi [1]	–	–	–	62.5	0.050	3 146	12.5	0.038	475	75.0	0.048	3 621
Golpu [1]	–	–	–	379.2	0.021	7 905	74.8	0.018	1 377	454.0	0.020	9 282
Nambonga [1]	–	–	–	–	–	–	22.0	0.023	507	22.0	0.023	507
Kili Teke	–	–	–	–	–	–	261.2	0.007	1 810	261.2	0.007	1 810
PAPUA NEW GUINEA – TOTAL	**2.1**	**0.027**	**57**	**534.5**	**0.028**	**14 977**	**374.0**	**0.011**	**4 292**	**910.6**	**0.021**	**19 326**
HARMONY – TOTAL	**380.4**		**20 432**	**1 429.6**		**44 803**	**519.9**		**24 767**	**2 329.8**		**90 002**

MINERAL RESOURCES STATEMENT (IMPERIAL) CONTINUED

Operations	Measured resources		Indicated resources		Inferred resources		Total mineral resources	
Gold equivalents [2]	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)
Silver								
Hidden Valley	2.1	13	90.1	1 020	3.3	39	95.5	1 072
Copper								
Golpu [1]	–	–	379.2	19 365	74.8	2 993	454.0	22 358
Nambonga [1]	–	–	–	–	22.0	220	22.0	220
Kili Teke	–	–	–	–	261.2	4 157	261.2	4 157
Total	**–**	**–**	**379.2**	**19 365**	**358.0**	**7 370**	**737.2**	**26 735**
Silver and copper – total as gold equivalents	**2.1**	**13**	**469.3**	**20 385**	**361.3**	**7 410**	**832.7**	**27 807**
PAPUA NEW GUINEA – TOTAL (including gold equivalents)	**2.1**	**70**	**534.5**	**35 362**	**374.0**	**11 701**	**910.6**	**47 133**
HARMONY – TOTAL (including gold equivalents)	**380.4**	**20 445**	**1 429.6**	**65 188**	**519.9**	**32 176**	**2 329.8**	**117 809**

Other metals

PAPUA NEW GUINEA

	Tons (Mt)	Grade (oz/t)	Ag (000oz)	Tons (Mt)	Grade (oz/t)	Ag (000oz)	Tons (Mt)	Grade (oz/t)	Ag (000oz)	Tons (Mt)	Grade (oz/t)	Ag (000oz)
Silver												
Hidden Valley	2.1	0.572	1 193	90.1	0.802	72 256	3.3	0.852	2 791	95.5	0.799	76 240
Golpu [1]	–	–	–	379.2	0.038	14 247	74.8	0.031	2 322	454.0	0.036	16 569
Nambonga [1]	–	–	–	–	–	–	22.0	0.084	1 835	22.0	0.084	1 835
Total	**2.1**	**0.572**	**1 193**	**469.3**	**0.184**	**86 503**	**100.1**	**0.069**	**6 948**	**571.5**	**0.166**	**94 643**

	Tons (Mt)	Grade (%)	Cu (Mlb)	Tons (Mt)	Grade (%)	Cu (Mlb)	Tons (Mt)	Grade (%)	Cu (Mlb)	Tons (Mt)	Grade (%)	Cu (Mlb)
Copper												
Golpu [1]	–	–	–	379.2	0.985	8 232	74.8	0.771	1 273	454.0	0.950	9 505
Nambonga [1]	–	–	–	–	–	–	22.0	0.194	94	22.0	0.194	94
Kili Teke	–	–	–	–	–	–	261.2	0.307	1 767	261.2	0.307	1 767
Total	**–**	**–**	**–**	**379.2**	**0.985**	**8 232**	**358.0**	**0.173**	**3 133**	**737.2**	**0.591**	**11 365**

	Tons (Mt)	Grade (lb/t)	Mo (Mlb)	Tons (Mt)	Grade (lb/t)	Mo (Mlb)	Tons (Mt)	Grade (lb/t)	Mo (Mlb)	Tons (Mt)	Grade (lb/t)	Mo (Mlb)
Molybdenum												
Golpu [1]	–	–	–	379.2	0.188	71	74.8	0.143	11	454.0	0.180	82
Kili Teke	–	–	–	–	–	–	261.2	0.335	88	261.2	0.335	88
Total	**–**	**–**	**–**	**379.2**	**0.188**	**71**	**336.0**	**0.292**	**98**	**715.2**	**0.237**	**169**

SOUTH AFRICA

	Tons (Mt)	Grade (lb/t)	U_3O_8 (Mlb)	Tons (Mt)	Grade (lb/t)	U_3O_8 (Mlb)	Tons (Mt)	Grade (lb/t)	U_3O_8 (Mlb)	Tons (Mt)	Grade (lb/t)	U_3O_8 (Mlb)
Uranium												
Free State surface	–	–	–	197.1	0.199	39	–	–	–	197.1	0.199	39
Klerksdorp goldfield surface	11.9	0.260	3	80.6	0.246	20	–	–	–	92.5	0.248	23
Moab Khotsong underground	–	–	–	24.7	1.334	33	10.5	1.278	13	35.2	1.317	46
South Africa – total	**11.9**	**0.260**	**3**	**302.4**	**0.304**	**92**	**10.5**	**1.278**	**13**	**324.8**	**0.334**	**109**

[1] *Harmony's 50% attributable portion*

[2] *Gold equivalent ounces are calculated assuming a US$1 275/oz Au, US$3.00/lb Cu and US$17.00/oz Ag with 100% recovery for all metals*

Rounding of numbers may result in slight computational discrepancies

Note: 1 ton = 907kg = 2 000lb 1 troy ounce = 31.10348 grams

MINERAL RESERVES STATEMENT (IMPERIAL)

Operations	Proved reserves			Probable reserves			Total mineral reserves		
Gold	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
SOUTH AFRICA UNDERGROUND									
Free State									
Tshepong operations	21.7	0.173	3 762	4.1	0.141	581	25.9	0.168	4 343
Bambanani	1.1	0.352	386	–	–	–	1.1	0.352	386
Unisel	0.3	0.143	43	0.1	0.166	10	0.4	0.146	53
Joel	2.8	0.138	381	2.0	0.156	305	4.7	0.145	686
Masimong	1.9	0.125	234	0.1	0.100	13	2.0	0.123	246
Target 1	3.5	0.126	442	2.3	0.125	282	5.8	0.126	724
Total	**31.3**	**0.168**	**5 247**	**8.5**	**0.140**	**1 190**	**39.8**	**0.162**	**6 437**
West Rand									
Doornkop South Reef	3.3	0.146	480	4.4	0.148	648	7.7	0.147	1 129
Kusasalethu	4.0	0.212	857	0.7	0.156	101	4.7	0.204	959
Total	**7.3**	**0.182**	**1 338**	**5.0**	**0.149**	**750**	**12.4**	**0.169**	**2 087**
Klerksdorp goldfield									
Moab Khotsong	2.7	0.301	815	2.9	0.277	800	5.6	0.289	1 615
Total	**2.7**	**0.301**	**815**	**2.9**	**0.277**	**800**	**5.6**	**0.289**	**1 615**
South Africa underground – total	**41.3**	**0.179**	**7 400**	**16.4**	**0.167**	**2 739**	**57.7**	**0.176**	**10 139**
SOUTH AFRICA SURFACE									
Kraaipan Greenstone Belt									
Kalgold	10.3	0.028	286	13.0	0.031	397	23.3	0.029	683
Free State – surface									
Phoenix	69.1	0.008	575	–	–	–	69.1	0.008	575
St Helena	119.7	0.008	933	–	–	–	119.7	0.008	933
Central Plant	–	–	–	71.2	0.008	552	71.2	0.008	552
Other:									
– Waste rock dumps	–	–	–	4.3	0.015	64	4.3	0.015	64
– Tailings	–	–	–	609.9	0.007	3 971	609.9	0.007	3 971
Total	**188.7**	**0.008**	**1 508**	**685.5**	**0.007**	**4 587**	**874.2**	**0.007**	**6 095**
South Africa surface – total	**199.0**	**0.009**	**1 795**	**698.4**	**0.007**	**4 984**	**897.5**	**0.008**	**6 779**
SOUTH AFRICA – TOTAL (underground and surface)	**240.4**		**9 195**	**714.9**		**7 723**	**955.2**		**16 918**
PAPUA NEW GUINEA									
Hidden Valley	2.1	0.027	56	25.7	0.047	1 215	27.8	0.046	1 271
Hamata	0.03	0.030	1	0.6	0.062	35	0.6	0.060	35
Golpu [1]	–	–	–	223.0	0.025	5 573	223.0	0.025	5 573
PAPUA NEW GUINEA – TOTAL	**2.1**	**0.027**	**57**	**249.2**	**0.027**	**6 823**	**251.4**	**0.027**	**6 880**
HARMONY – TOTAL	**242.5**		**9 252**	**964.1**		**14 546**	**1 206.6**		**23 797**

MINERAL RESERVES STATEMENT (IMPERIAL) CONTINUED

Operations	Proved reserves		Probable reserves		Total mineral reserves	
Gold equivalents [2]	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)
Silver						
Hidden Valley	2.1	17	25.7	340	27.8	357
Copper						
Golpu [1]	–	–	223.0	12 686	223.0	12 686
Silver and copper – total as gold equivalents	**2.1**	**17**	**248.7**	**13 026**	**250.8**	**13 043**
PAPUA NEW GUINEA – TOTAL (including gold equivalents)	**2.1**	**74**	**249.2**	**19 849**	**251.4**	**19 923**
HARMONY – TOTAL (including gold equivalents)	**242.5**	**9 269**	**964.1**	**27 572**	**1 206.6**	**36 840**

Other metals

PAPUA NEW GUINEA

	Tons (Mt)	Grade (oz/t)	Ag (000oz)	Tons (Mt)	Grade (oz/t)	Ag (000oz)	Tons (Mt)	Grade (oz/t)	Ag (000oz)
Silver									
Hidden Valley	2.1	0.572	1 193	25.7	0.937	24 083	27.8	0.909	25 276

	Tons (Mt)	Grade (%)	Cu (Mlb)	Tons (Mt)	Grade (%)	Cu (Mlb)	Tons (Mt)	Grade (%)	Cu (Mlb)
Copper									
Golpu [1]	–	–	–	223.0	1.097	5 393	223.0	1.097	5 393

SOUTH AFRICA

	Tons (Mt)	Grade (lb/t)	U_3O_8 (Mlb)	Tons (Mt)	Grade (lb/t)	U_3O_8 (Mlb)	Tons (Mt)	Grade (lb/t)	U_3O_8 (Mlb)
Uranium									
Moab Khotsong	2.7	0.697	2	2.9	0.804	2	5.6	0.752	4

[1] *Harmony's 50% attributable portion*

[2] *Gold equivalent ounces are calculated assuming a US$1 275/oz Au, US$3.00/lb Cu and US$17.00/oz Ag with 100% recovery for all metals*

Metal figures are fully inclusive of all mining dilutions and gold losses, and are reported as mill delivered tonnes and head grades

Metallurgical recovery factors have not been applied to the reserve figures

Rounding of numbers may result in slight computational discrepancies

Note: 1 ton = 907kg = 2 000lb

1 troy ounce = 31.10348 grams

RESOURCE AND RESERVE RECONCILIATION

MINERAL RESOURCES

As at 30 June 2018, attributable gold equivalent mineral resources were 117.8Moz, up from 104.3Moz in June 2017 The following table show the year on year reconciliation of the mineral resources.

Mineral resource reconciliation – gold and gold equivalents

	kg (000)	Moz
June 2017 – Gold and gold equivalents	3 243	104.3
Changes during FY18		
Mined during FY18	(49)	(1.6)
Inclusion of Moab Khotsong* and minor changes at other mines	524	16.8
Gold equivalents	(54)	(1.7)
June 2018 – Gold and gold equivalents	**3 664**	**117.8**

** Moab Khotsong and related assets were acquired effective 1 March 2018*

Mineral resource comparison by operation – FY17 vs FY18

Gold	FY17 (Moz)	FY18 (Moz)	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion variance (%)	Comments
SOUTH AFRICA UNDERGROUND						
Free State						
Tshepong operations	22.999	**23.674**	0.422	1.096	4.8	Gold ounces increased year on year mainly due to an increase in grade in the decline and northern area of the mine
Bambanani	0.456	**0.457**	0.098	0.099	21.6	Grade increased which resulted in an increase in ounces
Unisel	0.586	**0.118**	0.065	(0.404)	(68.9)	Decrease is due to decision to abandon all minor reefs and to mine the Basal Reef only
Joel	2.178	**2.064**	0.073	(0.040)	(1.8)	No major changes
Masimong	0.966	**0.761**	0.130	(0.075)	(7.7)	Reduced resource footprint aligned with new life-of-mine plan
Target 1	4.626	**2.996**	0.101	(1.528)	(33.0)	Decrease in resource due mainly to accounting for internal waste between reef channels, resulting in a reduction in resources declared
Target 3	3.119	**1.483**	0	(1.636)	(52.5)	Reduced resources footprint aligned with updated feasibility study
Free State – total	**34.930**	**31.553**	**0.888**	**(2.489)**	**(7.1)**	
West Rand						
Doornkop	4.319	**7.521**	0.150	3.352	77.6	Given increased level of confidence on completion of 2D seismic survey, Kimberley Reef included in resource
Kusasalethu	7.366	**7.861**	0.182	0.676	9.2	Increase due to improved grade and the extension of mining right to include portion of Deelkraal farm
West Rand – total	**11.685**	**15.382**	**0.331**	**4.027**	**34.5**	

RESOURCE AND RESERVE RECONCILIATION CONTINUED

Mineral resource comparison by operation – FY17 vs FY18 continued

Gold	FY17 (Moz)	FY18 (Moz)	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion variance (%)	Comments
Klerksdorp goldfield						
Moab Khotsong	0.000	14.331		14.431	>100	Included in Harmony's mineral resources for first time in FY18
South Africa underground – total	**46.616**	**61.265**	**1.219**	**15.869**	**34**	
SOUTH AFRICA SURFACE						
Kraaipan Greenstone Belt						
Kalgold – pit	1.273	1.164	0.046	(0.062)	(4.9)	Reduced pit shell
Kalgold tailings dam	0.201	0.201	0	0	0	
Total	1.474	1.365	0.046	(0.062)	(4.2)	
Free State – Surface						
Phoenix	0.646	0.575	0.060	(0.012)	(1.8)	
St Helena	1.656	1.656	0	0	0	
Central Plant	0.574	0.552	0.034	0.012	2.1	
Waste rock dumps	0.334	0.329	0.013	0.008	2.5	
Tailings	4.122	4.065	0	(0.057)	(1.4)	
Total	**7.333**	**7.177**	**0.107**	**(0.048)**	**(0.7)**	
Klerksdorp goldfield – Surface						
Mispah	0	0.708	0	0.708	100	
Kop Paydam	0	0.072	0	0.072	100	
Moab MOD	0	0.089	0	0.089	100	
Total	**0**	**0.868**	**0**	**0.868**	**100**	
South Africa surface – total	**8.807**	**9.411**	**0.154**	**0.758**	**8.6**	
SOUTH AFRICA – total (underground, surface, Kalgold)	**55.422**	**70.676**	**1.373**	**16.627**	**30**	

RESOURCE AND RESERVE RECONCILIATION CONTINUED

Mineral resource comparison by operation – FY17 vs FY18 continued

Gold	FY17 (Moz)	FY18 (Moz)	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion variance (%)	Comments
PAPUA NEW GUINEA						
Hidden Valley/Kaveroi	3.897	3.948	0.066	0.116	3.0	Mining depletion offset by adjustments to prices and spatial constraints
Hamata	0.184	0.157	0	(0.026)	(14.3)	Adjustments to prices and costs
Wafi	3.621	3.621	0	0	0	
Golpu	9.282	9.282	0	0	0	
Nambonga	0.507	0.507	0	0	0.0	
Kili Teke	1.810	1.810	0	0	0.0	
PAPUA NEW GUINEA – total	**19.301**	**19.326**	**0.066**	**0.090**	**0.5**	
GOLD TOTAL	74.724	90.002	1.439	16.717	22.4	
Gold equivalents						
Silver – equivalent gold ounces						
Hidden Valley	1.137	1.072	0*	(0.064)	(5.7)	Metal price shifts
Copper – equivalent gold ounces						
Golpu	23.755	22.358	0	(1.397)	(5.9)	Metal price shifts
Nambonga	0.235	0.220	0	(0.014)	(6.0)	Metal price shifts
Kili Teke	4.416	4.157	0	(0.259)	(5.9)	
Copper gold equivalent – total	**28.405**	**26.735**	**0**	**(1.671)**	**(5.9)**	
Papua New Guinea – total equivalent gold ounces	**29.542**	**27.807**	**0**	**(1.735)**	**(5.9)**	
Papua New Guinea – total gold and equivalent gold ounces	**48.844**	**47.133**	**0.091**	**(1.619)**	**(3.3)**	
GOLD TOTAL (excluding equivalents)	**74.724**	**90.002**	**1.439**	**16.717**	**22.4**	
GOLD TOTAL (including equivalents)	104.266	117.809	1.439*	14.982	14.4	

** Gold depletion only*

RESOURCE AND RESERVE RECONCILIATION CONTINUED

MINERAL RESERVES

As at 30 June 2018, Harmony's attributable gold equivalent mineral reserves were 36.8Moz, up from 36.7Moz. The year on year mineral reserves reconciliation is shown below.

Mineral reserve reconciliation – gold and gold equivalents

	kg (000)	Moz
June 2017 – Gold and gold equivalents	1 143	36.7
Changes during FY18		
Mined during FY18	(40)	(1.3)
Moab Khotsong*, Doornkop and minor changes at other mines	59	1.9
Gold equivalents	(17)	(0.5)
June 2018 – Gold and gold equivalents	**1 146**	**36.8**

** Moab Khotsong and related assets were acquired effective 1 March 2018*

Mineral reserve comparison by operation – FY17 vs FY18

Gold	FY17 (Moz)	FY18 (Moz)	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion variance (%)	Comments
SOUTH AFRICA UNDERGROUND						
Free State						
Tshepong operations	4.787	4.343	0.317	(0.127)	(2.7)	Minor changes due to geology
Bambanani	0.401	0.386	0.095	0.080	19.9	Increase due to improved grades in the Basal Reef and plans to mine more full width
Unisel	0.302	0.053	0.043	(0.206)	(68.3)	Decrease as a result of decision to mine only the Basal Reef
Joel	0.755	0.686	0.056	(0.014)	(1.9)	Decrease due to slight decrease in estimated grade
Masimong	0.312	0.246	0.089	0.023	7.4	Increase due to higher estimated grade
Target 1	0.705	0.724	0.098	0.117	16.6	Increase in mineable massives and improved grade
Free State – Total	**7.261**	**6.437**	**0.697**	**(0.127)**	**(1.8)**	
West Rand						
Doornkop South Reef	0.735	1.129	0.115	0.508	69.1	Increase due to the conversion of inferred resources to indicated resources, which converted to reserves, and improved grade
Kusasalethu	1.088	0.959	0.155	0.025	2.3	Mainly due to increase in grade
West Rand – Total	**1.823**	**2.087**	**0.269**	**0.534**	**29.3**	
Klerksdorp goldfield						
Moab Khotsong	0.000	1.615	0.000	1.615	>100.0	Included in Harmony's mineral reserves for first time in FY18
South Africa underground – Total	**9.084**	**10.139**	**0.966**	**2.021**	**22.2**	

RESOURCE AND RESERVE RECONCILIATION CONTINUED

Mineral reserve comparison by operation – FY17 vs FY18 continued

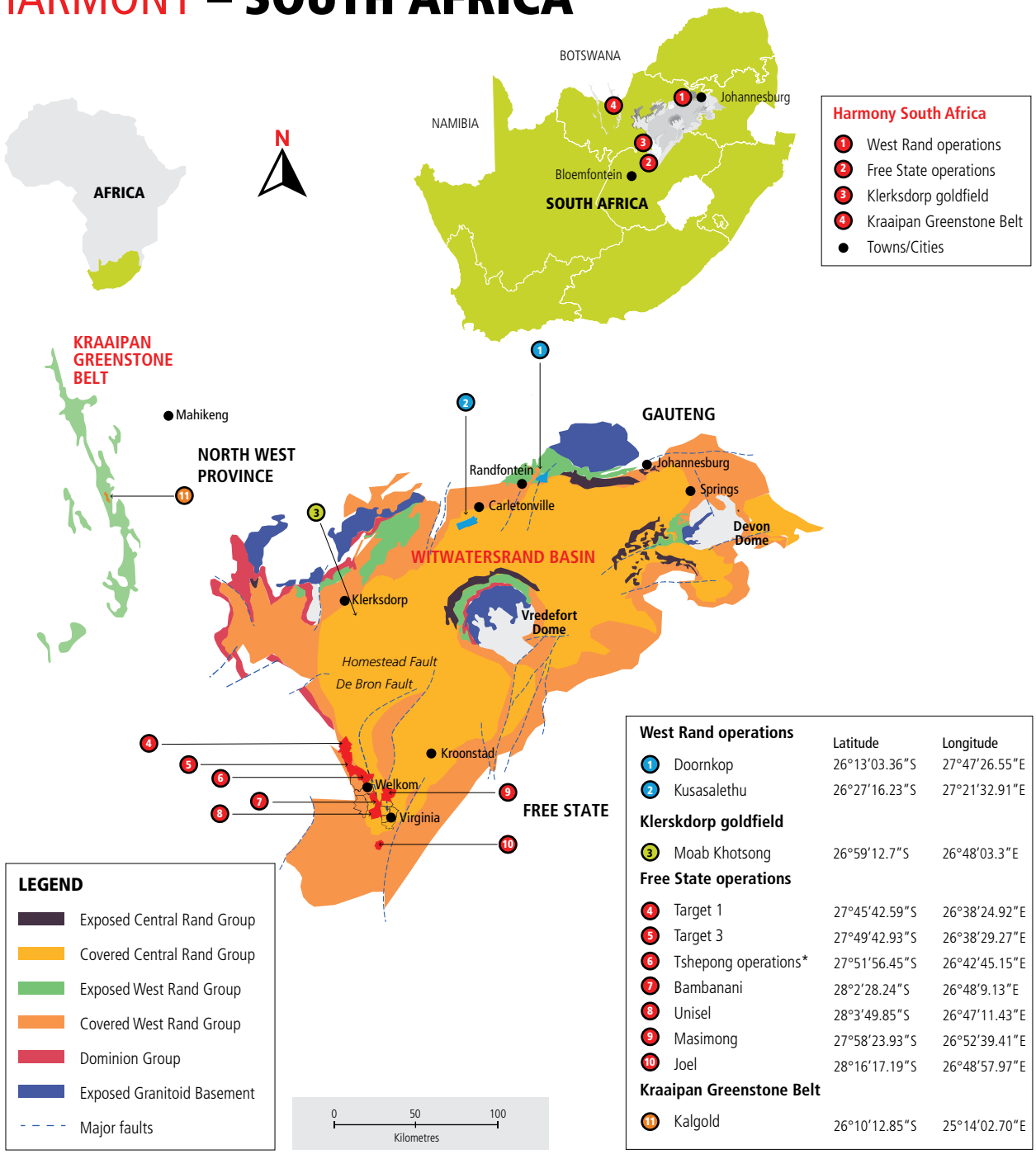
Gold	FY17 (Moz)	FY18 (Moz)	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion variance (%)	Comments
SOUTH AFRICA SURFACE						
Kraaipan Greenstone Belt						
Kalgold	0.934	0.683	0.046	(0.204)	(21.8)	Reduced pit shell
Free State Surface						
Phoenix	0.646	0.575	0.060	(0.012)	(1.8)	
St Helena	0.933	0.933	0	0	0	
Central Plant	0.574	0.552	0.034	0.012	2.1	
Waste rock dumps	0.064	0.064	0	0	0	
Tailings	4.028	3.971	0	(0.057)	(1.4)	
Total	**6.245**	**6.095**	**0.094**	**(0.056)**	**(0.9)**	
South Africa surface – Total	**7.179**	**6.779**	**0.140**	**(0.260)**	**(3.6)**	
SOUTH AFRICA – Total	**16.265**	**16.918**	**1.106**	**1.761**	**10.8**	
PAPUA NEW GUINEA						
Hidden Valley/Kaveroi	1.291	1.271	0.059	0.039	3.0	Mining depletion offset by price and cost adjustments
Hamata	0.096	0.035	0	(0.060)	(63.0)	Adjustments to prices and costs
Golpu	5.522	5.573	0	0.051	0.9	Metal price shifts
PAPUA NEW GUINEA – Total	**6.908**	**6.880**	**0.059**	**0.030**	**0.4**	
HARMONY – Total	**23.171**	**23.797**	**1.166**	**1.792**	**7.7**	
Gold equivalents						
Silver						
Hidden Valley	0.407	0.357	0*	(0.050)	(12.2)	Metal price shifts
Copper						
Golpu	13.168	12.686	0	(0.482)	(3.7)	Metal price shifts
Equivalent gold ounces – total	**13.575**	**13.043**	**0**	**(0.532)**	**(3.9)**	
Papua New Guinea – total gold and equivalent gold ounces	**20.483**	**19.923**	**0**	**(0.561)**	**(2.7)**	
GOLD TOTAL (excluding equivalents)	**23.171**	**23.797**	**1.166**	**1.792**	**7.7**	
GOLD TOTAL (including equivalents)	**36.746**	**36.840**	**1.166***	**1.260**	**3.4**	

** Gold depletion only*

Doornkop

LOCATION AND GEOLOGY OF OPERATIONS, PROJECTS AND EXPLORATION

HARMONY – SOUTH AFRICA



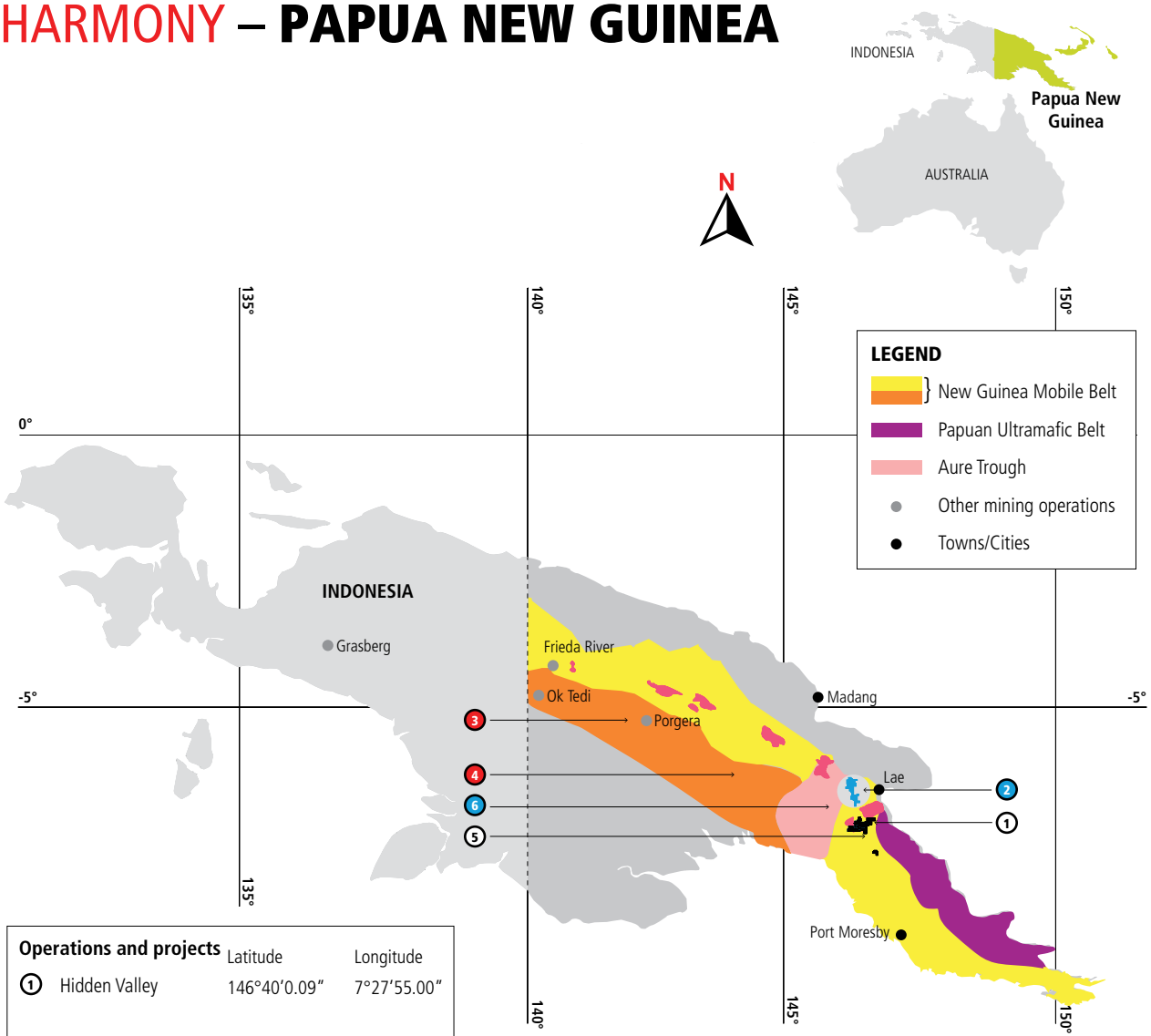
	Latitude	Longitude
West Rand operations		
1 Doornkop	26°13'03.36"S	27°47'26.55"E
2 Kusasalethu	26°27'16.23"S	27°21'32.91"E
Klerskdorp goldfield		
3 Moab Khotsong	26°59'12.7"S	26°48'03.3"E
Free State operations		
4 Target 1	27°45'42.59"S	26°38'24.92"E
5 Target 3	27°49'42.93"S	26°38'29.27"E
6 Tshepong operations*	27°51'56.45"S	26°42'45.15"E
7 Bambanani	28°2'28.24"S	26°48'9.13"E
8 Unisel	28°3'49.85"S	26°47'11.43"E
9 Masimong	27°58'23.93"S	26°52'39.41"E
10 Joel	28°16'17.19"S	26°48'57.97"E
Kraaipan Greenstone Belt		
11 Kalgold	26°10'12.85"S	25°14'02.70"E

Projection: UTM Zone 36, Southern Hemisphere (WGS 84)

** Tshepong operations is the combined Thsepong and Phakisa mining operation*

LOCATION AND GEOLOGY OF OPERATIONS, PROJECTS AND EXPLORATION CONTINUED

HARMONY – PAPUA NEW GUINEA



Operations and projects		Latitude	Longitude
1	Hidden Valley	146°40'0.09"	7°27'55.00"
2	Wafi-Golpu project (50%)	146°27'59.43" 146°27'09.57"	6°51'35.23" 6°51'49.68"
Exploration projects			
3	Kili Teki	142° 42' 08"E	5° 23' 12"S
4	Poru	144° 17' 00"E	6° 22' 00"S
5	Hidden Valley district		
6	Morobe Exploration Joint Venture (50%)		

Harmony equity interest 100% unless otherwise indicated

Projection: UTM Zone 54, Southern Hemisphere (WGS 84)

EXPLORATION AND PROJECTS

PAPUA NEW GUINEA

FY18 HIGHLIGHTS AND MILESTONES

Advancement of the Wafi-Golpu project:

- 2018 feasibility study update conducted incorporating recommendations of previous studies and additional orebody data obtained
- Proposed project involves:
  - development of the high-grade Golpu orebody
  - optimised capital expenditure profile
  - optimised rate of production and cash flow
- Block caving identified as the preferred mining method
- Updated feasibility study confirmed staged approach to project development
- Supporting documents for the special mining lease application were submitted in March 2018 and the environmental impact statement in June 2018
- Granting of the special mining licence is expected by June 2019 to be followed by board approval and the securing of a funding solution

Key statistics:

- Resource contains 18.6Moz gold and 8.6Mt copper
- Estimated life of mine of more than 28 years
- Steady state production estimated at 161 000t of copper, 266 000oz of gold (more than 1.4Moz of gold equivalents ounces annually)
- Above average recovery grades:
  - Gold – 0.90g/t,
  - Copper – 1.27%
- Costs of US$0.26/lb are in the lowest decile for copper production
  - expressed in terms of gold production, an all-in sustaining cost of minus US$2 128/oz is estimated

Brownfield focus around Hidden Valley:

- Changed exploration strategy focusing on near mine brownfield targets after the acquisition of 100% of the contiguous tenement package surrounding the Hidden Valley mining lease in FY17:
  - 502km^2 of tenure centered on one of Papua New Guinea's premier goldfields, encompassing the historic mining centre at Wau
- Prefeasibility studies have begun on the down-dip extensions of the Hidden Valley orebody to extend mine life
- Target generation for potential high-grade satellite epithermal gold deposits progressed:
  - Systematic grid-based geochemical coverage over the Hidden Valley ML completed
  - Initial drill intercepts together with widespread alteration and gold geochemical footprint highlight excellent prospectivity at the historic mining centre at Wau

Greenfield exploration and tenement rationalisation:

- Regional greenfield exploration expenditure was scaled back in favour of near-mine brownfield exploration
- Harmony (100%) tenement holding reduced to 963.75km^2 (FY17: 1 265km^2)
- Joint venture (Harmony 50%) tenement holding reducing to 325.3km^2 (FY17: 495km^2):
  - EL1629 was held under an option to purchase by Pacific Niugini Minerals who are also responsible for maintaining the joint venture tenement in good standing
  - Harmony continues to manage exploration on the portfolio tenement package on behalf of the exploration portfolio joint venture participants (ultimate parent companies: Newcrest 50%; Harmony 50%)

EXPLORATION AND PROJECTS CONTINUED

KEY GEOLOGICAL FEATURES

Papua New Guinea is one of the world's most prospective yet under-explored terrains for porphyry copper-gold and epithermal gold mineralisation. The New Guinea mobile belt which spans the core of the Irian Jaya-Papua New Guinea mainland, is host to a number of world-class porphyry copper-gold and gold deposits including Golpu (Cu-Au), Ok Tedi (Cu-Au), Grasberg (Cu-Au), and Porgera (Au).

The central belt of rocks that makes up the highland spine of Papua New Guinea formed as a result of subduction related interaction between the Pacific plate (in the north), converging with the Australian plate (in the south). Deposits typical of subduction related arc settings include:

- Epithermal gold deposits which form at shallow depths, relatively close to the earth's surface, examples of which include Hidden Valley, Hamata, Kerimenge, Wau and Wafi
- Porphyry copper-gold systems which form at deeper levels in the crust are associated with the emplacement of intrusive stocks and dykes. These systems are among the largest sources of copper ore in the world, and can also contain significant amounts of gold, molybdenum and silver as by-products. Golpu is a high-grade porphyry copper-gold system

KEY LEGAL AND REGULATORY FEATURES

Papua New Guinea has a sophisticated legislative, regulatory and fiscal regime.

Mining in Papua New Guinea is governed by the Mining Act of 1992. Minerals are owned by the state, which administers mining tenements through the offices of the Mineral Resources Authority. The types of tenements issued include: exploration licence; mining lease; special mining lease; alluvial mining lease; lease for mining purpose; and mining easement. Exploration licences are issued for a term not exceeding two years, and are renewable for further two year terms subject to compliance with expenditure and other conditions. Each licence contains a condition conferring on the state the right, exercisable at any time prior to the start of mining, to make a single purchase of up to 30% equitable interest in any mineral discovery under the licence at a price pro rata to the accumulated exploration expenditure.

If (pursuant to a feasibility study approved by the board of directors) a decision is made to develop a mine on a resource, a permitting process must be followed, including:

- Applying to the Mineral Resources Authority for a mining lease (or, at the discretion of the Minister for Mines, a special mining lease). This includes our entering into a memorandum of agreement with local, provincial and national governments and landowners regarding the allocation of royalties payable to the state, and, in the case of a special mining lease, a mining development contract setting out social performance obligations in respect of the proposed mining operation
- Applying to the Conservation and Environmental Protection Authority for a Level 3 environmental permit. This includes undertaking an environmental impact study

The permitting process can be very time consuming (18-24 months, or longer in some cases). Mining companies must pay royalties to the state based on production (currently 2%).

Over the past two to three years, the state has undertaken a mining legislative and tax regime review, which is still underway. The subject of the review includes the Mining Act 1992, the Mining Safety Act 1997, the Income Tax Act 1959 and the Environment Act 2000, and applicable regulations. In addition, the review has addressed mineral policy generally, and mining-specific sector policies including offshore mining policy, sustainable development policy, involuntary relocation policy and mine closure policy.

The review has also considered the provisions of the state purchase option reservation, including possible changes to the percentage interest "cap", the consideration payable for the interest and the allocation of ownership of the acquired interest between the nominee of the state, the relevant provincial government and affected landowners.

The Chamber of Mines and Petroleum of Papua New Guinea, as the representative mining industry body, has been collating information and comments from industry participants regarding the review of current legislation and policy and engaging with the State as part of the response to the government's proposed legislative amendments, certain of which industry considers to be adverse (eg increased royalty rate; reduced state option strike price, prohibition of fly-in, fly-out, among others).

Pursuant to the tax regime review and notwithstanding industry objections, certain adverse changes to the fiscal regime were introduced with effect from 1 January 2017. The main changes were the introduction of an additional profit tax, the cessation of the double deduction allowance for exploration expenditure, and an increase in the rates of interest withholding and dividend withholding taxes.

National elections were held in August 2017, and the previous Government was returned. The review process is expected to continue.

Harmony began actively exploring in Papua New Guinea in 2003. Since then, we have developed a high-quality project portfolio, both in established mineral provinces and in emerging gold and copper districts.

Harmony has advanced several gold and copper-gold prospects which are at various stages of exploration and evaluation across Harmony's lease areas. These include the Kili Teke prospect.

In line with the company's strategy and growth targets, capital allocated to exploration projects for organic growth in FY18 has been focused on near-mine, brownfield targets. Although greenfield exploration activities have been scaled back, as part of a balanced approach Harmony continued to maintain its greenfield tenement interests for exposure to major new gold and copper gold discoveries in highly prospective underexplored terranes and mining districts throughout Papua New Guinea.

EXPLORATION AND PROJECTS CONTINUED

EXPLORATION FY18

Key work streams underpinning the FY18 exploration programme included:

- The Wafi-Golpu copper-gold deposit permitting process and progressing the special mining lease application
- Near-mine exploration and projects in support of extending mine life at Hidden Valley
- Maintenance of a greenfield exploration portfolio to enhance Harmony's world-class copper-gold footprint in Papua New Guinea
- In FY18, we spent R407.4 million (US$37.0 million) (FY17: R431 million; US$32 million) on exploration in Papua New Guinea with expenditure of R280.6 million (US$20.9 million) planned for FY19

The case for exploration investment in Papua New Guinea remains strong. Harmony closely monitors the environment for new opportunities to enhance our project portfolio, in line with core operating capabilities. The country is hugely prospective and under-explored. In addition, Harmony has an established track record of discovery and adding value through cost-effective exploration:

- Since 2003, resource growth from Harmony-held tenements, both those held in joint venture (Harmony's 50% equity share) and by Harmony alone (100%-held), amounts to 12.7Moz of gold and 5.1Mt of copper
- Discovery cost on a per ounce gold equivalent basis of less than US$10 is among the best in the world

Tenements held in joint venture

(Wafi-Golpu Joint Venture and Exploration Portfolio Joint Venture) (Harmony 50%)

Harmony is in a 50:50 joint venture with Newcrest Mining over a number of tenements in the Morobe Province.

These tenements encompass the Wafi-Golpu project and span the Wafi Transfer zone and its strike extensions, and are prospective for epithermal gold and porphyry style copper-gold deposits.

The exploration strategy is to discover bulk tonnage (~1Moz) or high-margin gold or copper-gold deposits to provide new resource options that can leverage infrastructure or complement the Wafi-Golpu project.

In conjunction with Harmony's acquisition of Newcrest's 50% interest in Hidden Valley, the exploration portfolio joint venture tenement portfolio was restructured and reduced to several tenements contiguous with the Wafi-Golpu project. The aggregate tenement package in Morobe Province, held in the 50:50 joint venture between Newcrest and Harmony, now stands at 325.3 km2 (FY17: 496km^2).

During FY18, total Harmony expenditure (50%) on the joint venture tenements in Morobe Province was R1.8 million (US$0.2 million), compared to R7 million (US$0.5 million) in FY17. Generative work focused on establishing the geophysical footprint and developing near mine drill targets within the Wafi-Golpu project area is planned to continue in FY19.

Papua New Guinea – overview of joint venture exploration (Harmony 50%)

Objectives:	Progress in FY18:	Targets/plans for FY19:
Exploration portfolio tenements (Wafi-Golpu district)		
Wafi transfer zone – greenfields exploration targeting discovery of additional resources to expand Wafi-Golpu into a mineral district.	An extension of the ZTEM airborne geophysical survey was flown in FY18 (697 line km) and 3D inversion modelling completed. A suite of 21 drill core samples was collected for geophysical property testing and the results used to validate the ZTEM response over the deposit. The results also revealed that the alteration magnetite at Nambonga and Golpu is permanently magnetised.	Technical work planned to advance orebody knowledge and understanding of the geophysical footprint of Golpu includes: Processing of the merged regional ZTEM dataset and integration with 3D deposit models (geology, surface and downhole geochemistry and geophysics) Surface geophysics to refine drill targets at depth, elsewhere within the Wafi-Golpu system. Follow up mapping and surface sampling on ranked targets along the Wafi-Transfer structure

EXPLORATION AND PROJECTS CONTINUED

Wafi-Golpu joint-venture
(Harmony 50%)

The Wafi-Golpu project is owned by the Wafi-Golpu joint venture, a 50:50 unincorporated joint venture between subsidiaries of Harmony and Newcrest Mining Limited respectively. The State of Papua New Guinea retains the right to purchase, for its pro rata share of accumulated exploration expenditure, up to 30% equity interest in any mineral discovery at Wafi-Golpu, at any time before the mining begins. If the State chooses to take-up its full 30% interest, the interest of each of the joint venture partners will decline to 35% each.

The Wafi-Golpu joint venture participants hold exploration licences EL440 and EL1105, which are located approximately 65km southwest of Lae, in Morobe Province, and where the joint venture proposes to undertake the permitting, construction, operation and (ultimately) closure of a greenfield block cave copper-gold mine.

Lae, the second largest city in Papua New Guinea, will host the project's import and concentrate export facilities. The proposed mine site sits at an elevation of approximately 400m above sea level in moderately hilly terrain and is located near the Watut River, approximately 30km upstream from its confluence with the Markham River.

In February 2016, the Wafi-Golpu joint venture participants completed feasibility and prefeasibility studies for the Wafi-Golpu copper-gold project and declared updated resources and reserves for the project. Both studies confirmed a robust investment case. In August 2016, an application for a special mining lease was lodged, supported by a proposal for development.

Subsequent to the completion of these studies and after further geotechnical drilling, certain technical challenges were identified, including seismicity impacting the preferred location of the terrestrial tailings storage facility, and limitations on the capacity of identified potential terrestrial storage sites in the vicinity of the mine to accommodate the projected life of mine volume of mine tailings.

Deep-sea tailings placement was seen as a potential alternative tailings management strategy, as there are excellent geographical conditions around Papua New Guinea for the deep-sea placement of tailings with a number of other mines in the area using this method.

2018 feasibility study update

The 2018 feasibility study update builds on the completed 2016 prefeasibility and feasibility studies, which evaluated and confirmed a business case based on block caving as the preferred mining method. The updated study incorporates the recommendations made in the earlier studies, as well as the additional orebody data derived from drilling and technical studies completed in 2016 and 2017, including technical assessments associated with:

- Project value improvements resulting from the reassessment of the scope, technical requirements, contracting and project execution strategies
- Collection of additional geotechnical data and the modelling of the stress regime in support of mine design and risk mitigation
- Completion of the assessment of terrestrial tailings storage and deep sea tailings placement (DSTP) alternatives
- Reassessment of the optimal mining production rate
- Reassessment of the optimal block cave locations within the Golpu porphyry
- Assessment of higher-reliability bulk power supply and transmission options
- Improved hydrogeology model with more data gathered and improved analysis
- Reassessment of port facility location options for the export of concentrate
- Further risk mitigation and improving the residual risk profile of the project
- Project execution planning

The project is a viable development of a high-quality resource, capitalising on the high-grade nature of the copper-gold Golpu orebody, optimised capital expenditure profile and the ability to optimise the production rate and cash flow by preferentially (in time) targeting higher-grade sections of the ore reserve.

The feasibility study update confirms block caving to be the preferred mining method, as previously indicated by the earlier studies. Block caving is a bottom-up mining method that typically has a higher initial capital requirement, associated with longer lead times to access orebody and establish underground infrastructure including the extraction footprint. Block caving does afford high production rates at low mining cost, which supports sustainable mining during low commodity cycles.

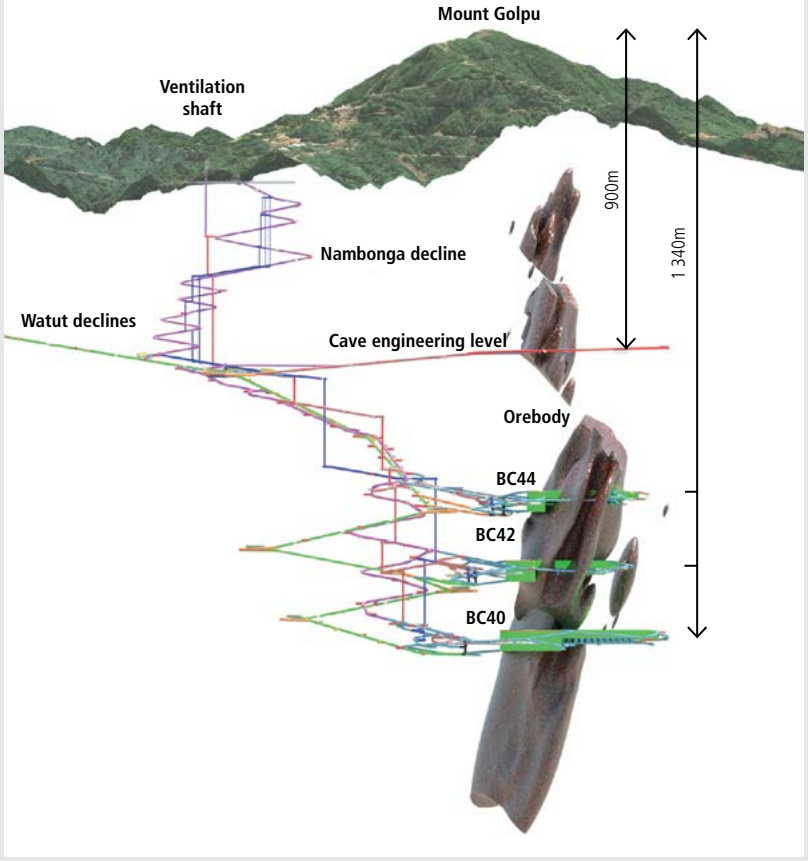
The feasibility study update confirmed the staged development approach (a recommendation of the 2016 feasibility study) to establishing the block cave mine as this approach minimises maximum negative cash flow and affords earlier free cash flow in support of the business case.

Prior to granting of the special mining lease, there is an opportunity to start development of the Nambonga decline (subject to completion of statutory permitting processes and securing approval from Government and the joint venture partners) to establish the underground access required to support further underground drilling. The additional data collected as a result of this possible exploration activity would be used to optimise and detail the mine design prior to development of the Watut declines to accessing the orebody, thereby de-risking the project's critical path to achieve first production.

The primary project deliverable is the commissioning of a mining operation to produce at nameplate capacity of 16.84Mtpa a high-quality copper and gold concentrate with ore sourced from three block caves, namely BC44 and BC42 and BC40.

EXPLORATION AND PROJECTS CONTINUED

Preferred development option



The diagram above illustrates the preferred development option. Evaluation of this preferred development option in the feasibility study update is based on:

- Mining 155Mt (approximately 40%) of the current known ore reserve in two block cave levels being block cave 44 (BC44, 65Mt) at 4400mRL and block cave 42 (BC42, 90Mt) at 4200mRL, both at a feasibility level of confidence
- Mining and processing the remaining ore reserve (210Mt), currently at a prefeasibility level of confidence, in a third block cave level, block cave 40 (BC40) at 4000mRL
- Total ore mined of 376Mt over 28 years (26 years post commercial production), including 11Mt of development ore

Note that when development tonnages are allocated to the block caves levels, the volumes per cave are BC44 68Mt, BC42 93Mt and BC44 215Mt. The values (tonnages and durations) per block cave level refer to production from the drawpoints, not development.

There is a clear opportunity for more capital efficient development of the Golpu deposit to be considered with extraction of the known reserve in two block cave levels (likely 4300mRL and finally 4000mRL). The selection of the preferred option, a three block cave level development, for evaluation by the feasibility study update, was largely based on the prevailing degree of geotechnical confidence (i.e., maximising value from feasibility level of confidence reserve above 4200mRL). This development option is to be validated and optimised in the next project phase.

This feasibility study update will inform any amendments required to the special mining lease 10 (SML 10) application and it's supporting proposal for development and tenements applications which were submitted to the Papua New Guinea Mineral Resources Authority in August 2016. The feasibility study update also informs the Environment Impact Statement, which is well advanced.

The Wafi-Golpu project will progress to execution once:

- SML 10, the environmental impact statement and all other necessary tenements and permits required in support of project development have been granted
- All required agreements with the State and landowners have been signed
- All necessary approvals have been received from the boards of directors of the ultimate holding companies of the partners in the joint venture, namely Harmony and Newcrest

During FY18, total Harmony expenditure (50%) on the Wafi-Golpu joint venture project was R334.6 million (US$26.1 million), compared to R282.5 million (US$20.8 million) in FY17.

The key focus for FY19 will be on the permitting process and progressing the special mining lease to grant.

For further details of the mineral resources and reserves at Wafi-Golpu and Nambonga, see page 137.

Papua New Guinea – Wau drilling

EXPLORATION AND PROJECTS CONTINUED

Tenements held exclusively by Harmony

(Morobe Consolidated Goldfields Limited and Harmony Gold (PNG) Exploration Limited) (Harmony 100%)

With the acquisition of Newcrest's interest in the Hidden Valley mine, Harmony's 100%-owned tenement portfolio in Papua New Guinea increased to 1 265km^2 compared with FY17: 764km^2 (a 66% increase year-on-year). The increase included the acquisition by Harmony Gold (PNG) Exploration of the tenements held by the Exploration Portfolio Joint Venture in the area surrounding the Hidden Valley mine (EL 677, EL497 and EL2313).

A total of R71.2 million (US$5.5 million) was spent on 100% Harmony-owned projects in FY18 (FY17: R147 million/ US$10.6 million). Work programme expenditure focused on development of brownfield gold targets within a 10km radius of the Hamata processing plant at Hidden Valley. This includes study work on the depth extension of the Hidden Valley deposit.

The FY18 resource for Kili Teke remains at 782 000t of copper, and 1.8Moz of gold. The deposit is open at depth and along strike to the southeast. Drill spacing remains broad. Potential to increase the resource base is excellent and follow-up work is planned for FY19.

For further details on Kili Teke and its mineral resource, see page 140.

Papua New Guinea – overview of brownfield exploration activity and greenfield tenement portfolio (Harmony 100%)

Objectives:	Progress in FY18:	Targets/plans for FY19:
Kili Teke Project – EL2310		
Targeting copper-gold porphyry	Fieldwork was scaled back with shift in focus to brownfield exploration around existing infrastructure. FY18 work included: Concept studies were completed in order to inform the drill strategy going forward. A work programme targeting depth and strike to the southeast, and for new centres of mineralisation is planned.	Work scheduled for FY18 includes: • Community engagement and social mapping • Airborne geophysics and processing to identify "blind" targets masked by limestone cover and for improving drill targeting at depth
Hidden Valley District Project – EL497, EL677, EL2313, ML151		
Brownfields exploration within a 10km radius of the Hidden Valley plant to develop replacement resources and support expansion	Mining studies to investigate options to extend mine life on down dip extension of the Hidden Valley orebody began. First pass drill testing at Wau comprised 14 holes/2990m. Results highlight widespread alteration and anomalism associated with the Kuranga dome. Surface sampling on the Hidden Valley ML and surrounding area comprised over 2600 samples and included systematic grid based soil geochemistry and rock chip sampling. Several areas of interest including historic anomalies at Salemba and Tais Creek were prioritised for follow-up in FY19. Reconnaissance work at several peripheral targets including Edie creek, Kerimenge, Yengalemu was also completed but prospectivity was downgraded	• Complete mining studies to prefeasibility level including mine optimisation, geometallurgical model, geotechnical studies, and tailings deposition • Target generation on the northern margin of the Wau Domefield on EL2313 including integrated 3D model development incorporating latest drill data • Follow-up on areas of interest prioritised from recent systematic geochemical sampling program including IP geophysics
Project generation		
Develop a project pipeline capable of delivering additional quality resources to sustain growth and regional operations	Data consolidation and programme planning for follow-up work at Moa/Udat Creek was completed with field work commencing at year end. Tenement monitoring for new opportunities continued.	Follow-up work at Moa/Udat creek includes: • Extension of reconnaissance surface sampling and mapping • Drill target development

EXPLORATION AND PROJECTS

CONTINUED

SOUTH AFRICA

FY18 HIGHLIGHTS AND MILESTONES

Kalgold brownfield exploration programme:

- Prefeasibility study underway to optimise Kalgold operation
- 20,872m drilled with excellent results
- A revised, audited, SAMREC-compliant mineral resource estimate was completed post year end. As at 30 September 2018 Kalgold's open pit Mineral Resource contains:
  - 76.5Mt @ 0.95g/t Au for 2.34Moz Au
  - Over 1.05Moz Au added to the resource base (180% increase) through aggressive exploration
- Mining studies to test expansion options underway
- Infill drilling progressing onsite with three rigs to upgrade resource classification
- Significant resource growth upside including high-grade satellite resource targets identified for further work

Tailings retreatment expansion:

Several tailings retreatment growth projects underway, including:

- Expansion of Central Plant tailings retreatment – a feasibility study has begun to expand monthly capacity from 300 000 tonnes to 500 000 tonnes
- Retreatment of newly-acquired Mispah tailings – a prefeasibility study is being conducted to investigate the economic viability of retreating the tailings material stored in the Mispah dams, which were included in the Moab Khotsong acquisition
- Expansion of the Saints tailings retreatment project is also underway

EXPLORATION FY18

All of our underground mines are located within in the Witwatersrand Supergroup. Most are situated in the south-western corner of the Witwatersrand Basin or Free State goldfields, and comprise sedimentary rocks that extend laterally for hundreds of kilometres into the West Rand goldfields and East Rand Basin. Our mining assets include an open pit operation on the Kraaipan Greenstone Belt, to the north-west of the Witwatersrand Basin. Additional information on the geology is provided by operation in this report.

In FY18, Harmony spent R50 million on exploration in South Africa. Expenditure of R88 million is planned for FY19.

Underground exploration

A total of 62 961m (FY17: 62 860m) was drilled across Harmony's underground operations in South Africa.

Using a method known as continuous coring, underground exploration drilling is done as per required intervals from existing underground excavations (haulages and cross cuts). This drilling provides information to determine the elevation and grade of the targeted reef horizon as well as on geological features in the immediate surrounding lithology. It assists in structural geological interpretation and evaluation of specific areas as well as in the compilation of regional structural geological and evaluation models. Mine geologists and planners use drilling information to determine a mine's development strategy and eventually its economic viability.

EXPLORATION AND PROJECTS CONTINUED

Kalgold brownfield exploration programme

The Kalgold operation is 100% owned by Harmony and located approximately 276km west of Johannesburg, in North West Province, South Africa. Harmony holds 448 square kilometres of highly prospective tenure over the Kraaipan Greenstone Belt which includes the Kalahari Goldridge Mining Right (Kalgold), its associated open-pit gold mines and several adjacent prospecting rights. The titles provide an ideal mix of near-mine and new mine opportunities that can leverage existing infrastructure and be fast-tracked into production with aggressive exploration.

The brownfield drill campaign undertaken at Kalgold has proven a highlight of Harmony's FY18 exploration programme. Intercepts returned over the course of the programme outlined an expanded, robust mineralised system with over 2.1 kilometres of strike, extending to in excess of 300m below surface (a full list of drill intercepts is included with the SAMREC Table 1 report at *www.harmony.co.za*).

An updated mineral resource estimate incorporating FY18 drill results was compiled post year-end. The final SAMREC compliant, audited, Mineral Resource declaration contains 76.5Mt @ 0.95 g/t Au for 2.34Moz Au, an increase of 1.05Moz (180%) from the 2017 estimate. Further, the resource growth outlook is extremely positive. The deposit remains open to the south, and at depth, and infill and scoping drilling continues. Several high-grade satellite targets have also been identified for follow-up work in FY19.

Kalgold mineral resource statement as at 30 September 2018[1]:

Resource category	Mt	Au g/t	Au (koz)
Measured	11.3	0.85	310
Indicated	36.4	0.96	1 125
Inferred	28.7	0.98	903
Total	**76.5**	**0.95**	**2 339**

[1] *Reported at 0.44 g/t cut-off within an optimised pit shell generated from Whittle 3D*

The expanded resource base presents an exceptional organic growth opportunity for Harmony and mining studies have begun to test a range of concepts to achieve a step change in the production profile of the operation through higher mining and throughput rates.

Kalgold

EXPLORATION AND PROJECTS CONTINUED

Summary of brownfields exploration in South Africa

Objectives:	Progress in FY18:	Targets/plans for FY19:
Kalgold operation		
Advance prefeasibility studies in support of an expansion of the Kalgold open pit mining operation Additional resource growth to underpin expansion studies and improve operational flexibility: • New high-grade satellite resources • Extensions to the known deposits	74 holes/20,872m drilled during the year. A revised mineral resource estimate for Kalgold was completed post year end comprising 76.5Mt at 0.95g/t Au for 2.34Moz of gold [2]. Mining studies began to test options for increased mining rates and throughputs together with potential fatal flaws (eg. water availability and tailings deposition). Drill results from the Windmill south area returned. The results together with historic intercepts at the prospect describe a continuous 300m zone of mineralisation that extends to surface. Drill testing to progress this advanced prospect into a satellite resource has been prioritised. FY18 drilling on the main A-Zone-Watertank line of mineralisation has resulted in an increase of over 1Moz Au to the resource base. Drill intercepts show that mineralisation remains open to the south of A Zone, and at depth. Additional resource definition drilling to scope out the southern extension of the deposit is planned.	Prefeasibility studies based on the revised mineral resource estimate by Q3 FY19 testing: • Increased mining and throughput rates and associated capital requirements • Metallurgical testwork and plant design • Tailings deposition • Environment Infill drilling (15,000m) to upgrade inferred resource into indicated resources is planned as part of the mining studies. • Resource scoping/definition drilling on satellite targets and deposit extensions

Kalgold

EXPLORATION AND PROJECTS CONTINUED

Summary of brownfields exploration in South Africa continued

Objectives:	Progress in FY18:	Targets/plans for FY19:
Kalgold prospecting rights		
Understand the potential to develop the Kraaipan Greenstone Belt into a new mineralised province with multiple mining centres	The mineralisation style encountered at Kalgold is extremely conductive, and amenable to detection under cover via geophysical survey techniques. Prospecting rights encompassing the Kalgold operation and 40km of strike of underexplored, highly prospective greenstone belt were renewed for three years. The belt is poorly understood owing to Kalahari sand cover. Community engagement in preparation for planned regional geophysical and geochemical exploration programmes began.	Planned regional exploration includes: • Airborne electromagnetic survey • Follow-up ground truthing of resultant geophysical targets including mapping and surface geochemistry
Kalgold expansion project		
Kalgold currently treats approximately 130 000tpm. Following on from the current exploration drilling programme, the project is looking at optimising/ increasing production.	A prefeasibility study was started in June 2018 to investigate various plant throughput options, from the current 130 000tpm up to 300 000tpm. The first phase of the exploration drilling programme was completed in June and the resource estimate from this work will be used in the study. The prefeasibility is due to be completed in March 2019.	Complete prefeasibility study and start feasibility study on the preferred option, once our technical and economic criteria have been met. Use a further upgraded resource estimate based on phase 2 exploration drilling due for completion in December 2018.

[2] *Complete assay results and resource details are tabulated in the technical annexure available at: SAMREC Table 1 Report – Kalgold Operation, North West Province, Republic of South Africa.*

EXPLORATION AND PROJECTS CONTINUED

Summary of brownfields exploration in South Africa continued

Objectives:	Progress in FY18:	Targets/plans for FY19:
Tshepong operations: Tshepong section, B Reef		
At the Tshepong section, exploration continues to maintain current levels of B Reef mining. Drilling is being conducted to identify areas of economic value in the projected extensions of the current B Reef channels being mined.	Twenty-one exploration holes were completed. Drilling assisted in the testing of the current pay shoot model and in delineating more detailed channels that were extrapolated from existing pay shoots.	Exploration drilling was completed by end June 2018. Currently, B Reef exploration is being conducted only in the decline section of the mine to test the extrapolated model of the Sub Horizon area across the Dagbreek fault.
Tshepong operations: Phakisa section, B Reef		
Currently, there is no mining of the B Reef at the Phakisa section. Exploration drilling is being undertaken to identify areas of economic value in the down-dip extensions of those channels being mined in the neighbouring Tshepong section. Limited drilling is taking place on the south side of the Phakisa shaft pillar. Significant potential may exist to mine the B Reef in the Phakisa section.	Eight exploration holes have been completed. The drilling rate increased with the introduction of additional machines. Drill results, combined with historic regional information, have improved understanding of the B Reef boundaries which has allowed enhanced definition of expected payshoot areas.	An additional 15 holes, from 69 to 73 levels, will be drilled. This will involve two machines drilling on the north side of the shaft and a third on the south side.
Doornkop South Reef		
Drilling of long-incline boreholes is being conducted to confirm the South Reef on levels 202, 207 and 212 s as well as to build confidence in the geological model.	The South Reef was confirmed on levels 202, 207 and 212 as was intersections with major geological structures. This information is being incorporated into the 3D seismic survey interpretation.	Project completed, new target drill areas have been identified to further increase geological confidence and to grow the resource base.
Doornkop seismic survey		
The seismic survey identified and located major geological structures and confirmed the South Reef levels.	Project completed and the new South Reef model used for the new life of mine plan. There is a better understanding of major geological structures as well as the definition of reef below and above infrastructure.	Project completed. 3D models for all other reefs to be completed.
Harmony-White Rivers Exploration joint venture		
The main aim of this exploration joint venture is to explore and develop potential gold resources at White Rivers Exploration (Pty) Limited's Beisa Project and abutting exploration areas within Harmony's adjacent Target complex.	Initial exploration activities, which included collation, interpretation and verification of historical data, geological modelling and resource estimate, were concluded. This work was audited and approved by SRK. The prefeasibility study based on the new resource model is currently underway.	Completion of the prefeasibility study. Underground exploration drilling in the southern portion of the project area is planned. The drilling programme aims to convert inferred resources lying in the initial mining area into indicated category to facilitate future mining studies.

EXPLORATION AND PROJECTS CONTINUED

Summary of brownfields exploration in South Africa continued

Objectives:	Progress in FY18:	Targets/plans for FY19:
Target North		
The aim of the current exploration programme is to confirm the geological model which was created on the completion of the Target North study work. The model defined the potential block of well mineralized Ventersdorp Contact Reef, where it overlies the alluvial fans of the upper Elsburgs and Dreyerskuils reefs. Two fans have been interpreted in the Target North area of the Dreyerskuil and Mariasdal fans. Further resource definition drilling will be planned, pending the results of the current exploration programme.	The Sun South prospecting right, which forms part of the Target North project, was incorporated into Target's mining right. Planning for surface exploration drilling has been completed and the budget approved. Sourcing of a drilling contractor has begun.	Three surface boreholes will be drilled in the postulated Mariasdal fan area in order to test the Ventersdorp Contact Reef as well as the sub-cropping Elsburg and Dreyerskuil reefs. Drilling is expected to take about two years. The geological model will be updated once the drilling programme has been completed.

Phakisa

EXPLORATION AND PROJECTS CONTINUED

Projects

A summary of projects underway in South Africa in FY18:

Objectives:	Progress in FY18:	Targets/plans for FY19:
Joel North		
In order to access the orebody from 137 level, two declines were developed at 12° from 129 level – a chairlift decline and a conveyor belt decline. Primary footwall development is currently taking place on 137 level to intersect the reef.	The temporary conveyor is in use, which allows rock to be tipped at the bottom of the decline and transported up to 129 level. The permanent conveyor has been equipped. Construction of the box fronts on 137 level is ongoing.	Completion of the whole project including all construction and equipping so as to gain access to the reef horizon and to be in a position to start stoping.
Tailings retreatment expansion		
Retreatment of additional tailings in the Free State (Saints project).	Value engineering relating to phase 1 of the Saints project was completed during the year. The project now envisages 500 000tpm of tailings being treated in the early years, reducing to 333 000tpm as the height of the deposition dam increases. Project economics improved significantly for a relatively small rise in capital. No further work has been carried out on phase 2.	Financing options to execute Saints phase 1 will be investigated.
Central Plant tailings reclamation		
Entails conversion of Central Plant for tailings retreatment and the processing of reclaim material from FSS5 tailings facility at a rate of 300 000tpm. The Central Plant operation will be similar to the highly profitable Phoenix operation, which has been in operation since 2007.	The project reached nameplate capacity in its first month of operation and continued to deliver steadily throughout the year.	Successfully pass the technical and economic approval process and meet the relevant criteria to determine the ranking of the project for capital allocation purposes.
Central Plant tailings reclamation "plus": this project is an expansion of the current central plant reclamation project and aims to increase tailings re-treatment by up to 200 000tpm. Additional reclamation and deposition sites will be required and Central Plant will need expanded treatment facilities.	Prefeasibility and feasibility studies were completed, based on increasing throughput by 200 000tpm, taking full processing to 500 000tpm. At year end, the feasibility study had still to pass and meet our technical and economic criteria.	
Target 3 shaft		
Target 3 shaft was placed on care and maintenance in FY15. This project investigate the possibility of re-opening the shaft to mine the higher grade Basal Reef.	The 2017 feasibility study was updated during the year after the geological model had been updated with additional information. Study outcomes remained essentially unchanged. Rehabilitation of the main shaft brattice wall continued throughout the year as did pumping of water.	As Target 3 shaft is a main pumping shaft, certain rehabilitation work will take place during pumping operations. Rehabilitation of the main shaft brattice wall will continue. This work is aimed at improving project economics by reducing project capital requirements and the time to produce first gold.

EXPLORATION AND PROJECTS CONTINUED

Objectives:	Progress in FY18:	Targets/plans for FY19:
Moab Khotsong – Mispah tailings dam re-treatment project		
The Moab Khotsong acquisition included both the Mispah 1 and 2 tailings dams. The re-treatment project considers re-treating the Mispah 1 tailings dam through either Great Noligwa metallurgical plant or the Mispah plant, or a combination of the two.	A prefeasibility study began in June 2018 and is due to be completed in January 2019. Various production rates ranging from 300 000tpm to 510 000tpm are being considered. The tailings dam is currently being drilled and samples taken for both evaluation (grade) and recovery (metallurgical) purposes.	Prefeasibility study to be completed and, should the gate be successfully negotiated, the feasibility study will begin.
Moab Khotsong – Great Noligwa shaft pillar extraction		
The Great Noligwa shaft pillar contains some 20 tonnes of gold. Various options exist to remove a percentage of this gold, depending on the methodology chosen.	A prefeasibility study begun in May 2018 is due for completion in September 2018. Two options are being investigated which see approximately 50% of the gold being extracted.	Prefeasibility study to be completed and, depending on the outcome of the gate keeping, to proceed to feasibility.
Moab Khotsong – Zaaiplaats project		
AngloGold Ashanti carried out many studies on this project area which lies below current Moab Khotsong mine infrastructure. If the project can be developed quickly enough, it will extend Moab Khotsong's life of mine.	A review of earlier studies conducted by AngloGold Ashanti began in May 2018. Various options are being considered for inclusion in a prefeasibility study	Prefeasibility study scheduled to begin in September 2018 and to be complete within seven months.

MINERAL RESOURCES AND RESERVES BY OPERATION

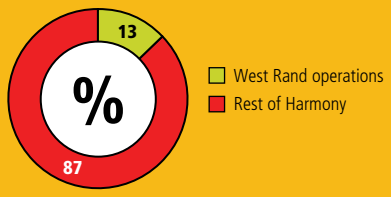
SOUTH AFRICA – WEST RAND

Harmony's West Rand operations, Doornkop and Kusasalethu, had combined mineral reserves of

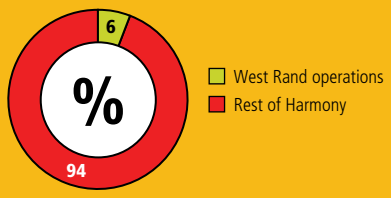
2.1Moz

which are included in mineral resources of 15.4Moz as at 30 June 2018

CONTRIBUTION TO GOLD MINERAL RESOURCES (including gold equivalents)



CONTRIBUTION TO GOLD MINERAL RESERVES (including gold equivalents)



WEST RAND OPERATIONS – LOCALITY

LEGEND

- Shaft position
- West Rand operations
- Towns/residential areas
- National road
- Regional road

West Rand operations	Latitude	Longitude
Doornkop	26°13'03.36"S	27°47'26.55"E
Kusasalethu	26°27'16.23"S	27°21'32.91"E

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED

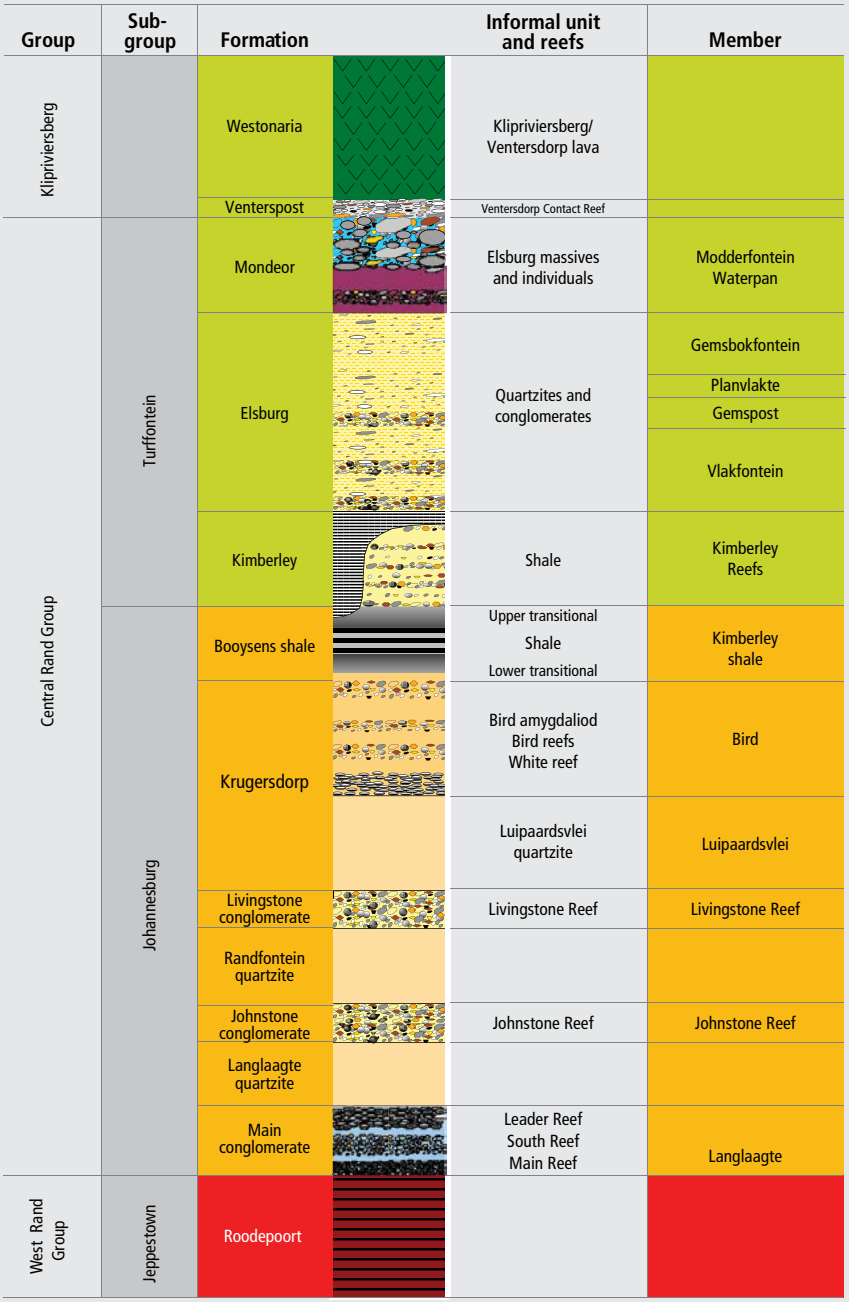
LOCATION
Harmony has two underground mining operations – Doornkop and Kusasalethu – on the north and northwestern rim of the Witwatersrand Basin.

The Doornkop shaft complex is located south of Krugersdorp, 30km west of Johannesburg, in the province of Gauteng. The property lies between Cooke 1 shaft, belonging to Sibanye–Stillwater, and Durban Roodepoort Deep Mines.

Kusasalethu is situated on the West Wits Line, adjacent to the Savuka and Mponeng mines (AngloGold Ashanti Limited) to the east and the dormant Deelkraal to the west. Kusasalethu is situated 14km south of Carletonville and 90km southwest of Johannesburg.

REGIONAL GEOLOGY
Refer to the geological descriptions under each operation.

WEST RAND
STRATIGRAPHIC COLUMN



MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – WEST RAND CONTINUED

DOORNKOP

Doornkop

History

Exploration in the area started in the early 1930s with sinking of the main and ventilation shafts, by JCI, beginning in 1983. By 1989, steady production had been achieved from mining of the Kimberly Reef which is shallower than the South Reef that is currently mined. The South Reef shaft extension was approved in October 1991 with the reef being intersected in October 1993. Stoping of the South Reef began in 1995. Shaft deepening continued with stoppages in between from November 1996 to May 1999. Harmony acquired Doornkop in January 2000. The South Reef project was re-launched in January 2003, resulting in the deepening of the mine to 1 980m below collar.

Nature of the operation

Doornkop is a single-shaft operation exploiting the South Reef to some 2 000m below surface. The South Reef is a narrow reef, exploited by means of conventional stoping. The ore mined at Doornkop is processed at the mine's carbon-in-pulp plant, situated directly next to the shaft. Mining of the Kimberley Reef was suspended during FY14 so as to focus on the build-up of mining of the South Reef and to prevent losses resulting from the lower gold price. Mining of the Kimberley Reef may be resumed should economic circumstances improve sufficiently.

Mineral rights/legal aspects and tenure

The current mining right encompasses an area of 2 941.021 hectares and was successfully converted, executed and registered as a new order mining right at the Mineral and Petroleum Resources Titles Office (MPRTO) on 25 February 2009 under MPT 18/2009. DMR Reference GP30/5/1/2/2/09MR is valid from 7 October 2008 to 6 October 2038.

Geology

The Doornkop shaft lease area is bounded by and lies to the southeast of the major northeasterly striking Roodepoort fault, which dips to the south and constitutes the southern edge of the Witpoortjie horst block or gap. This horst block comprises the stratigraphically older sediments of the West

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED

Rand Group, the overlying Central Rand Group sediments having been removed by erosion. A number of other faults, forming part of and lying southeast of the Roodepoort fault, including the Saxon fault, also constitute conspicuous structural breaks. A second major fault, the Doornkop fault, which trends in an east-west direction, occurs toward the southern portion of the lease area. This fault dips to the south and has an up-throw to the north.

Nearly the entire upper Witwatersrand section is present in the lease area and therefore all major zones are present, though, due to the distance of the area from the primary source of gold, the number of economic bands and their payability is limited. Eight of the well-known reefs are present in the area, but only the South Reef and potentially the Kimberly Reef are considered viable at this stage.

The South Reef is between 7.5m and 60m above the Main Reef horizon. The hanging wall of the South Reef consists of siliceous quartzites with non-persistent bands of 'blue-shot' grit and thin argillite partings. The footwall to the South Reef is a light coloured and fairly siliceous quartzite. Secondary conglomerate bands and stringers in the hanging wall and footwall of the South Reef may contain sporadic gold values. The general strike of the reef is east-west, with a flat dip from 5 to 15 degrees.

Due to the limited geological information, one of the biggest operational risks for the operation is the intersection of any geological structures that may have significantly affect reef elevations which can result in certain resources being below infrastructure, rendering them inaccessible from current levels with a potential to negatively affect reserves declared. To curb this risk, an extensive exploration drilling programme from underground platforms and using long incline borehole machines has been embarked on. This will limit unforeseen geological encounters and/or changes in mine design.

A recently completed seismic survey has contributed to enhanced geological understanding of regional structures and reef elevations in the major blocks. Structural interpretation of the seismic survey information has begun and all changes will be reflected in the coming year's geological interpretation and life-of-mine designs. 3D models of all economic reefs were constructed using information from the seismic survey and from surface and underground exploration holes. The seismic survey has led to a better understanding of the major geological structures, resulting in increased confidence in the geology and the life-of-mine plan.

Mining methods and mine planning

The mining method used is longwall mining with stability pillars being left on major geological structures. The flat dip which results in the development of long cross cuts presents challenges in terms of ore handling, especially for the bottom part of the raises, of ventilation and in the long lead times between the start of cross cut development to completion of stoping per raise line.

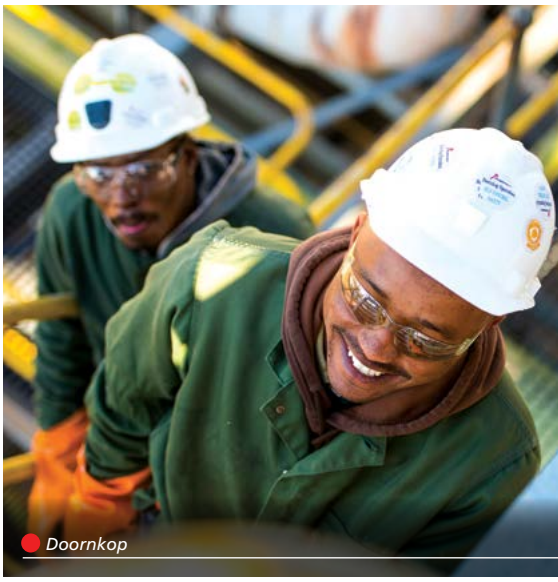
Mineral processing

The plant is a carbon-in-pulp plant with a milling capacity of 225 000 tonnes a month. Until they were placed on care and maintenance, this included approximately 120 000 tonnes a month of ore from Sibanye-Stillwater's Cooke operations which were toll treated at Doornkop.

Infrastructure

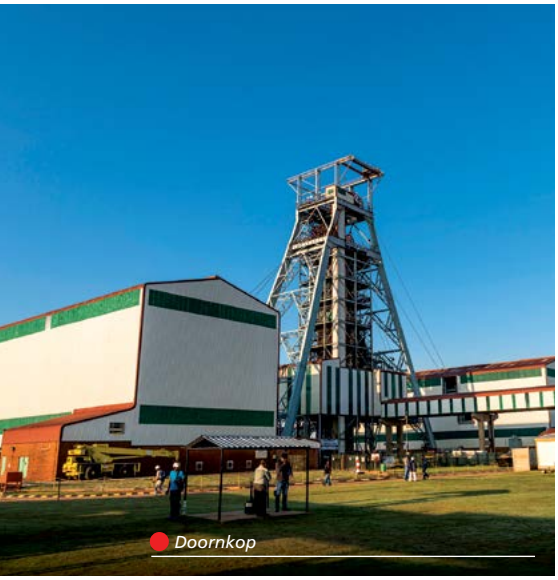
Doornkop's surface and underground infrastructure, including its power and water supplies, can cope with current planned peak production level requirements. The 192, 197 and 202 levels are track bound while current development on 207 and 212 levels is trackless with plans in place to eventually make these levels track bound too. Work continues on certain essential underground infrastructure on the South Reef, including the permanent tipping arrangements required to bring 207 and 212 levels to full production. Ore is hoisted through the main shaft. Currently, the mine uses Sibanye-Stillwater's Cooke 1 shaft, which is 7km away, as a second escape way.

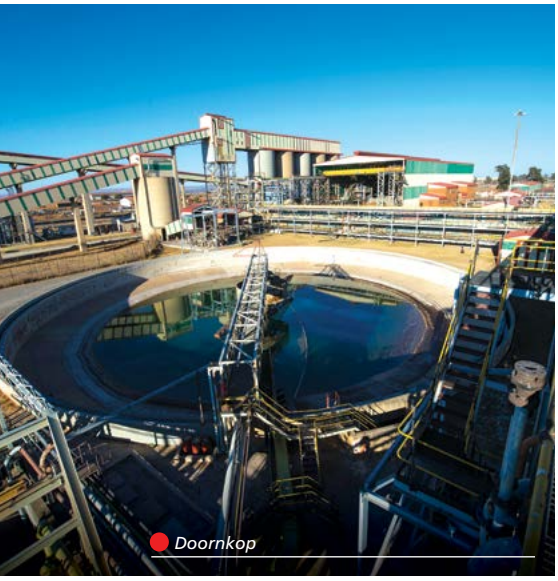

Doornkop


Doornkop


Doornkop

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED


Doornkop


Doornkop


Doornkop

Mineral resource estimation

The estimation method used for local measured data on the shaft is ordinary kriging and for local indicated and inferred data is simple macro kriging. Estimates are generally kriged into 30m x 30m blocks for the measured resources from the point support data. Indicated resources are kriged into 60m x 60m blocks, using the associated regularised variograms together with a macro kriging decluster. Similarly, inferred resources are estimated using the associated regularised variograms and kriging into 120m x 120m blocks. Any un-kriged areas in the inferred regions are then covered by global mean estimates. Geozones are based on grade distribution and structure to ensure correct grade estimates for the different areas.

Environmental impact

In line with Mineral and Petroleum Resources Development Act of 2002, Doornkop has in place an approved environmental management plan (dated 2009). A revised and updated environmental management plan was recently submitted to the Department of Mineral Resources for approval (May 2018). The plan was revised to reflect current environmental conditions such as surface and ground water quality, ambient air quality, noise pollution and was aimed at ensuring alignment with current requirements for environmental management plans under the National Environmental Management Act (NEMA) and environmental impact assessment regulations. All environmental aspect/impacts emanating from mining activities are documented in the environmental management plan report and in the environmental aspect register as required by NEMA and ISO 14001 standard.

Annual performance monitoring and audits are conducted by the Department of Mineral Resources to verify compliance with the following legislation:

- Mine Health and Safety Act 29 of 1996
- National Water Act 36 of 1998
- National Environmental Management Act 107 of 1998
- Biodiversity Act 10 of 2004
- Air Quality Act 39 of 2004
- Waste Management Act 59 of 2008
- Mineral and Petroleum Resources Development Act 28 of 2002
- National Heritage Resources Act 25 of 1999
- Noise Control Regulations

According to regulation 55(3) of Mineral and Petroleum Resources Development Act 28 of 2002, compliance audits must be conducted to verify compliance with the approved environmental management plan. The audit report is submitted to the Department of Mineral Resources. Internal environmental legal compliance audits are also conducted to verify compliance. An online Doornkop environmental legal register, available on www.drayer-legal.co.za, is used to monitor compliance and to obtain relevant environmental legal updates for the operation.

Bio-monitoring surveys are conducted on surface water streams (Klipriver upstream and downstream) close to the operation as stipulated in the Doornkop draft water licence. In particular, these surveys aim to:

- Determine the ecological status of the Klipriver by monitoring indices such as SASS5, IHAS and AHIA, as well as to determine the chemical water quality in the river during wet and dry season
- Provide baseline reference condition for future studies in order to assist Doornkop management in identifying environmental liabilities that might result from current mining activities regarding the potential contamination of river
- Determine the general habitat integrity, habitat conditions for macro-invertebrates and aquatic macro-invertebrates

Doornkop has been ISO 14001:2004 accredited since 2010 and conforms to requirements of the ISO 14001:2004 international standard. Doornkop has also been accredited by the International Cyanide Management Institute and is audited annually to verify conformance with ISO 14001 and Cyanide Management Code. In line with its accreditation, every effort is made to either eliminate or minimise the effects of mining activities on the environment and adjacent communities.

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED

MATERIAL RISKS:
Material risks which may impact Doornkop's reserve and resource statements are as follows:

SIGNIFICANT RISKS
- Unexpected geological features

REMEDIAL ACTION
- Extensive exploration drilling from underground platforms, long incline borehole drilling and seismic survey

COMPETENT PERSON

ORE RESERVE MANAGER
Hilton Chirambadare
BSc (Geology, Mathematics), BSc Hons (Geology), GDE, MENG, SACNASP

16 years' experience in gold mining, 13 years on Witwatersrand gold deposits (underground) and three years on the Kraaipan Greenstone Belt (surface)

DOORNKOP

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
South Reef	3.2	8.29	27	857	3.6	8.38	30	975	5.2	8.48	44	1 415	12.0	8.40	101	3 247
Main Reef	0.1	5.38	0.4	14	0.05	5.51	0.3	8	0.02	5.32	0.1	3	0.1	5.41	1	25
Kimberley Reef	18.1	3.36	61	1 957	12.1	3.15	38	1 226	10.1	3.28	33	1 066	40.3	3.28	132	4 249
Total	**21.4**	**4.11**	**88**	**2 828**	**15.8**	**4.35**	**69**	**2 209**	**15.3**	**5.05**	**77**	**2 484**	**52.5**	**4.46**	**234**	**7 521**

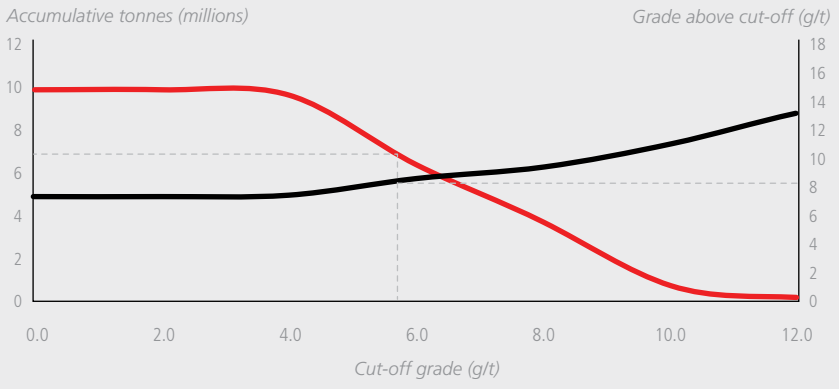
Modifying factors

South Reef	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2017	81	124	147	96	735
2018	81	125	144	96	735

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
South Reef	3.0	5.01	15	480	4.0	5.07	20	648	7.0	5.05	35	1 129

DOORNKOP:
South Reef
Measured and indicated resource grade-tonnage curve



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED

OPERATIONAL PERFORMANCE

Doornkop – key operating statistics

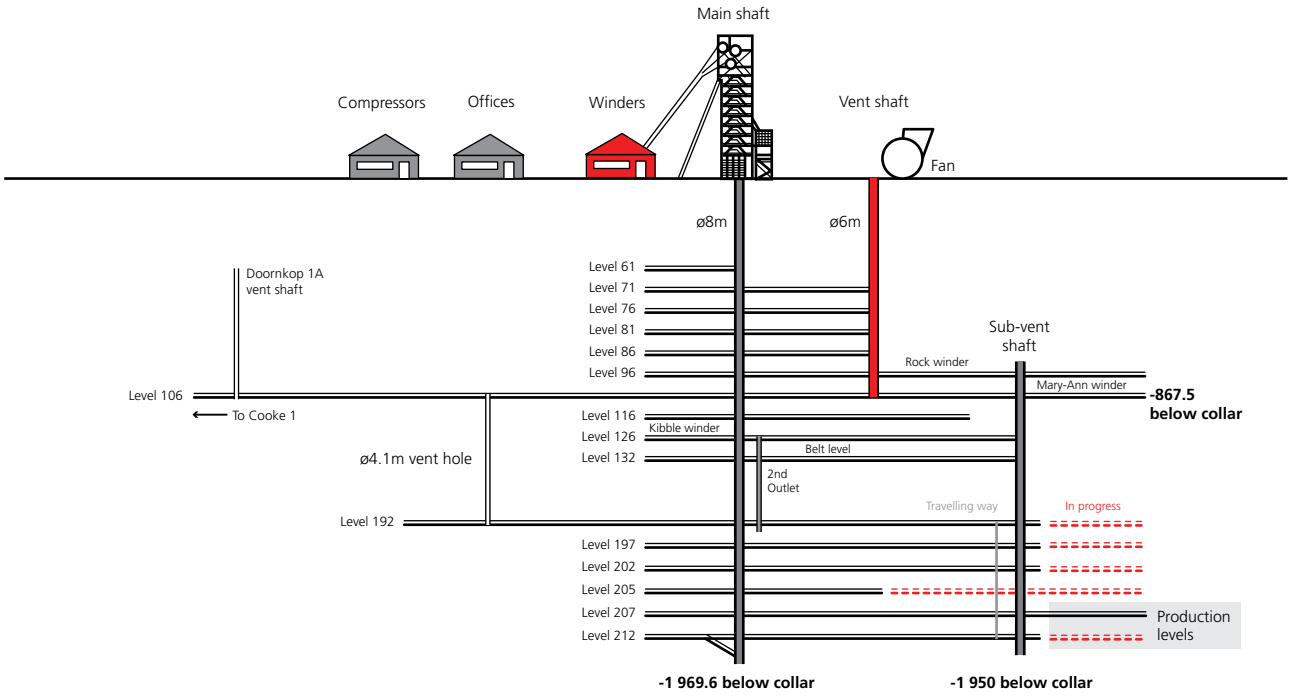
	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**696**	641	630	603	737
	000t (imperial)	**767**	706	695	665	812
Gold produced	kg	**3 429**	2 673	2 730	2 663	2603
	oz	**110 245**	85 939	87 772	85 618	83 687
Grade	g/t	**4.93**	4.17	4.33	4.42	3.53
	oz/t	**0.144**	0.122	0.126	0.129	0.103
Development						
Total metres (excl. capital metres)		**9 595**	9 961	7 766	8 919	8 322
Reef metres		**1 478**	1 337	1 688	1 701	1 475
Capital metres		**806**	1 316	0	0	0
Average gold price received	R/kg	**575 077**	572 494	545 770	449 857	427 728
	US$/oz	**1 392**	1 310	1 171	1 222	1 285
Financial						
Capital expenditure	Rm	**274**	243	208	245	238
	US$m	**21**	18	14	21	23
Cash operating cost	R/kg	**413 586**	457 752	387 585	402 065	420 617
	US$/oz	**1 001**	1 047	831	1 092	1 264
All-in sustaining cost	R/kg	**508 065**	562 907	473 562	501 151	513 348
	US$/oz	**1 230**	1 288	1 016	1 362	1 543

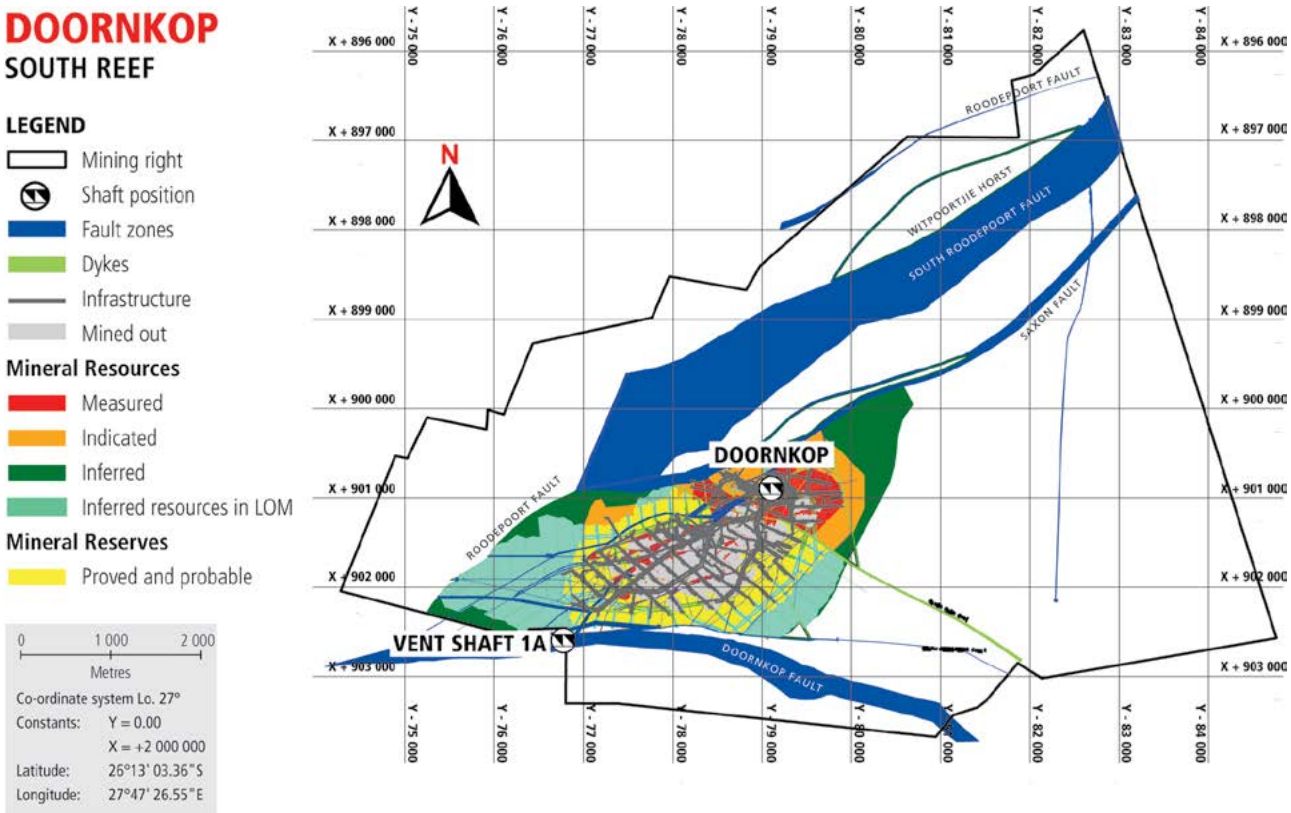
Doornkop

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – WEST RAND CONTINUED

Doornkop: Schematic of shaft and mining layout





MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – WEST RAND CONTINUED

KUSASALETHU

Kusasalethu

History

Harmony acquired the Elandsrand and Deelkraal mines from the then AngloGold Limited in 2001. Shaft sinking of twin vertical shafts at Elandsrand had begun in January 1975 and was completed in December 1978 with first gold produced in 1979. Elandsrand changed its name to Kusasalethu in February 2010. Kusasalethu means "our future" in Zulu.

Nature of the operation

The 10m-diameter rock/ventilation shaft was sunk to 2 195m and the man/material shaft to 2 127m. By June 1984, a 10m-diameter sub-vertical rock/service shaft had been completed to a depth of 3 048m and a 7m-diameter sub-vertical ventilation shaft to a depth of 3 048m. Both of these shafts were deepened to a final depth below surface of 3 318m and 3 388m respectively as part of the deepening project to extract the higher-grade pay shoot towards the west of the mine. In December 2014, a decision was taken to suspend operations in the old portion of Kusasalethu and to restructure the mine. Subsequently, mining above 98 level ceased.

Kusasalethu employs sequential-grid mining, which is in essence an upside-down Christmas tree configuration. This method is used to direct seismic stresses away from current working areas into virgin rock areas.

Given the decrease in reserves at Kusasalethu in recent years, a result of normal depletion, a revised, shortened life-of-mine plan was implemented in FY15. This plan aims to optimise the mine's cash flow at a higher grade and create a stronger operating margin while providing the flexibility necessary to access the high-grade payshoot of the Ventersdorp Contact Reef below infrastructure, should economic circumstances allow.

Mineral rights/ legal aspects and tenure

The current mining right encompasses a total area of 7 000ha. Kusasalethu's mining right has been successfully converted, executed and registered as a new order mining right at the Mineral and Petroleum Resources Titles Office

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED

(MPRTO). GP30/5/1/2/2/07MR is valid from 18 December 2007 to 17 December 2037. In terms of section 102 of the MPRDA, the farms Buffelsdoorn and Deelkraal have been successfully included into Kusasalethu's mining right, increasing the extent of the original mining right from 51km² to 70km². These farms are contiguous to the south of the principal mining right.

Geology

Kusasalethu is situated in the West Wits Basin and mines the Ventersdorp Contact Reef as its main orebody.

The Ventersdorp Contact Reef facies model at Kusasalethu is based on the paleotopographic or slope and terrace model. Nine facies types have been recognised at Kusasalethu, eight sedimentological and one structural. Four of the facies are thick, high-grade, geologically distinct reef terraces separated from one another by a thin low-grade slope reef. The sand-filled channel is a thick low-grade facies. Sandy Terrace Complex is found on the same elevation as Terrace Complex but is essentially a pebbly quartzite with no grade. The Mondeor conglomerates have been identified sub-cropping against the Ventersdorp Contact Reef in stopes in certain areas and have been delineated as a separate facies in these areas.

The Elsburgs conglomerates, found on the western side of Kusasalethu, form the footwall to the Ventersdorp Contact Reef and are part of the Turffontein Supergroup. It is a predominantly polymictic matrix-supported conglomerate of well-packed and moderately sorted, sub-rounded smoky (80%), black-grey (15%) quartz pebbles, chert (3%) and some elongated shale pebbles (2%). The matrix is pale yellow to light green and medium-grained and pyritic in places.

The Ventersdorp Contact Reef is overlain by the Ventersdorp Lava belonging to the Ventersdorp Supergroup. The reef is light to mid-grey in colour and fine crystalline, seldom containing phenocrysts. In places it is amygdaloidal with quartz and pyrite mineralisation. Flow structures are also present at the base of the lava. It breaks into very angular fragments due to weak jointing and flow banding – it would appear to be andesitic in composition.

Geological discontinuities observed at Kusasalethu include faults, dykes and sills. Sills may occur in the footwall in areas adjacent to certain dykes. Flat bedding plane faulting also occurs and results in reef duplication, elimination and brecciation. Faults and dykes are classified according to their relative geologic ages as follows: Pre-Ventersdorp Contact Reef, Ventersdorp, Platberg, Bushveld and Pilanesberg structures.

Kusasalethu mines in blocky ground created by structures in the form of dykes and faults. The dykes are fairly basic in composition and they tend to strike north-north-east and south-south-west with a general dip of 75 degrees. The faults, however, have a strike mostly of east-south-east and west-north-west with a few exceptions. Generally, faults here are normal faults with the accompanying loss of ground with varying throws – from mere centimetres to a massive 60m (the Kittims and De Twem faults).

Mining methods and mine planning

Mining is by means of sequential grids with regional dip stabilising pillars, backfill and pre-conditioning to offset the effects of mining at this depth. Mining is conducted over five levels from 98 level to 113 level. Large geological structures are stabilised by means of clamping pillars. Mine planning is done in two major phases, a life of mine plan is done annually and six-month plans are reviewed monthly, to ensure ample time to react to changes in the dynamic mining environment. All planning is done in the digital environment by means of computer assisted draughting.

Mineral processing

Ore mined is processed on site at the Kusasalethu gold plant. Gold is extracted by means of milling, cyanide leaching, carbon-in-pulp concentration and electrowinning to absorb the carbon to produce doré. No smelting is done on site and the gold doré is dispatched to Rand Refinery twice a week.


Kusasalethu

Kusasalethu


Kusasalethu

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED


Kusasalethu

Infrastructure
Ore mined is transported by rail-bound equipment to the shaft's main ore pass system where it gravity feeds to 115 level. Ore is then hoisted via the sub-vertical shaft to above 73 level, from where it is hoisted to surface. Given the depth of mining, major engineering infrastructure is complex. Infrastructure includes refrigeration and cooling installations, both on surface and underground.

Mineral resource estimation
Data for valuation is obtained by means of chip sampling on the reef horizon in a 6m x 6m grid. Supplemental information is obtained from underground exploration drilling and existing surface exploration boreholes. All sampling done is subject to QA/QC as prescribed by SAMREC to ensure the quality and accuracy of data. Based on similarities in geology, the mining lease is divided into a total of eight geozones. Based on confidence levels for geostatistical data, valuation is by means of a computer-generated block model as follows:

- Measured blocks 30m x 30m grid
- Indicated blocks 60m x 60m grid
- Inferred blocks 120m x 120m grid

The block model is then digitally transferred to the digital environment for valuation.

Environmental impact
Kusasalethu environmental aspects and impacts are managed according to the environmental management programme as approved by the DMR in terms of the Mineral and Petroleum Resources Development Act, no 28 of 2002 (MPRDA). All environmental aspects and impacts emanating from mining activities are documented in a dedicated report and in the environmental aspect register as required by the act and the ISO 14001:2015 standard.

The approved environmental management programme was amended in 2014 in terms of Section 102 of the MPRDA, with the main objective being the inclusion of the dimensions of the waste rock dumps and new height details and footprint of the tailings storage facility, reclamation of the rock dumps and the expansion of the existing underground workings for numerous portions of farm Deelkraal 142 IQ.

Annual performance monitoring audits are conducted by the departments of Mineral Resources and of Water and Sanitation to verify compliance with the following legislation:

- Mine Health and Safety Act 29 of 1996
- National Water Act 36 of 1998
- National Environmental Management Act 107 of 1998
- Mineral and Petroleum Resources Development Act 28 of 2002

No environmental fines or penalties were received during FY18 as a result of non-compliance with this legislation.

All environmental impacts arising from mining activities are managed in terms of the requirements of the approved environmental management programme, the water use licence, waste permit and the ISO 14001:2015 standards.

As required by relevant regulations, environmental audits or performance assessments to verify compliance with the approved environmental management programme are conducted every second year by an independent environmental consultant and a report is submitted to the DMR. External and internal environmental legal compliance audits are also conducted.

An off-site legal environmental register is used to monitor compliance and to obtain applicable and relevant environmental legal updates for the operation.

In line with Harmony's biodiversity and rehabilitation position statement, Kusasalethu management has been successfully implementing an alien invader plant eradication programme since 2016. The programme, which continues, has to date cleared invader plant species from more than 1 900ha of 5 113ha of the surface mining right area.

Bio-monitoring surveys are also conducted on surface water streams close to the operation to ensure compliance with the conditions of the water use licence issued in terms of National Water Act 36 of 1998 to:

- determine the condition of biological communities in the rivers and streams as well as to determine the chemical water quality in the streams during the wet and dry seasons
- provide baseline reference conditions for future studies in order to assist Kusasalethu management in identifying environmental liabilities that might result from current mining activities regarding the potential contamination of surface streams

In addition, full chemical analyses include:

- Monthly sampling of surface streams
- Quarterly testing of borehole water to monitor groundwater

Kusasalethu is ISO 14001-accredited and complies with the requirements of the ISO 14001:2015 standard for which it is audited annually. The operation was accredited initially in 2011, and most recently in 2018 under the new ISO 14001 standard (2015). In line with this accreditation, every effort is made to eliminate or minimise the effects of mining activities on the environment and adjacent communities. The operation has also been accredited in terms of the Cyanide Management Code by the International Cyanide Management Institute. Independent third party audits to confirm compliance with the code are conducted every three years.

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED

MATERIAL RISKS:
Material risks that may impact Kusasalethu's resource and reserve statement are:

SIGNIFICANT RISKS
- Seismicity
- Water build up at Deelkraal
- Backfill volumes
- Major engineering infrastructure failure

REMEDIAL ACTION
- Extended production breaks scheduled over past two years to allow for infrastructure upgrades
- Control of mining sequence and appropriate support systems
- De-watering of the Deelkraal area through 98 level
- Waste rock dump on surface used to supplement backfill volumes

COMPETENT PERSON

ORE RESERVE MANAGER
Johann Ackerman
BSc Geology, with distinction UFS (2005) SAIMM

23 years' hard rock, deep level and ultra-deep level gold mining experience on the Witwatersrand Supergroup

KUSASALETHU

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Ventersdorp Contact Reef	2.5	12.48	32	1 020	20.2	8.87	179	5 768	3.5	9.46	33	1 072	26.3	9.30	244	7 861

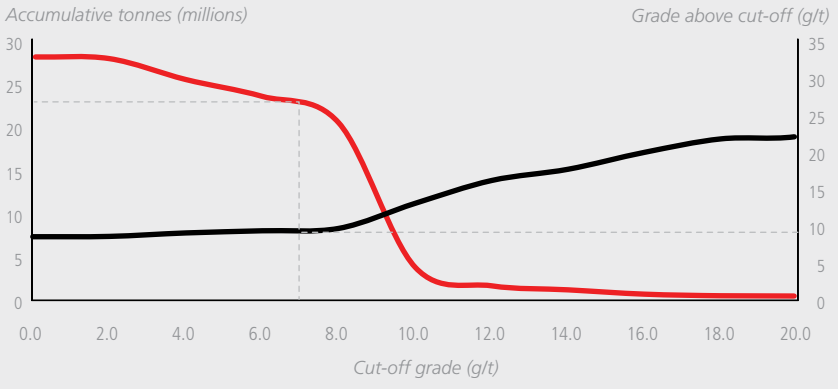
Modifying factors

Ventersdorp Contact Reef	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2017	85	132	156	94	1 073
2018	86	136	154	92	1 100

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Ventersdorp Contact Reef	3.7	7.26	27	857	0.6	5.34	3	101	4.3	7.00	30	959

KUSASALETHU:
Ventersdorp Contact Reef
Measured and indicated resource grade-tonnage curve



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – WEST RAND CONTINUED

OPERATIONAL PERFORMANCE

Kusasalethu – key operating statistics

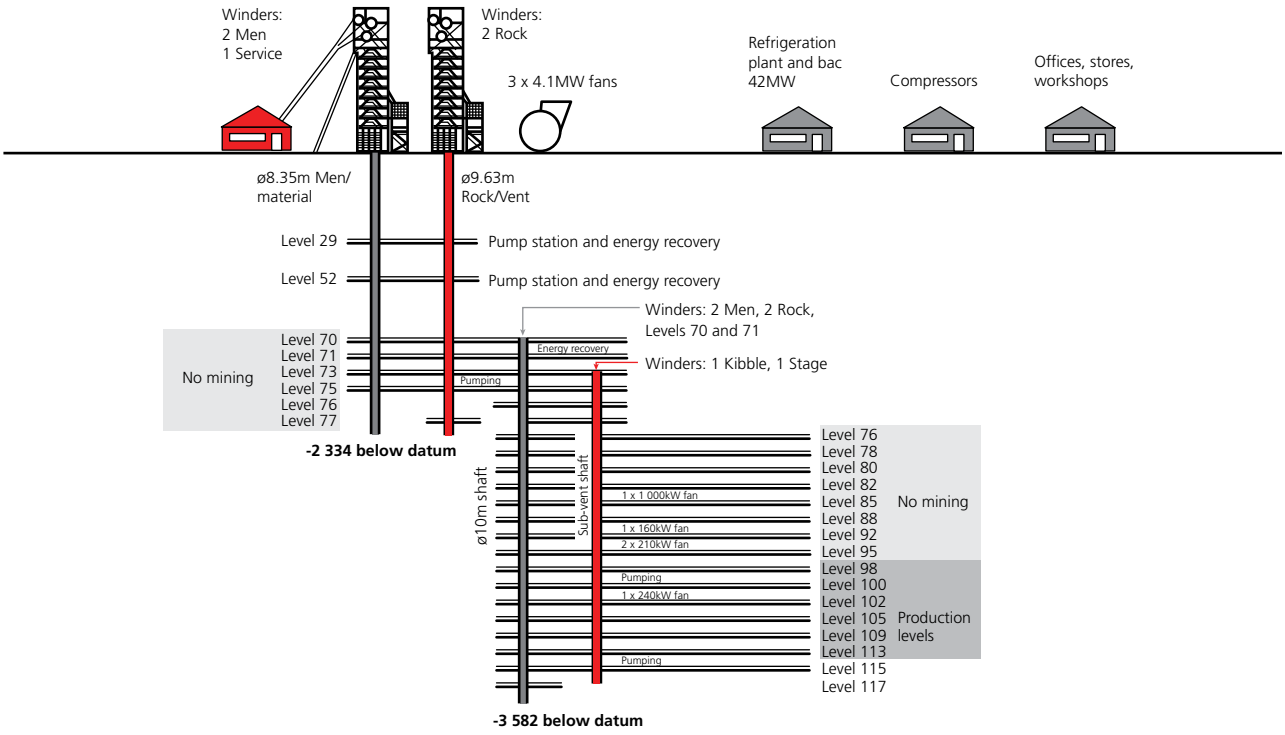
	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**670**	607	668	908	1 143
	000t (imperial)	**738**	670	736	1 001	1 260
Gold produced	kg	**4 429**	4 394	3 863	3 953	4 694
	oz	**142 395**	141 270	124 198	127 092	150 916
Grade	g/t	**6.61**	7.24	5.78	4.35	4.11
	oz/t	**0.193**	0.211	0.169	0.127	0.120
Development						
Total metres (excl. capital metres)		**4 016**	5 101	7 183	13 777	15 077
Reef metres		**776**	1 185	1 517	2 436	3 107
Capital metres		**0**	0	0	59	0
Average gold price received	R/kg	**577 313**	572 376	543 633	451 211	432 358
	US$/oz	**1 397**	1 309	1 166	1 226	1 299
Financial						
Capital expenditure	Rm	**289**	289	360	463	509
	US$m	**22**	21	25	40	49
Cash operating cost	R/kg	**472 177**	459 422	478 277	472 112	389 762
	US$/oz	**1 143**	1 051	1 026	1 283	1 171
All-in sustaining cost	R/kg	**554 302**	541 247	584 498	587 406	513 883
	US$/oz	**1 342**	1 238	1 254	1 596	1 544

Kusasalethu

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – WEST RAND CONTINUED

Kusasalethu: Schematic of shaft and mining layout



KUSASALETHU

VENTERSDORP CONTACT REEF

LEGEND

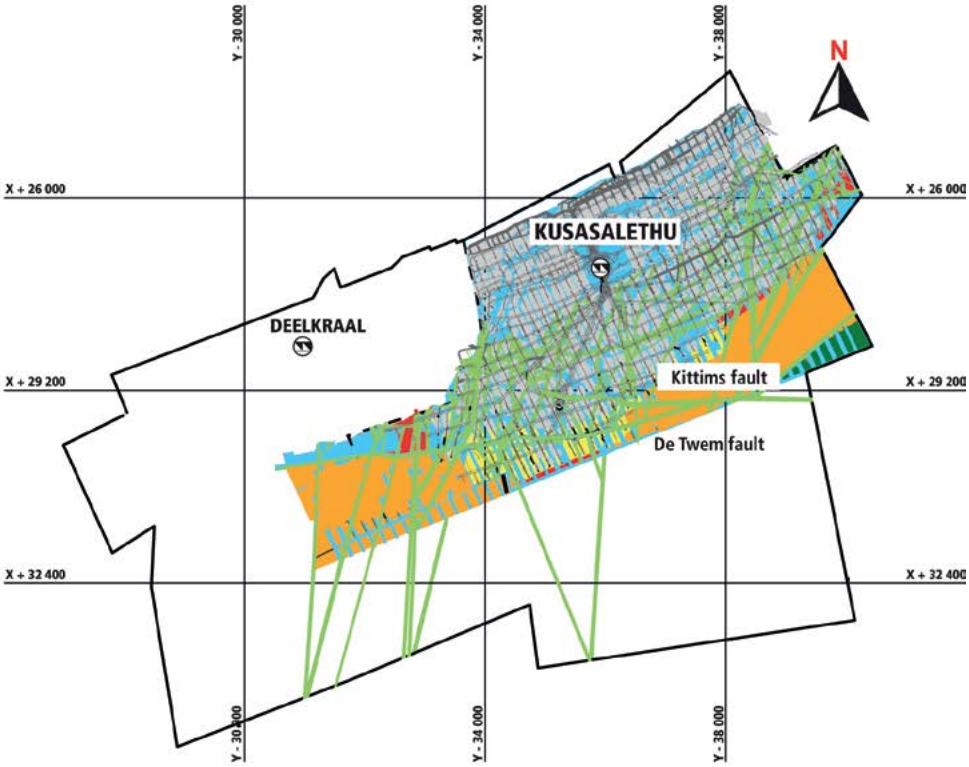
- Mining right
- Shaft position
- Intermine boundary
- Fault zones and dykes
- Abandoned pillars
- Infrastructure
- Mined out

Mineral Resources

- Measured
- Indicated
- Inferred

Mineral Reserves

- Proved and probable



0 1000 2000
Metres

Co-ordinate system Lo. 27°
Constants: Y = -0.00
X = +2 900 000
Latitude: 26°27' 16.23"S
Longitude: 27°21' 32.91"E

MINERAL RESOURCES AND RESERVES BY OPERATION

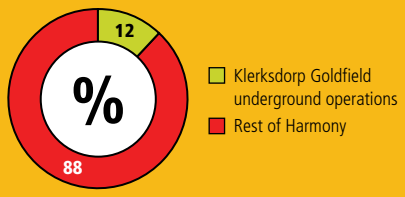
SOUTH AFRICA – KLERKSDORP GOLDFIELD

Harmony's operation in the Klerksdorp goldfield had a mineral reserve of

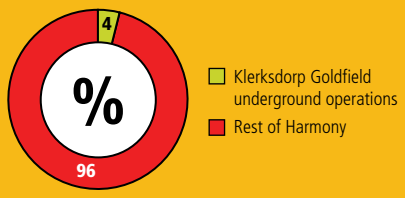
1.6Moz

which is included in the mineral resource of 14.3Moz as at 30 June 2018

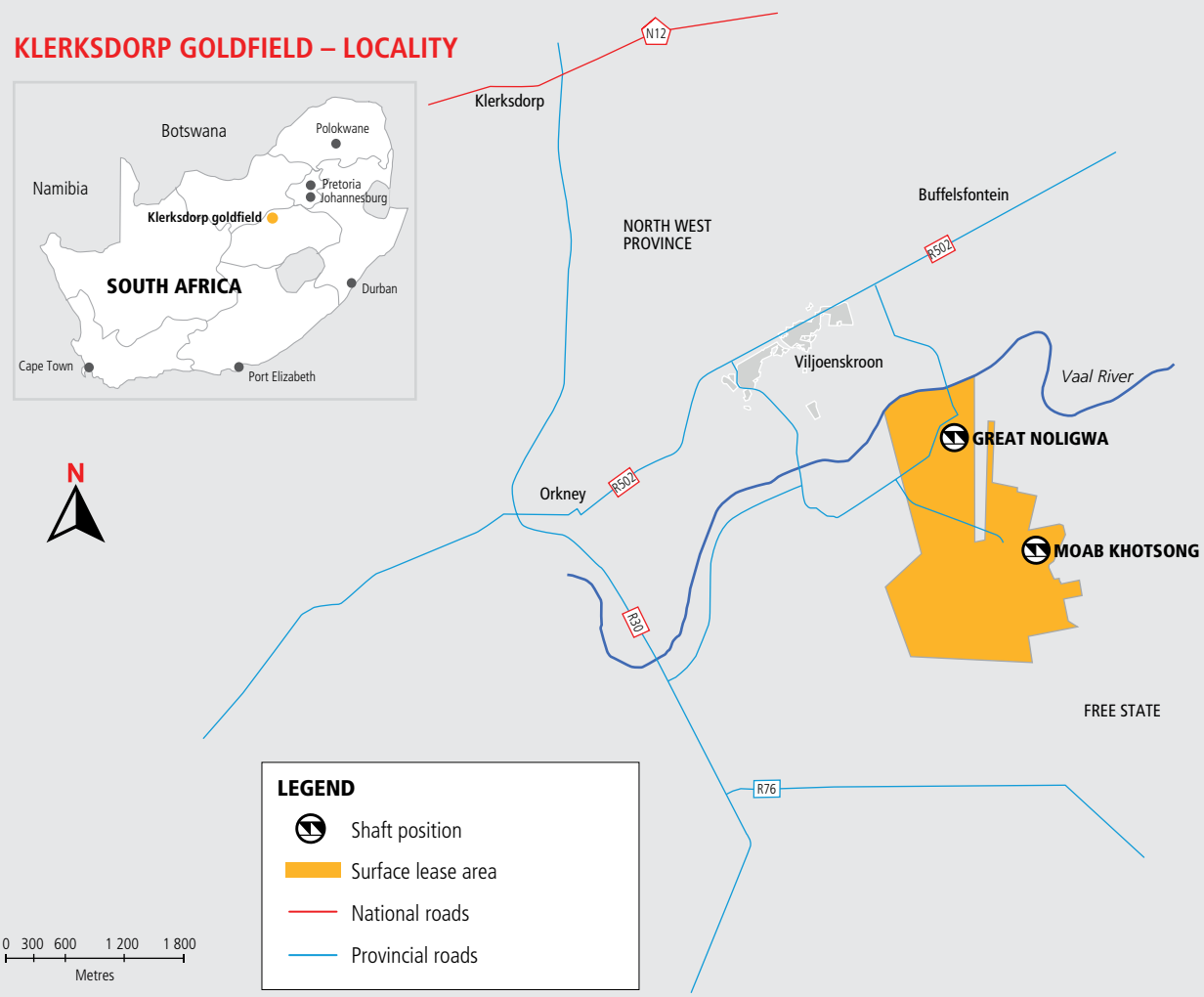
CONTRIBUTION TO GOLD MINERAL RESOURCES (including gold equivalents)



CONTRIBUTION TO GOLD MINERAL RESERVES (including gold equivalents)



KLERKSDORP GOLDFIELD – LOCALITY



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

LOCATION
Moab Khotsong, which includes the mining and surface infrastructure of the adjacent Great Noligwa, is located near the towns of Orkney and Klerksdorp, about 180km south-west of Johannesburg. The mining lease area lies just south of the Vaal River, which forms a natural boundary between South Africa's North West and Free State provinces.

REGIONAL GEOLOGY
Refer to the geological descriptions under Moab Khotsong.

KLERKSDORP GOLDFIELD
STRATIGRAPHIC COLUMN

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – KLERKSDORP GOLDFIELD

MOAB KHOTSONG

Moab Khotsong

History

The Moab Khotsong mine began production in 2003 while Great Noligwa, which was merged with Moab Khotsong in 2014, began production in 1968. These mines are collectively referred to as Moab Khotsong. Harmony acquired Moab Khotsong from AngloGold Ashanti Limited in March 2018.

Nature of the operation

Moab Khotsong is the youngest of the South African deep level gold mines with three vertical shaft systems being maintained to service the mine. The orebody is divided into three distinguishable blocks through major faulting. These geographical areas are referred to as top mine (Great Noligwa), middle mine and lower mine (growth project).

Mineral rights/legal aspects and tenure

Harmony holds the following mining rights which have been successfully converted, executed and registered as new order mining rights at the MPRTO.

- NW30/5/1/2/2/15MR valid from 12 September 2007 to 11 September 2037
- NW30/5/1/1/2/16MR valid from 20 August 2008 to 19 August 2038

Geology

The Vaal Reef is the primary economic horizon at Moab Khotsong. A secondary economic horizon, the C-Reef, contributes less than 5% of total mining volumes. Both reefs are narrow tabular deposits forming part of the Witwatersrand Supergroup and are stratigraphically located near the middle of the Central Rand Group. The Vaal Reef lies approximately 255m below the C-Reef.

The geology at Moab Khotsong is structurally complex with large fault-loss areas between the three mining areas (top mine, middle mine and Zaaiplaats). The geological setting is one of crustal extension, dominated by major south-dipping fault systems with north-dipping Zuiping faults wedged between the south-dipping faults. The De Hoek and Buffels East faults structurally bound the reef blocks of the Middle mine to the north-west and south-east respectively. The northern boundary of Moab Khotsong's

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

middle mine is a north-dipping Zuiping fault. Moab Khotsong (particularly middle mine) requires a reduced drill spacing pattern on the order of 50 x 50 m which allows for accurate delineation of the structurally bound mineable blocks, whereby accurate and efficient mine designs can be implemented insuring optimal extraction and maximum orebody utilisation.

The mineralisation model that has been adopted for the deposit is that of gold precipitation in the conglomerates through the actions of hydrothermal fluids. The fluids precipitated gold and other elements through reactions that took place at elevated temperatures (300-350°C). Migrating liquid and gaseous hydrocarbons precipitated as a solid hydrocarbon (carbon), which was then mesophased through metamorphism and structural deformation. Carbon was preferentially precipitated in bedding–parallel fractures that most commonly followed the base of the Vaal Reef package (A-bottom sub-facies), however, gold and uranium mineralisation is also commonly observed within the A-middle and A-top sub-facies of the Vaal Reef. Gold was precipitated very soon after the carbon, giving the critical gold-carbon association that characterises many of the high-grade Vaal Reef localities.

A geological model is employed to delineate variations (either lateral or vertical) in characteristics of the VR and CR. The current geological model thus subdivides the Vaal Reef and the C-Reef into homogeneous zones based on geological and grade characteristics.

The Vaal River consists of a thin basal conglomerate (the C-facies) and a thicker sequence of upper conglomerates (A-facies). These two sedimentary facies are separated by the B-facies, which is a layer of barren orthoquartzite. The A-facies is the primary economic horizon at Moab Khotsong, however remnants of the C-facies are sporadically preserved below the A-facies. High gold values in the Vaal Reef are often located at the base of this unit and are associated with high uranium values as well as with the presence of carbon. Uranium is an important by-product which is also recovered from the Vaal Reef.

The C-Reef is mined on a limited scale in the central part of top mine, where a high-grade, north-south trending sedimentary channel containing two economic horizons has been exposed. To the east and the west of this channel, the C-Reef is poorly developed with limited areas containing economic concentrations of gold and uranium. As with the Vaal Reef, high uranium values are also often associated with high gold values. A 5mm to 20mm thick carbon seam commonly occurs at the base of the conglomerate. To the north of the mine, the C-Reef sub-crops against the Gold Estates Conglomerate Formation, and in the extreme south of the mine, the C-Reef has been eliminated by a deep Kimberley erosion channel and the Jersey fault.

Mining methods and mine planning

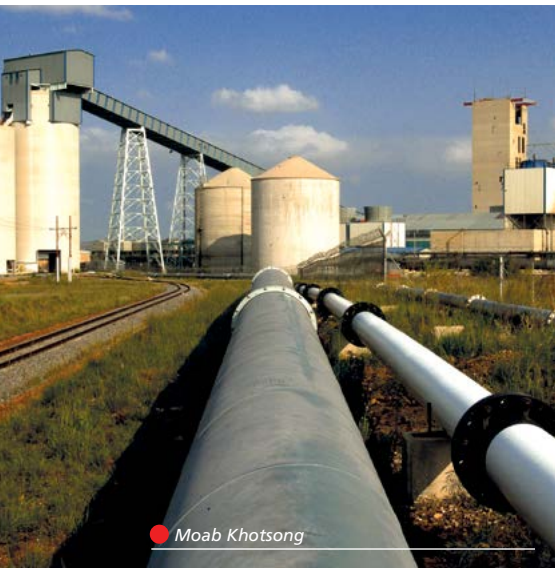
The tabular nature, along with the depth and structural complexity of the orebody dictates the mining method employed at Moab Khotsong. Mining at Moab Khotsong is based on a scattered mining method together with an integrated backfill support

Moab Khotsong

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

Moab Khotsong

Moab Khotsong


Moab Khotsong

system that incorporates bracket pillars. The economic reef horizons are exploited between 1 791m and 3 052m below surface.

Mineral processing
Moab Khotsong's mineral processing is done through the Great Noligwa gold plant with design capacity exceeding the maximum planned production volume from the operation. The plant uses the reverse gold leach method, whereby gold and uranium are recovered through gold cyanide and acid uranium leaching.

Infrastructure
Moab Khotsong and Great Noligwa's surface and underground infrastructure, as well as the power and water services, are designed to fully meet the planned life-of-mine production and service capacity requirements. The operation has a dedicated ore processing plant within close proximity to Moab Khotsong and tailings are pumped to existing tailings storage facilities. Waste was deposited via a belt onto the dump in a waste rock disposal area located next to the Moab Khotsong shaft infrastructure until December 2016. Since January 2017, waste is delivered to the plant with the ore.

Mineral resource estimation
Mixed support co-kriging is used in the estimation of the Moab Khotsong mineral resource. It is a technique that enables the use of data of mixed support, allowing wide-spaced drillhole and dense underground sampling data to be used together. Estimation on the VR is performed into large block sizes, generally 300m x 300m, which fully capture the within-block variance, allowing the co-kriging of data of different support sizes over long ranges. Estimation is done per geological homogeneous zone, in logarithmic space, because of the highly skewed gold distribution. The final gold estimates are then calculated by back transforming the estimates, using lognormal four parameter distribution models. Simple kriging is used for grade control and Measured Mineral Resource at a 30m x 30m block size and constrained by the weight of the mean value.

Environmental impact
Harmony, holder of the tenement, has addressed the Department of Mineral Resources' requirements. Moab Khotsong (Harmony) is in the process of applying for its own water use licence, which requires the splitting of the current approved licence between Village Main Reef, Harmony and AngloGold Ashanti. Other licences that are being addressed are the air emissions licence for the uranium and gold plants and a waste disposal site permit, which mainly involves the change of licence/permit owner from AngloGold Ashanti to Moab Khotsong (Harmony).

Harmony undertakes to regularly improve our processes and services to prevent pollution, minimise waste, increase our carbon efficiency, use natural resources efficiently and protect the environment. There are no sensitive areas that may affect the project or any other environmental factors including interested and affected parties and/or studies that could have a material effect on the likelihood of eventual economic extraction.

For environmental rehabilitation liability, all costs associated with demolition and rehabilitation of the footprint after mining activities ceases, has been accounted for in the environmental rehabilitation liabilities. These include buildings, offices, water tanks, plants, tailings storage facilities, waste rock dumps, properties to name a few. The quantities are assessed each year and updated with new infrastructure or demolitions and all rates are updated (either escalated or revised) each year. These costs are then escalated to future values and discounted back to present value levels to account for the current liability in the financial statements.

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

MATERIAL RISKS:

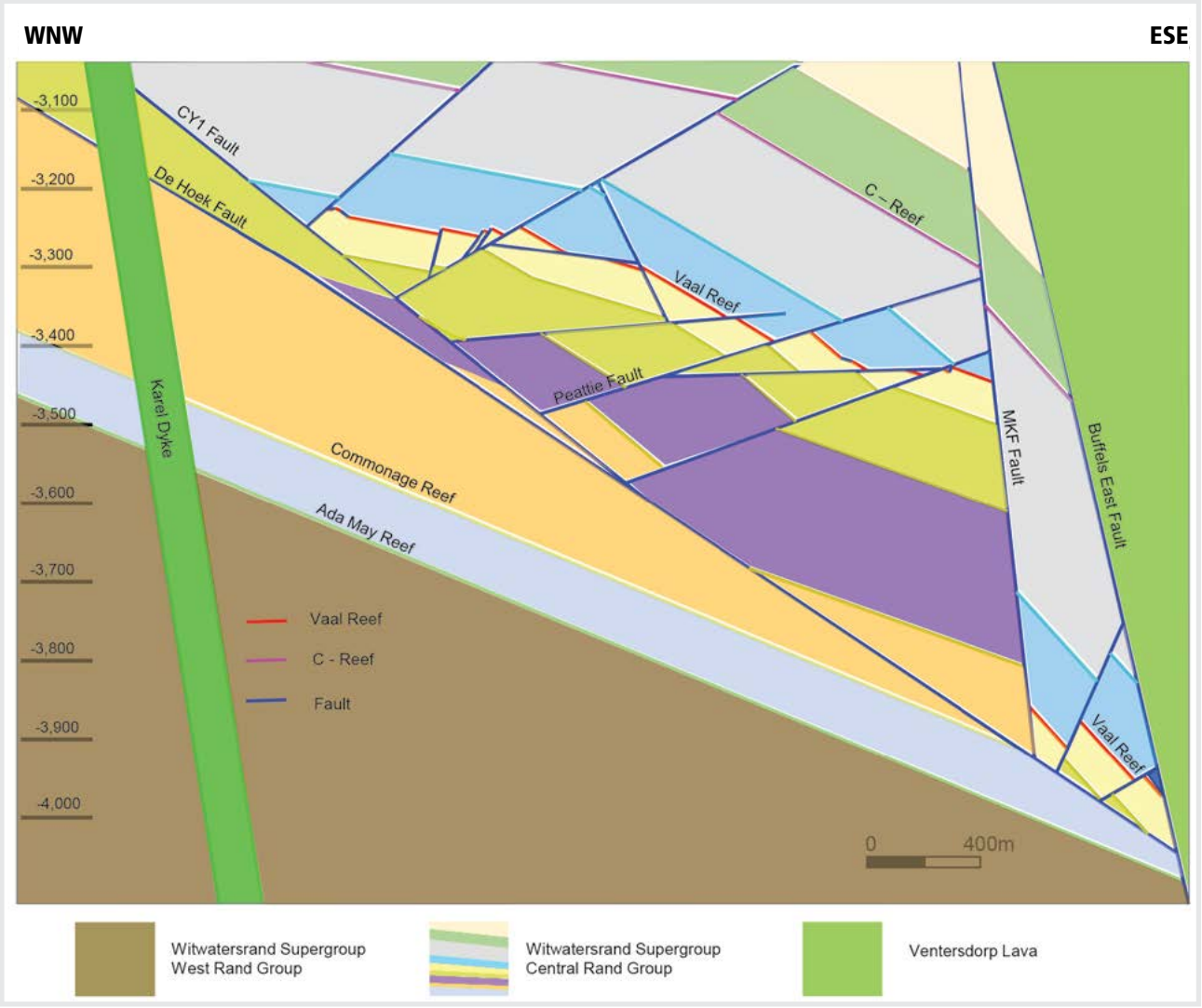
Material risks that may impact Moab Khotsong's resource and reserve statement are:

SIGNIFICANT RISKS	REMEDIAL ACTION
• Flooding from neighbouring mines	• Mitigated through pumping
• Seismicity	• Mining industry occupational safety and health programme. Adoption and rollout of task action and response plan. Maintaining seismic network system
• Structural complexity	• Comprehensive risk drilling programme

COMPETENT PERSON

ORE RESERVE MANAGER
Leanne Brenda Freese
BSc Geology. BSc Hons (Geology), GDE, SACNASP, GSSA

Geological cross-section through Moab Khotsong (west-north west and east-south east)



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

MOAB KHOTSONG

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Moab Khotsong	3.0	19.55	60	1 916	19.4	13.89	269	8 643	9.5	12.39	117	3 771	31.9	13.99	446	14 331

Modifying factors

Moab Khotsong	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2017	74	159	296	96	1 930
2018	74	167	215	96	1 197

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Moab Khotsong	2.5	10.32	25	815	2.6	9.50	25	800	5.1	9.90	50	1 615

Uranium – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		U_3O_8		Tonnes		U_3O_8		Tonnes		U_3O_8		Tonnes		U_3O_8	
	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)
Total	–	–	–	–	22.4	0.67	14 962	33	9.5	0.64	6 059	13	31.9	0.66	21 021	46

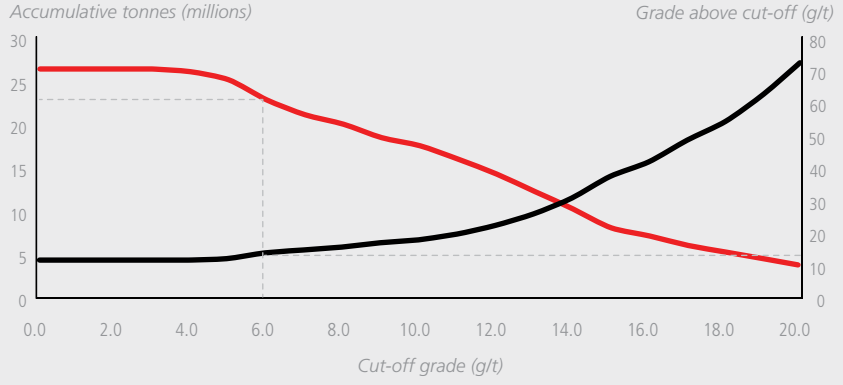
Modifying factors

Moab Khotsong	MCF (%)	SW (cm)	MW (cm)	PRF (%)
2017	100	159	296	62
2018	100	167	215	62

Uranium – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		U_3O_8		Tonnes		U_3O_8		Tonnes		U_3O_8	
	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)
Total	2.5	0.35	856	2	2.6	0.40	1 052	2	5.1	0.38	1909	4

MOAB KHOTSONG
Vaal Reef
Measured and indicated resource grade-tonnage curve



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

OPERATIONAL PERFORMANCE

Moab Khotsong – key operating statistics

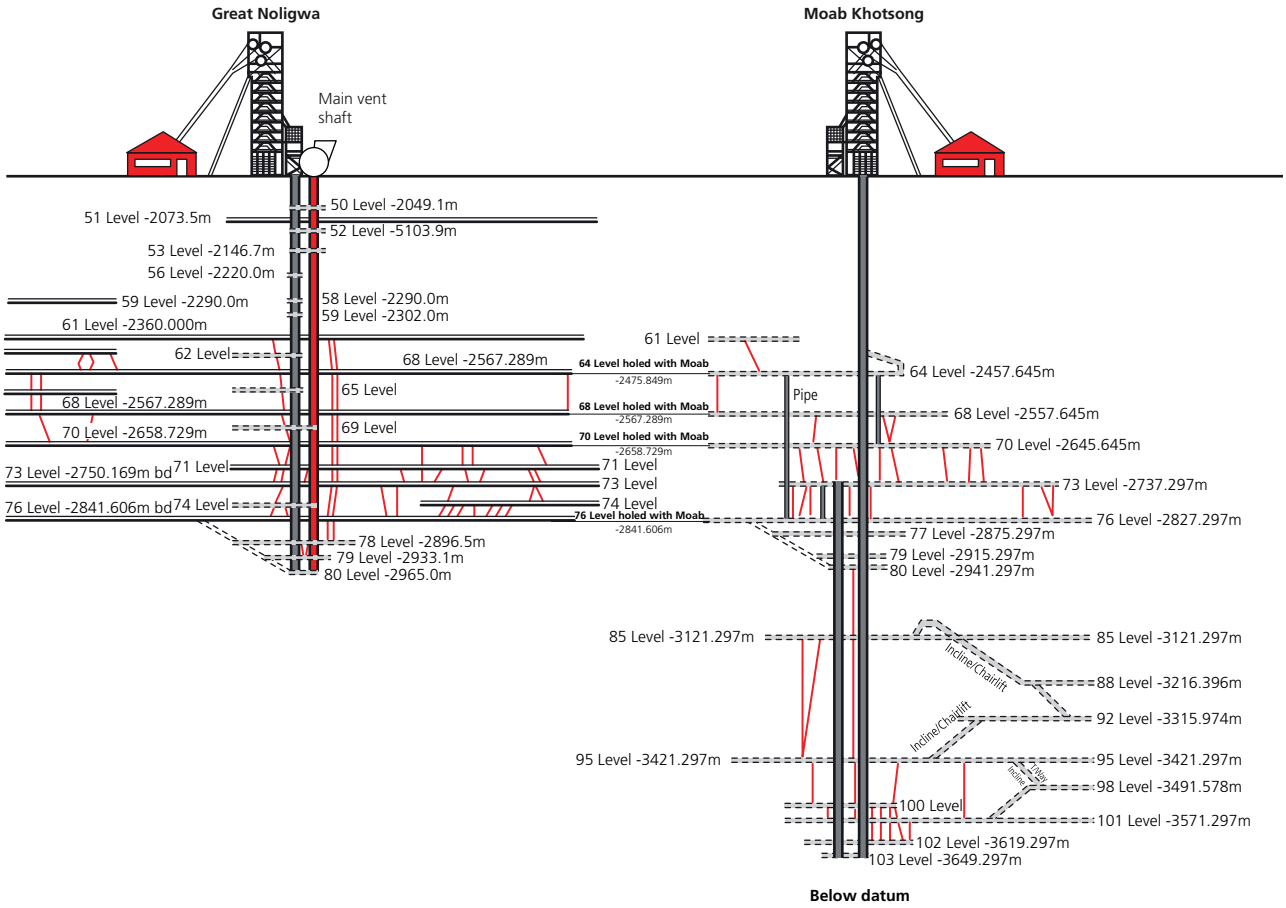
	Unit	FY18*
Operation		
Volumes milled	000t (metric)	**327**
	000t (imperial)	**360**
Gold produced	kg	**3 296**
	oz	**105 969**
Grade	g/t	**10.08**
	oz/t	**0.294**
Development		
Total metres (excl. capital metres)		**9 527**
Reef metres		**1 328**
Capital metres		**380**
Average gold price received	R/kg	**528 387**
	US$/oz	**1 279**
Financial		
Capital expenditure	Rm	**173**
	US$m	**13**
Cash operating cost	R/kg	**314 526**
	US$/oz	**761**
All-in sustaining cost	R/kg	**420 286**
	US$/oz	**1 017**

** Moab Khotsong was acquired 1 March 2018. The data here is for the four months from March 2018 to June 2018.*

Moab Khotsong

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

Moab Khotsong: Schematic of shaft and mining layout of the Moab Khotsong and Great Noligwa shafts



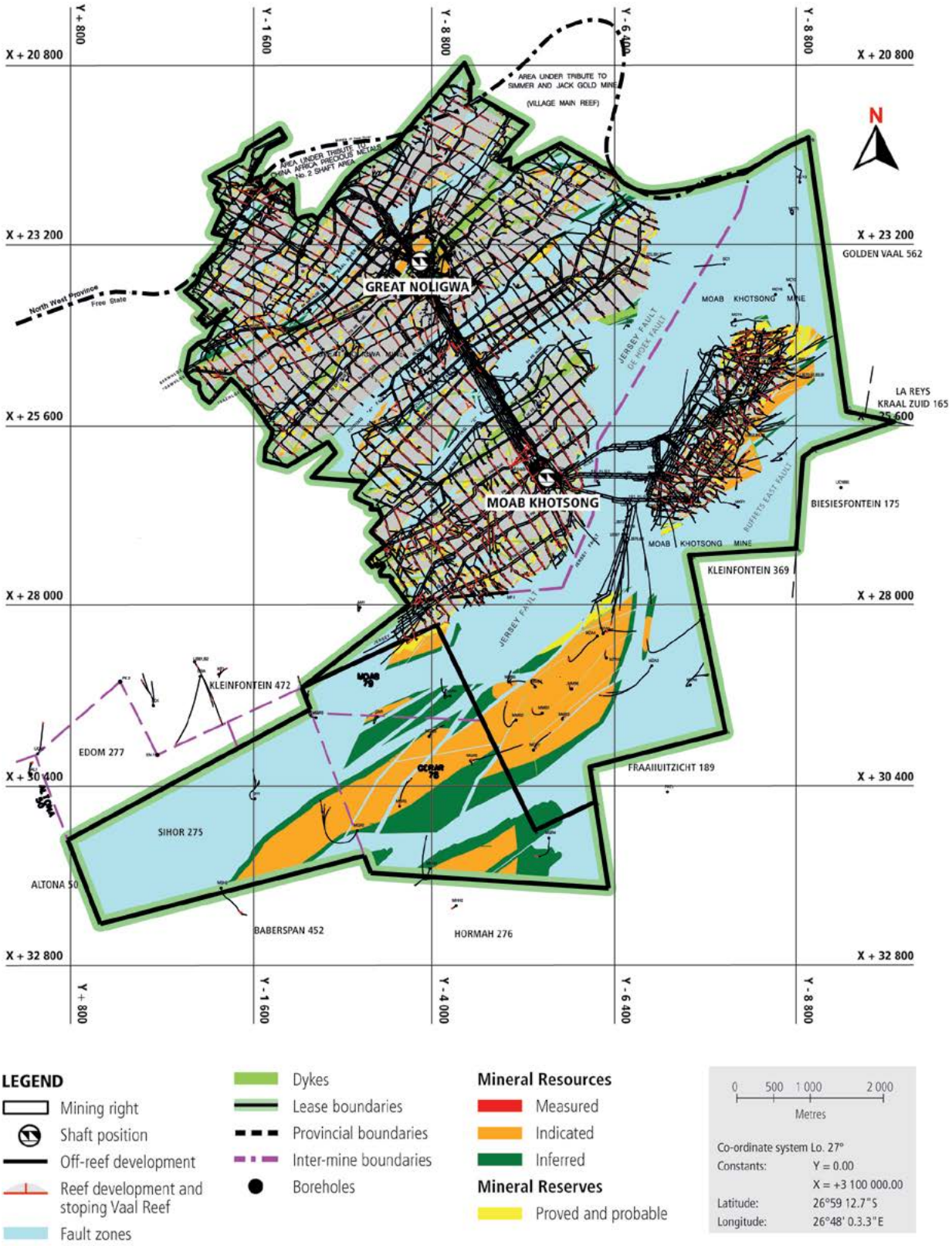
Moab Khotsong

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – KLERKSDORP GOLDFIELD CONTINUED

MOAB KHOTSONG

VAAL REEF



LEGEND

- Mining right
- Shaft position
- Off-reef development
- Reef development and stoping Vaal Reef
- Fault zones
- Dykes
- Lease boundaries
- Provincial boundaries
- Inter-mine boundaries
- Boreholes

Mineral Resources

- Measured
- Indicated
- Inferred

Mineral Reserves

- Proved and probable

0 500 1 000 2 000
Metres

Co-ordinate system Lo. 27°
Constants: Y = 0.00
X = +3 100 000.00
Latitude: 26°59 12.7"S
Longitude: 26°48' 0.3.3"E

MINERAL RESOURCES AND RESERVES BY OPERATION

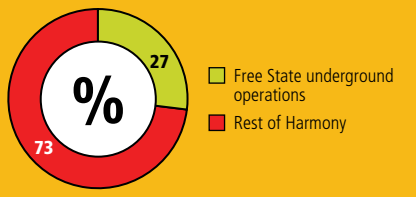
SOUTH AFRICA – FREE STATE

Harmony's underground mining operations in the Free State had combined mineral reserves of

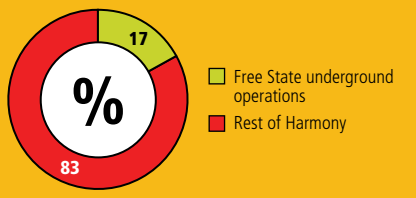
6.4Moz

which are included in mineral resources of 31.6Moz as at 30 June 2018

CONTRIBUTION TO GOLD MINERAL RESOURCES (including gold equivalents)



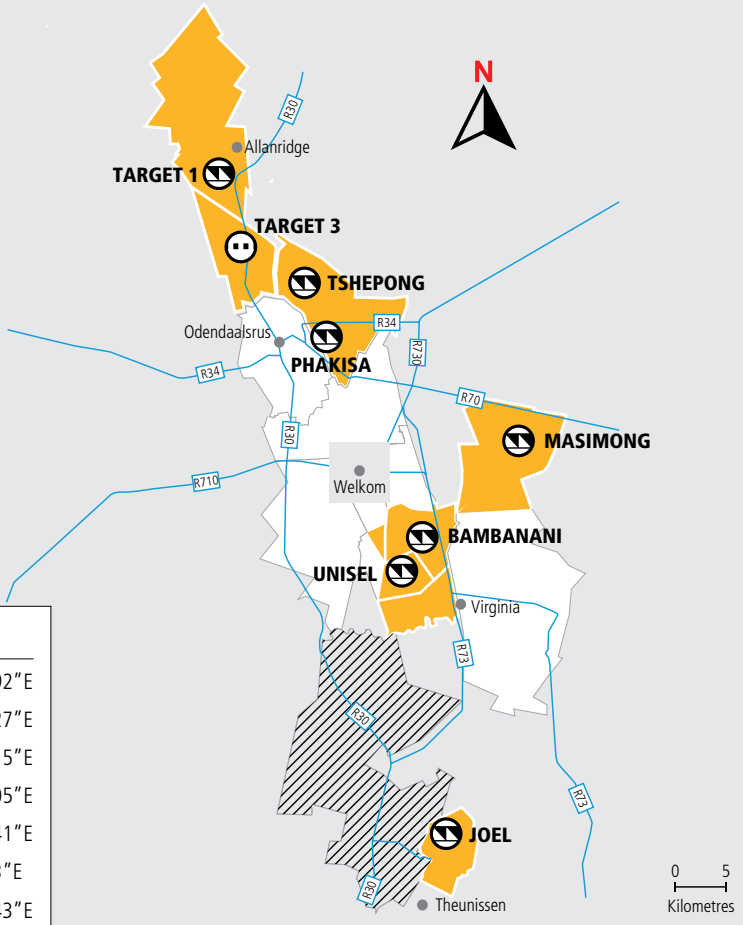
CONTRIBUTION TO GOLD MINERAL RESERVES (including gold equivalents)



LOCALITY OF HARMONY'S FREE STATE OPERATIONS

LEGEND

- Location of operating shafts
- Free State operations
- Neighbouring mines
- Care and maintenance



Free State operations	Latitude	Longitude
Target 1	27°45'42.59"S	26°38'24.92"E
Target 3	27°49'42.93"S	26°38'29.27"E
Tshepong	27°51'56.45"S	26°42'45.15"E
Phakisa	27°54'1.27"S	26°43'30.05"E
Masimong	27°58'23.93"S	26°52'39.41"E
Bambanani	28°2'28.24"S	26°48'9.13"E
Unisel	28°3'49.85"S	26°47'11.43"E
Joel	28°16'17.19"S	26°48'57.97"E

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

LOCATION

Harmony's Free State operations comprise seven underground mines – including the mechanised Target 1 mine. These mines are located at the southwestern corner of the Witwatersrand Basin, between the towns of Allanridge, Welkom, Theunissen and Virginia.

Joel mine is the most southerly of the gold mines mined within the Harmony stable and is situated some 40km south of Welkom, 30km southeast of Virginia and 20km north of Theunissen. The mine has a common boundary with the Sibanye gold mine (Beatrix Mine) to the west of the mine property.

Unisel mine is situated to the north of Joel between the city of Welkom and town of Virginia. It is bounded to the north by Brand 5 shaft and West shaft and to the east by Bambanani.

Bambanani mine is located 10km southeast of Welkom. The East shaft is bound to the west by Bambanani West shaft and to the north by President Steyn No. 2 shaft.

Masimong mine is located on the north eastern side of the De Bron Fault approximately 12km east from the city of Welkom and 10km north from the town of Virginia. It is bounded to the south by Masimong 4 shaft and Saaiplaas 3 shaft.

Tshepong operations comprises:

- **Phakisa** section is located north west of Masimong 5 shaft between the town of Odendaalsrus and the city of Welkom some 13km north of the city of Welkom. It is bounded to the south by Eland shaft, to the west by Nyala shaft and to the north by Tshepong shaft.
- **Tshepong** section is located to the north of Phakisa between the town of Odendaalsrus and the township of Kutloanong some 20km north of Welkom. It is bounded to the north by the dormant Jeanette mine, to the south and east by the Phakisa mine, and to the southwest by Nyala shaft.

Target 1 mine is the most northerly of Harmony's mines in the Free State and is situated some 30km north of the town of Welkom.

Target 3 mine, located south of Target 1, is on care and maintenance.

REGIONAL GEOLOGY

The Witwatersrand basin, situated on the Kaapvaal Craton, has been filled by a 6km thick succession of sedimentary rocks, which extends laterally for hundreds of kilometres.

The Free State goldfield is divided into two sections, cut by the northsouth striking De Bron fault. This major structure has a downward vertical displacement to the west of about 1 500m in the region of Bambanani, as well as a dextral shift of 4km. This known lateral shift allows a reconstruction of the orebodies to the west and east of the De Bron fault. A number of other major faults, such as the Homestead fault, lie parallel to the De Bron fault.

To the west of the De Bron fault, current operating mines are Target, Tshepong, Phakisa, Unisel, Bambanani and Joel. Dips of the reef are mostly towards the east, averaging 30 degrees but become steeper approaching the De Bron fault. To the east of the fault lies Masimong mine. These reefs mostly dip towards the west at 20 degrees, although Masimong is structurally complex and dips of up to 40 degrees have been measured. Between these two blocks lie the uplifted Horst block of West Rand Group sediments with no reef preserved.

The western margin area is bound by synclines and reverse thrust faults and is structurally complex. Towards the south and east, reefs sub-crop against overlying strata, eventually cutting out against the Karoo to the east of the lease area.

Most of the mineral resource tends to be concentrated in reef bands located on one or two distinct unconformities. A minority of the mineral resource is located on other unconformities. Mining that has taken place is mostly deep-level underground mining, exploiting the narrow, generally shallow dipping tabular reefs.

The Basal Reef is the most common reef horizon and is mined at all shafts except Target 1 and Joel. It varies from a single pebble lag to channels of more than 2m thick. It is commonly overlain by shale, which thickens northwards. Tshepong section has resorted to undercutting in its mining panels to reduce the effect of shale dilution.

The B Reef is a highly channelised orebody located 140m stratigraphically above the Basal Reef. Because of its erratic nature, it has only been mined at Masimong, Tshepong, and the Target 2 and Target 3 shafts. Within the channels, grades are excellent, but this reduces to almost nothing outside the channels. Consequently, these shafts have undertaken extensive exploration to locate these pay channels.

Joel mine, 30km south of Welkom, is the only Harmony Free State operation to mine the Beatrix Reef.

The Target operation is at the northern extent of the Free State goldfields, some 20km north of Welkom. The reefs currently exploited are the Elsburg-Dreyerskuil conglomerates, which form a wedge-shaped stacked package, comprising 35 separate reef horizons, often separated by quartzite beds. The Elsburg Reefs are truncated by an unconformity surface at the base of the overlying Dreyerskuil member. Below the sub-crop, the Elsburg dips steeply to the east, with dips becoming progressively shallower down dip. Close to the sub-outcrop, the thickness of the intervening quartzites reduces, resulting in the Elsburg Reefs coalescing to form composite reef packages that are exploited by massive mining techniques at Target mine. The Dreyerskuil also consists of stacked reefs dipping shallowly to the east. These reefs tend to be less numerous, but more laterally extensive than the underlying Elsburg Reefs.

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

FREE STATE STRATIGRAPHIC COLUMN

Group	Sub-Group	Formation	Informal unit	Member
Central Rand Group	Turffontein	Eldorado	Dreyerskuil Zone VS1	Uitkyk
			EA Zone VS2	
			VS3	Van den heevers rust
			VS4	Rosedale
			VS5 Eldorado Basal Reef	
		Aandenk	EC1 A Reef	Earls Court
			Beatrix Reef EC 2 Big Pebble Reef	
			EC 3/4 B Reef	Spes Bona
	Johannesburg	Dagbreek	ES 1	Upper shale marker
			ES 2/3	Leader Reef zone
			Leader Reef	Leader Reef
		Harmony	Grey glassy leader quartzite EL1/2 Waxy brown leader quartzite Middle Reef Khaki Shale	Leader Quartzite
			Basal Reef	Basal Reef
		Welkom	UF1-UF3	Upper footwall
			UF4	Intermediate Reef
		St Helena	MF1 -MF4	Middle Footwall
		Virginia	LF1-LF6 Commanage Reef	Lower Footwall
			Ada May or Beisa Reef	Ada May / Beisa Reef
West Rand Group	Jeppestown	Roodepoort		Palmietkuil

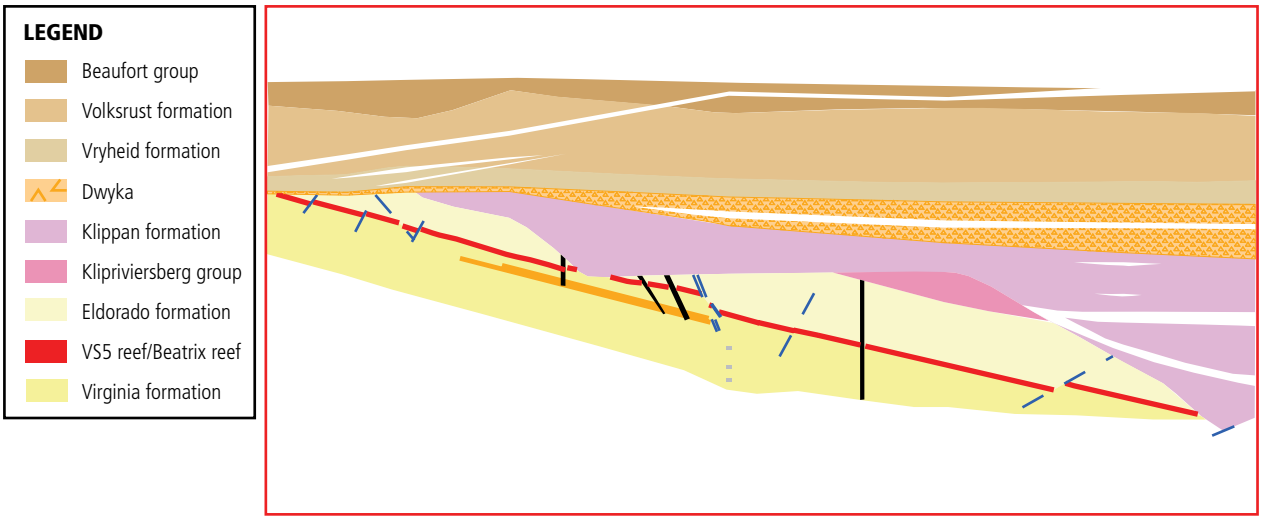
MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

FREE STATE GEOLOGICAL CROSS-SECTIONS

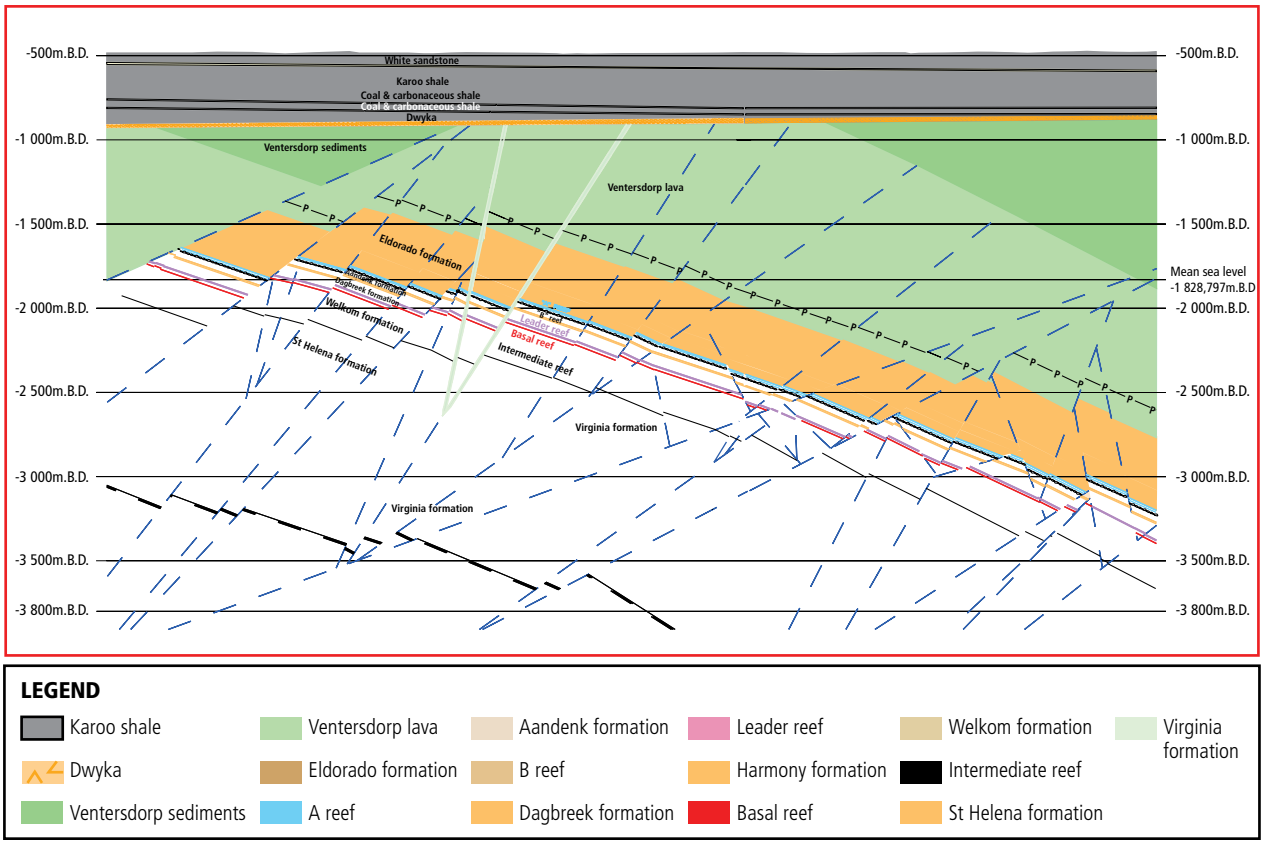
JOEL

Geological section looking west – not to scale



BAMBANANI

Geological section looking north – not to scale



MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

TSHEPONG OPERATIONS

Tshepong

Following the successful conclusion of the study to investigate their integration, the Tshepong Phakisa sections were consolidated as a single entity, the Tshepong operations, in F17. The integration and consolidation of these two mines will enable Harmony to optimise existing synergies, reduce costs and make better use of Tshepong's underused infrastructure.

History

The feasibility study for the initial development of the Tshepong section was concluded in 1984. Site establishment started in September 1984 and shaft sinking had begun by 1986. Shaft sinking and equipping of the shaft were completed in 1991, with the mine being commissioned in November 1991.

The Phakisa section began as a project in October 1993, with shaft sinking commencing in February 1994. It was formerly known as Free State Geduld 4, Freddies 4 and Tshepong South. In 1995, sinking was halted on 59 level due to the low gold price prevailing at that time. Subsequently, the financial climate improved and operations resumed in September 1996. Sinking was then completed to the station brow on 75 level. Low gold prices again resulted in the shaft being mothballed in the last quarter of 1999. In January 2002, Harmony acquired a stake in Phakisa as part of the Freegold acquisition from AngloGold Ashanti Ltd, following which the operation was acquired in full in September 2003. Sinking and equipping of the shaft to a depth of 2 427m was completed in 2006.

Nature of operation

The Tshepong section is a mature underground operation mining at moderate depths of between 1 600m and 2 200m below surface. The bulk of mining currently takes place in the north-western and north-eastern portions of the lease area.

The Phakisa section is a moderate- to deep-level conventional underground operation which now, together with the Tshepong section, makes up the Tshepong operations. Currently, mining activity takes place largely in the north of the mine lease area. However, over the next three years the focus will shift to the south of the lease area.

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Geology

The principal gold-bearing orebody is the stratiform and stratabound Basal Reef (known as the Basal Reef Zone or BRZ). This unit comprises a thin conglomerate at the base of the BRZ, overlain by clean 'placer' quartzites. The Basal Reef is underlain by a thick series of siliceous and argillaceous quartzites comprising the Welkom Formation and overlain by shales and quartzites of the Harmony Formation, both of the Johannesburg sub-Group of the Central Rand Group. Although not apparent within the mine lease area, the Basal Reef sits unconformably on the Welkom Formation.

In the Phakisa section, the reef dips towards the east at 25° in the north and up to 45° in the south. The Lower Cycle Black Chert facies predominates in the north with a north-west south-east value trend. The reef consists of an oligomictic small pebble matrix-supported conglomerate lag with fly-speck carbon contact. The rest of the reef package constitutes barren siliceous fine-grained reef quartzite. The entire reef package reaches up to 160cm thick and is overlain by 1cm to 30cm of lower Khaki Shale. This in turn is overlain by the approximately 3-4m thick Waxy Brown Leader Quartzite, above which lies the 3-4m thick Upper Khaki shale.

The Upper Cycle Black Chert facies Basal Reef prevails in the south of the lease area, and consists of a slightly polymictic (yellow shale specks present), matrix-supported medium pebble conglomerate with a more gradational contact absent of carbon where mineralisation is associated with fine disseminated and buck-shot pyrite. The conglomerate is slightly thicker compared to the Lower Cycle, but is also overlain by barren reef quartzite, the entire package being characteristically up to only 40cm thick. The lower Khaki Shale is up to 1m thicker.

The Central Rand Group itself is overlain in turn by lavas and sediments of the Ventersdorp System and the more recent sediments of the Karoo Group.

The B Reef occurs approximately 150m stratigraphically above the Basal Reef (or approximately two production working levels). Consequently, the B Reef is not normally intersected in either Basal Reef development or routine diamond drilling.

The lowest unit is a basal lag (Zone A), sitting on the underlying Doornkop Quartzite Formation. Where this unit is developed (or preserved), it may be highly mineralised oligomictic or polymictic conglomerate, with visible gold, buckshot pyrite and carbon mineralisation. This unit may carry gold values of many thousands of cmg/t and represents a potentially rewarding exploration target.

The unit overlying the Zone A may be either Zone B, which is comprised of a mildly erosive pebbly quartzite formation, and/or the stratigraphically younger Zone C, which is a polymictic conglomerate with low values which is also erosional into the underlying A and B zones.

Mining method

At the Tshepong section, the reef horizon is accessed via conventional grid development. The shaft's primary economic reef horizon is the Basal Reef that is extracted by undercut mining, leaving a quartzite beam in the hangingwall to ensure the stability of the overlaying shale. Minor amounts of B Reef that do not exceed 18% of the on-reef area mined annually are extracted via open stoping mining. The B Reef is located approximately 140m stratigraphically above the Basal Reef, necessitating separate infrastructure (i.e. footwall development) from that for the Basal Reef. The presence of khaki shale approximately 6m thick above the Basal Reef strains the footwall development rates of the B Reef, requiring the installation of ring sets for the first 25m of development. The Tshepong section has significant reserves to maintain a long-term life, however, extraction of ore from pillars will become more important as the life of mine progresses, but volumetrically these reserves are not significant.

At the Phakisa section, the Basal Reef is mined conventionally from a single shaft barrel reaching a depth of 2 600m below collar. The reef horizon is accessed by means of conventional grid development and is extracted as an open mining operation to the south of the 69 raise line, but undercut mining began as the mining continued to the north. Phakisa reached full production in October 2016. Pillar crews are also planned as the life of mine progresses to ensure depletion of the pillar reserves within the life-of-mine time frame.

Phakisa

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Infrastructure
The surface and underground infrastructure for the Tshepong section as well as the power and water supplies available exceed planned peak production requirements. Broken rock handling above 66 level is track-bound, transferred to a number of inter-level sub-vertical transfer systems that gravity feeds to the main silos on 68 level. The broken rock handling below 66 level is track-bound, transferred to a decline belt system that feeds to the silos on 66 level from where the rock is transferred by track to the main inter-level sub-vertical transfer system on 66 level. The rock is hoisted to surface through the main shaft. From the shaft the rock is transported to the processing plant by train.

At the Phakisa section, surface and underground infrastructure as well as the power and water services available exceed planned peak life of mine production requirements. Broken rock handling on all levels is track-bound, transferred to a number of inter-level sub-vertical transfer systems that feed the main silos on 77 level. From 77 level, the rock is hoisted to 55 level where a rail-veyor system transports the rock from Phakisa to the Nyala shaft, from where the rock is hoisted to surface by means of the koepe winder, and then transported to the processing plant by train.

Mineral processing
Stoping ore and development rock from the Tshepong section are hoisted and processed separately above 66 level. Below 66 level, stoping and development rock is hoisted and processed as one product currently.

At the Phakisa section, stoping ore and development rock are hoisted and processed separately. The reef, stoping ore, is milled and processed at Harmony one plant with gold recovered by means of cyanide leaching.

Tshepong operations shares the Harmony One plant with three other Harmony operations and four Harmony waste rock dumps. The plant's design capacity exceeds the maximum planned production from these sources. Gold is recovered by means of gold cyanide leaching.

Legal aspects and tenure
The current mining right for the Tshepong operation encompasses an area of 10 798.74ha. The ARMgold/Harmony Freegold joint venture holds a number of mining rights in the Free State Goldfields which have been successfully converted and executed as new order mining rights, some of which are still to be registered at the Mineral and Petroleum Resources Titles Office (MPRTO). The mining right for Tshepong operations, FS30/5/1/284MR, is valid from 11 December 2007 to 10 December 2029.

Mineral resource estimation
The valuation model using Datamine includes all the underground chip sampling data points and boreholes values drilled in the Phakisa lease area. Geozones are determined based on reef facies types and value trends. Phakisa and Tshepong share 14 geozones in the Tshepong operations mega-mine. The geozones are capped at an optimal percentile using a system called the quantile process to avoid over-estimation due to high outlying values. Based on confidence levels for geostatistical data, valuation is by means of a computer-generated block model as follows:

- Measured blocks 30m x 30m grid
- Indicated blocks 60m x 60m grid
- Inferred blocks 120m x 120m grid

The block model is then digitally transferred to the digital environment for valuation. The entire lease area is blocked and cut against major structure, geozones and haloes. The blocks are evaluated by importing the valuation model from Datamine into CadsMine, and applying the kriging method in the valuation browser of CadsMine.

Mineral resources have been estimated on the basis of geoscientific knowledge with input from the ore reserve manager, geologists and geostatistical staff. The mine's mineral resources are categorised, blocked-out and ascribed an estimated value. Computerised geostatistical estimation processes are used.

Tshepong

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Environmental impact

The Tshepong operations, which comprises the Tshepong and Phakisa sections, aims to prevent pollution, or otherwise minimise, mitigate and remediate harmful effects of our Operation on the Environment and hence maintain the ISO 14001 certification. We are also committed to ensuring compliance with the applicable environmental legislation. A key focus is the development of Integrated Water and Waste Management Plans. These plans will be pivotal in the overall management of water and will indicate how we can better use and re-use our water. Another area of focus is promoting awareness and training around green environmental management in general.

There has been a notable improvement in terms of waste management and the storage of potential contaminants. However, construction of a surface receiving store is possible solution to the management and control of chemical spills and housekeeping issues.

MATERIAL RISKS:

Material risks that may impact the Tshepong operations' resource and reserve statement are:

SIGNIFICANT RISKS	REMEDIAL ACTION
Tshepong section:	
• Orebody complexity • Ventilation of decline area	• Extensive exploration drilling • Holing to the Phakisa section on 75 level and installation of booster fans
Phakisa section:	
• Logistics • Ventilation • Mining flexibility	• Upgrade of Koepe rock winder and rail-veyor • Completion of Alimac hole and ice dam on 55 level and holing to the Tshepong section on 75 level • Increased development and equipping crews

COMPETENT PERSON

SENIOR ORE RESERVE MANAGER – TSHEPONG OPERATIONS

Theodorus Pieter van Dyk
BSc Hons (Geology), SACNASP
20 years' relevant experience

Tshepong

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

TSHEPONG OPERATIONS

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Tshepong operations	23.3	11.32	264	8 474	11.8	9.95	117	3 766	36.9	9.63	356	11 434	72.0	10.23	736	23 674

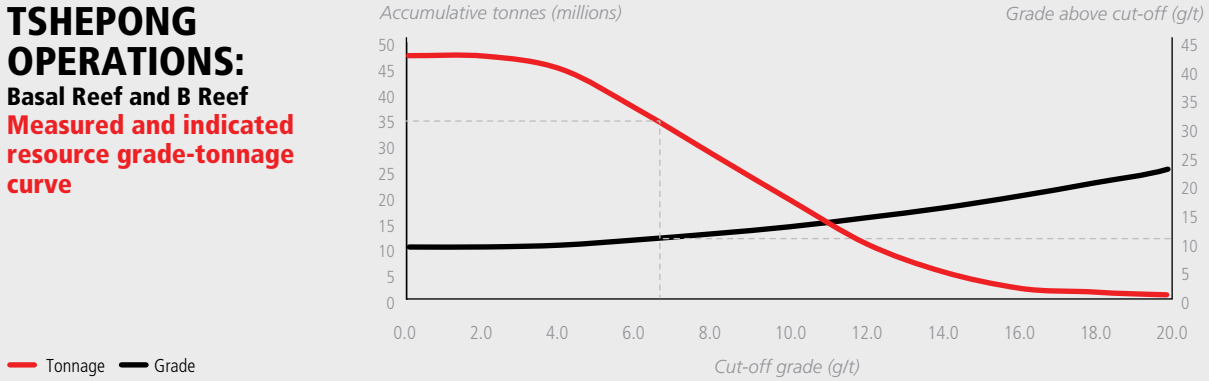
Modifying factors

Tshepong operations	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2017	72	110	129	96	682
2018	74	111	132	96	679

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Tshepong operations	19.7	5.93	117	3 762	3.7	4.84	18	581	23.5	5.76	135	4 343

TSHEPONG OPERATIONS:
Basal Reef and B Reef
Measured and indicated resource grade-tonnage curve




Tshepong

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

OPERATIONAL PERFORMANCE

Tshepong operations – key operating statistics

	Unit	FY18	FY17*	FY16*	FY15*	FY14*
Operation						
Volumes milled	000t (metric)	**1 716**	1 695	1 774	992	947
	000t (imperial)	**1 893**	1 869	1 956	1 095	1 044
Gold produced	kg	**9 394**	8 828	9 019	4 278	4 223
	oz	**302 026**	283 827	289 968	137 540	135 772
Grade	g/t	**5.47**	5.21	5.08	4.31	4.46
	oz/t	**0.160**	0.152	0.148	0.126	0.130
Development						
Total metres (excl. capital metres)		**23 089**	19 462	23 099	13 053	12 762
Reef metres		**3 159**	3 028	3 530	1 822	2 209
Capital metres		**588**	599	0	0	79
Average gold price received	R/kg	**577 058**	574 165	547 906	449 211	433 425
	US$/oz	**1 397**	1 314	1 175	1 221	1 302
Financial						
Capital expenditure	Rm	**1 008**	717	630	313	301
	US$m	**78**	52	43	27	29
Cash operating cost	R/kg	**407 575**	416 493	357 345	371 149	326 498
	US$/oz	**987**	953	757	1 008	981
All-in sustaining cost	R/kg	**514 537**	507 368	437 550	454 512	407 093
	US$/oz	**1 245**	1 161	939	1 235	1 223

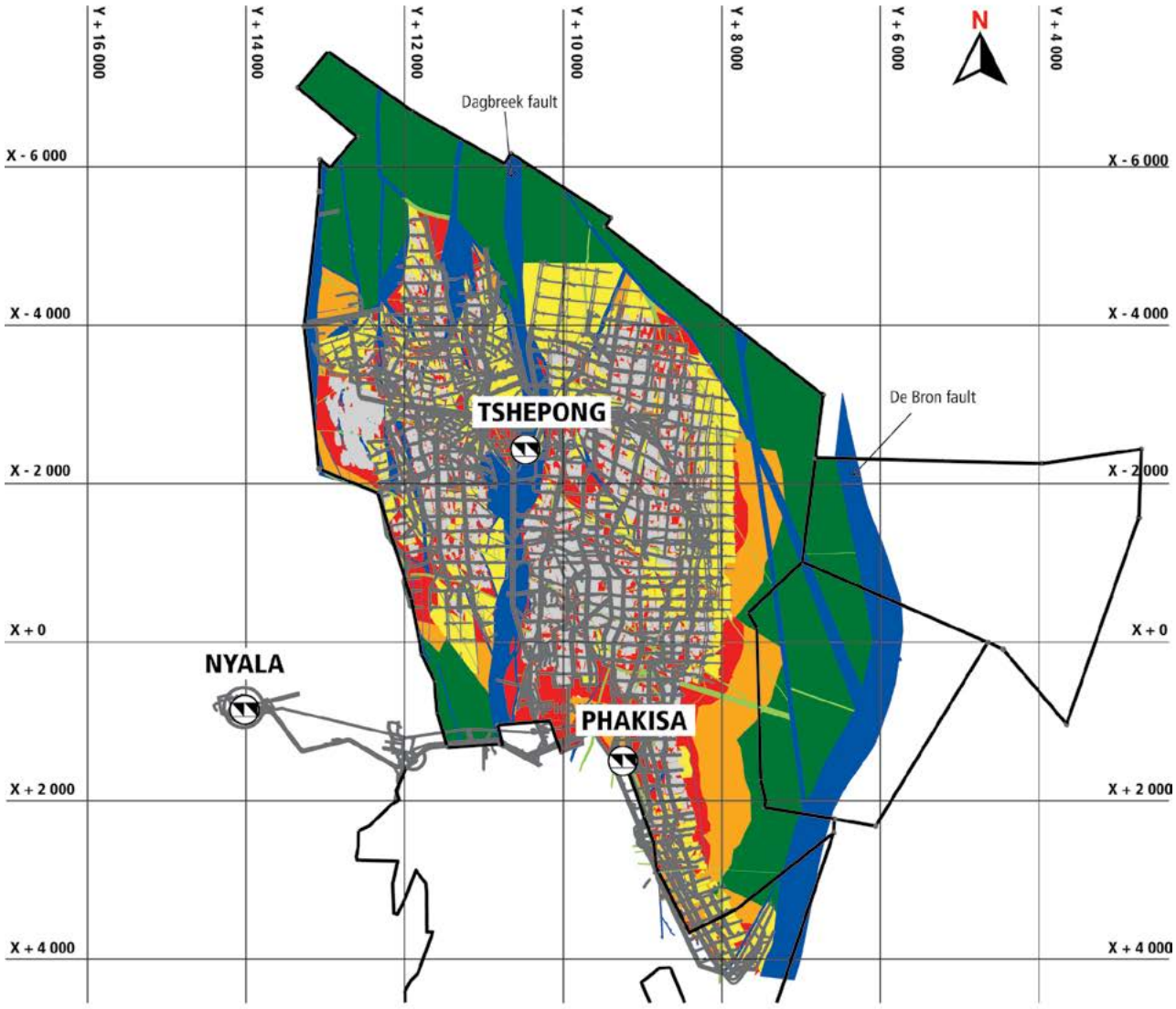
* *The Tshepong operations, comprising the Phakisa and Tshepong sections, is reported as a single operating entity from FY18. As these were reported separately in previous years, the data for the years FY14 to FY17 has been combined.*

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

TSHEPONG OPERATIONS

BASAL REEF



LEGEND

- Mining right
- Shaft position
- Fault zones
- Dykes
- Infrastructure
- Mined out

Mineral Resources

- Measured
- Indicated
- Inferred

Mineral Reserves

- Proved and probable

0 1 000 2 000
Metres

Co-ordinate system Lo. 27°
Constants: Y = 0.00
X = +3 100 000.00

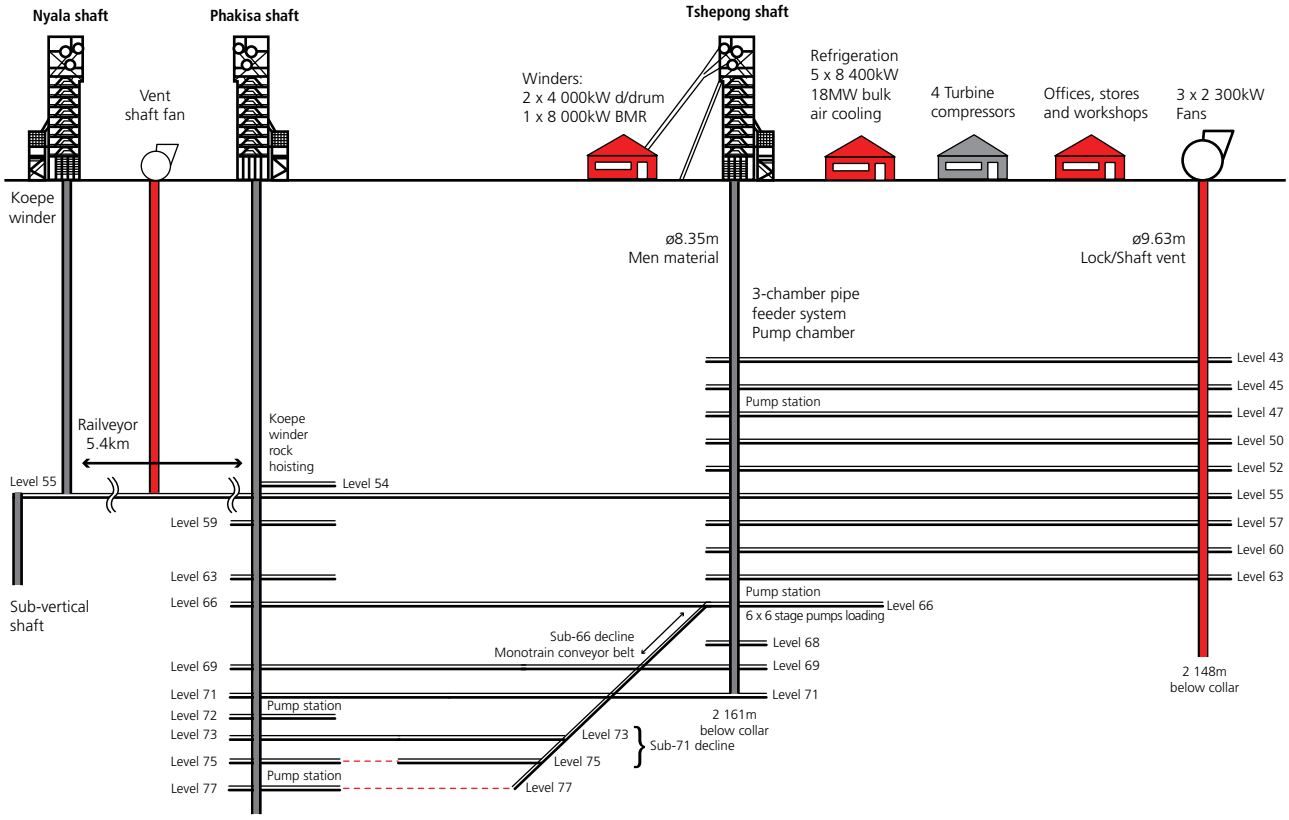
TSHEPONG
Latitude: 27°51' 56.45"S
Longitude: 26°42' 45.15"E

PHAKISA
Latitude: 27°54' 1.27"S
Longitude: 26°43' 30.05"E

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

Tshepong Operations: Schematic shaft and mining layout of the Nyala, Phakisa and Tshepong shafts



Tshepong

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

BAMBANANI

Bambanani

History

Shaft sinking operations (by Anglo American Corporation) began at President Steyn 4 shaft in February 1969 and were completed, to a final depth of 2 365m below surface, in September 1971. The Basal Reef was intersected at a depth of 2 075m yielding 1 252cmg/t over 235.7cm. The sub-vertical shaft was sunk in the late 1970s to a depth of 3 328m below surface. The sub-shaft came into production in 1982.

The shaft then became known as Freegold 1 East in 1997 when President Steyn was closed. In October 1998, the shaft became part of the then AngloGold and its name was changed again to Bambanani East. In January 2002, the shaft was sold to the Harmony/ARM consortium and, in October 2003, Harmony became the sole owner.

Geology

The Basal Reef is the predominant gold-bearing reef at Bambanani. The Steyn facies of the Basal Reef cover approximately 90% of Bambanani's mining lease area and overlays, with a very slight angular sub-conformity, the UF1 quartzite of the Welkom Formation. It is overlain by the Khaki Shale unit of the Harmony Formation in the north, but to the south it is overlain by the younger waxy brown leader quartzite which erodes the Khaki Shale. Decisions to undercut the Basal Reef may be influenced by the presence and thickness of the Khaki Shale. Thickness of the reef may vary from a few centimetres to over 10m, but is typically between 1m and 3m thick.

The Stuurmanspan Fault in the west and the De Bron-Vermeulenskraal Fault system in the east bound the Basal Reef at Bambanani. Both are northward striking dextral extensional faults, with significant westerly downthrows. The reef dips easterly and varies from 25 degrees in the west to 45 degrees in the east, but in places local deformation against fault leads to vertical reefs. Smaller faults break up the reef but are generally sub-parallel to the main structures.

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Mineral rights /legal aspects and tenure

The current mining right encompasses an area of 2 355.85 hectares and was successfully converted, executed and registered as a new order mining right at the Mineral and Petroleum Resources Titles Office on 26 January 2008. The mining right FS30/5/1/2/2/83MR is valid from 11 December 2007 to 10 December 2029.

Mining methods and mine planning

Bambanani is in the final stages of its life of mine and mining is limited to the extraction of the shaft pillar. Mining of the shaft pillar is focused on mini longwalls on the north side and centre of the pillar, separated by safety pillars left along designated main geological structures. Ore transport is through a decline system, stretching from 58 to 75 levels, situated on the northern side of the shaft pillar, to Bambanani West, where hoisting takes place.

Most of the panels are mined on full width, leaving a reef beam of approximately 80cm in the hanging wall in order to build a beam to support the shale. The challenge remains to control the stoping width and the stability of the beam in a highly fractured and faulted environment, with sill intrusions, weak waxy brown quartzite hanging wall above the shale, complicated by ball and pillow formations.

Backfill has been successfully introduced in all panels. The quality of installation has improved drastically as the crew has gained knowledge and understanding of its underground application. The focus will now be to improve the volume of backfill placed versus the square metres mined, as well as on quality control which will include regular testing of the backfill product.

The seismic system is operational and the seismic data gathered is used and applied in the design of the mining sequence. Seismic response is also monitored and correlated with monthly production data, to establish the relationship between volumes mined and the seismic response.

Mineral processing

As Bambanani does not have its own mineral processing plant, the mine's ore is transported by rail for 7km to the Harmony 1 plant for processing. This is a centrally located plant that is used by other Harmony mines in the Free State.

Infrastructure

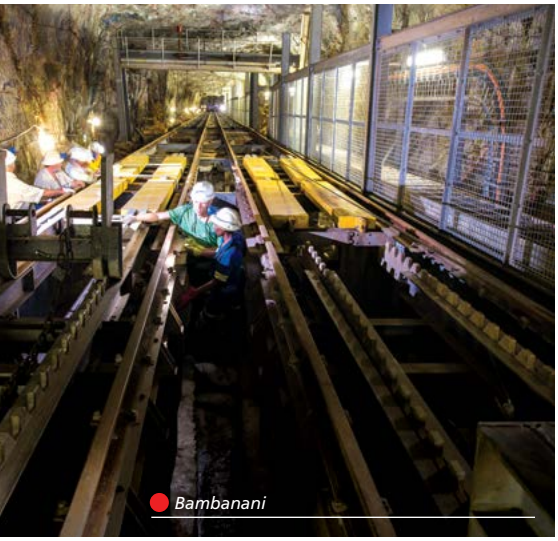
Work continues on the shaft pillar on levels 66, 69, 71 and 73. Ore transport is by means of a decline system, stretching from 58 to 75 levels, situated on the northern side of the shaft pillar, to Bambanani West, from where it is hoisted to surface. The linking level is 60 level, where cross-tramming is done.


Bambanani


Bambanani


Bambanani

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED


Bambanani

Mineral resource estimation
The estimation method used for local measured estimates on the shaft is Ordinary Kriging and for local indicated and inferred estimates is simple macro kriging. The orientations and ranges of each geozone's semi-variogram are used to determine the kriging search parameters, which are optimised. Estimates are generally kriged into 30mx30m blocks for the measured resources from the point support data.

Environmental impact
Bambanani's environmental aspects and impacts are managed according to its Environmental Management Programme as approved by the DMR in terms of the MPRDA. All environmental aspects and impacts emanating from mining activities are documented in the approved EMPR and the environmental aspect register as required by the MPRDA and ISO 14001:2004 standard, in terms of which they are also managed.

Annual performance monitoring and audits are conducted by the DMR to verify compliance with the following legislation:

- Mine Health and Safety Act 29 of 1996
- National Water Act 36 of 1998
- National Environmental Management Act 107 of 1998
- Mineral and Petroleum Resource Development Act 28 of 2002

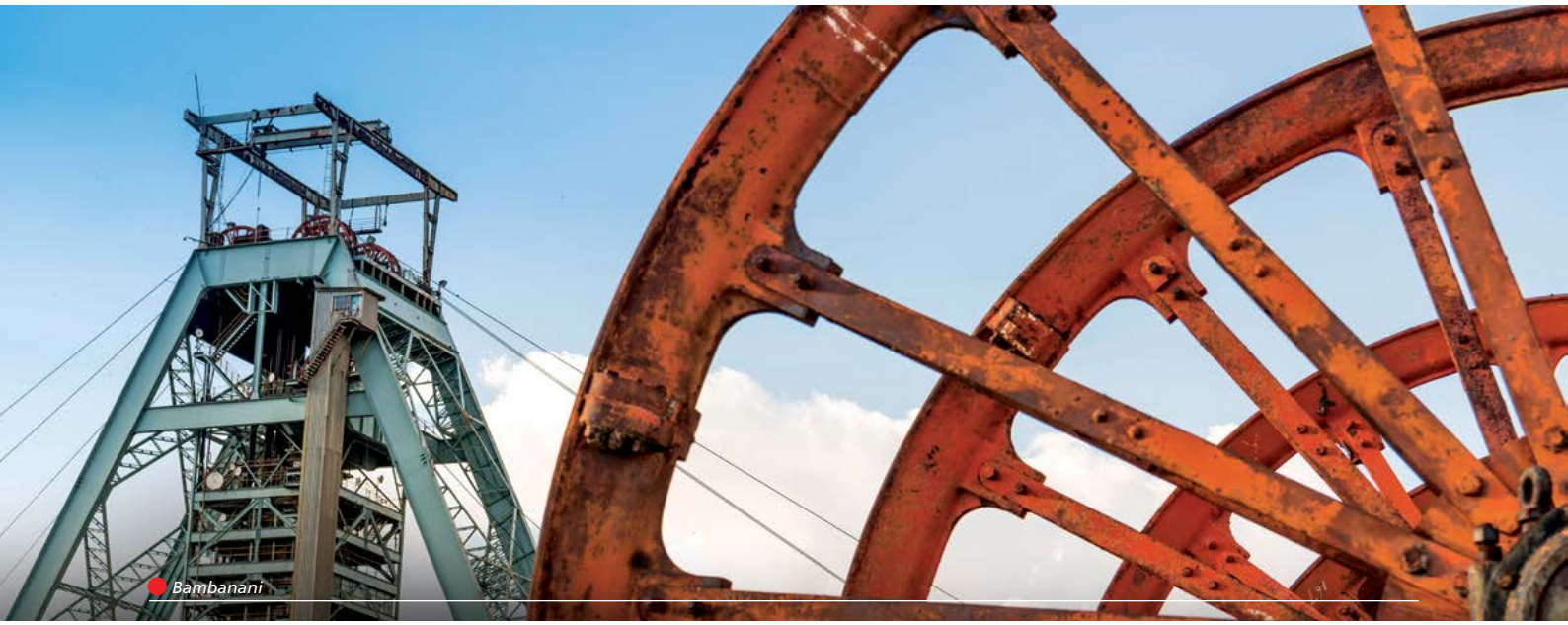
MATERIAL RISKS:
Material risks that may impact Bambanani's resource and reserve statement are:

SIGNIFICANT RISKS	REMEDIAL ACTION
• Seismicity	• Support design, monitoring system

COMPETENT PERSON

ORE RESERVE MANAGER
Fhulufhelo Olga Muthelo
BSc (Hons), Post graduate diploma in Engineering, SACNASP

11 years' experience in Witwatersrand gold mining.


Bambanani

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

BAMBANANI

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Bambanani	0.85	16.78	14	457	–	–	–	–	–	–	–	–	0.85	16.78	14	457

Modifying factors

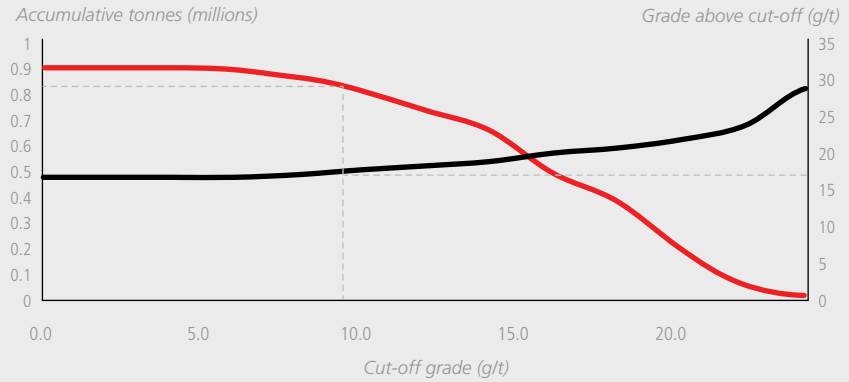
Bambanani	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2017	96	180	220	96	1 781
2018	96	190*	225	96	1 952

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Bambanani	1.0	12.08	12	386	–	–	–	–	1.0	12.08	12	386

** Change of mining method – from undercut to a full width stope panel*

BAMBANANI:
Basal Reef
Measured and indicated resource grade-tonnage curve



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

OPERATIONAL PERFORMANCE

Bambanani – key operating statistics

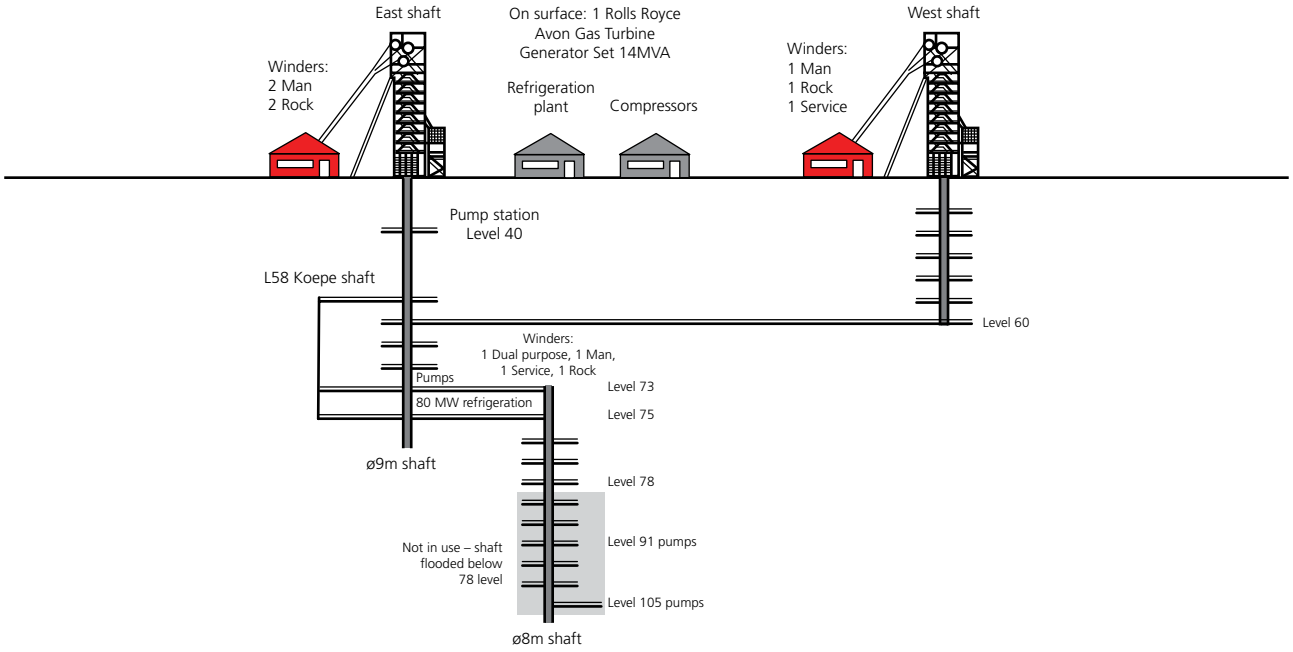
	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**233**	231	232	229	206
	000t (imperial)	**257**	254	256	253	227
Gold produced	kg	**2 821**	2 750	3 013	2 908	2 576
	oz	**90 698**	88 415	96 870	93 495	82 821
Grade	g/t	**12.11**	11.90	12.99	12.70	12.50
	oz/t	**0.353**	0.348	0.378	0.370	0.365
Development						
Total metres (excl. capital metres)		**1 495**	1 591	1 743	1 150	1 092
Reef metres		**0**	130	105	15	0
Capital metres		**0**	0	0	0	0
Average gold price received	R/kg	**576 398**	574 227	536 410	451 200	432 706
	US$/oz	**1 395**	1 314	1 151	1 226	1 300
Financial						
Capital expenditure	Rm	**64**	77	106	110	125
	US$m	**5**	6	7	10	12
Cash operating cost	R/kg	**320 724**	317 833	268 305	239 552	222 764
	US$/oz	**776**	727	576	651	669
All-in sustaining cost	R/kg	**360 462**	357 025	304 634	270 623	255 500
	US$/oz	**873**	817	654	735	768

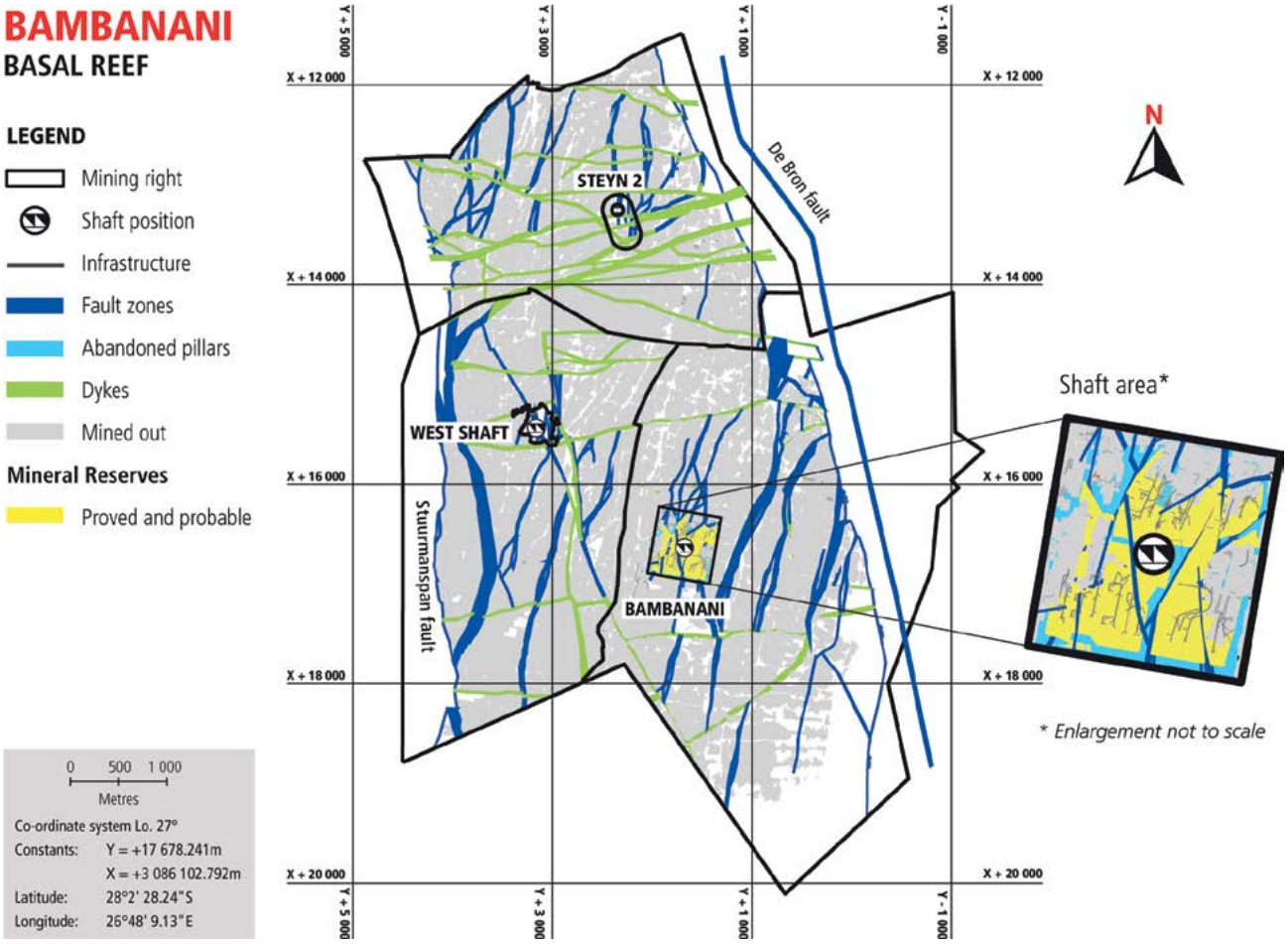
Bambanani

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

Bambanani: Schematic of shaft and mining layout





MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

UNISEL

Unisel

History

Unisel began as a joint venture between Union Corporation and African Selection Trust in 1972, following a drilling programme undertaken in the ground between the Sand River and the President Brand mine. Site preparation and shaft sinking began in 1974 and production in 1979. On the amalgamation of Union Corporation and General Mining, Unisel continued operations under the mining house Gencor and then Gengold. In 1995, Randgold purchased Unisel from Gengold. When Randgold split, Unisel became part of the Harmony stable of mines.

Nature of operation

Unisel is a mature, underground, single-shaft mine, operating at depths from 1 100m to 2 200m below surface. Mining operations are scattered and, due to the age of the shaft and the extent of mining, lie 2-4km from the shaft.

Geology

Unisel mines gold-bearing reefs from the Witwatersrand Super Group, which is situated on the Kaapvaal Craton. The mine lies in the Free State goldfields on the south-western edge of the basin. The Basal Reef is the main economic horizon in the Unisel area. The Basal Reef occurs at the base of the Harmony Formation and overlies the footwall beds (Welkom Formation) with a marked unconformity. This erosional unconformity cuts progressively deeper into the footwall when traced from north to south.

Structurally, the sedimentary package, within which Unisel mines, strikes north-south and dips to the east ranging between 25 and 40 degrees. Faulting consists predominantly of north-south trending normal faults dipping to the west with a right lateral displacement. The most significant is the Stuurmanspan Fault of about 800m and the Unisel fault of 110m. West-east trending thrust faults cut through the property.

Igneous intrusions in the form of dykes and sills are present with the sill lying sub-parallel to the Basal and Leader reefs

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

with an effect on mining operations with the reef horizon split by the sill.

Mineral rights and tenure

Unisel has mining rights on the farms Jurgaenhof 490, Tarka 656 and Vermeulens Kraal Noord 480. These mining rights are registered as new order mining rights. The extent of the mining rights is 3 095.54 hectares.

Mining methods and mine planning

Mining operations take place from 2 level down to 13 level, mainly by means of breast panel mining. Limited down-dip panels and wide raises are undertaken periodically. Footwall development comprises haulages and crosscuts with service ways and ore passes developed to access the reef horizons. Face length cannot exceed 30m and strike pillars are left as support between the panels.

Extraction of higher-grade portions of the shaft pillar has begun. This ground will be extracted by means of breast panel mining, as described above. The mine has a remaining operating life of one to two years.

Mineral processing

Unisel does not have its own mineral processing plant. Ore mined is transported by rail for 8km to the Harmony One plant for processing. This is a centrally located plant used by other Harmony mines in the Free State.

Infrastructure

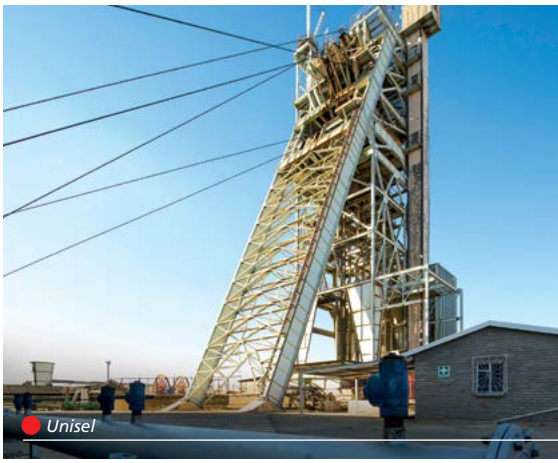
The Unisel complex consists of a steel headgear with a collar elevation of 496m below datum, giving access to workings from 2 level (at 1 655m below datum) to 10 level (2 375m below datum). A decline shaft from 10 level to 13 level at 2 641m below datum gives access to the lowest shaft levels.

The shaft has a second outlet to Bambanani to the north at 10 level. Other holings to adjacent mines lead to the old Brand 5 shaft on 4 level.

Mineral resource estimation

The estimation method used for local measured estimates on the shaft is ordinary kriging and, for local indicated estimates simple macro kriging is used. Estimates are generally kriged into 30m x 30m blocks for the measured resources


Unisel


Unisel


Unisel

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED


Unisel

from the point support data. The indicated resources are kriged into 60m x 60m blocks, using the associated regularised variograms together with a macro kriging declustered. Geozones are based on grade distribution to ensure correct grade estimates are done for the different areas.

Environmental impact

Unisel environmental aspects and impacts are managed according to the environmental management programme (EMPR) approved by the Department of Mineral Resources (DMR) in terms of Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA). All environmental aspects and impacts emanating from mining activities are documented in the approved EMPR and the environmental aspect register as required by MPRDA and ISO 14001:2004 standard.

Annual performance monitoring and audits are conducted by the DMR to verify compliance with the following legislation:

- Mine Health and Safety Act 29 of 1996
- National Water Act 36 of 1998
- National Environmental Management Act 107 of 1998
- MPRDA

All environmental impacts emanating from mining activities are managed in terms of the EMPR and ISO 14001:2004 requirements.

MATERIAL RISKS:

Material risks that may impact Unisel's resource and reserve statement are:

SIGNIFICANT RISKS

- Scaling of shaft ore pass system
- Aged shaft infrastructure and equipment
- Scattered mining and environmental risks (ventilation)

REMEDIAL ACTION

- Maintain waste and reef systems
- Schedule preventative maintenance and repairs
- Establish dedicated return airways

COMPETENT PERSON

ORE RESERVE MANAGER
Fhulufhelo Olga Muthelo
BSc (Hons)
Post graduate diploma in Engineering
SACNASP

11 years' experience in Witwatersrand gold mining.


Unisel

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

UNISEL

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Unisel	0.32	7.90	3	81	0.13	8.41	1	36	–	–	–	–	0.45	8.05	4	118

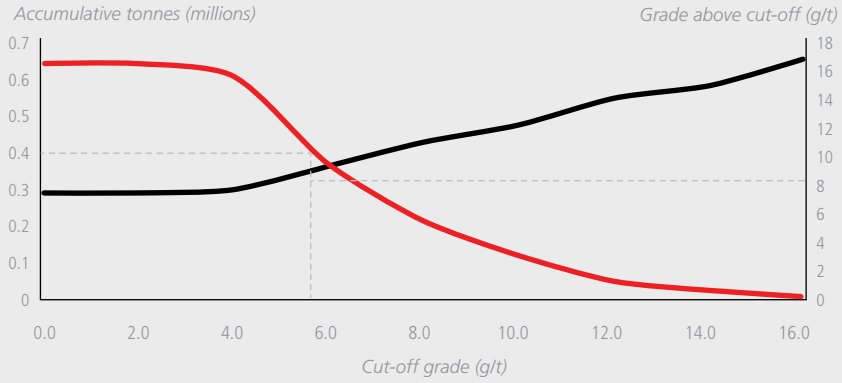
Modifying factors

		MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
Unisel	2017	77	184	224	96	945
	2018	71	176	185	96	974

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Unisel	0.27	4.89	1	43	0.05	5.69	0.3	10	0.33	5.02	2	53

UNISEL:
Basal Reef
Measured and indicated resource grade-tonnage curve



Unisel

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

OPERATIONAL PERFORMANCE

Unisel – key operating statistics

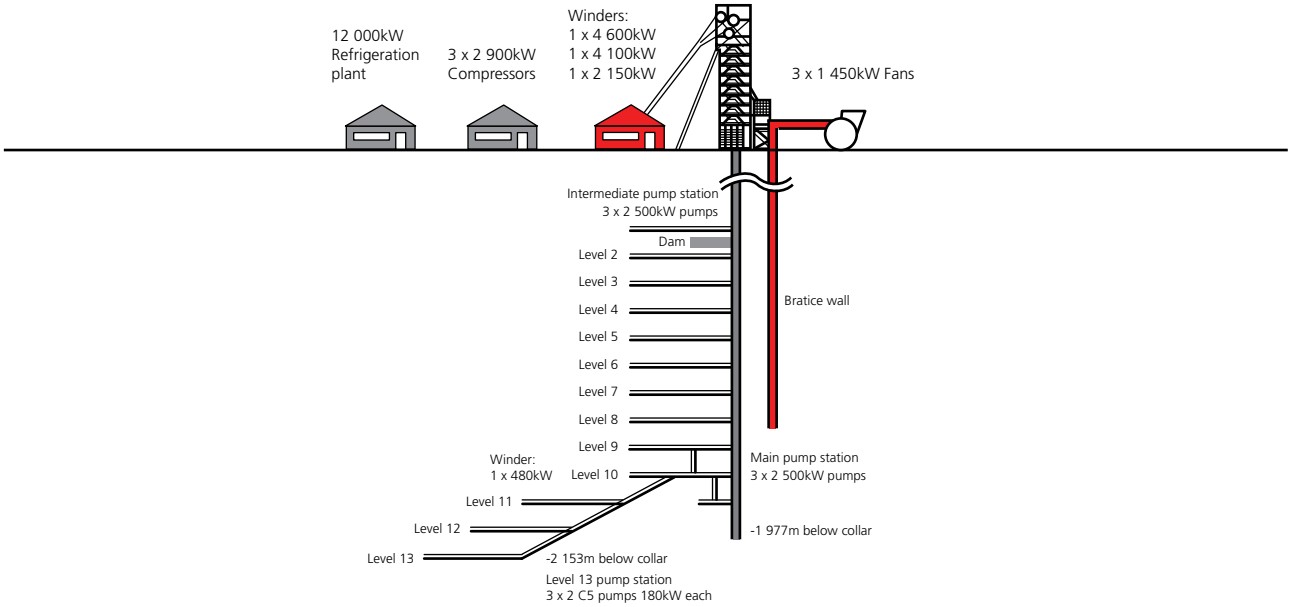
	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**376**	394	424	417	408
	000t (imperial)	**415**	436	467	460	450
Gold produced	kg	**1 280**	1 595	1 704	1 695	1 838
	oz	**41 152**	51 280	54 785	54 495	59 093
Grade	g/t	**3.40**	4.05	4.02	4.06	4.50
	oz/t	**0.099**	0.118	0.117	0.118	0.131
Development						
Total metres (excl. capital metres)		**2 921**	3 647	3 145	5 177	5 641
Reef metres		**1 325**	1 575	1 917	2 816	3 462
Capital metres		**1 028**	0	0	0	0
Average gold price received	R/kg	**576 222**	575 650	542 487	449 082	432 072
	US$/oz	**1 395**	1 317	1 164	1 220	1 298
Financial						
Capital expenditure	Rm	**85**	78	62	99	85
	US$m	**7**	6	4	9	8
Cash operating cost	R/kg	**604 311**	525 732	442 359	397 615	326 466
	US$/oz	**1 463**	1 203	949	1 080	981
All-in sustaining cost	R/kg	**678 436**	591 913	496 099	469 246	388 785
	US$/oz	**1 642**	1 354	1 064	1 275	1 168

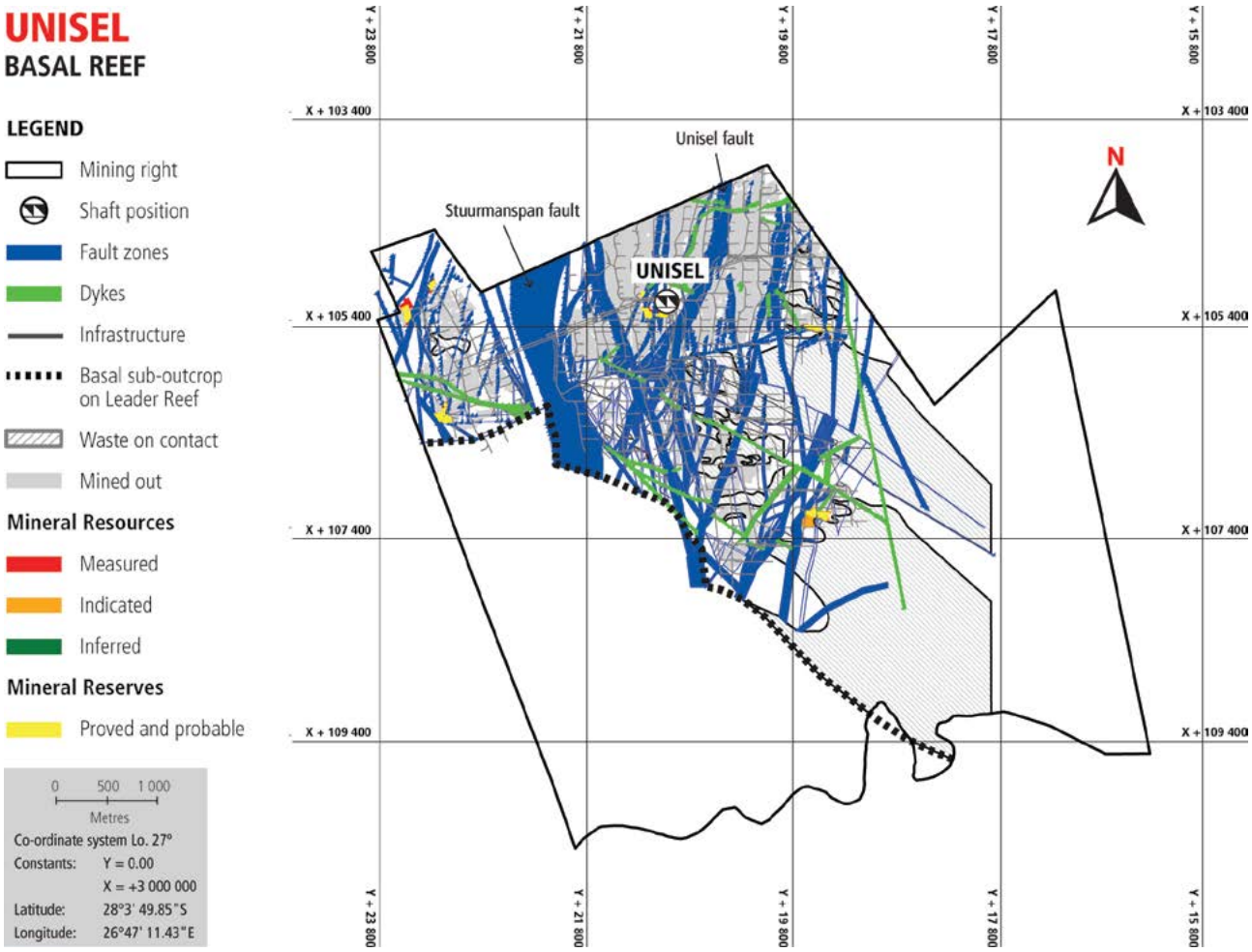
Unisel

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

Unisel: Schematic of shaft and mining layout





MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

JOEL

Joel

History

Active prospecting in the area began on the farms Leeuwbult 580 and Leeuwfontein 256 in 1981. Work on construction of the twin shaft system began in September 1985 and was completed by December 1987. Joel South was designed to be a fully trackless mining operation. Previously known as HJ Joel, the mine's name changed to Joel in 1998 when the then AngloGold Limited was established. The mine's name was later changed to Taung in 1999, reverting to Joel in January 2002 when the Freegold joint venture between Harmony and ARMgold assumed responsibility for the operation.

Nature of the operation

Joel consists of two interconnected shaft complexes, the south shaft complex, which is currently in operation, and the north shaft complex.

The south shaft complex has two shafts, namely 3 shaft (men, material and mineral) and 4 shaft (ventilation and services). This shaft system was sunk beyond the reef sub-outcrop and is located on the southern extremity of the orebody. These two shafts go down to 1 050m below collar and cover four levels, namely, 60 and 70 levels (which are mined out trackless levels), 90 level which is the main transfer level, and 95 level which houses the pumping and loading facilities.

The north shaft complex is a single-shaft system, sunk and lined to 1 471m below collar, but not yet equipped to hoist people. Feasibility studies were conducted in 2005 to determine whether this shaft could aid in extending Joel's life of mine by opening up the 129 level. This shaft was upgraded in February 2006 to enable hoisting of ore through the north shaft barrel. Hoisting was halted in March 2007 owing to a deterioration in the shaft infrastructure. The shaft has since been re-equipped to hoist ore and acts as a second outlet for the mine. A short one-compartment lift shaft from 110 level gives access to 121 level. The single drum winder installed here was used to transport men and material down to 121 level and also to do hopper hoisting of development and some stoping ore on this level. The lift

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

shaft has since been deepened to access 129 level. The lift shaft will service men and material only whereas the north shaft will be dedicated to hoisting ore.

The two shaft complexes (north and south) are connected via a triple decline system, spanning four levels and consisting of a ±1 600m belt decline (decommissioned), a chairlift decline to 110 level and two material declines in tandem down to 117 level. The decline levels are 98, 104, 110 and 117, of which the last two connect to the north shaft. There are no holing connections from Harmony to Beatrix.

Joel currently has a life-of-mine expectancy of nine years. This includes mining up to 137 level and the Beatrix block swop.

To access the orebody from 137 level, two declines are being developed at 12° from 129 level – a chairlift decline and a conveyor belt decline. Primary footwall development is currently taking place on 137 level.

Mineral rights/legal aspects and tenure

The current mining right, encompassing an area of 2 355.8ha, was successfully converted, executed and registered as a new order mining right at the Mineral and Petroleum Resources Titles Office (MPRTO) on 6 August 2010 under 73/2010MR.

Geology

The main structures at Joel are associated with the Platberg Extensional event. These faults are north-south striking, steeply dipping and typically have downthrows to the east in the order of 10m to 100m. These downthrows form a graben against the De Bron Fault, which has a 450m up throw to the east. East of the De Bron Fault, the reef has been truncated/eroded against the Karoo Supergroup.

Minor east-west striking faults are also present; however, displacements on these faults are generally less than 10m, which are believed to be Klipriviersberg in age. Low angle reverse faulting is also present. These structures trend north-south, have small displacements and dip towards the east. These structures may be related to the central Rand Contractional event.

The Klippan Formation has been preserved as an east west trending erosional channel that has eroded deeply through the Witwatersrand sediments and has eliminated the Beatrix/VS5 horizon in the eastern portion of the mine and cut out a significant chunk in an east west direction through the middle of the lease area. Regionally the Klippan Formation is preserved in the north-south striking basin, known as the Virginia Basin in the Southern Free State, which parallels the De Bron Fault.

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.

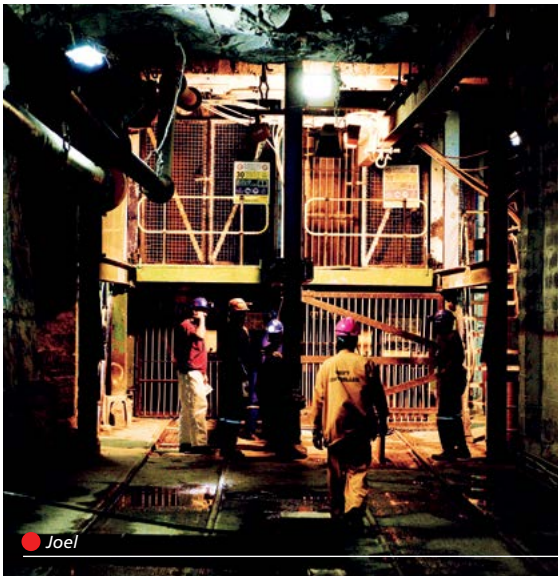
Where unaffected by the Klippan Channel, the reef is bound to the east by the De Bron Fault, which strikes north-north-east. The CD Fault, which strikes north-east and is roughly halfway between the two shafts, has a 320m sinistral lateral displacement, which has moved ground south of the fault towards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

The complex nature of the reef has resulted in a highly irregular distribution of gold throughout the mining area. There are broad low- and high-grade zones over 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.

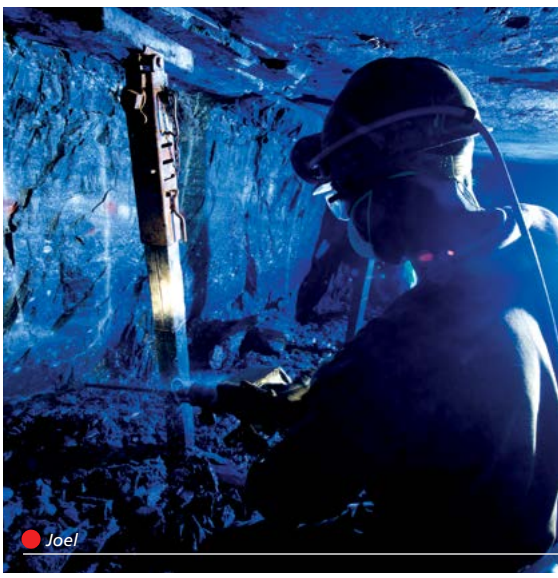
For the purposes of resource estimation, a detailed facies model is used and is based on detailed sedimentological observations.

Mining methods and mine planning

Joel operates at an intermediate mining depth and the mining method is tailor-made for both the variable grades intersected as well as the associated rock-related hazards anticipated at this depth.


Joel

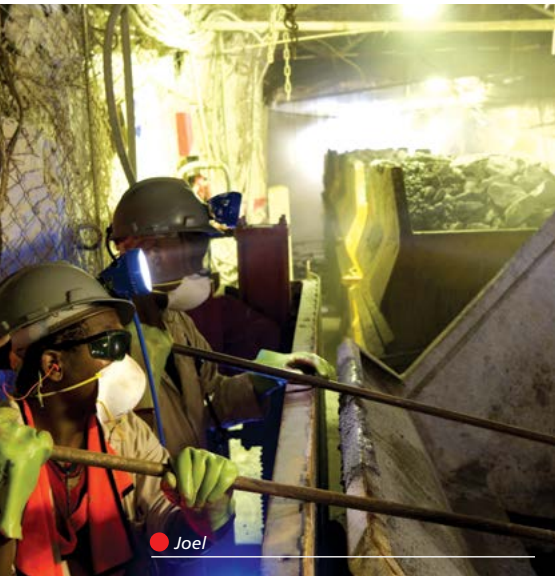

Joel


Joel

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

Joel


Joel


Joel

Given the variable grades as well as geological complexity, mining is conducted mainly in terms of a pre-developed scattered mining system. This system allows for unpay and geologically complex areas to be left unmined with some cognisance taken of the overall panel configuration and stability of footwall development. This allows for selective mining, based on the proven ore reserve during the development phase.

In addition, the stability of stoping panels in an intermediate stress environment, may require additional stabilising pillars be left to support the immediate hangingwall. These take the form of inter-panel crush pillars left between neighbouring mining panels. The major rock-related risk is unexpected panel collapses.

Minor falls of ground, due to geology, bedding, shale and jointing, do occur but are mostly addressed via a proven in-stope support system. As the largest portion of Joel's production is currently mined between 129 and 137 levels, production is focused mainly on five or six raise lines.

Also, as mining has advanced into more complex geological areas, dip- and strike-related structures are more commonly intersected. The change to a higher support resistance system, given the intersection of a more complex geological environment, has been largely successful and the occurrence of large geological "back breaks" and falls of ground are rare. Timber-based packs were installed along gullies and as breaker line support in panels to improve hangingwall stability. From a management perspective, it is of utmost importance that geological structures are reported, mapped and properly supported using high-support resistance pack units to ensure a stable stoping horizon.

With the marginal increase in depth and the more complex geological environment, the incidence of low magnitude (< 1.5) seismic events has slowly increased. This activity has manifested mainly in reasonably low stress (45Mpa) strike-orientated dyke intersections with stoping excavations. The installation of a 10-station regional seismic network to highlight potentially unstable areas and structures prone to bursting was completed with the seismic data being used to highlight potential problem areas. The seismic network is maintained and its operational and health status kept well above the 80% mark.

Mineral processing

The Joel plant currently processes only Joel reef at a rate of approximately 40 000 tonnes a month. The reef, which has an average moisture content of between 3% and 5%, is transported from the shaft using trucks which tip the ore into the plant feed bin. The reef is then transported from the feed bin by conveyor belt to the concrete mill silos.

From the silos, the run-of-mine ore is fed via two conveyors directly into two mills for fully autogenous milling. The average feed rate to the mills is between 50 and 75 tonnes an hour. The milling circuit consists of two single-stage run-of-mine mills that are operated on maximum power and load for optimum milling. Each mill is 4.27m in diameter and 10m in length, and the mill grind varies between 70% and 80% passing minus 75 microns.

The carbon-in-pulp circuit is made up of six tanks in which carbon is transferred counter current to the flow of pulp. The carbon is retained in the respective tanks with the use of Kambalda screens, while the slurry is pumped to the residue tank and from there to the tailings dam.

Infrastructure

Joel's upper mining levels are in a mature phase of operation. The decline project, from 129 to 137 levels, which started in 2011, is scheduled for completion in 2019. Holing of the 137 level E5 raise is expected to be completed in July 2019. Production below the 129 level step over is currently underway.

Mineral resource estimation

The method used to estimate local measurements on the shaft is ordinary kriging and for local indicated and inferred estimates simple macro-kriging is used. Estimates are generally kriged into 30m x 30m blocks for measured resources from the point support data. Indicated resources are kriged into 60m x 60m blocks,

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

using associated regularised variograms together with a macro kriging decluster.

Similarly, inferred mineral resources are estimated using associated regularised variograms and kriging into 120m x 120m blocks. Any un-kriged areas in the inferred regions are then covered by global mean estimates. Geozones are based on grade distribution to ensure correct grade estimates are done for the different areas.

Environmental impact

Environmental aspects and impacts at Joel are managed according to the environmental management programme, as approved by Department of Mineral Resources (DMR) in terms of Mineral and Petroleum Resources Development Act, no 28 of 2002 (MPRDA). All environmental aspects and impacts emanating from mining activities are documented in the associated environmental management programme report and the environmental aspect register as required by the MPRDA and ISO 14001:2004 standard.

Annual performance monitoring and audits are conducted by the DMR to verify compliance with the following legislation:

- Mine Health and Safety Act 29 of 1996
- National Water Act 36 of 1998
- National Environmental Management Act 107 of 1998
- Mineral and Petroleum Resources Development Act 28 of 2002

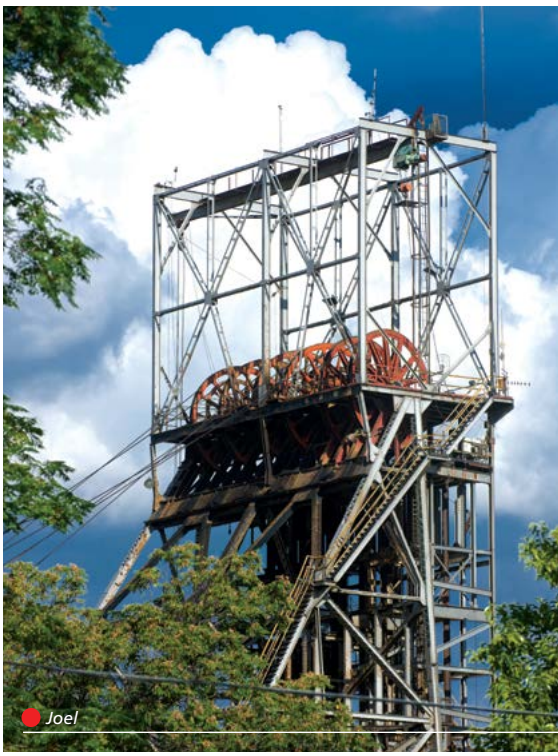
All environmental impacts emanating from mining activities are managed in terms of the environmental management programme and ISO 14001:2004 requirements.

Environmental audits or performance assessments are conducted every second year to verify compliance with Joel's approved environmental management programme, as required by Regulation 55 of the MPRDA, by independent environmental consultants and the report submitted to the DMR. In addition, an internal environmental legal compliance audit is conducted to verify compliance. An online environmental legal register for Joel is maintained at www.drayer-legal.co.za and used to monitor compliance and to obtain applicable and relevant environmental legal updates for the operation.

Bio-monitoring surveys are also conducted on surface water streams close to the operation in compliance with draft water use licence conditions and the National Water Act 36 of 1998 to:

- determine the condition of biological communities as well as the chemical water quality in rivers and streams during the wet seasons
- provide baseline reference conditions for future studies in order to assist Joel mine management in identifying environmental liabilities relating to the potential contamination of surface streams resulting from current mining activities

The operation is ISO 14001 accredited and conforms with the requirements of the ISO 14001: 2004 standard for which it is audited annually. Joel is also accredited in line with the International Cyanide Management Code, having been accredited initially in 2010 and most recently on 1 February 2017. Joel is committed to eliminating and/or minimising the effects of mining activities on the environment and adjacent communities.


Joel

MATERIAL RISKS:

Material risks that may impact Joel's resource and reserve statement are:

SIGNIFICANT RISKS

- Flooding of 145 level (shaft bottom)
- Lack of mining flexibility

REMEDIAL ACTION

- Installation of second submersible pump as a standby
- Clean up of dam on 145 level
- Prioritising development and construction of decline project

COMPETENT PERSON

ORE RESERVE MANAGER
Deon Lodder

Professional Mine Surveyor – PMS 0169 – PLATO; Business Management and Leadership Degree – UFS; Mine Surveyor's Certificate of Competency: National Higher Diploma – Mine Surveying; NTC 6 – Civil Engineering

32 years' experience in gold mining

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

JOEL

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Joel	3.5	7.89	28	895	3.7	8.30	31	997	0.7	7.37	5	172	8.0	8.04	64	2 064

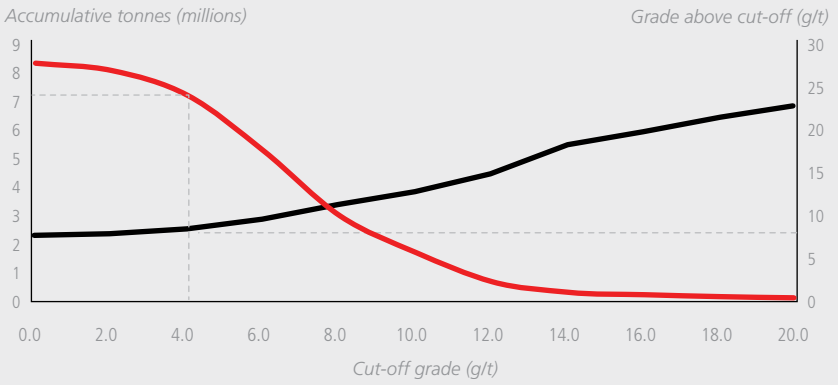
Modifying factors

	MCF	SW	MW	PRF	Cut-off
Joel	(%)	(cm)	(cm)	(%)	(cmg/t)
2017	84	159	189	95	772
2018	84	163	187	95	792

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Joel	2.5	4.74	12	381	1.8	5.33	9	305	4.3	4.99	21	686

JOEL:
Beatrix Reef
Measured and indicated resource grade-tonnage curve




Joel

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

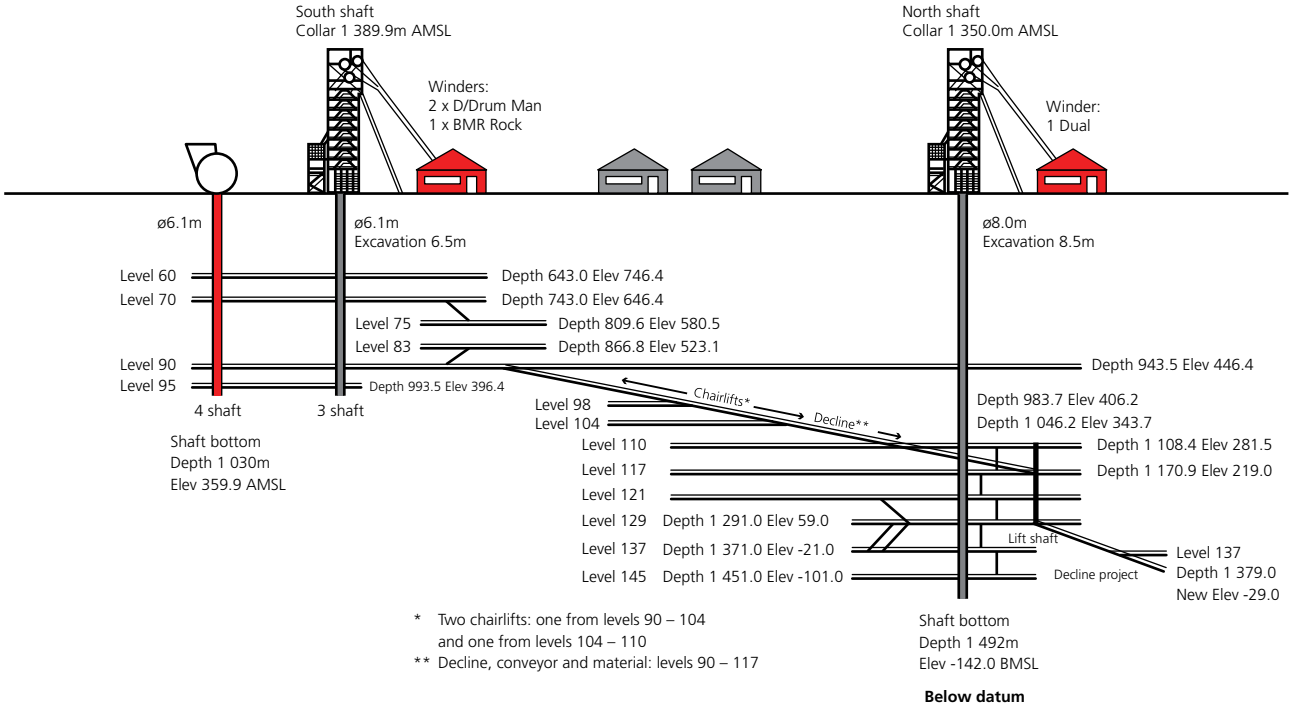
OPERATIONAL PERFORMANCE

Joel – key operating statistics

	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**454**	514	542	551	548
	000t (imperial)	**501**	567	597	607	604
Gold produced	kg	**1 635**	2 246	2 278	2 258	2 335
	oz	**52 566**	72 211	73 239	72 596	75 072
Grade	g/t	**3.60**	4.37	4.20	4.10	4.26
	oz/t	**0.105**	0.127	0.123	0.119	0.124
Development						
Total metres (excl. capital metres)		**3 331**	3 477	3 541	3 200	2 881
Reef metres		**431**	1 596	2 315	1 037	1 079
Capital metres		**620**	532	485	338	993
Average gold price received	R/kg	**576 023**	573 986	543 442	449 026	430 929
	US$/oz	**1 394**	1 313	1 166	1 220	1 295
Financial						
Capital expenditure	Rm	**250**	243	215	182	145
	US$m	**19**	18	15	16	14
Cash operating cost	R/kg	**556 468**	413 088	371 080	334 168	294 493
	US$/oz	**1 347**	945	796	908	885
All-in sustaining cost	R/kg	**661 921**	477 484	424 617	384 022	330 648
	US$/oz	**1 602**	1 092	911	1 043	994

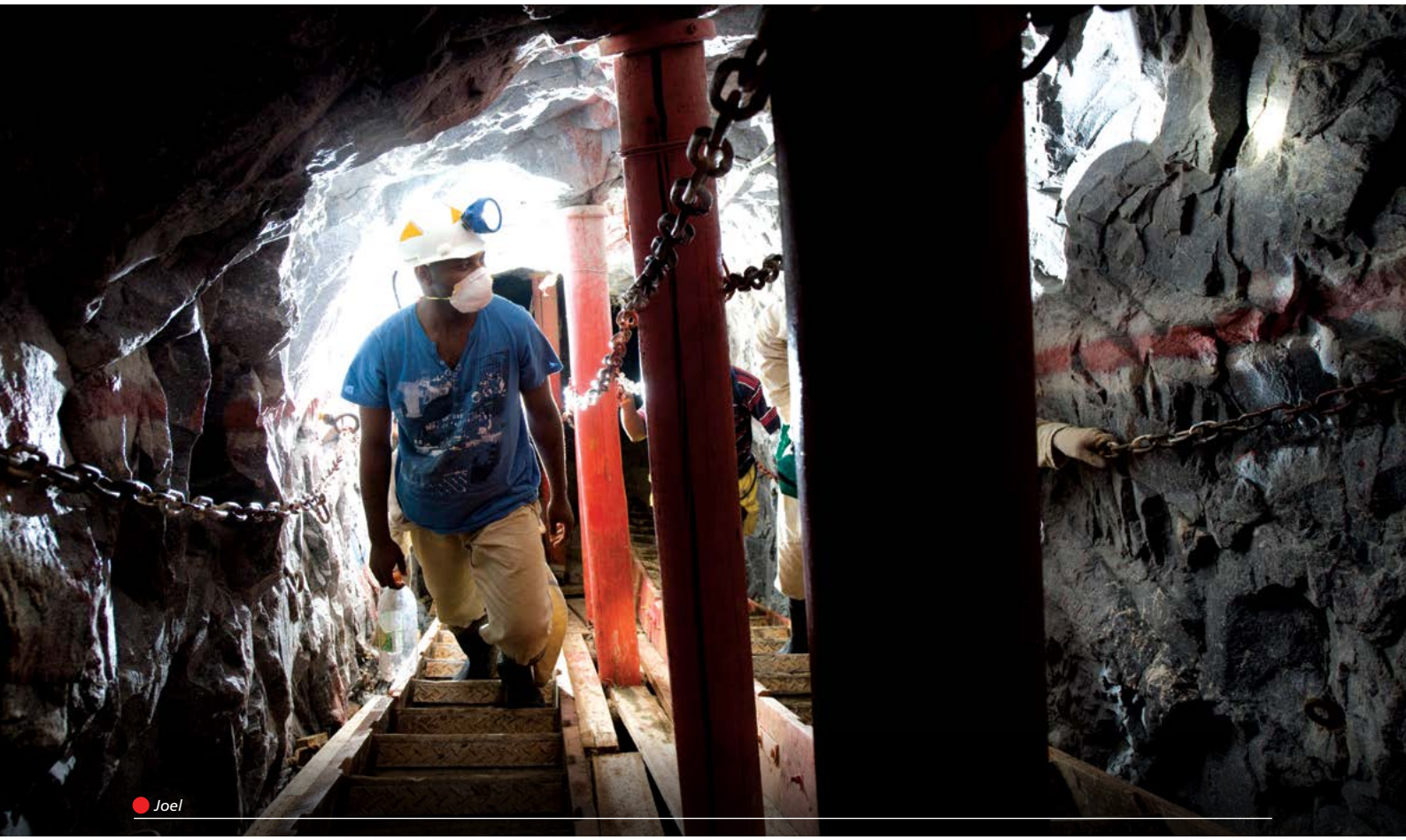
MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Joel: Schematic of shaft and mining layout



* Two chairlifts: one from levels 90 – 104 and one from levels 104 – 110

** Decline, conveyor and material: levels 90 – 117



Joel

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

JOEL

BEATRIX REEF

LEGEND

- Mining right
- Shaft position
- Klippan erosion channel
- Fault zones
- Dykes
- Beatrix sub-outcrop against Karoo Supergroup
- Beatrix sub-outcrop on VS5
- Infrastructure
- Mined out

Mineral Resources

- Measured
- Indicated
- Inferred

Mineral Reserves

- Proved and probable

0 500 1 000
Metres

Co-ordinate system Lo. 27°
Constants: Y = 0.00
X = +3 100 000.00
Latitude: 28°16' 17.19"S
Longitude: 26°48' 57.97"E

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

MASIMONG

Masimong

History

Masimong was originally known as Erfdeel when it was sunk by Anglo American's Gold and Uranium Division in 1985. Harmony purchased Saaiplaas 3 from Anglo American's Gold and Uranium Division in March 1997 and shortly thereafter the two Erfdeel shafts in September 1998, which were renamed Saaiplaas 4 and 5. After the closure of Saaiplaas 3 in early 1998, following the collapse of the gold price, an opportunity arose to reopen the entire shaft complex, comprising the Saaiplaas 4 and 5 shafts, in September 1998 when it was renamed Masimong.

Masimong 5 shaft (formerly Saaiplaas 5), the youngest of the shafts, was sunk in 1985. Reef and waste transport were transferred via a twin haulage system to Masimong 4 (Saaiplaas 4) until September 2001, by when equipping of the reef and the waste-hoisting infrastructure had been completed at 5 shaft. Mining operations at the Masimong 4 shaft and Saaiplaas 3, which had been sunk in 1981 and 1976 respectively, subsequently ceased as they were no longer economically viable. With the start of hoisting operations at Masimong 5 shaft, Masimong 4 was downscaled to a service and small-scale mining shaft in the quarter ended 30 June 2001.

By 30 June 2002, prevailing market conditions had improved and mining at Masimong 4 became economically viable once more. Additional personnel were redeployed to develop and access new areas of Masimong 4 to facilitate future production. In addition, extraction of the shaft pillar at Saaiplaas 3 was terminated, owing to technical difficulties. Subsequently in June 2004, operations at Masimong 4 were rationalised, and the shaft is currently used solely for pumping.

During FY12, a bulk head water plug was installed to seal off Saaiplaas 3 from the rest of the Masimong complex, following which the shaft was abandoned due to flooding. Operations at Masimong 5 remain very susceptible to changes in the gold price as it is one of the lowest average mining grade underground operations still in production on the Witwatersrand Basin.

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Nature of the operation
Masimong is a single-shaft operation which exploits two reef horizons namely the Basal and B reefs at between 1 650m and 2 010m below surface. The Basal and B reefs are narrow tabular bodies, exploited by means of conventional, open stoping.

Mineral rights/legal aspects and tenure
The current mining right encompassing an area of 2 2582.99ha was successfully converted, executed and registered as a new order mining right at the Mineral and Petroleum Resources Titles Office (MPRTO) on 11 December 2007. DMR Reference FS30/5/1/2/2/82MR, valid from 11 December 2007 to 10 December 2029.

Geology
Mining takes place in a structurally complex zone between two major north-south trending faults, the De Bron/Homestead Fault in the west and the Saaiplaas Fault in the east. The orebody has been subjected to severe deformation and contains numerous folds (anticlines and synclines) as well as an abundance of smaller faults.

The dip of the reef bands is very variable – from 45 degrees to the east, adjacent the western side of the lease, to less than 2 degrees in parts of the southern area.

Production is hosted within two quartz pebble conglomerate bodies, developed above unconformity surfaces, termed reefs. These two reefs are known as the Basal and the B reefs. Approximately 80% of the centares (1 centare = 1 square metre) are from the Basal Reef horizon and 20% from the B Reef horizon.

Mining methods and mine planning
Masimong mines at moderate depths of between 1 650m and 2 010m below surface. The reef horizon is accessed by means of conventional grid development. The economic reef horizons extracted are the Basal Reef and the B Reef. The Basal Reef accounts for approximately 80% of the on-reef production profile, and is mined as open and undercut operations, depending on whether the reef is overlain by shale. B Reef mining makes up the remaining 20% of the on-reef production profile. It is located approximately 120m stratigraphically above the Basal Reef, thus necessitating separate infrastructure (i.e. footwall development).

The presence of the upper shale marker approximately 20m thick below the B Reef strains the development rates of the B Reef, requiring drop raising to be done to effect holing on all box holes. Also all on-reef development needs to be done by means of wide raising. Despite the marginality of the orebody and the current economic environment, current mine reserves give a life expectancy of three years, mainly due to the successful opening of known value trend extensions.

Mineral processing
Ore mined is transported by rail for processing at the Harmony 1 carbon-in-pulp plant, situated some 12km from the shaft.


Masimong

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Infrastructure
Surface infrastructure includes a well-established network of paved roads and railway lines as well as a water pipeline and electrical lines to supply and deliver the materials required and to transport the ore hoisted to the Central gold plant for treatment.

The underground infrastructure is that of a mature, low-cost mining operation approaching the end of its economic life. The only undeveloped area of any economic significance lies to the south and south-east of the shaft in ground formerly located within the Masimong 4 shaft area.

Mineral resource estimation
The estimation method used for local measured data on the shaft is ordinary kriging and for local indicated and inferred estimates is simple macro kriging. Estimates are generally kriged into 30m x 30m blocks for measured resources from the point support data. Indicated resources are kriged into 60m x 60m blocks, using associated regularised variograms together with a macro kriging decluster. Similarly, inferred resources are estimated using the associated regularised variograms and kriging into 120m x 120m blocks. Geozones are based on grade and facies distribution to ensure correct grade estimates are calculated for different areas.

Environmental impact
Masimong's environmental aspects and impacts are managed according to the Environmental Management Programme approved by the DMR in terms of the Mineral and Petroleum Resource Development Act 28 of 2002 (MPRDA). All environmental aspects and impacts emanating from mining activities are documented in the approved Environmental Management Programme and the environmental aspect register, as required by MPRDA and ISO 14001:2004 standard.

Annual performance monitoring and audits are conducted by the DMR to verify compliance with the following legislation:

- Mine Health and Safety Act 29 of 1996
- National Water Act 36 of 1998
- National Environmental Management Act 107 of 1998
- Mineral and Petroleum Resource Development Act 28 of 2002
- Environmental Management Programme and ISO 14001:2004 requirements.

Environmental audits or performance assessments are conducted annually to verify compliance with the approved Environmental Management Programme, as required by Regulation 55 of the MPRDA, by independent environmental consultants and the report submitted to the Department of Mineral Resources. In addition, an internal environmental legal compliance audit is conducted to verify compliance. An online based Masimong environmental legal register on www.drayer-legal.co.za is used to monitor compliance and to obtain applicable and relevant environmental legal updates for the operation.

Bio-monitoring surveys are also conducted on surface water streams close to the operation to comply with draft water use licence conditions and the National Water Act 36 of 1998 to:

- Determine the condition of the biological communities in rivers through indices such as SASS5, IHAS (Version 2.2); and IHIA, as well as to determine the chemical water quality in the streams during the wet seasons;
- Provide baseline reference conditions for future studies in order to assist Masimong management in identifying environmental liabilities resulting from actions of current mining activities in respect of potential contamination of surface streams.

The operation is ISO 14001 accredited and conforms the requirements of ISO 14001: 2004 standard, the operation is audited annually as per ISO 14001 requirements. The operation has been accredited in 2012 and remains committed to eliminating or minimising the effects of mining activities on the environment and adjacent communities.


Masimong

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

MATERIAL RISKS:
Material risks that may impact Masimong's resource and reserve statement are:

SIGNIFICANT RISKS
- Adverse changes in the gold price
- Unexpected geological features
- Unexpected decline in value/grade

REMEDIAL ACTION
- Targeting the opening up of the high-grade Basal Reef area, pillars and B Reef value zones as replacement ground
- Extensive exploration drilling from underground platforms
- Extensive exploration drilling to confirm grade trends ahead of extraction and to reduce external factors causing dilution

COMPETENT PERSON
SURVEY HEAD OF DEPARTMENT
Evans Malaola
MSCC, NHD Mineral Resource Management, Plato PMS 0196

32 years' experience in the mining industry

MASIMONG

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Masimong	2.7	8.01	22	696	0.3	6.84	2	64	0.01	5.99	0.03	1	3.0	7.89	24	761

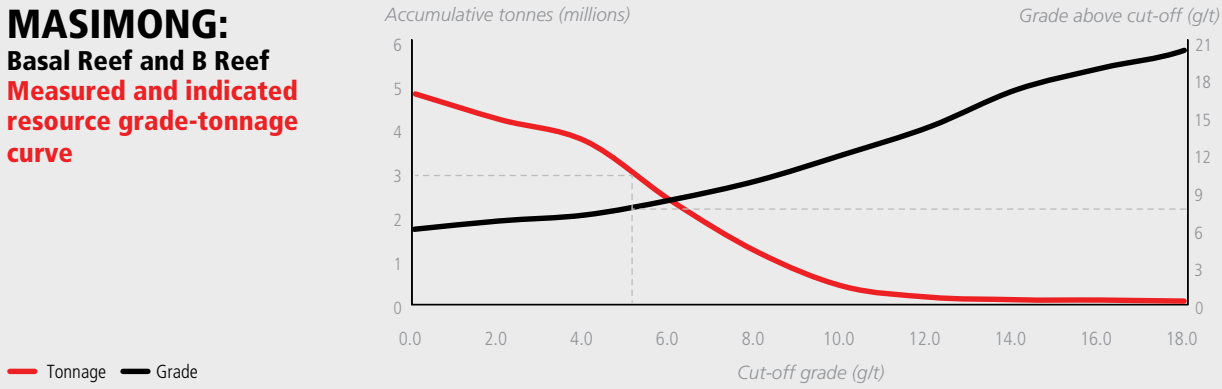
Modifying factors

Masimong	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2017	66	137	155	96	906
2018	69	138	153	96	883

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Masimong	1.7	4.28	7	234	0.1	3.42	0.03	13	1.8	4.23	8	246

MASIMONG:
Basal Reef and B Reef
Measured and indicated resource grade-tonnage curve



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

OPERATIONAL PERFORMANCE

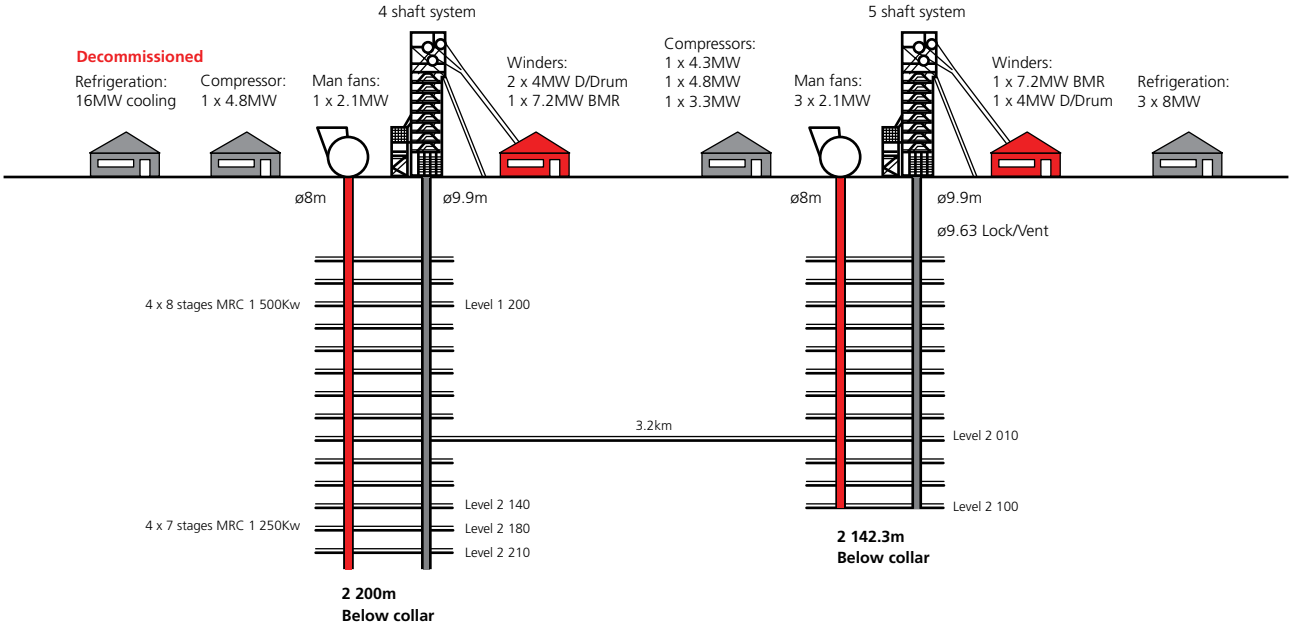
Masimong – key operating statistics

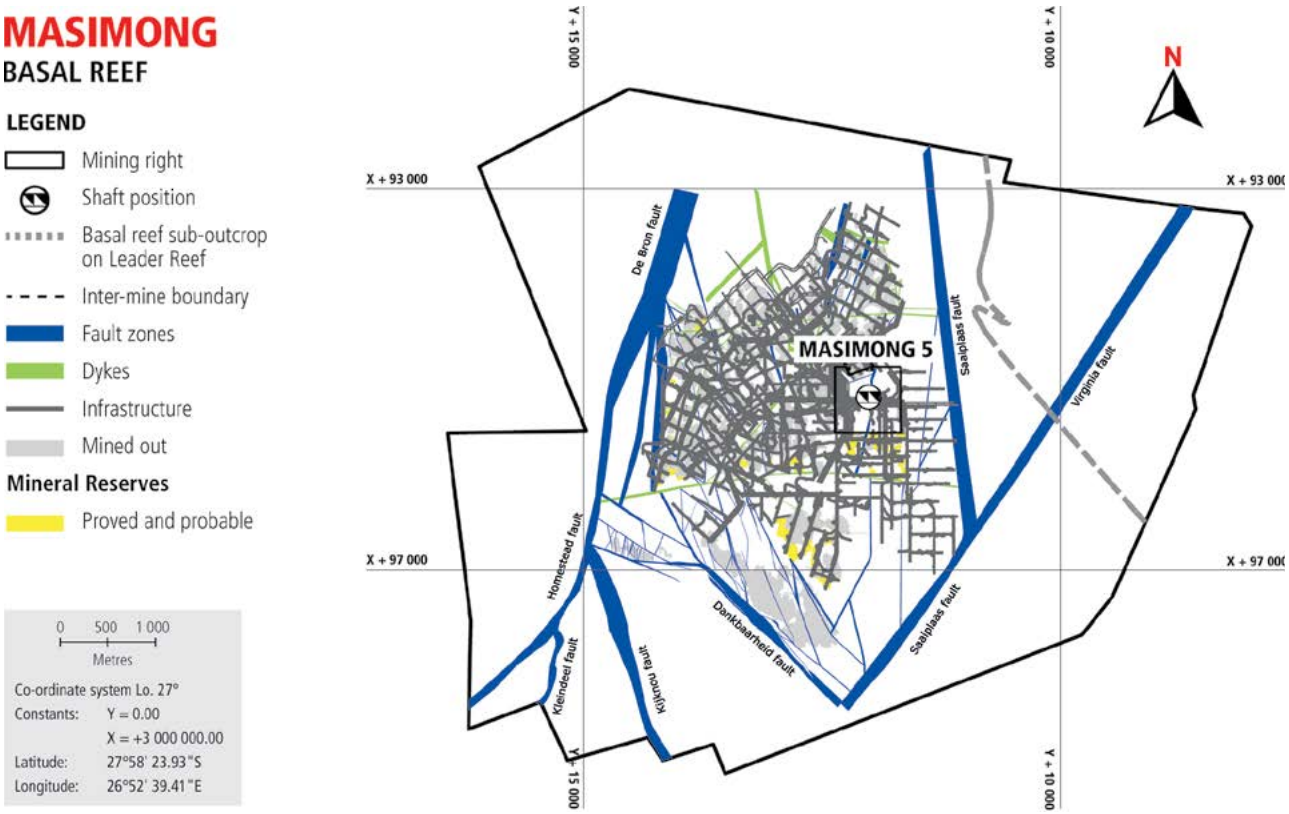
	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**647**	640	650	670	670
	000t (imperial)	**714**	706	716	739	739
Gold produced	kg	**2 623**	2 538	2 432	2 463	2 718
	oz	**84 332**	81 599	78 190	79 187	87 385
Grade	g/t	**4.05**	3.97	3.74	3.68	4.06
	oz/t	**0.118**	0.116	0.109	0.107	0.118
Development						
Total metres (excl. capital metres)		**5 287**	4 754	4 755	9 855	10 079
Reef metres		**2 067**	1 054	1 549	2 376	1 547
Average gold price received	R/kg	**576 729**	571 870	541 806	448 867	432 416
	US$/oz	**1 396**	1 308	1 162	1 220	1 299
Financial						
Capital expenditure	Rm	**129**	119	110	166	168
	US$m	**10**	9	8	15	16
Cash operating cost	R/kg	**442 586**	439 457	426 904	397 380	360 006
	US$/oz	**1 071**	1 005	916	1 080	1 082
All-in sustaining cost	R/kg	**513 197**	500 938	493 527	479 096	441 231
	US$/oz	**1 242**	1 146	1 059	1 302	1 326

Joel

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

Masimong: Schematic of shaft and mining layout





MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

TARGET 1

Target

History

Outcropping on the Target 1 property (originally Loraine) is an inlier of Ventersdorp conglomerate (the Bothaville Formation) and it was the similarity of these conglomerates to those of the Witwatersrand Sequence that focused interest in this area and led to the discovery of the Free State goldfield. Prospecting on these conglomerates was first undertaken around 1890 via a vertical and incline shaft. The initial model for exploration north of the Loraine gold mine, which at the time was managed by Anglovaal Ltd, was proposed by DW Boshoff (Chief Geologist) in 1978. The Lorraine gold mine held the mineral rights immediately to the north of the mine. The Target Exploration Company Ltd, a company formed by Anglovaal specifically for the purpose of exploration, later acquired this area. Options to mineral rights north of Target were acquired by Sun Mining and Prospecting Company (Pty) Ltd. Feasibly studies centred on Sun Concept Mine South (CMS). The formation of Avgold Ltd in 1996 was intended to further the gold mining and exploration interests of Anglovaal Mining Limited. Harmony acquired Target in 2002.

Nature of operation

The Target orebody is located some 5km to the north of the original Lorraine 1 shaft and is accessed via a 6km-long 12 degree decline developed from the 203 level of the vertical shaft system. Initially the decline was developed to provide a drilling platform for the exploration and evaluation of the orebody, but was later used as the main access for all services, logistics, personnel and the extraction of ore.

The orebody is composed of some 67 individual conglomerates located in the Uitkyk (Elsburg – EA) and Van der Heeversrust (Dreyerskuil – DK), members of the upper Eldorado (Elsburg) Formation. These reefs lend themselves to massive mining techniques where composited conglomerate units can be mined as one stope. These stopes are long-hole drilled and blasted, and tonnages are cleaned and transported by trackless machinery, some of which is remotely operated. Massive mining is particularly relevant where the

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

reefs become condensed and steeper in the western portion of the orebody. Mining of the massives contributes the majority of total tonnes stoped. Massive stopes have to be mined in a sequence, broadly from down-dip to up-dip. Previously mined stopes are backfilled for support, and to address environmental and safety concerns.

Conventional narrow-reef scattered mining makes up the remaining of stope tonnes mined where individual reefs are extracted in places where massive mining is inappropriate or uneconomic. Mine planning allows for the mining of certain stopes in the stratigraphically highest gold-bearing units so as to provide over-stoping for massive stopes that are to be mined in the future.

Geology

Target is located on the western margin of the Achaean Witwatersrand Gold Basin, which is on the Kaapvaal Craton of South Africa. The sediments of the Central Rand Group occur within an oval-shaped basin, which has a 160km-long axis through the Welkom area and Johannesburg, and a short axis of about 80km. The Central Rand Basin is superimposed on the West Rand Group or Lower Witwatersrand Basin, which has a much larger aerial extent at the centre of the Kaapvaal Achaean Craton.

A thrust fault system has resulted in the post-depositional folding of the strata into a synclinal shape. This "border feature" is the western limit of the graben structure, some 10km wide, which hosts most of the Welkom gold mines. The eastern limit of this graben is the well-defined De Bron Fault. The Target 1 gold prospect is a northward continuation of the Free State goldfield.

The full potential of the Basal Reef, which produces 85% of the gold from this area, has yet to be established in the Target area because, given time constraints, initial drilling has focused on the shallower Elsburg and Kimberley reefs. The reefs in the Aandenk (Kimberley) Formation include the B Reef at the base, the Big Pebble Reef and the A Reef. The Eldorado (Elsburg) Formation is developed as a sequence of oligomictic auriferous conglomerates referred to as the EA Reefs, which have been mined extensively at the Lorraine gold mine. The EA Reefs are overlain by a remnant of the diamictite facies of the south, termed the boulder beds at Lorraine. The reefs and associated quartzites represent alluvial sediment influx from a source area to the west. The distribution of gold mineralisation is clearly related to the sedimentology and this primary sedimentological control of gold distribution is understood. However research has shown that some remobilisation of gold has taken place over small distances. This is not extensive enough to mask the sedimentary controls.

Mining methods and mine planning

Stoping methods employed are grouped as follows:

Long-hole stoping methods	
Massive open	Narrow-reef conventional
Wide open	
Development methods	
Drift and fill	Cut and fill
Drift and pillar	Narrow-reef

Massive open stoping

Massive open stoping is based on mining a large volume of ore at a low working cost. The proximity of the reefs in the sub-outcrop area allows for a combination of reefs to be mined using this method. The main fan massive open stopes are critical in the first three years of operation. The same principles and methodology are applied to areas where similar geology allows for mining of a massive stope.

Wide open stoping

The main focus area in the wide open stopes is the main fan block where two stoping areas will be mined. The stoping method involves an extraction process but the method can be applied to any block of similar dimensions (reef widths in excess of 10m and a dip in excess of 200m). The mining method has been designed to utilise the benefits of long-hole stoping methods and backfill.


Target

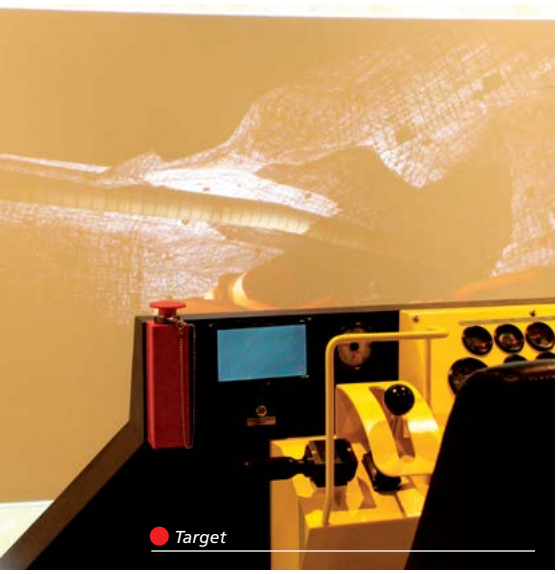

Target


Target

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED


Target


Target


Target

Narrow-reef mining
The schedule reflects that 8% of the initial monthly tonnage is to be mined from the Dreyerskuil (DK1A, DK4 and DK9) reefs by means of conventional narrow-reef mining, which is essential as it must provide a destressed environment for the bulk of mechanised stoping. There is no practical and safer alternative to this method. The rate of overstoping must liberate sufficient destressed reserves to enable the planned 62 000tpm production rate to be achieved.

Mineral processing
Target hoists its ore and development rock together, and it is milled and processed at Target plant adjacent to the mine. Target shares its plant with a Harmony waste rock dump, which is monitored and managed by Surface Sources. The plant's design capacity exceeds the maximum planned production from these sources. Gold is recovered through gold cyanide leaching. The reef is milled and processed at Target plant.

Infrastructure
The general area of Target 1 (mining right: FS30/5/1/2/2/14MR) is well developed in terms of access and mining-related infrastructure. Mining has been conducted in the Free State goldfields for nearly 60 years. Access to all three Target shafts – the Target 1, 2 and 5 shafts – is by a well-maintained paved road. The area also has well-established rail links and an airfield.

The Target 1 operation includes a single underground mine constructed as an extension to the Loraine gold mine and uses 1 shaft as access. The mine has decline systems off this shaft extending 6km to the mining areas some 2 300m below surface.

The mine is essentially a trackless bulk mining operation using conventional labour-intensive methods.

The Target 1 shaft is used to transport men, material and rock from surface to 203 level from where a single decline, equipped with a conveyor belt, connects to 255 level some 2 050m below surface. The decline splits at 255 level into a conveyor decline and a vehicle decline descending to the extent of development currently at 291 level, 2 300m below surface.

Mineral resource estimation
Geological modelling, via wire-frames of faults and lower surfaces of mineralised packages, is the primary control in the geostatistical evaluation. The estimation method used for local measured, indicated and inferred estimates at Target is Ordinary Kriging. A total of 23 reef packages are estimated individually and data from adjacent reefs are not made available for estimation. Estimates are generally kriged into what are called parent cells and then assigned to sub cells, using associated variograms and estimation parameters.

Discrimination between mineral resource categories on the basis of data density and spatial relationships of gold grades is defined through variography. Where block grades are estimated by data separated by distances greater than the maximum grade continuity ranges, they have been classified as an inferred mineral resource. Thus blocks not informed by the first kriging run (where the search ellipse was matched to grade continuity ranges) are entirely inferred. Each reef model is then restored to its original wireframe position and combined into a single 3D model. Geozones are based on structure while the mineral resource classification is based on the slope of regression.

The Datamine Mining Software System is currently in use on this shaft. A macro system has been generated, linked to a customised scripting menu. This menu allows for professional and easy management of the data and the building of geostatistical models.

Environmental impact
Harmony also implemented its water management standard which applies to water in the entire mining lifecycle, including prospecting, project design and commissioning, operation and closure. This standard has led to several positive outcomes and its long term targets are to reduce amount of water used for primary activities by 4.5%.

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

The following is a brief overview of the general state of the environment at Harmony Target operations, for detailed description please refer to a document entitled "Environmental Management Programme revised by Shangoni Management Services."

The document was done to align and amend the previous EMPR in terms of the Minerals and Petroleum Resource Development Act 28, 2002.

A detailed environmental impact register has been developed to identify all potential environmental impact of the operations.

The main impacts were rated and mitigation measures were proposed to minimise their impact on environment.

Avgold is situated in the Free State Goldfields, which is a semi-arid region with an annual rainfall of between 400 mm and 600 mm. Local thunderstorms and showers are responsible for most of the precipitation during the summer, from October to March and peaking in January. Hail is sometimes associated with the thunderstorms and mainly occurs in the early summer from October to January with its highest frequency in December.

The mine lease area is flat with an average height above sea level of around 1320m. There is a gentle decrease in elevation to the west and north of Allanridge at a gradient of approximately 1:200. There are no prominent topographical landmarks in the area although pans are a feature of the area. The reader is referred to the surface plan at the back of the report.

No significant topographical disturbances are expected. The only areas were the topography will be affected is where the Slimes dams, Waste rock dumps and Solid waste disposal sites are situated. The area is very flat with an overall slope to the South West.

MATERIAL RISKS:
Material risks that may impact Target's resource and reserve statement are:

SIGNIFICANT RISKS

- Grade dilution from waste/backfill in the massive stopes
- Trackless development production
- Solo reserve drilling
- Ventilation constraints

REMEDIAL ACTION

- Reduce pillar mining between mined out areas Weekly monitoring and tracking
- Optimise and schedule planned maintenance on solo machines
- Optimise ventilation and cooling capability

COMPETENT PERSON

ORE RESERVE MANAGER
Cindi Henderson
BSc Hons (Geology), SACNASP

16 years' mining experience

TARGET 1 AND 3

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Target 1	7.9	4.68	37	1 195	5.8	6.67	38	1 235	3.2	5.45	18	567	16.9	5.50	93	2 996
Target 3	0.6	9.19	6	178	2.9	10.17	30	965	1.2	8.66	11	340	4.8	9.66	46	1 483

Modifying factors

Target 1 (massives)	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (g/t)
2017	95	–	–	96	3.60
2018	95	–	–	95	3.73

Gold – Mineral reserves

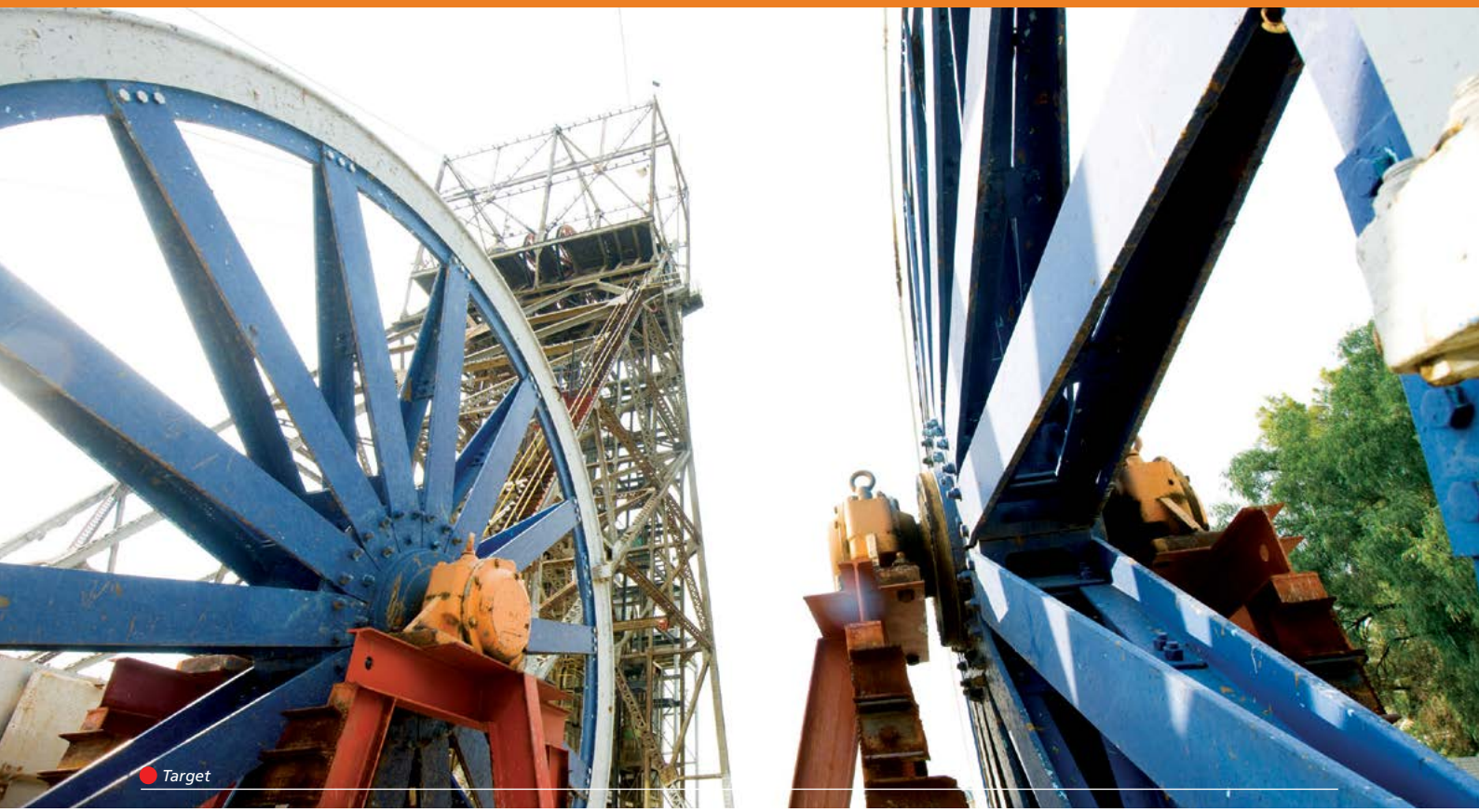
	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Target 1	3.2	4.32	14	442	2.0	4.29	9	282	5.2	4.31	23	724

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – FREE STATE CONTINUED

OPERATIONAL PERFORMANCE

Target 1 – key operating statistics

	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**680**	745	739	749	771
	000t (imperial)	**749**	822	814	826	851
Gold produced	kg	**2 854**	2 669	3 387	3 824	4 493
	oz	**91 758**	85 809	108 895	122 944	144 453
Grade	g/t	**4.20**	3.58	4.58	5.11	5.83
	oz/t	**0.123**	0.104	0.134	0.149	0.170
Development						
Total metres (excl. capital metres)		**3 883**	3 656	3 459	4 174	4 292
Reef metres		**431**	104	182	290	436
Capital metres		**620**	0	0	0	0
Average gold price received	R/kg	**576 316**	570 091	536 196	449 319	432 031
	US$/oz	**1 395**	1 304	1 150	1 221	1 298
Financial						
Capital expenditure	Rm	**309**	324	322	296	289
	US$m	**24**	24	22	26	28
Cash operating cost	R/kg	**467 271**	508 082	366 814	308 156	233 487
	US$/oz	**1 131**	1 162	787	837	702
All-in sustaining cost	R/kg	**582 200**	651 833	471 876	395 669	306 605
	US$/oz	**1 409**	1 491	1 012	1 075	921

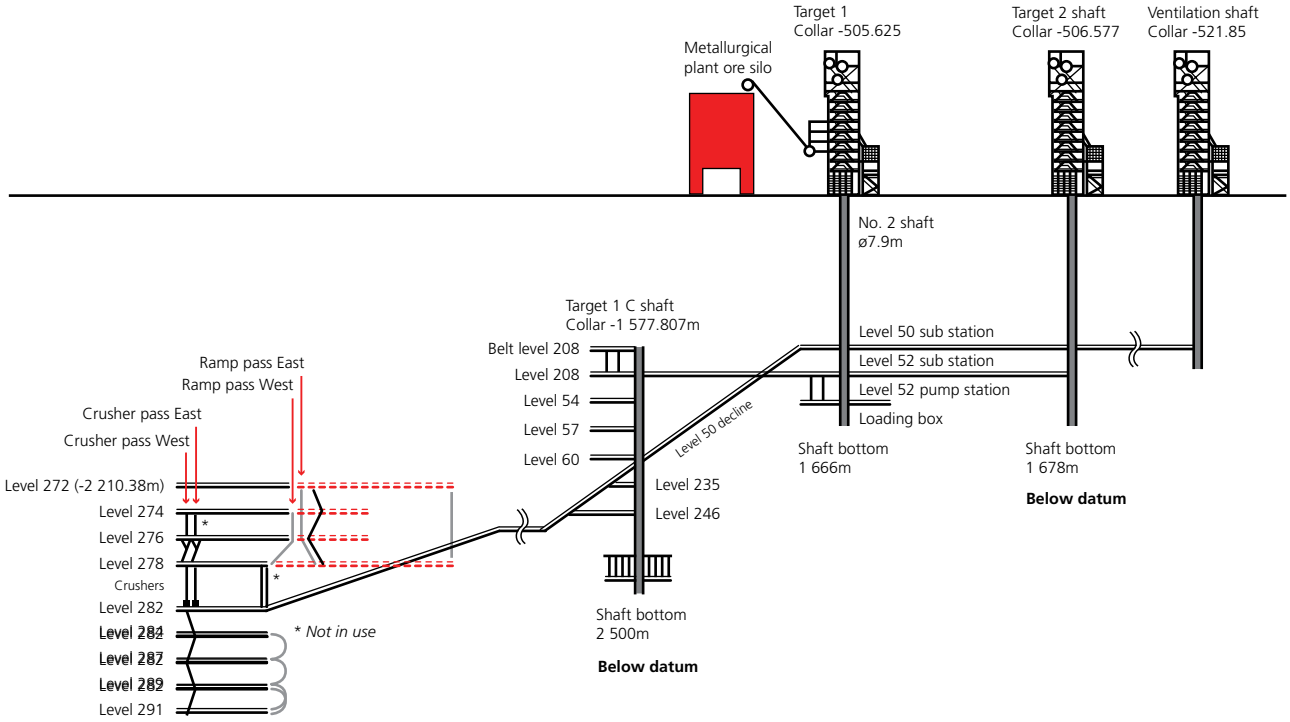


Target

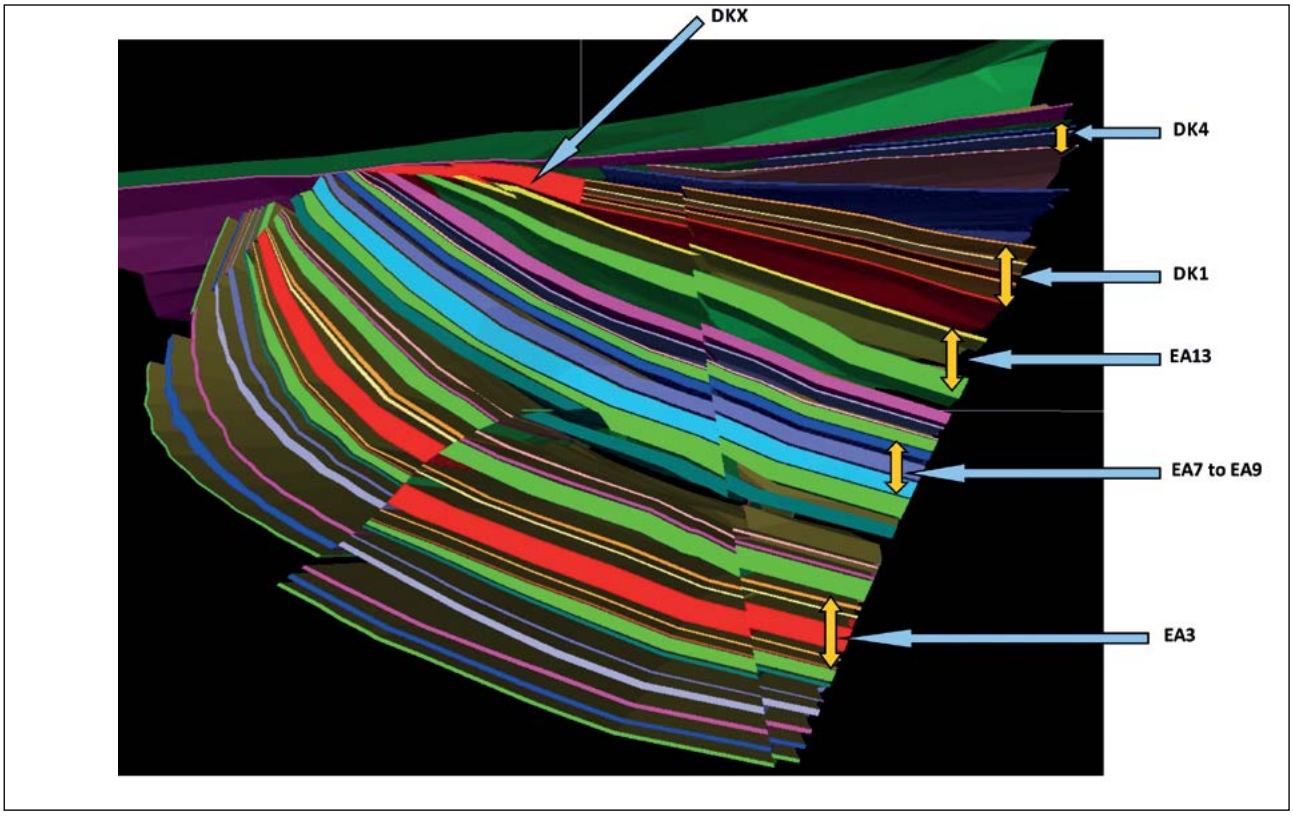
MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

Target 1: Schematic of Target shafts and mining layout



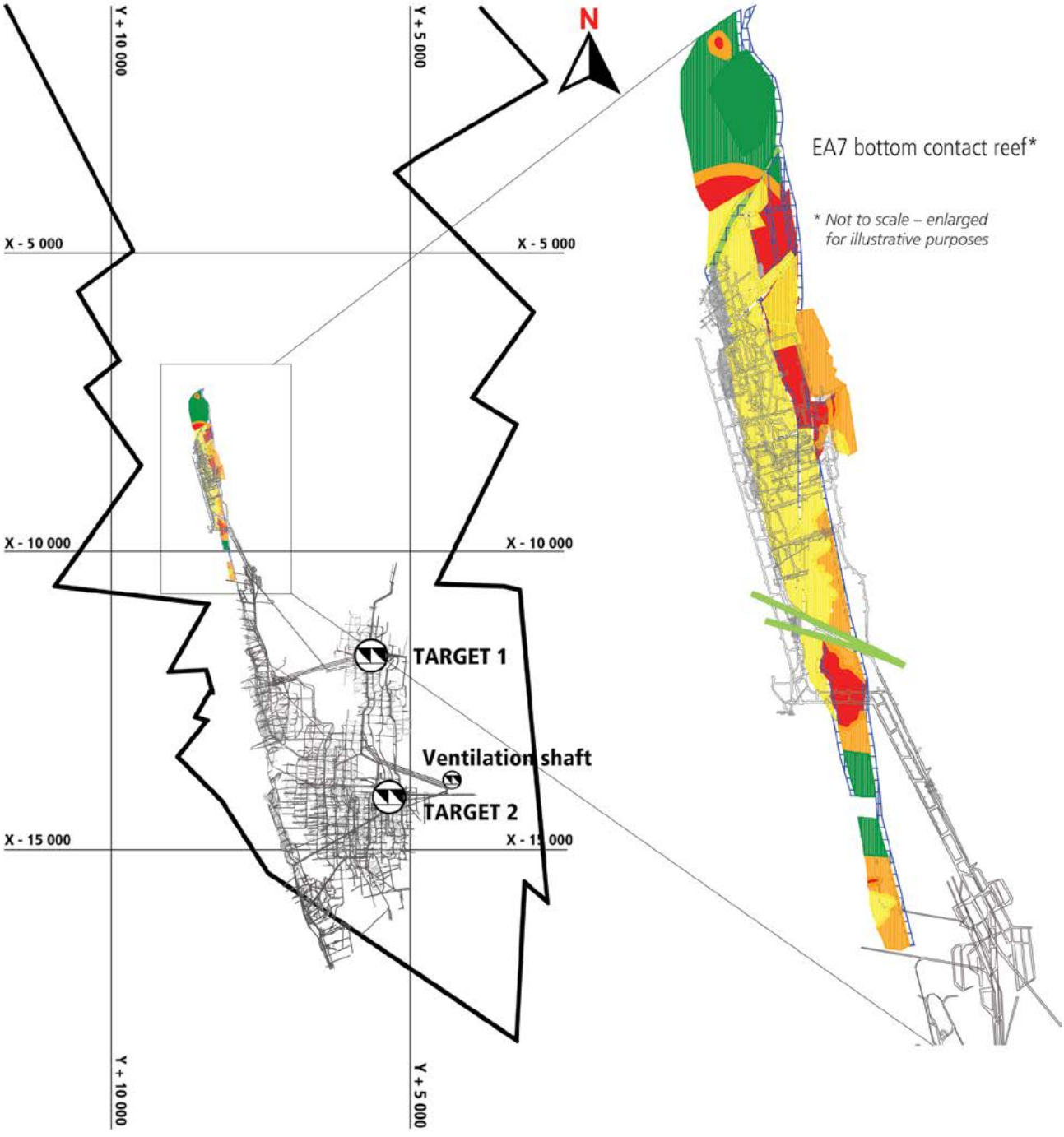
Target – orebody looking north



MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – FREE STATE CONTINUED

TARGET 1



Target

MINERAL RESOURCES AND RESERVES BY OPERATION

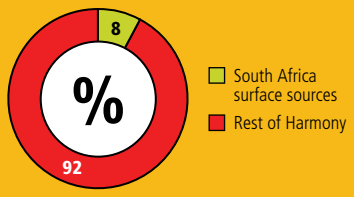
SOUTH AFRICA – SURFACE OPERATIONS

Harmony's surface assets in South Africa had total combined mineral reserves of

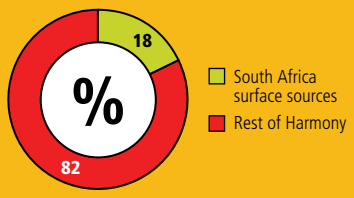
6.8Moz

which are included in mineral resources of 9.5Moz as at 30 June 2018

CONTRIBUTION TO GOLD MINERAL RESOURCES (including gold equivalents)



CONTRIBUTION TO GOLD MINERAL RESERVES (including gold equivalents)



LOCATION OF HARMONY'S SURFACE OPERATIONS IN SOUTH AFRICA

LEGEND

Surface operations

	Latitude	Longitude
Kalgold	26°10'12.85"S	25°14'02.70"E
Saaiplaas plant	28° 3'37.68"S	26°53'14.59"E
Central plant	28° 2'8.36"S	26°52'8.99"E

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – SURFACE OPERATIONS

KALGOLD

Location

Kalgold is located on the Kraaipan Greenstone Belt, 55km southwest of Mahikeng, between Mahikeng and Stella, along the Mahikeng-Vryburg road (N18) in North West Province, South Africa. The mine is surrounded by farm land. The closest community is at Kraaipan, approximately 15km to the south of the mine.

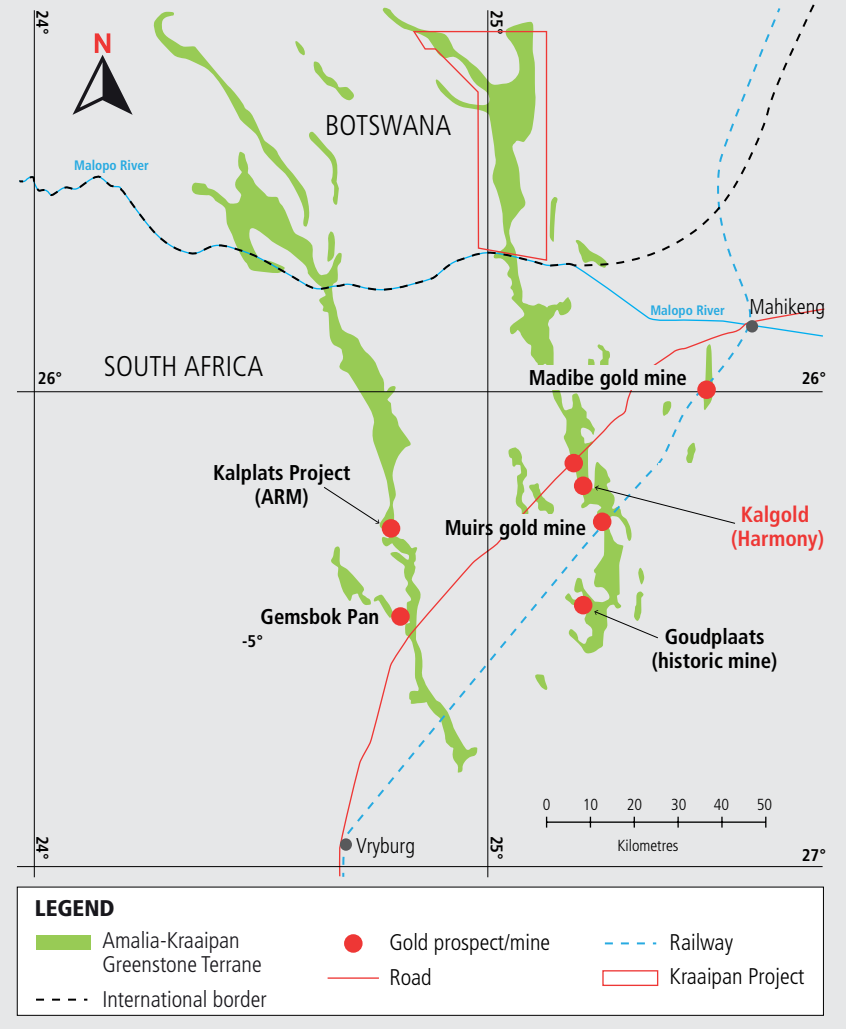
History

Exploration of the Kraaipan Greenstone belt, by Shell Minerals Division, began in 1980. The D-Zone one area was discovered in 1991 on the farm Goldridge. In 1994, West Rand Consolidated Exploration acquired the orebody and mining started in December 1995. Ore was treated by heap leaching until the installation of the first two mills in 1997. Harmony acquired the mine in 1999. In 2003, a third mill was added to increase treatment capacity. The D-Zone pit was mined out in 2009.

Nature of operation

Kalgold is an open-pit mining operation. The A-Zone pit, currently the only active mining pit, includes the former Watertank pit with which it merged.

KRAAIPAN GREENSTONE BELT – LOCALITY



MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED


Kalgold


Kalgold


Kalgold

Geology

The Kraaipan Greenstone Belt forms part of the Kaapvaal Craton and is overlain by late Archaean Ventersdorp lavas and tertiary sediments. The Kraaipan Group consists of three formations: the Khunwana, Ferndale and Gold Ridge formations. The Gold Ridge Formation is the oldest and contains banded iron formations, which is the host rock of gold mined in the Kalahari Goldridge deposits.

The Kalgold operation is located within the geological terrain of the Archaean Kraaipan Greenstone Belt. This greenstone environment is exposed in discontinuous outcrops of steeply dipping rocks, which define three narrow, sub-parallel belts that strike approximately north-south. The Goldridge deposits occur within the central belt, which comprises banded iron formations, magnetite quartzite, chert, greywacke, shale and schist. The greenstones are surrounded by intrusive granites and gneisses. These rocks have a complex history of deformation, which includes folding, faulting and shearing.

Younger cover rocks include isolated patches of lavas of the Ventersdorp Supergroup with much of the area blanketed by Aeolian Kalahari sands. Sparse outcrops of quartz porphyry belonging to the Makwasie Formation occur in the region. Several large dykes with a predominant east-west trend have intruded the region.

The geology of the lease area and its immediate vicinity is characterised by ferruginous chemical and clastic sediments inter-bedded with meta-lavas and non-ferruginous meta-sedimentary rocks. Outcrops in the area are sparse and generally restricted to ferruginous rock types, which are more resistant to erosion. Magnetite quartzite and clastic sediments form a low ridge to the west of the lease area. Eastwards of this unit, the iron-rich rocks generally comprise chemical sediments represented by magnetite-rich banded iron formations, cherty banded iron formations and banded chert. These units are interbedded with mafic schist, greywacke and sparse black shale. The geology of the D-Zone is used as a benchmark at Kalgold. The new pits are well established at the A-Zone and Watertank areas, and the blast hole database is now significant. The geology consists of mafic schist, which forms the immediate footwall, a banded iron formation horizon as the main orebody and a succession of clastic sediments consisting of shale, greywacke and volcanic conglomerates as the hanging wall.

Gold mineralisation is hosted by steeply dipping banded iron formations interbedded with schist, shale and greywacke. Banded iron formations consist of rhythmically banded chemical sediments comprising alternating light and dark laminae, which vary from 10mm to 50mm in thickness.

The banded iron formations are oxidised to a depth of about 40m to 60m below surface. Near surface the material is red and porous, composed of quartz, hematite and goethite with minor magnetite. At depth, the unaltered banded iron formation consists of quartz, siderite, pyrite, pyrrhotite and magnetite with minor chlorite, calcite and stilpnomelane. In general, gold mineralisation has an erratic and localised distribution. Individual gold grains are on average less than 10µm in diameter and occur in clusters. Gold is generally associated with goethite in the weathered rocks and with pyrite and pyrrhotite in the fresh material.

Geological modelling has been completed using Datamine software. Drill holes and blast holes have been surveyed and used to construct a series of west-east sections from north to south through the various pit areas. The A-Zone and Watertank areas have been modelled as a single contiguous area as the geology and data is continuous and contiguous.

A wireframe geological model has been constructed by linking individual sections to form a continuous wireframe model.

The construction of the sections includes outlines for the mineralised zones and waste zones. The definition of the mineralised zones is based primarily on the lithological contacts between the banded iron formations and waste material (volcanic/sedimentary schists).

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

The geological model is constructed in the form of a wire frame from exploration borehole intersections, blast hole information and geological mapping within the pit.

Mining methods and mine planning

Kalgold is an open-pit mining operation.

The upper 40m of the A-Zone and the Watertank pits have been combined in to one pit called A-Zone pit situated to the north of the D-Zone at a similar stratigraphic position. It is a composite deposit consisting of several mineralised banded iron formation units that are inter-bedded with schist and shale. The A-Zone has an overall strike of 1 800m and comprises individual zones of mineralisation, which dip steeply towards the east. Reef widths range between 15m to 120m.

The A-Zone West is situated in the footwall of the A-Zone orebody. The orebodies are separated by a chloritic schist unit that pinches out to the north. A-Zone West has an overall strike of 750m and width of 20m in the north. In all, 172 reverse-circulation boreholes were drilled along section lines spaced 25m apart. In all, 6 450m were drilled.

The Windmill deposit is the smallest of the Goldridge orebodies but contains generally higher gold grades. It is positioned stratigraphically below the other three deposits and is hoisted by a magnetite-rich banded iron formation unit, which is inter-bedded with schist. The host rock banded formation has a strike length of 950m and thins to the north and south with a maximum width of 25m at the centre. Mineralisation within this unit occurs over a length of 800m with widths ranging from 2m to 17m. This deposit is structurally complex with displacements by faulting and dips varying from 75 to 90 degrees east.

Kalgold's current mining right encompasses an area of 4 595.3ha and was successfully converted, executed and registered as a new order mining right at the Mineral and Petroleum Titles Registration Office on 9 November 2010 under the Mining Right Protocol 574/2008. The DMR reference number NW30/5/1/2/2/77MR is valid for a period of 30 years (from 28 August 2008 to 27 August 2038).

Mineral processing

Ore reception

The Kalgold plant receives ore from the pit at a rate of approximately 129 000t a month. The ore has an average moisture content of approximately 1%.

Ore is transported from the pit by truck and tipped into the plant run-of-mine pad. It is then fed into the pre-primary crusher for the first stage of comminution. Pre-primary product reports to the primary crusher before going through the final stage in the secondary and tertiary crushers. Tertiary crusher product is temporarily stored in the dome prior to milling.

Milling

Ore is fed from the dome to the A, B and C ball mills. The identical A and B mills are generally fed at 55tph. The C mill is the biggest with throughput of 105tph to 110tph. The mill product ranges from 75% to 80% passing 75 micron. The A and B mill cluster cyclone overflow gravitates into a vibrating screen for trash removal while the C mill uses a conventional linear screen. The cyclone overflow, which has a relatively low density, is pumped out to the thickeners for dewatering prior to leaching. Pebble lime is introduced in the system via the C14 conveyor belt for pH control.

Thickening

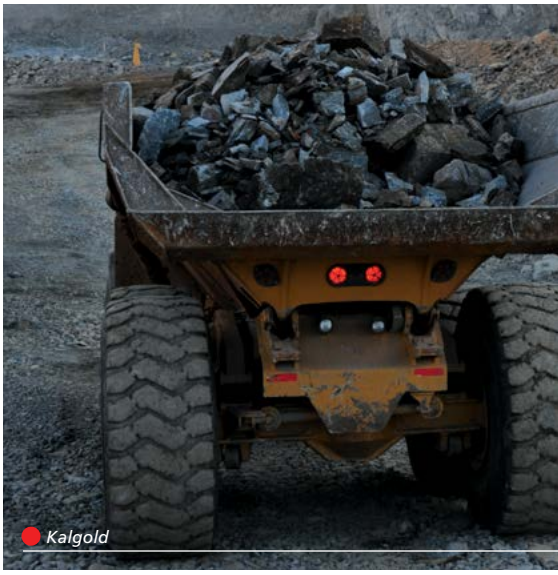
Lime and flocculant are the two main components of the thickening process. During thickening, lime acts as a coagulant and the flocculant binds the particles together to increase the settling rate of the particles. Lime addition generally ranges between 700g/t to 1 000g/t whereas flocculant addition usually ranges between 8g/t to 10g/t. The lime also maintains a protective level of alkalinity in the leach section to prevent generation of poisonous cyanide gas in the process. The two thickeners are equipped with two variable-speed underflow pumps to control the density in the cyanidation process. The thickener overflow gravitates to the mill process tanks for reuse in the milling process.

Leaching

The thickener underflow, which normally ranges from 50% to 55%, reports into the pre-aeration tank for pre-condition prior addition of the cyanide. The pre-

Kalgold


Kalgold


Kalgold

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

conditioning is performed in order to render cynocides less reactive to cyanide. Cyanide is automatically added to either Leach 2 or Leach 3, depending on the degree of the pre-aeration stage. Kalgold ore requires large amounts of cyanide in order to complete the leaching process. Addition of cyanide generally ranges from 0.6kg/t to 1.8kg/t. Oxygen is injected into the leach tanks to improve the gold dissolution process. The leaching retention time generally varies from 30 to 40 hours. Generally, 75% dissolution takes places in the two leaching tanks. The slurry then gravitates to the carbon-in-leach (CIL) tanks for further leaching and adsorption.

Carbon in leach (CIL)

The dissolved gold, still in pulp, is transferred to the CIL circuit where activated carbon is added to adsorb the gold in solution. The CIL tanks are fitted with rotary screens to allow movement of the carbon in a counter-current manner with the slurry. There are seven stages in the CIL process. The slurry, with 85% of the gold extracted, is pumped through a cyanide destruction circuit into D-Zone pit, which is currently the tailings storage facility. Once the carbon loading in the head tank reaches required gold loading, the carbon is pumped to the loaded make-up screen for the elution process.

Recovery process

The Kalgold plant employs the Zadra elution process for gold recovery. Carbon is treated with a hot caustic and cyanide solution. The pregnant solution is pumped into the electro-winning circuit for gold recovery. Eluted carbon then passes through the acid column to be treated with hydrochloric acid for the removal of inorganic material. Acid-treated carbon is rinsed with high-pH water to neutralise the acid. Acid-treated carbon is then transferred into the kiln for regeneration of the carbon. The regeneration process takes place at temperatures above 700 degrees in the absence of air in order to drive off the organic material.

The electro-winning cathodes are washed through the gold table and filtered through the press to retain the gold sludge, which is then dried, weighed and dispatched to Rand Refinery for the refinery process.

Environmental impact

Kalgold's environmental aspects and impacts are managed in line with an environmental management programme (EMP) approved by the DMR in terms of Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA), as amended in 2008. All environmental aspects and impacts emanating from mining activities are documented in the approved EMP and the environmental aspect register, as required by the MPRDA and ISO 14001:2015 standard.

Annual environmental performance monitoring and compliance audits are conducted by the DMR and Department of Environmental Affairs to verify compliance with the following legislation:

- Mine Health and Safety Act 29 of 1996
- National Water Act 36 of 1998
- National Environmental Management Act 107 of 1998
- MPRDA
- National Heritage Resources Act 25 of 1999
- National Forests Act 84 of 1998
- National Environmental Management: Air Quality Act 39 of 2004

Environmental performance assessments are conducted annually as per the commitments stipulated in the approved EMP, and environmental authorisations in terms of Regulation 55 of the Mineral and Petroleum Resources Development Regulations, by an independent environmental consultant, and the report is submitted to the DMR. Internal environmental legal compliance audits are also conducted every two years to verify compliance with all relevant legal requirements. An online-based Kalgold environmental legal register (at www.drayer-legal.co.za) is updated to include changes in applicable and relevant environmental legislation and associated regulations.

Bio-monitoring surveys are conducted on a monthly basis to determine the status of surrounding surface water streams close to the operation. The status quo of the water bodies is monitored for water quality in relation to guidelines within the water use license conditions and in terms of the National Water Act.

In addition to the bio-monitoring surveys, a groundwater and dust monitoring programme is implemented monthly and quarterly to determine the status of groundwater quality and quantity, as well as levels of dust fallout in terms of the National Water Act and National Environmental Management: Air Quality Act, and to determine compliance with the conditions stipulated in the water use licence and provisional atmospheric emissions licence.

Kalgold is ISO 14001-accredited and conforms to the requirements of the ISO 14001:2004 standard. The operation attained its accreditation in 2010 and remains accredited to eliminate or minimise the effects of mining activities on the environment and adjacent communities. The mine is currently working towards ISO 14001 recertification in terms of the new ISO 14001:2015 requirements.

In September 2016, the mine received a water use licence from the Department of Water and Sanitation, and approval of the D-Zone open-pit closure plan from the DMR. In January 2017, the mine was granted approval for an amendment to its EMP.


Kalgold

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

MATERIAL RISKS:
Material risks which may impact Kalgold's reserves and resource statement are as follows:

SIGNIFICANT RISKS
- Slope failure

REMEDIAL ACTION
- Pre-split blasting to protect high walls

COMPETENT PERSON
ORE RESERVE MANAGER
Lourens Joubert
MSc Natural Sciences (Geology), SACNASP
11 years' experience in gold mining

KALGOLD

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Open pit	12.1	0.85	10	332	29.6	0.80	24	758	3.3	0.71	2	74	44.9	0.81	36	1 164
Tailings dam	–	–	–		–	–	–	–	23.8	0.26	6	201	23.8	0.26	6	201
Total	**12.1**		**10**	**332**	**29.6**		**24**	**758**	**27.1**		**9**	**276**	**68.7**		**42**	**1 365**

Modifying factors

	MCF	Dilution	PRF	Cut-off
Open pit	(%)	(%)	(%)	(g/t)
2017	100	3.5	85	0.54
2018	100	4.8	84	0.60

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Open pit	9.4	0.95	9	286	11.8	1.05	12	397	21.1	1.01	21	683

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

OPERATIONAL PERFORMANCE

Kalgold – key operating statistics

	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**1 550**	1 506	1 479	1 472	1 472
	000t (imperial)	**1 709**	1 660	1 630	1 623	1 623
Gold produced	kg	**1 250**	1 205	1 103	1 198	1 162
	oz	**40 189**	38 742	35 463	38 517	37 358
Grade	g/t	**0.81**	0.80	0.75	0.81	0.79
	oz/t	**0.024**	0.023	0.022	0.024	0.023
Average gold price received	R/kg	**576 630**	573 010	548 072	448 230	433 759
	US$/oz	**1 396**	1 311	1 176	1 218	1 303
Financial						
Capital expenditure	Rm	**108**	96	39	41	33
	US$m	**8**	7	3	4	3
Cash operating cost	R/kg	**452 365**	462 037	496 991	377 547	351 670
	US$/oz	**1 095**	1 057	1 066	1 026	1 057
All-in sustaining cost	R/kg	**552 032**	558 731	549 590	422 323	393 401
	US$/oz	**1 336**	1 278	1 179	1 148	1 182

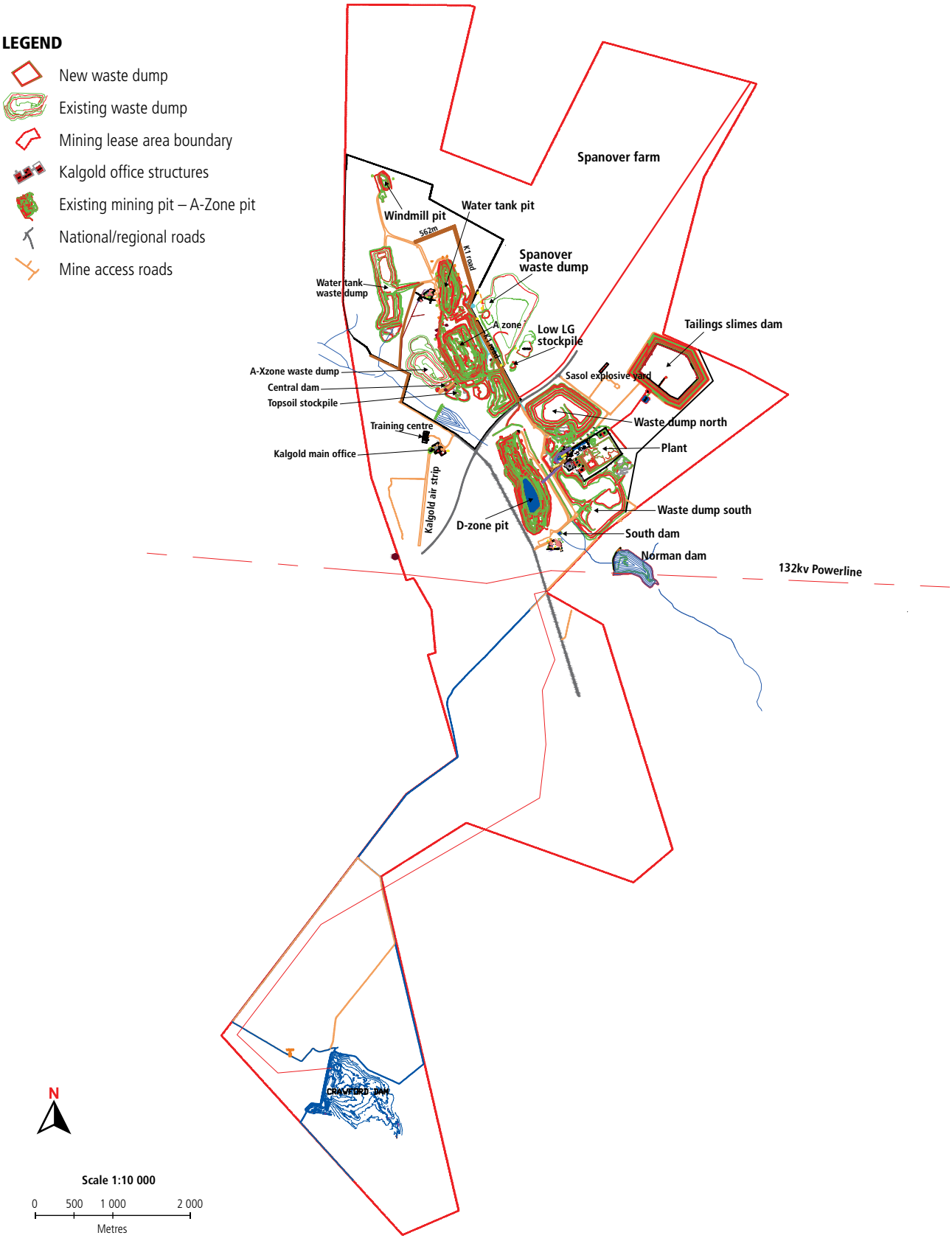
Kalgold

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

KALGOLD

KRAAIPAN GREENSTONE BELT



MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

FREE STATE SURFACE SOURCES

Free State surface operations

The Free State surface source operations comprise the following:

- **The Phoenix operation**, located adjacent to Harmony's current and historical operations in the Free State, involves the retreatment of tailings from tailings storage facilities in the region to extract any residual gold. The Phoenix operation makes use of the Saaiplaas plant, located close to the historic Saaiplaas 2 shaft area and in close proximity to Masimong 4 shaft. Phoenix began in 2007
- **St Helena** – in study phase
- **Central Plant retreatment project** – material reclaimed from the FSS5 tailings facility is processed at Central Plant which was adapted for tailings retreatment. Plant commissioning began in June 2017 with ramp-up to a capacity of 300 000t a month achieved by the end of July 2017
- **Rock dumps** – Around 4Mt of reserves are available in rock dumps in the vicinity of the Free State operations. A programme, run by Harmony's Metallurgical Services, to mill and process these dumps as and when there is spare plant capacity available, began in FY10
- **Tailings** – 553.3Mt of tailings material contained in tailings storage facilities in the Free State are estimated to contain around 4Moz of gold

PHOENIX

The Phoenix project, or the Tswelopele Beneficiation Operation, is a low-cost, high profit-margin low-grade tailings reprocessing operation.

Phoenix makes use of Harmony's Saaiplaas plant which was built in 1954. Most of the original structures and equipment were broken down c.1990 and removed, with the exception of the thickeners and pachuca tanks, which are still in use. The plant was expanded in 1980 with the addition of a ROM milling section, additional pachucas and filters. While the old sections have been decommissioned and progressively demolished since the 1990s, the newer sections remain in operation. The plant originally formed part of Anglo American's Free State gold mining operations with a design capacity of 330 000tpm.

The Saaiplaas plant originally processed ore from Saaiplaas 1, 2 and 3 shafts. Saaiplaas 1 closed c.1980, Saaiplaas 2 c.1996, and Saaiplaas 3 c.2000. At one time, the Saaiplaas

MINERAL RESOURCES AND RESERVES BY OPERATION

SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

LOCATION OF HARMONY'S FREE STATE SURFACE OPERATIONS

LEGEND

- Shaft position
- Non-operating shafts
- Active gold plants
- Slime dams (municipality)
- Active slime dams
- Non-active slime dams
- Dams and pans
- Roads

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

plant also processed ore from the Erfdeel (now Masimong) shafts. With the decline of mining in the area, the plant was relegated to processing unmilled surface source material (waste) at a rate of 110 000tpm until July 2007. As all material currently processed by the plant is recovered by hydro-mining from old, desiccated slimes dams in the area, no crushing or milling is required. The ore-receiving silos, conveying and milling functions have been mothballed or demolished since July 2007, when milling ceased.

The original design life of the slimes retreatment project was five years (to end 2011). The short operating life was due to restricted deposition capacity for the residues generated at the planned processing rate of 500 000tpm. Given stability concerns, this rate was reduced further to 424 000tpm from September 2011. A major capital project was undertaken to build a replacement cyclone-deposition dam at St Helena 1, 2 and 3. This dam will allow the deposition of 500 000tpm again, extending the operating life to 2029.

Nature of operations

Hydro-mining on several slimes dams is conducted under contract. Material from the dams is transported to the pump station, from where the material is conveyed to Saaiplaas plant in a separate 450mm diameter rubber-lined pipeline from each dam.

As the Saaiplaas plant has been downgraded to a slimes retreatment plant, only hydro-mined material from old, desiccated slimes dams is sent here for processing. Two additional carbon-in-leach (CIL) tanks have been installed to increase residence time to achieve optimal dissolution and reduce soluble loss.

Location

The Saaiplaas plant is located in the heart of the Free State goldfields near Welkom in the Free State province of South Africa, at latitude of 28°02'00"S and longitude 26°52'18"E, at an elevation of approximately 1,600m above mean sea level.

Description of hydro-mining and mineral processing operations

Production plans

Current planned processing rate is 500 000t a month with the new St Helena 1, 2 and 3 cyclone dam in operation as the residue disposal facility. As a result, life has been extended by a further 17 years. Two tanks have been added to increase residence time to achieve optimal dissolution and reduce soluble loss.

Two surface sources are currently being mined:

- Brand A dam has had some 70% of its material removed already. It has a grade of 0.37g/t Au at 40% to 45% recovery
- No 21 dam (replaced Harmony No 1 dam as a source from end-2011) has a grade of 0.27g/t Au at 40% to 45% recovery
- At Harmony No 1 dam, all the material has been reprocessed with only the clean-up remaining

The FSS6, FSS4 and FSS1 dams replaced the old Saaiplaas dams at end 2011 for deposition purposes. Deposition into these dams and the Brand D dam stopped with the commissioning of the St Helena 1, 2 and 3 dam which is able to accept the full production of the Saaiplaas plant.

Saaiplaas plant began depositing material on the St Helena 1, 2 and 3 dam in February/March 2013. This dam is now the sole deposition area for the Saaiplaas plant.

The commissioning of the St Helena 1, 2 and 3 dam allowed the planned increase in plant throughput to the required 500 000t a month over the next c.17 years. As St Helena 1, 2 and 3 dam is on an existing site, it did not require any environmental permitting that a new site would have needed.

Hydro-mining currently yields recovered slimes at an average in situ grade of 0.300g/t. Saaiplaas Plant recovers between 40% – 45% of the contained grade in the recovered pulped material it receives, yielding 65kg of gold a month (planned), which represents around 1.5% of Harmony's gold production. The operating unit cost is R55/t at 500 000t a month. The Saaiplaas project is positioned for low-cost, high profit-margin, low-grade tailings reprocessing.

Hydro-mining

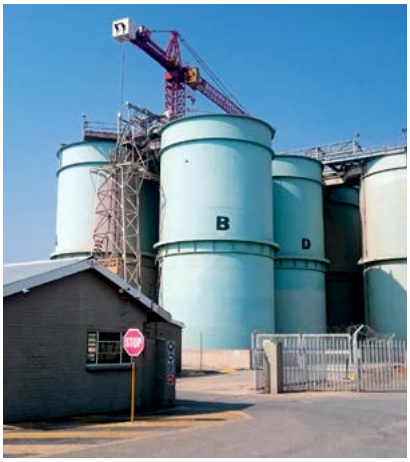
The hydro-mining (monitoring) process uses 100mm and 150mm diameter high-pressure water monitors (cannons) to re-pulp the hardened slimes to a relative density of around 1.4. The re-pulped slime flows under gravity to a penstock suction to a transfer pump which delivers to one of two vibrating screens to remove oversize and the underflow falls into a sump. A separate pump station at each dam pumps the pulp via 450mm diameter rubber lined pipelines to the plant. The slimes pumps are Envirotech D-frame 3-5 stage units (depending upon the distance to be pumped).

Oxygen is injected into the transfer pipeline to the plant to neutralise cyanide consuming components and so optimise gold dissolution in the plant.

Free State surface operations

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

Upon receipt of the pulp at the plant, lime is added to adjust the pH to 10.5. From the receiving tower, the slimes are transferred into one of the four thickeners located at the plant. Each of the thickeners has a maximum throughput capacity of 150 000t. After thickening, the desired relative density of the material is 1.450.



There is no mechanical agitation, all agitation being by means of air. This has the advantage of keeping the carbon in suspension. The methodology employs standard CIL technology. Simultaneous gold leaching and adsorption occurs with the carbon in each of the six tanks in each train.

Thickener underflow is pumped to one of two linear screens above the mass flow tanks to remove grid and woodchips larger than 800µm to create a clear size cut between slurry and carbon particle sizes. Cyanide is added at the mass flow conditioning tanks to facilitate pressure leaching which takes place in the pipeline. Pregnant carbon can then be recovered during the CIL process. Oxygen is injected in the pipeline to CIL to optimise the overall leach reaction.

The material is then pumped to one of two sets of six tanks each. These are operated on a carousel basis, with the numbering of the tanks rotating with use. Total residency time for the material to pass through the five tanks in each train is around 10 hours.

Upon receipt of the pulp at the plant, lime is added to adjust the pH to 10.5. From the receiving tower, the slimes are transferred into one of the four thickeners located at the plant. Each of the thickeners has a maximum throughput capacity of 150 000t. After thickening, the desired relative density of the material is 1.450.

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

SURFACE SOURCES

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Phoenix	62.7	0.29	18	575	–	–	–	–	–	–	–	–	62.7	0.29	18	575
St Helena	191.3	0.27	52	1 656	–	–	–	–	–	–	–	–	191.3	0.27	52	1 656
Central Plant	–	–	–	–	64.6	0.27	17	552	–	–	–	–	64.6	0.27	17	552
Other:																
– Waste rock dumps	–	–	–	–	3.9	0.51	2	64	19.3	0.43	8	265	23.3	0.44	10	329
– Tailings	–	–	–	–	553.3	0.22	124	3 971	15.5	0.19	3	94	568.8	0.22	126	4 065
Mispah	–	–	–	–	73.0	0.30	22	708	–	–	–	–	73.0	0.30	22	708
Kop Paydam	10.8	0.20	2	70	0.2	0.23	0.03	1	–	–	–	–	11.0	0.20	2	72
Moab MOD	–	–	–	–	7.4	0.37	3	89	–	–	–	–	7.4	0.37	3	89
Grand total	**264.8**	**0.27**	**72**	**2 302**	**702.4**	**0.24**	**167**	**5 385**	**34.8**	**0.32**	**11**	**359**	**1 002.0**	**0.25**	**250**	**8 046**

Modifying factors

		MCF (%)	PRF (%)	Cut-off (g/t)
Phoenix	2017	100	45	0.28
	2018	100	45	0.29
St Helena	2017	100	45	0.27
	2018	100	45	0.27
Central Plant	2017	100	52	0.27
	2018	100	51	0.27
Other	2017	100	52	0.23
	2018	100	52	0.23

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Phoenix	62.7	0.29	18	575	–	–	–	–	62.7	0.29	18	575
St Helena	108.6	0.27	29	933	–	–	–	–	108.6	0.27	29	933
Central Plant	–	–	–	–	64.6	0.27	17	552	64.6	0.27	17	552
Other:												
– Waste rock dumps	–	–	–	–	3.9	0.51	2	64	3.9	0.51	2	64
– Tailings	–	–	–	–	553.3	0.22	124	3 971	553.3	0.22	124	3 971
Total	**171.2**	**0.27**	**47**	**1 508**	**621.9**	**0.23**	**143**	**4 587**	**793.1**	**0.24**	**190**	**6 095**

Uranium – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		U_3O_8		Tonnes		U_3O_8		Tonnes		U_3O_8		Tonnes		U_3O_8	
	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)	(Mt)	(kg/t)	(Mkg)	(Mlb)
Free State																
Surface sources	–	–	–	–	178.8	0.10	17 817	39	–	–	–	–	178.8	0.10	17 817	39
Klerksdorp goldfield																
Surface sources	10.8	0.13	1 408	3	73.1	0.12	8 984	20	–	–	–	–	83.9	0.12	10 392	23
	–	–	–	–												
Total	**10.8**	**0.13**	**1 408**	**3**	**251.9**	**0.11**	**26 802**	**59**	**–**	**–**	**–**	**–**	**262.7**	**0.11**	**28 210**	**62**

MINERAL RESOURCES AND RESERVES BY OPERATION
SOUTH AFRICA – SURFACE OPERATIONS CONTINUED

OPERATIONAL PERFORMANCE

Free State surface sources – key operating statistics

	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**2 821**	2 810	3 041	2 701	2 897
	000t (imperial)	**3 110**	3 099	3 353	2 978	3 196
Gold produced	kg	**1 081**	1 055	1 065	862	903
	oz	**34 755**	33 918	34 241	27 713	29 032
Grade	g/t	**0.383**	0.375	0.350	0.320	0.310
	oz/t	**0.011**	0.011	0.010	0.009	0.009
Average gold price received	R/kg	**567 737**	572 172	544 996	450 420	431 172
	US$/oz	**1 374**	1 309	1 169	1 224	1 296
Financial						
Capital expenditure	Rm	**3**	7	18	6	9
	US$m	**–**	1	1	1	1
Cash operating cost	R/kg	**415 993**	434 715	401 033	382 959	363 568
	US$/oz	**1 007**	995	860	1 041	1 092
All-in sustaining cost	R/kg	**417 462**	445 451	422 205	403 906	383 701
	US$/oz	**1 010**	1 019	906	1 097	1 153

Target

MINERAL RESOURCES AND RESERVES BY OPERATION AND PROJECTS

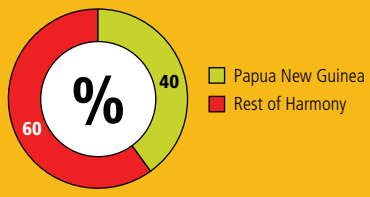
PAPUA NEW GUINEA

Harmony's assets in Papua New Guinea had combined attributable gold mineral reserves of

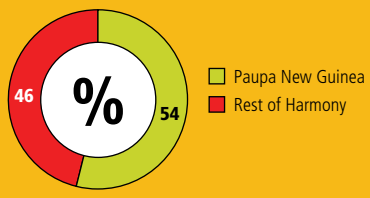
19.9Moz

(including gold equivalents) and attributable gold mineral resources of 47.1Moz (including gold equivalents) as at 30 June 2018.

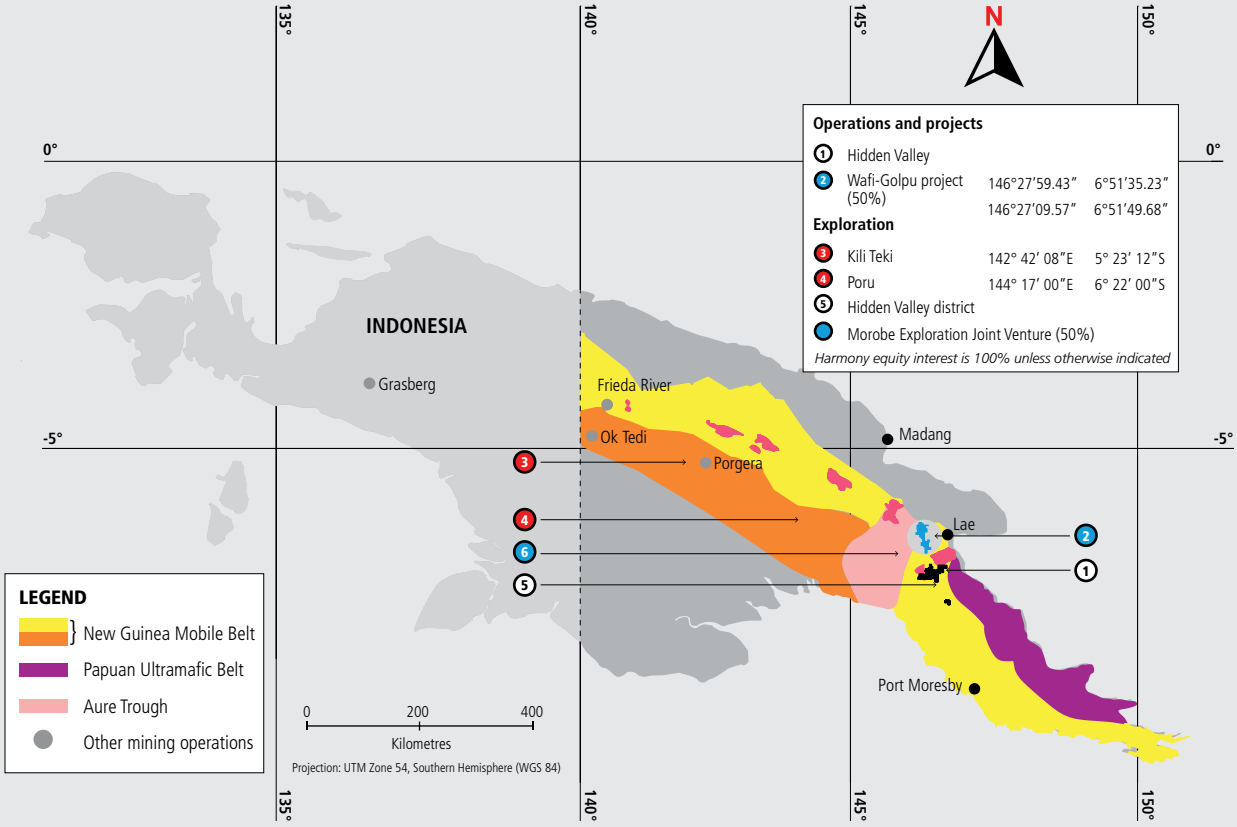
CONTRIBUTION TO MINERAL RESOURCES (gold and gold equivalent)



CONTRIBUTION TO MINERAL RESERVES (gold and gold equivalent)



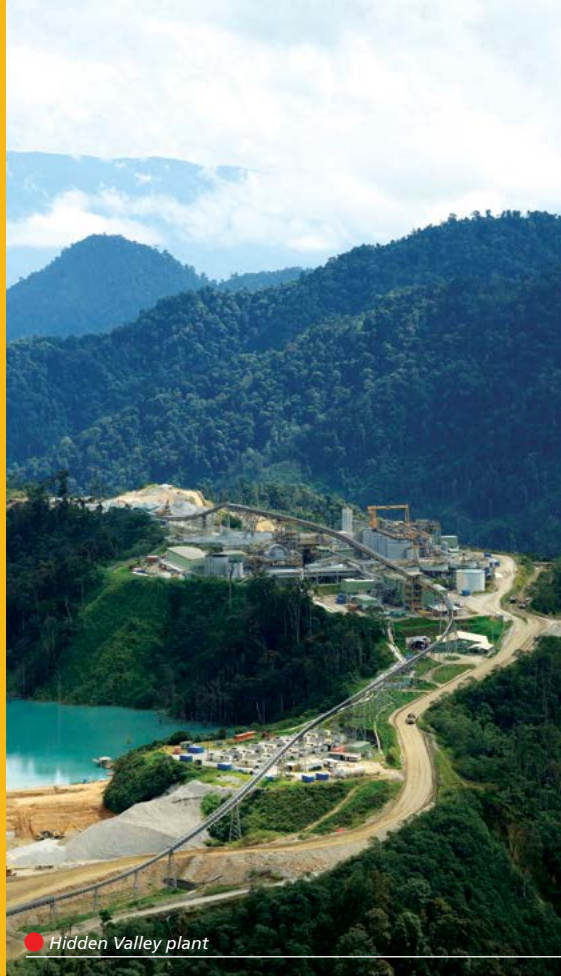
PAPUA NEW GUINEA – location of operations and projects



MINERAL RESOURCES AND RESERVES BY OPERATION

PAPUA NEW GUINEA

HIDDEN VALLEY



Hidden Valley plant

Description and location

The Hidden Valley mine is located at latitude 7°22"S and longitude 146°39"E, approximately 15km south-southeast of the township of Wau and approximately 90km south-southwest from Lae, the capital of Morobe Province in Papua New Guinea. The closest major towns to the project are Wau and Bulolo. Lae, the nearest maritime port in the region, is connected to Bulolo by a tarred two-lane main road. The operation is now wholly owned by Harmony through Morobe Consolidated Goldfields.

The mine is located at elevations between 2 800m and 1 700m above sea level within steep mountainous and forested terrain that experiences approximately 3m of rainfall per year

History

The Hidden Valley deposits were discovered by CRA in 1980s and the deposits changed hands through various exploration companies until finally settling with Morobe Consolidated Goldfields (MCG), a wholly owned subsidiary of Harmony.

Mine construction commenced in 2007 with the 40km road access from Bulolo to the mine site.

In 2009, Harmony entered in to the Hidden Valley Joint Venture with Newcrest Mining Limited earning 50% of the deposit and joint management rights. First gold was poured in May 2009 with the mine being officially opened in September 2010.

On 25 October 2016, Harmony purchased Newcrest's 50% portion and now is (again) the 100% owner of the Hidden Valley mine.

Nature of operations

Hidden Valley is an operating open pit gold and silver mine. Two separate open pit mines feed a 4.0Mtpa processing plant. Silver and gold doré bars are produced. Current mine life is to 2024 with opportunities for expansion.

Mineral rights/legal aspects and tenure

The deposits lie on mining lease ML151 which was granted in 2005. The mining lease has a tenure of 20 years taking its expiry to 2025 with an option for extension.

At the time of the previous June 2016 report, the operation was a 50:50 joint venture between Harmony, through Morobe Consolidated Goldfields Limited (MCG) and Newcrest, through Newcrest PNG 1 Limited. However in September 2016 Harmony assumed 100% ownership of Hidden Valley by acquiring 100% of Newcrest PNG 1 Limited (now Harmony PNG20 Limited). The mine is now 100% owned and managed by Harmony (through MCG).

Geology

The deposit is a structurally controlled vein-stockwork gold-silver deposit located in the Morobe Granodiorite of the Wau Graben. Gold-silver mineralisation is contained in carbonate-adularia-quartz-sulphide vein-stockworks and in a few instances in hydrothermal breccias. Discrete zones of intense stockwork fracture and mineralised veining comprise individual lodes. At the Hidden Valley deposit gold and silver are related to steeply dipping (Kaveroi Creek Zone) and flat-lying (Hidden Valley Zone) sheeted vein swarms associated with an underlying shallow thrust.

Mining methods and mine planning

Mining operations occur in two open pits 6km apart, Hidden Valley and Hamata of which Hidden Valley is the largest. Both mines employ conventional open pit mining techniques with back-hoe excavators and rigid dump trucks as the primary load and haul equipment. Front-end loaders are used for crusher feed and stockpile reclaim. A number of articulated smaller dump trucks are used for construction, and to a lesser extent mining in Hamata.

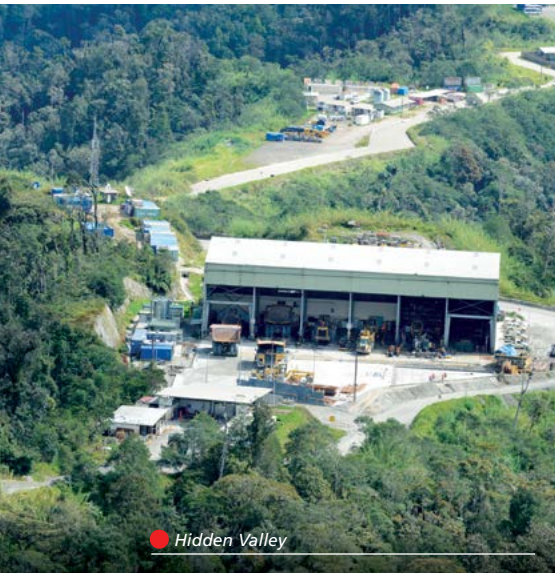
Mining bench configuration consists of 18m inter-berm heights, mined as 3m x 6m benches of 2m x 3m flitches (in ore).

MINERAL RESOURCES AND RESERVES BY OPERATION

PAPUA NEW GUINEA CONTINUED

Hidden Valley

Hidden Valley



Hidden Valley

Waste is disposed of in engineered valley fill waste dumps, with toes keyed in and buttressed using competent non-acid producing rock. This waste is currently captured in the Western Sector dump which is nearing its fill capacity. The construction of the next dump, Neikywe, is underway with the pushdown ramp, underdrains, and toe construction. Neikwiye Valley dump will provide the waste rock capacity for the remainder of the reserve.

Mineral processing

Crushed ore is conveyed from the Hidden Valley pit via a 3.8km long overland pipe conveyor. Ore from the Hamata pit is trucked to the Hamata crushing station, located next to the ore processing plant.

The Hidden Valley process plant was designed to treat nominally 4.0Mtpa of gold/silver bearing ore. The process uses a two stage crushing circuit followed by a SAG mill, gravity, CCD/Merril Crowe circuit for silver and carbon in leach circuit for the gold. A silver/gold ore bar is produced and flown off site for refining and sale.

Tailings are disposed of in a terrestrial tailings storage facility located to the South-West of the process plant. Dam-wall construction of the tailings storage facility is ongoing and largely constitutes placement of suitable oxide and fresh competent material sourced from mining in the Hamata pit. The processing inventory in this ore reserve estimate is constrained by the remaining storage capacity. Construction of an additional facility is under study to accommodate resource growth strategies.

Infrastructure

Hidden Valley is a well-established mine serviced from Lae by sealed 100km road to Bulolo and then a well maintained gravel road for the remaining 40km to site. All goods are transported to site via this route with some emergency goods flown to Bulolo.

There is an airstrip at Bulolo from where the fly-in and fly-out workers commute. However the bulk of employees are from the local area and are bussed to their towns and village. The mining camp on site houses all employees and provides health and recreation facilities. Power is provided by the state owned PNG Power. This power is generated by hydro schemes. 100% contingency is provided by a bank of diesel generators.

Waste dumps and the tailings storage facility are under construction and built as the mine progresses.

Mineral resource estimation

Both the Hidden Valley and the Hamata models have been estimated using a localised multiple indicator Kriged method using a 12m x 12m x 6m standard mining units and constrained within broad three-dimensional wireframe domains based on gold and silver grade, alteration and structure. This method accommodates the large panels required for a robust estimate using a long-standing well-known estimation method, but also allows the estimation of localised SMU-sized blocks for mine planning purposes. A revised model is used for the Hidden Valley deposit. This has been reviewed by SRK. Checks against historical production indicate that both these models are robust when appropriate modifying factors are applied. In Hidden Valley's case, a 10% discount to grade is applied.

Pit optimisations are run on measured and indicated resource categories only. All mineral resource classifications are maintained and converted to ore reserve classifications inside pit designs. There is no measured material classified in either pit, all measured resources reported comprise stockpile material only. All mine operating plans are compiled using measured, indicated and inferred resource categories

Environmental impact

Hidden Valley's Environmental Impact Statement (EIS) was submitted to the Department of Environment and Conservation (DEC) in February 2004. The EIS was accepted by DEC, (now the Conservation and Environmental Protection Agency – CEPA) in June 2004 and was referred to all stakeholders and advertised publicly for review according to regulatory requirements. In March 2005, the original environmental waste discharge and environmental water extraction permits were issued to Hidden Valley which

MINERAL RESOURCES AND RESERVES BY OPERATION

PAPUA NEW GUINEA CONTINUED

currently operates within mining lease ML151 and is the holder of the following environment permits:

- EP WE-L3 (38) last amended 23/11/2012 and expiring 29/03/2030
- EP WD-L3 (50) last amended 07/11/2012 and expiring 29/03/2030

The Hidden Valley environmental management plan (EMP) identifies potential environmental impacts and management strategies associated with the operation of the mine. The EMP describes Hidden Valley's approach to environmental management and outlines the standards, procedures and systems developed to meet the objectives set out in the mine's approvals and permits, as required under Papua New Guinea legislation. The EMP also details the environmental monitoring requirements and reporting commitments of Hidden Valley to CEPA. The EMP is updated every three years in accordance with Hidden Valley's Environment Permit.

A detailed environmental monitoring programme has been prepared as part of the EMP which includes water, sediment and air quality monitoring, hydrological studies, land clearance assessment and aquatic biota studies. Water quality monitoring within the major tributaries of the Watut and Bulolo Rivers forms a critical component of the monitoring program due to the potential for impacts on the downstream environment as a result of the mining operation.

The environmental improvement plan (EIP), approved by DEC on 26 April 2011 was developed in response to an independent environmental audit commissioned by DEC in 2010. The EIP included 40 specific actions to improve environmental management at the mine, the actions were completed in February 2015 and a close out report was submitted to CEPA in March of the same year. The EIP close-out was approved by CEPA in February 2017.

The were no major environmental non-compliances.

COMPETENT PERSONS

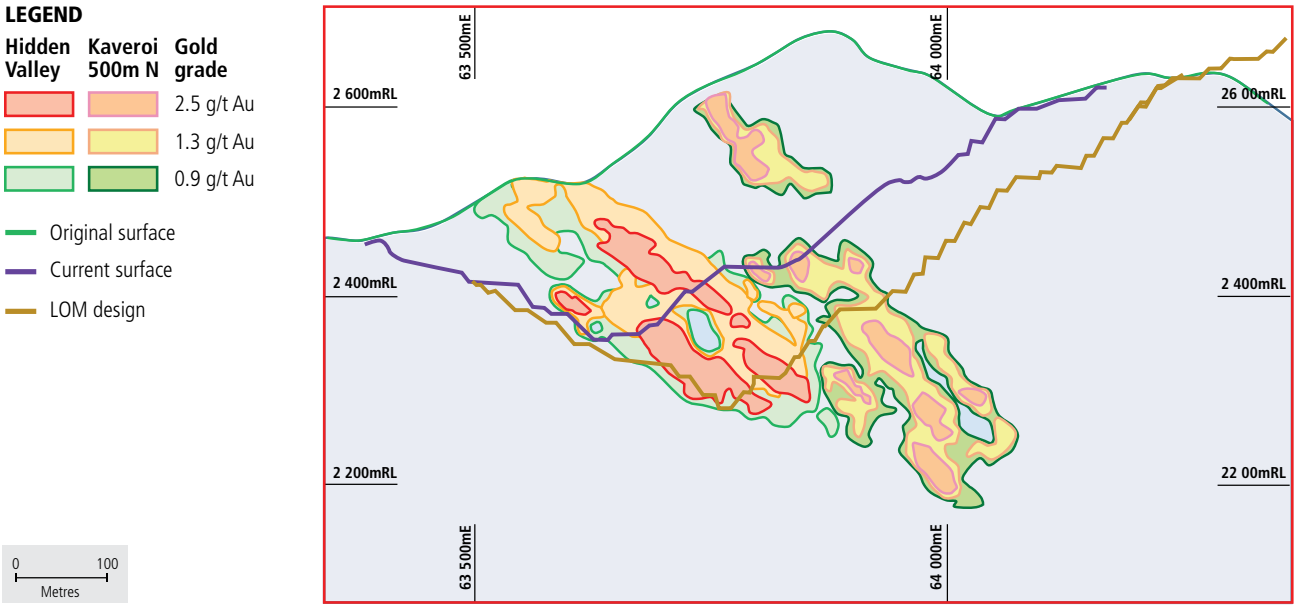
RESOURCE
GROUP RESOURCE GEOLOGIST
HARMONY SE ASIA
Ronald Reid
Australian Institute of Geoscientists (AIG)

+10 years' experience

RESERVE
RESOURCES AND NEW BUSINESS
HARMONY SE ASIA
Greg Job
AusIMM

25 years' experience

Hidden Valley – section 75 225mN



MINERAL RESOURCES AND RESERVES BY OPERATION
PAPUA NEW GUINEA CONTINUED

HIDDEN VALLEY AND HAMATA

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Hidden Valley	1.9	0.92	2	56	81.7	1.44	118	3 778	3.0	1.18	4	113	86.6	1.42	123	3 948
Hamata	0.03	1.03	0.03	1	2.4	1.90	5	146	0.2	1.41	0.3	10	2.6	1.85	5	157
Total	**1.9**	**0.92**	**2**	**57**	**84.1**	**1.45**	**122**	**3 925**	**3.2**	**1.19**	**4**	**123**	**89.3**	**1.43**	**128**	**4 105**

Modifying factors

Hidden Valley	MCF (%)	Dilution (%)	PRF (%)	Cut-off (g/t)
2017	95	8	88	0.91
2018	100	10	88	0.85
Hamata				
2017	95	10	88	0.91
2018	100	10	88	0.85

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Hidden Valley	1.9	0.92	2	56	23.3	1.62	38	1 215	25.2	1.57	40	1 271
Hamata	0.03	1.03	0.03	1	0.5	2.11	1	35	0.5	2.06	1	35
Grand total	**1.9**	**0.92**	**2**	**57**	**23.8**	**1.63**	**39**	**1 250**	**25.7**	**1.58**	**41**	**1 306**

Silver – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Ag		Tonnes		Ag		Tonnes		Ag		Tonnes		Ag	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Hidden Valley	1.9	19.61	37	1 193	81.7	27.50	2 247	72 256	3.0	29.21	87	2 791	86.6	27.38	2 371	76 240

Silver – Mineral resources as gold equivalents

	Measured (000oz)	Indicated (000oz)	Inferred (000oz)	Total (000oz)
Hidden Valley	13	1 020	39	1 072

Modifying factors

Hidden Valley	MCF (%)	Dilution (%)	PRF (%)	Cut-off (g/t)
2017	95	6	61	0.91
2018	100	10	61	0.85

Silver – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Ag		Tonnes		Ag		Tonnes		Ag	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Hidden Valley	1.9	19.61	37	1 193	23.3	32.12	749	24 083	25.2	31.18	786	25 276

Silver – Mineral reserves as gold equivalents

	Proved (000oz)	**Probable** (000oz)	**Total** (000oz)
Hidden Valley	17	340	357

MINERAL RESOURCES AND RESERVES BY OPERATION
PAPUA NEW GUINEA CONTINUED

OPERATIONAL PERFORMANCE
Hidden Valley – key operating statistics

	Unit	FY18	FY17	FY16	FY15	FY14
Operation						
Volumes milled	000t (metric)	**2 499**	2 889	1 729	1 825	2 001
	000t (imperial)	**2 757**	3 186	1 906	2 012	2 207
Gold produced	kg	**2 862**	2 965	2 257	2 943	3 292
	oz	**92 015**	95 327	72 565	94 619	105 840
Grade	g/t	**1.36**	1.07	1.31	1.61	1.65
	oz/t	**0.039**	0.035	0.038	0.047	0.048
Average gold price received	R/kg	**550 956**	544 442	546 272	448 322	433 488
	US$/oz	**1 283**	1 246	1 210	1 218	1 303
Financial						
Capital expenditure	Rm	**1 563**	1 335	121	121	122
	US$m	**122**	98	8	11	12
Cash operating cost	R/kg	**287 028**	466 847	479 196	391 774	329 943
	US$/oz	**669**	1 068	1 028	1 065	991
All-in sustaining cost	R/kg	**466 256**	543 186	597 398	514 690	415 068
	US$/oz	**1 094**	1 241	1 282	1 395	1 244

Hidden Valley

MINERAL RESOURCES AND RESERVES BY PROJECT

PAPUA NEW GUINEA

GOLPU, WAFI, NAMBONGA AND KILI TEKE

Hidden Valley

Property description and location

The Golpu, Wafi and Nambonga deposits are located in eastern Papua New Guinea, approximately 60km southwest of Lae in Morobe Province. Access to the project from Lae is via a combination of tarred and untarred roads with a travel time of four hours. The operation is a 50:50 joint venture between Harmony (Wafi Mining Limited) and Newcrest Mining Limited (Newcrest PNG2 Limited).

History

The Wafi area mineralisation was first identified in 1979 by CRA Exploration with the discovery of the underlying Golpu Porphyry by Elders Resources Limited in 1990. Since then, several companies have completed exploration and resource-definition drilling programmes with associated mine development studies.

Nature of operations

The operations are in advanced exploration and project study phase. Golpu, the most advanced project, was covered in the recently published (March, 2018) results of the feasibility study update. No mining has occurred in the project area.

Mineral rights/legal aspects and tenure

The deposits lie on exploration lease EL440 which is 50% owned by Harmony, through Wafi Mining Ltd, and by Newcrest Mining Ltd, through Newcrest PNG2 Limited.

Geology

The projects fall within the New Guinea Mobile Belt of Papua New Guinea which is one of the world's pre-eminent geological terrains for porphyry copper-gold and epithermal gold mineralisation.

Wafi-Golpu includes the Golpu copper-gold porphyry deposit (ranked as a world-class deposit in terms of its size and grade), the Nambonga copper-gold porphyry deposit, and the Wafi high sulphidation epithermal gold deposit. Knowledge of the Wafi-Golpu system is limited by the extent of drilling and the deposit remains open for future expansion. Exploration activity is guided by strong indications that the mineral resource will continue to grow at depth as a better understanding is gained of the nature and extent of the mineralised systems.

MINERAL RESOURCES AND RESERVES BY OPERATION
PAPUA NEW GUINEA CONTINUED

GOLPU

Geology

The Golpu deposit is the largest of the deposits and found in a block of deformed Upper Mesozoic to Middle Miocene metasedimentary rocks cut by Miocene-Pliocene calc-alkaline dioritic intrusives. Copper and gold mineralisation results from a porphyry system with the upper portion overprinted by high sulphidation epithermal alteration. The deposit is also 60km north-northwest of the porphyry-related gold-silver-base metal Hidden Valley-Kaveroi mines and other related deposits in the Bulolo Graben (e.g. Edie Creek, Kerimenge, Upper Ridges).

The Golpu mineral resource is approximately 800m by 400m elliptical in plan and extends from 200m below surface to a depth of more than 2 000m. The deposit remains open at depth.

The system consists of multiple, hornblende-bearing diorite porphyries intruded into host sediments. Intrusives range from small dykes to small stocks and apopheses. Hydrothermal alteration related to the porphyry copper-gold mineralisation forms a predictable zonal arrangement grading from potassic core to propylitic margins. A high sulphidation epithermal system is 'telescoped' over the upper portion of the porphyry system forming a central alunite-quartz (advanced argillic) core grading out to dickite-kaolinite (argillic) with an outer margin of sericite alteration. This results in either epithermal-dominant, interaction (mixed) or porphyry-only zones.

Drilling update

Drill evaluation of the Golpu deposit was completed in 2014 with only limited drilling in 2015 and 2016 associated with decline access, site investigations and near-term geotechnical interpretation. Five additional holes were drilled into Golpu mineralisation primarily for geotechnical assessments of cave conditions between June 2016 and January 2017. Geological logging and assays returned from these holes largely confirmed the existing geological model with no material effect on the Golpu mineral resource. The underlying geology and the grade model remains unchanged from that used in the December 2014 mineral resource. The Golpu resource is constrained within a marginal breakeven shell using Wafi-Golpu Joint Venture 2015 gold and copper revenues and the estimated long-term cost structure developed in the 2016 Golpu Stage 2 prefeasibility study.

Golpu feasibility study update

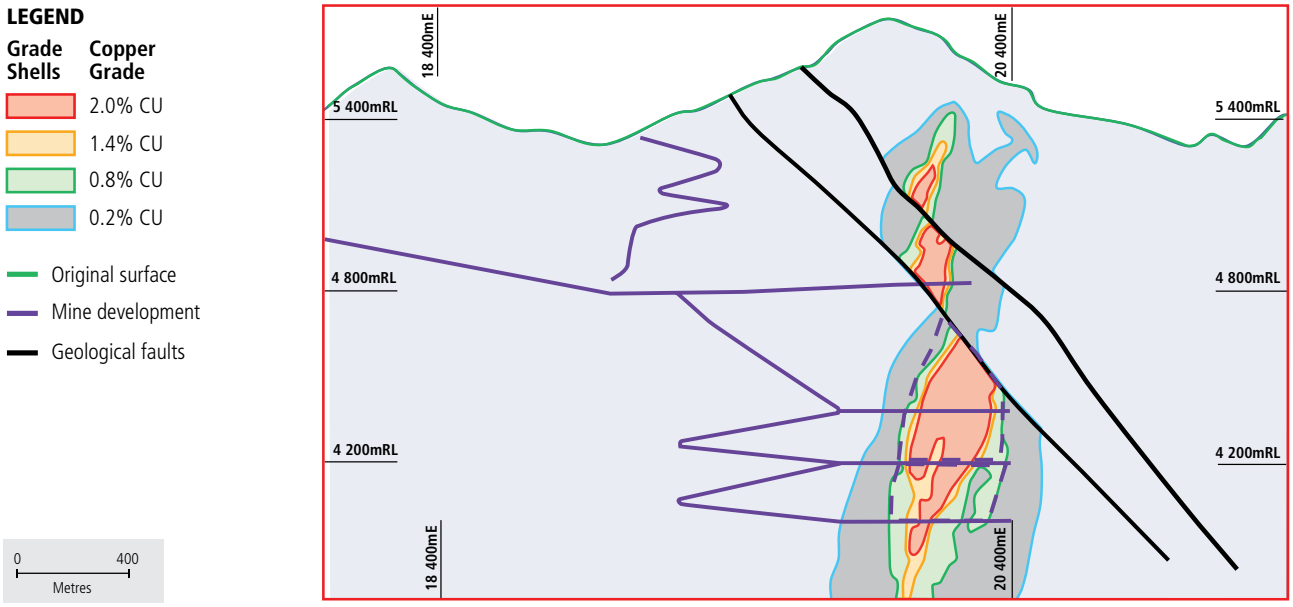
The Golpu mineral reserve was updated, based on the feasibility study update, and released in March 2018.

Mining methods and mine planning

The recently published (March, 2018) feasibility study update proposes the following mining approach:

- Secondary/initial underground access via the Nambonga decline to provide earlier and quicker access to underground drill platforms, second means of egress and ventilation
- Primary underground access is via the Watut portal and the twin Watut declines to the underground block cave mine. The Watut declines also form part of the primary ventilation circuit and materials handling system conveying ore to the Watut process plant.
- A 'cave engineering level' established above the Reid Fault at 4870mRL for data gathering, further refinement of the rock mass, monitoring of the cave and potentially for dewatering
- Ore extracted via three block caves producing at a rate of 17Mtpa (design capacity)

Golpu – section 721 060mN



MINERAL RESOURCES AND RESERVES BY OPERATION
PAPUA NEW GUINEA CONTINUED

Mineral processing
The proposed processing method has been based on known technology utilising testwork results gathered in the feasibility study update and previous studies. A copper and gold concentrate will be produced from a conventional crush, grind, float processing plant. Concentrate will be shipped from the port of Lae as a final product. Gold will also be produced as doré for delivery to a precious metal refinery.

Infrastructure
No major infrastructure is currently located at Golpu besides the exploration camp and access roads. The feasibility study update completed in March of 2018 discusses:

- Access road
- Ventilation and refrigeration plant
- Processing plant (copper concentrator)
- Deep sea tailings placement system including tailings pipeline from site to the discharge point near Lae
- Concentrate export pipeline plus associated dewatering and loading facilities at the existing port of Lae
- Accommodation camp
- On site power station

The Golpu mineral resource is estimated by ordinary kriging within alteration and lithological domains for gold, copper, silver, molybdenum and sulphur elements. The mineral resource is reported within a breakeven value shell that applies the 2016 Stage 2 prefeasibility study block-cave mining, treatment and general and administration costs with metallurgical recovery models and associated non-site realisation (TCRC) costs of the copper concentrate product. Revenue of gold and copper are the only economic elements included in the value estimate. The mineral resource reports the contained metal content of silver and molybdenum but revenues are not included in the estimation of the reporting cut-off. The prefeasibility study assumes no silver and molybdenum payable recovery, however, both elements have been included in the mineral resource as there are reasonable prospects of eventual economic extraction with limited changes to the metallurgical flow-sheet and operational procedures.

WAFI
The Wafi deposit is centred on high sulphidation epithermal mineralisation within a larger epithermal and porphyry related complex in granted exploration licence EL440, approximately 60km southwest of Lae, Papua New Guinea. The Wafi deposit outcrops less than 1km to the south of the top of the Golpu porphyry deposit.

The Wafi mineral resource estimate was estimated by localised multiple indicator kriging method and reported within a spatially constraining pit using revenue of US$1 400/oz gold. Non-refractory gold (NRG) material is reported at a 0.4g/t cut-off where NRG is defined as greater than 70% cyanide soluble gold as gold-cyanide assays within the database. Refractory material below the NRG surface and within the spatial constraining pit shell is reported at a cut-off of 0.9 g/t gold.

The Wafi mineralisation has been defined over a surface area of 1 100m x 800m and up to 600m below surface, with the majority of the material potentially exploitable by open pit mining methods. No ore reserve is declared and no mining has been undertaken in the project area to date.

NAMBONGA
The Nambonga deposit is located 700m east of Golpu and is hosted in a diorite porphyry stock, termed the Nambonga Porphyry. Chalcopyrite is the dominant copper mineral in the porphyry, which is associated with silicification, either pervasive or as veins. Gold is thought to be intergrown with the chalcopyrite or pyrite.

The approximate extents of the system are 500m (east-west), 400m (north-south) and 1 000m vertically.

The Nambonga mineral resource is an ordinary kriged estimate based on an unconstrained domained geological model and is reported within mineralised domains.

The Nambonga mineral resource contains estimates for gold, silver, copper, lead, zinc and sulphur. Estimation domains are based on a combination of lithology, alteration and mineralisation. The Nambonga deposit is an advanced exploration target. No ore reserve is declared and no mining has been undertaken in the project area to date.

Environmental impact
The projects are in exploration and feasibility study stage and as such have only minor environmental impacts. Environmental aspects are regulated by the CEPA (Conversation and Environmental Protection Agency) and Wafi-Golpu reports regularly to this agency.

An environmental impact assessment is being compiled as part of the mine approval process.

COMPETENT PERSONS

GOLPU
MINERAL RESOURCE
Senior Resource Geologist
Exploration Targeting,
Newcrest Mining Ltd

David Finn
AusIMM

+10 years' experience

GOLPU
ORE RESERVES
Area manager mining Golpu project feasibility study,

Pasqualino Manca
AusIMM

+25 years' experience

WAFI AND NAMBONGA
MINERAL RESOURCE
Executive General Manager Resources and New Business
Harmony South-East Asia

Greg Job
AusIMM

+25 years' experience

MINERAL RESOURCES AND RESERVES BY OPERATION
PAPUA NEW GUINEA CONTINUED

WAFI (Harmony 50% portion)

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Wafi	–	–	–	–	56.7	1.72	98	3 146	11.3	1.30	15	475	68.1	1.65	113	3 621

GOLPU (Harmony 50% portion)

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Golpu	–	–	–	–	344.0	0.71	246	7 905	67.9	0.63	43	1 377	411.9	0.70	289	9282

Modifying factors

Golpu	MCF (%)	Dilution (%)	PRF (%)	Cut-off (% Cu)
2017	100	0	61	0.22
2018	100	0	61	0.30

Gold – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Golpu	–	–	–	–	202.3	0.86	173	5 573	202.3	0.86	173	5 573

Silver – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Ag		Tonnes		Ag		Tonnes		Ag		Tonnes		Ag	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Golpu	–	–	–	–	344.0	1.29	443	14 247	67.9	1.06	72	2 322	411.9	1.25	515	16 569

Copper – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)
Golpu	–	–	–	–	344.0	1.09	3 734	8 232	67.9	0.85	577	1 273	411.9	1.05	4 311	9 505

Copper – Mineral resources as gold equivalents

	Measured (000oz)	Indicated (000oz)	Inferred (000oz)	Total (000oz)
Golpu	–	19 365	2 993	22 358

Modifying factors

Golpu	MCF (%)	Dilution (%)	PRF (%)	Cut-off (% Cu)
2017	100	0	92	0.22
2018	100	0	92	0.30

MINERAL RESOURCES AND RESERVES BY OPERATION

PAPUA NEW GUINEA CONTINUED

Copper – Mineral reserves

	Proved reserves				Probable reserves				Total mineral reserves			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Golpu	–	–	–	–	202.3	1.21	2 446	5 393	202.3	1.21	2 446	5 393

Copper – Mineral reserves as gold equivalents

	Proved reserves	Probable reserves	Total mineral reserves
	Au	Au	Au
	(000oz)	(000oz)	(000oz)
Golpu	–	12 686	12 686

Molybdenum – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Mo		Tonnes		Mo		Tonnes		Mo		Tonnes		Mo	
	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)
Golpu	–	–	–	–	344.0	94	32	71	67.9	72	5	11	411.8	90	37	82

NAMBONGA

(Harmony 50% portion)

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Nambonga	–	–	–	–	–	–	–	–	19.9	0.79	16	507	19.9	0.79	16	507

Silver – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Ag		Tonnes		Ag		Tonnes		Ag		Tonnes		Ag	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Nambonga	–	–	–	–	–	–	–	–	19.9	2.87	57	1 835	19.9	2.87	57	1 835

Copper – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)
Nambonga	–	–	–	–	–	–	–	–	19.9	0.21	43	94	19.9	0.21	43	94

Copper – Mineral resources as gold equivalents

	Measured	Indicated	Inferred	Total
	(000oz)	(000oz)	(000oz)	(000oz)
Nambonga	–	–	220	220

KILI TEKE

Location

Kili Teke is located on EL2310, some 50km north-northwest of the Tari Township (which is the provincial capital of the Hela Province in the Highlands of Papua New Guinea) and approximately 40km west-northwest of Porgera. The nearest road access point, which connects through to the Highlands Highway at Tari is approximately 14km from the Kili Teke prospect.

History

Outcropping mineralised breccia and copper gold skarn mineralisation at Kili Teke was initially identified in historic reconnaissance work undertaken in the early 1990s. Following a review of previous exploration results in the district, an exploration licence application over the area containing the Kili Teke resource was lodged by Harmony Gold Exploration (Papua New Guinea) Limited (Harmony Gold Exploration) in October 2013. EL2310 was subsequently granted in May 2014, and field work programmes by Harmony defined a broad (kilometre scale), high-tenor copper-gold anomaly at Kili Teke, indicative of the zonal geochemical distribution and alteration footprint associated with a major mineralised porphyry copper-gold system. Initial drilling began in November 2014 with significant results first returned in hole 7 of the drill programme:

- KTDD007: 422m @ 0.55% Cu, 0.43 g/t Au, from 131m
- Which included: 202m @ 0.74% Cu, 0.57g/t Au, from 137m

Nature of operation

Kili Teke is at an advanced exploration stage which is currently placed on care and maintenance.

Legal aspects and tenure

The Kili Teke deposit is located on exploration licence EL2310 which is 100% owned by Harmony Gold Exploration. The tenement spans 252km2 and is current until 23 May 2018.

The Papua New Guinea government issues and administers mining tenements under the Mining Act 1992, through the offices of the Mineral Resources Authority. Exploration licences are issued for a term not exceeding two years, and are renewable for further two-year terms subject to compliance with expenditure and other conditions. Each licence contains a condition conferring on the Papua New Guinea government the right to make a single purchase up to 30% equitable interest in any mineral discovery under the licence at a price pro rata to the accumulated exploration expenditure.

As at 31/8/2017, all licence conditions and expenditure commitments for EL2310 have been fulfilled, and the tenement is in good standing.

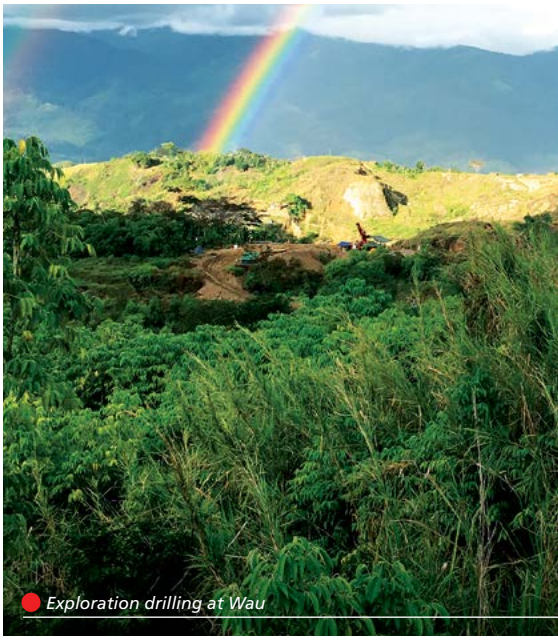
Geology

The Kili Teke deposit comprises porphyry style copper-gold mineralization hosted in a multiphase calc-alkaline dioritic to monzonitic intrusive complex. Host rocks comprise interbedded siliciclastics and limestone of the Papuan Fold Belt. Uranium-lead zircon age dating highlights Pliocene age dates in the range of 3.5 ± 0.04Ma (million years) to 3.59 ± 0.07Ma for emplacement of the mineralised porphyry phases. Late-mineral porphyry phases have been identified in the drilling and impact grade continuity within the deposit, where they intrude and stope out the earlier more mineralised phases. Overall the geometry of the deposit reflects a relatively steeply plunging, pipe like body, with mineralisation decreasing away from the central high grade stockwork zones of copper-gold mineralisation. Intense marbleisation and copper-gold skarn mineralisation is developed around the peripheral contact with the host sequence, and variably developed skarn mineralisation also occurs along internal structural and contact zones within the complex.

Mining methods and mine planning

Kili Teke is at the concept study level of work. This work has confirmed technically-viable solutions exist for mining, processing, infrastructure and logistics at Kili Teke, and no fatal flaws were identified.

Mining options consider open pit and bulk underground mining options with open pit the preferred option to take to further studies. This contemplated standard open pit mining with shovels and trucks. Waste dump locations have been preliminary identified as has terrestrial tailings storage facility locations.



Exploration drilling at Wau

MINERAL RESOURCES AND RESERVES BY OPERATION
PAPUA NEW GUINEA CONTINUED

Mineral processing
First pass rougher kinetic test work for metallurgical recovery shows that copper recovers extremely well (90%) and gold recovers well (65%) through standard copper flotation process. An option for smelting was considered but the high capital cost has precluded this with a copper concentrate product the most likely option to be considered by further studies.

Further deposit concept and study work is planned for FY18 in conjunction with the drill programme.

Mineral resource estimation
The current resource for Kili Teke has been generated from over 22 000m of drilling, along with detailed surface mapping, sampling and airborne geophysical survey data. Estimation has been constrained by a 0.125% copper shell, which represents the approximate natural break to mineralisation from the surrounding host sequence and unmineralised intrusive phases.

The modelling process used is similar to the previous (November 2015) model, with estimation by ordinary kriging of 4m composites utilising a three-pass search ellipse into a regular block model comprising 60mx60mx60m parent blocks and 20mx20mx20m sub-blocks. An inferred resource has been reported from the resulting resource model and is based on a 0.2% Cu cut-off along with sample support criteria. The resource estimate is constrained approximately 650m below surface at the 780mRL, although mineralisation remains open at depth.

Environmental impact
The projects are in exploration and feasibility study stage and as such have only minor environmental impacts. The environment aspect are regulated by CEPA (Conversational and Environmental Protection Agency) and Kili Teki reports regularly to this agency.

Exploration
The Kili Teke deposit remains open to the southeast and at depth down plunge. Study work, together with data consolidation and update modelling, is underway to inform the FY18 drill program. Key targets will include:

- Zones of skarn mineralisation within and around the main intrusive complex. Skarn mineralisation has not yet been included in the model. These have potential to develop into high-grade massive sulphide lodes which could be selectively mined provided grade continuity and size (tonnage) can be established. KTDD025 for example intersected: 7.8m @ 12.98% Cu, 11.45 g/t Au from 920.5m
- The deposit remains open at depth where trends in the copper-sulphur ratios suggest higher-grade (bornite) stockwork mineralisation may be developed
- The deposit remains open to the southeast under cover of the limestone cap. Further drilling to scope out the full extent of the intrusive complex is planned
- Additional intrusive centres with mineralisation outside of the current resource area; potentially driving marbleisation intersected at the Gold Ridge Anomaly or the intense alteration and accompanying sulphides evident at the Transfer Zone Porphyry target

KILI TEKE

Gold – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Kili Teke	–	–	–	–	–	–	–	–	237.0	0.24	56	1 810	237.0	0.24	56	1 810

Copper – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)	(Mt)	%	(Mkg)	(Mlb)
Kili Teke	–	–	–	–	–	–	–	–	237.0	0.34	802	1 767	237.0	0.34	802	1 767

Copper – Mineral resources as gold equivalents

	Measured (000oz)	Indicated (000oz)	Inferred (000oz)	Total (000oz)
Kili Teke	–	–	4 157	4 157

Molybdenum – Mineral resources

	Measured resources				Indicated resources				Inferred resources				Total mineral resources			
	Tonnes		Mo		Tonnes		Mo		Tonnes		Mo		Tonnes		Mo	
	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)	(Mt)	(ppm)	(Mkg)	(Mlb)
Kili Teke	–	–	–	–	–	–	–	–	237.0	168	40	88	237.0	168	40	88

MINERAL RESOURCES AND RESERVES BY OPERATION

PAPUA NEW GUINEA CONTINUED

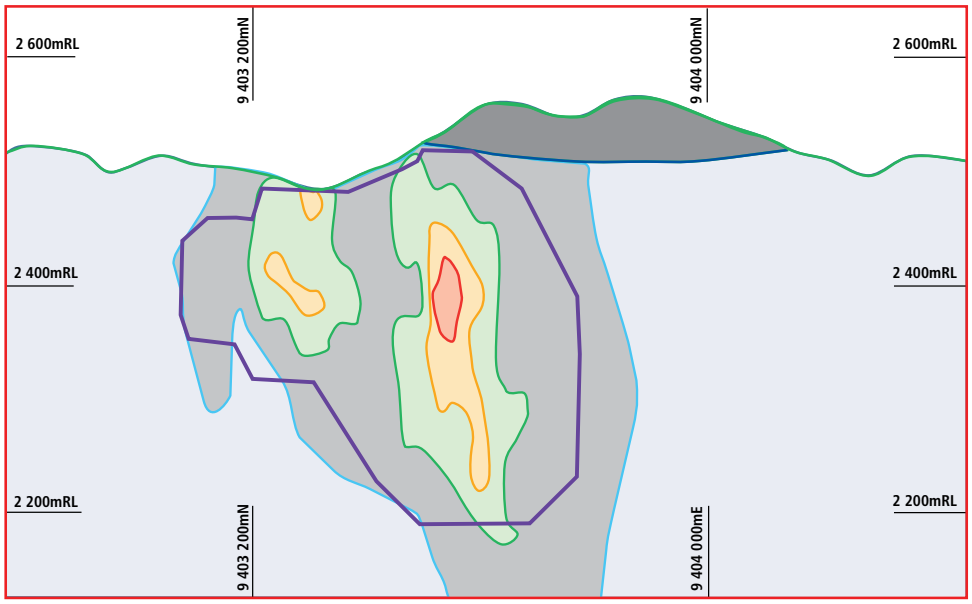
Kili Teke – section 688 790mN

LEGEND

Grade Shells	Copper Grade
	0.8% CU
	0.6% CU
	0.4% CU
	0.2% CU

- Original surface
- Inffered Resource Outline
- Limestone Cap

0 200
Metres



Exploration drilling at Kili Teke

APPENDIX

HARMONY STANDARD
FOR SAMREC COMPLIANCE REPORTING

The following standards, processes and procedures are followed and adhered to at all Harmony's underground mines in South Africa.

SAMPLING STANDARD

A standard procedure for the sampling of stopes and development ends is used to ensure quality of sampling information and safety in its collection. All samplers and sampling crews are trained based on the rules of the sampling standard. The standard specifies all the steps and rules involved in the preparation of the face and the collection of samples, as well as all safety aspects of sampling. Particular attention is given to quality of information captured, and planned task observations are routinely carried out to ensure adherence to the standard.

Quality assurance and quality control (QAQC)

Assessment of assaying accuracy and precision is carried out through the use of certified Standard Reference Materials, blanks and duplicates. Standard Reference Materials, blank samples and duplicate samples are added with the actual underground chip samples and drillhole samples sent to the assay laboratory. For analysis of underground chip-samples, the total number of Standard Reference Materials, blank samples and duplicate samples to be added to the daily underground samples will equal approximately 5% of the total underground samples submitted for that day. Generally, this equates to approximately 2% of each type of QAQC sample. For analysis of underground/surface drill-holes, QAQC is required to be more stringent in terms of numbers of Standard Reference Materials, blank samples and duplicate samples submitted. One gold Standard Reference Materials, one uranium Standard Reference Materials, one duplicate and one blank is required for every 20 drill-hole samples assayed. In other words, QAQC material will equate to approximately 15% of the total drill-hole samples analysed. If the Standard Reference Materials or blank sample has been deemed to have failed, the entire batch of samples assayed with this failed QAQC sample must be identified. A request must then be sent to the laboratory requesting them to repeat the assay procedure on all samples within this batch. A second Standard Reference Materials or blank sample must be provided to the laboratory to be included with the batch of samples. Should the batch of samples fail the QAQC standards again, these samples will be excluded from the sampling database (not captured in the sampling system), and the sampling will be repeated if necessary.

Assay laboratory

Fire assay is the oldest and, in most circumstances, still the best method for determining the concentration of precious metals in ores and metallurgical products. Essentially, the method consists of two consecutive pyrochemical separations. The finely ground sample is fused with a suitable flux, under reducing conditions which promote the separation of the precious metals from the gangue, with simultaneous collection, normally as a lead alloy. Subsequently, the lead is removed by oxidising fusion (cupellation) and the precious metals, thus isolated, are available for measurement.

Harmony's assay laboratory performs various types of analysis, but the laboratory is only ISO 17025 accredited for the analysis of gold and uranium. Underground ore samples are received and prepared for fire assay gold, uranium and relative density analysis. Plant samples e.g. residues, head samples, carbons, and solutions are also analysed for gold. Determination of gold fines is determined on bullion samples and sludge. The laboratory undertakes precious metal determinations on SAPS (exhibits) and securities recovered samples.

Water samples are also analysed to determine the quality. Tests are conducted for the presence of cyanide and trace metals tests, as is bacteriological testing.

APPENDIX CONTINUED

The laboratory is accredited to ISO/IEC 17025 for all gold analysis. This means that it is competent in meeting international and national laboratory standards and provides reliable testing services. In terms of the ISO/IEC 17025 laboratory systems accreditation, feedback is provided to the laboratory on whether it is conducting its work in accordance with international criteria for technical competence. This feedback assists the laboratory in continually improving its performance in terms of data quality and laboratory effectiveness.

Société Générale de Surveillance (SGS) – Performance Laboratories Randfontein is a fully equipped laboratory providing analytical services using fire assay, instrumental and classical techniques for precious and base metal ores. The laboratory provides services to the major mining houses, including Harmony, in South Africa as well as exploration companies currently active in Africa.

The laboratory is ISO 17025:2005 accredited for the analysis of gold, uranium and the platinum group metals. This international standard confirms that the laboratory operates a quality system, is technically competent and is able to generate valid results. The quality system is applied across the entire laboratory, irrespective of the accreditation status of the method. This is critical in providing results on which major decisions regarding mining and plant operations are based.

Sample preparation plant

To determine the grade of the ore hoisted at the mines, we make use of go-belt sampling.

A belt sample of up to 1 000kg is received at the plant from the shaft. The sample is first put through a 300mm screen prior to drying with infra-red heaters. Primary crushing to <70mm is then followed by a secondary crushing to <25mm, after which the sample is reduced. At the primary splitter 7/8 of the sample is discarded via a conveyor belt and 1/8 of the sample progress to final drying. Tertiary crushing to <6mm is then followed by secondary splitting. Again 7/8 of the sample is discarded and 1/8 of the sample is pulverised to 85% <106 micron. At the final splitting, all eight sub-samples are packaged and sent to the laboratory for analyses.

The sample ticket with the necessary information from the shaft, accompanies the sample throughout the process. Empty bins are hosed out, whilst cleaning continues as part of the procedure to avoid contamination. At regular intervals grading analyses are done at the assay laboratory. A quartz sample is done to monitor any possible contamination.

To ensure that a high standard of preparation is maintained at each step of the process, which includes the adherence to safety standards and is checked by a supervisor.

GLOSSARY OF TERMS

Term	Definition
Acidic	Descriptor for silica rich igneous rocks (containing greater than 65% silica) such as rhyolite or granite.
Alluvium	Relatively recent deposits of sedimentary material laid down in riverbeds, flood plains, lakes, or at the base of mountain slopes.
Alteration	Any physical or chemical change in a rock resulting from fluids moving through the rock.
Anticline	An arch or fold in layers of rock.
Assay	An analysis to determine the presence and concentration of one or more chemical components.
Basalt	An extrusive mafic volcanic rock.
Basic	Descriptor for silica poor igneous rocks such as basalt or gabbro.
Below infrastructure	That part of a company's mineral reserve that can only be accessed following certain capital expenditure which has yet to be approved.
BIF	Banded iron formation
Block caving	A mining method suited for large low-grade orebodies that are unsuitable for open cut mining. In development a series of evenly spaced crosscuts are made at the bottom of the ore block from which raises are driven up into the ore. The ore block is then undercut so that it begins to collapse (or cave) into the raises. The weight of the material above provides the force to fracture and crush the underlying ore which is drawn from the drawpoints on the crosscuts. As ore is withdrawn the cave progresses up through the orebody.
Bornite	A copper iron sulphide that commonly defines the core of porphyry copper-gold deposits.
Breccia	Fractured and broken rock that results from structural, volcanic or sedimentary processes.
Bulk mining	Any large-scale mechanised method of mining involving significant volumes of material being extracted on a daily basis.
Caldera	A large, basin shaped volcanic depression, more or less circular in form, that results from the collapse of the earth's surface into an exhausted magma chamber.
Chalcocite	A copper sulphide mineral common in zones of secondary enrichment.
Chalcopyrite	A copper iron sulphide that comprises the bulk of ore in many copper mines.
Concentrate	The product of the milling process that contains a high percentage of the valuable metals. The concentrate is commonly the final product produced on-site and is sent to a third party for separation or smelting.
Conglomerate	A sedimentary rock consisting of rounded, water worn pebbles or boulders cemented into a solid mass.
Contact	A geological term used to describe the line or plane along which two different rock types meet.
Contact metamorphism	Metamorphism of country rocks adjacent to an intrusion caused by heat and fluids from the intrusion.
Craton	A part of the earth's crust that has attained stability and has been little deformed for a long period of geological time.
Crosscut	An opening underground that is cut at right angles from the main level drive or shaft that generally links to and cuts the orebody, may also refer to a link between different drives.
Country rocks	The surrounding "host" rocks into which an igneous intrusion or orebody is emplaced.
Cut-off grade	The lowest grade of copper or gold ore that is considered economic to mine.
DatamineTM	Software
Decline	A tunnel below the horizontal that allows access to the orebody.
Deposit	A concentration of mineral matter, sedimentary or volcanic material, commonly refers to an accumulation of mineralised material that need not be economic to extract.
Diamond drilling	A method of obtaining samples of rock that utilises a diamond encrusted drill bit to cut long cylindrical sticks of core.
Diatreme	A long vertical pipe or plug filled with volcanic breccia formed by explosive release of energy from a gas-charged magma.
Dilution	Unmineralised rock that is by necessity removed along with ore during the mining process that effectively lowers the overall grade of the ore.
Diorite	Plutonic or intrusive rocks of intermediate composition between acidic and basic.
Dip	The angle at which a bed, stratum, or vein is inclined from the horizontal, measured perpendicular to the strike and in the vertical plane.

GLOSSARY OF TERMS CONTINUED

Disseminated ore	Ore carrying small distributed particles or valuable minerals distributed more or less uniformly through the rock.
Drawpoint	An underground opening at the bottom of the stope through which broken ore is extracted.
Dyke	A long and relatively thin body of igneous rock that, while in the molten state, intruded a fissure in older rocks.
Enrichment	The process of upgrading the concentrations of various elements into more concentrated deposits.
Epithermal deposit	A mineral deposit consisting of veins and replacement bodies containing precious metals or, more rarely, base metals; that form close to the earth's surface at high levels in the crust.
Exploration	Prospecting, sampling, mapping, drilling and other work involved in the search for ore.
Fault	A break in the continuity of a body of rock. It is accompanied by a movement on one side of the break relative to the other so that what were once parts of one continuous rock stratum or vein are now separated. The amount of displacement of the parts may range from a few inches to thousands of feet. Various descriptive names have been given to different kinds of faults, including but not limited to; closed fault, dip fault, dip-slip fault, distributive fault, flaw fault, gravity fault, heave fault, hinge fault, horizontal fault, longitudinal fault, normal fault, oblique fault, oblique slip fault, open fault, overthrust fault, parallel displacement fault, pivotal fault, reverse fault, rotary fault, step fault, strike fault, strike-slip fault, thrust fault, transcurrent fault, translatory fault, underthrust, vertical fault.
Felsic	An igneous rock having abundant light-coloured minerals and enriched in lighter elements such as silica and aluminium.
Flotation	A milling process in which valuable particles are induced to become attached to bubbles and float where they are more easily separated.
Fold	A curve or bend of a planar structure such as rock strata, bedding planes, foliation, or cleavage. A fold is usually a product of deformation, although its definition is descriptive and not genetic and may include primary sedimentary structures.
Gabbro	A dark, coarse-grained mafic igneous rock.
Gangue	The commercially worthless material that surrounds, or is closely mixed with, the ore.
Gold equivalent ounces	In instances where individual deposits may contain multiple valuable commodities with a reasonable expectation of being recovered; for example gold + copper in the one deposit, Harmony computes a gold equivalent to more easily assess the value of the deposit against gold only mines. Harmony does this by calculating the value of each of the deposits commodities then divides the product by the price of gold. For example ((gold ounces * gold price per ounce) + (copper pounds* copper price per pound))/gold price per ounce; this will return the gold equivalent of a gold and copper deposit. All calculations are done using metal prices as stipulated in attached documentation. Harmony assumes a 100% metallurgical recovery in its calculations unless otherwise stated.
Graben	A block of rock bound by faults that has moved downward to form a depression between adjacent fault blocks.
Granite	A light coarse-grained felsic intrusive rock.
Granodiorite	A light coarse-grained intermediate intrusive rock.
Greenstone	A field term for any compact dark green altered or metamorphosed basic igneous rock that owes its colour to chlorite.
Head grade	The average grade of ore fed into the mill.
Horst	An elongate, relatively uplifted crustal unit or block that is bounded by faults, the opposite of a graben. It is a structural form and may or may not be expressed geomorphologically.
Hydrothermal	Relating to hot fluids circulating in the earth's crust; generally the source of metals found in mineral deposits
Igneous rock	Rocks formed by the solidification of molten material below the earth's crust.
Intrusive	A body of igneous rock formed by the consolidation of magma intruded into country rock, in contrast to lava which is extruded onto the earth's surface.
Lava	A general name for the molten rock ejected by volcanoes.
Mafic	An igneous rock composed chiefly of dark, ferromagnesium minerals and enriched in heavier elements such as iron.

GLOSSARY OF TERMS CONTINUED

Magma	The molten material within the earth from which igneous rocks are formed.
Maramuni arc	A part of the New Guinea Mobile Belt, an arc across the island of Papua New Guinea within which a large portion of economic deposits are found.
Matrix	The finer-grained material between the larger particles of a rock or the material surrounding a fossil or mineral.
Metallurgy	The study of extracting metals from their ores.
Mesozoic	An era of geologic time, from the end of the Paleozoic to the beginning of the Cenozoic, or from about 225 million years to about 65 million years ago.
Mine call factor	Is the ratio, expressed as a percentage, which the specific product accounted for in "recovery plus residue" bears to the corresponding product "called for" by the mine's measuring and valuation methods.
MW	Milling width is a calculated width expressing the relationship between the total reef area excavated and the total tonnes milled from underground sources.
Mobile belt	A belt of folded and mountainous terrain that defines the core of the island of Papua New Guinea, considered to define the leading edge of the Australian content where it is in collision with the pacific ocean plate.
Non-refractory	Gold or copper ore that is easily extracted using standard and well tested mill and plant technologies.
Ophiolite	A section of the earth's oceanic crust and the underlying mantle that has been uplifted and often emplaced (or obducted) onto the edge of a continental plate; commonly the product of subduction systems. The material comprises mafic and ultramafic rocks and minerals.
Ore	A mixture of minerals and gangue from which at least one of the minerals can be extracted at a profit.
Orogeny	A period of mountain building characterised by compression and folding within the earth's crust.
Oxidation	Generically refers to a chemical reaction of the rock when exposed to oxygen and surface water, resulting in oxide material in a mining environment.
Plunge	The inclination and orientation of a fold axis or other linear feature, measured in the vertical plane.
Porphyry	An igneous rock of any composition that contains conspicuous phenocrysts in a fine-grained groundmass that has intruded into the upper crust rapidly. A rock name descriptive of the groundmass composition usually precedes the term e.g. diorite porphyry.
Porphyry copper	A specific deposit type associated with the intrusion of multiple phases of porphyry. The heat and associated fluids commonly carry and precipitate metals such as gold, copper, molybdenum and silver.
PRF	Plant recovery factor is the ratio, expressed as a percentage, of the mass of the specific mineral product actually recovered from ore treated at the plant to its total specific mineral content before treatment.
Pyrite	Iron sulphide that usually occurs in veins, as magmatic segregation, as an accessory in igneous rocks, and in metamorphic rocks, in sedimentary rocks including coal seams; It is commonly associated with gold.
Quartzite	A very hard metamorphosed sandstone, consisting chiefly of quartz grains that are so completely cemented with secondary silica that the rock breaks across or through the grains rather than around them.
Raise	Any tunnel having an inclination above the horizontal in the direction of workings.
Recovery	The percentage of valuable metal in the ore that can be recovered by metallurgical treatment.
Refractory	Ore type that contains gold or copper that is 'locked up' and difficult to extract without specialised processing equipment.
Resource	The estimated amount of material in a mineral deposit, based on limited drilling but considered to be available for eventual economic extraction.
Rhyolite	A fine-grained extrusive igneous rock with the same chemical composition as granite.
Schist	A foliated metamorphic rock that has undergone sufficient strain so as to align all the mineral components into a roughly parallel arrangement.
Shaft	A vertical or inclined excavation in rock for the purpose of accessing the orebody, usually equipped with a hoist and winder to move miners and materials between the surface and various levels underground.
Silica	Fine grained silicon dioxide (such as quartz).
Siliceous	An alteration type where a large portion of the original rock has been replaced by silica.
Skarn	Lime-bearing silicates of any geologic age derived from nearly pure limestone or dolomite with the introduction of large amounts of silica, aluminium, iron and magnesium.

GLOSSARY OF TERMS CONTINUED

Stockwork	A mineral deposit in the form of a network of veinlets diffused in the country rock.
Stope	An excavation in a mine from which ore is, or has been, removed.
Strike	The bearing from north of a geological structure such as a bed, fault or orebody, defined as a horizontal line measured across the surface perpendicular to the dip.
Strip	To remove the overburden and waste to reveal the ore underneath.
Stripping ratio	The ratio of tonne of waste removed to tonnes of ore recovered in an open pit mine.
Subduction	The process in plate tectonics whereby a portion of one of the earth's plates is drawn down below another.
Sub-level	A level in an underground mine between two main working levels.
Sub-outcrop	A rock stratum that unconformably underlies another rock stratum.
Syncline	Concave fold in stratified rock, in which strata dip down to meet in a trough.
Tailings	Material rejected from the milling process from which much of the economic material has been removed.
SW	Stoping width is the width of the excavation made during stoping operations.
TSF	Tailings storage facility (or tailings pond) – where the tailings are stored until the end of mining when the facility is capped and rehabilitated.
Unconformity	The structural relationship between rock strata in contact, characterised by a lack of continuity in deposition due to a period of non-deposition, weathering, or erosion prior to the deposition of the younger beds. An unconformity is often marked by absence of parallelism between the strata where the younger overlying stratum does not conform to the dip and strike of the older underlying rocks.
Volcanic	Derived from volcanoes.
Waste	Unmineralised or low-grade material that cannot be mined at a profit.
Winze	Any tunnel having an inclination below the horizontal in the direction of workings.

FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements within the meaning of the safe harbour provided by Section 21E of the Exchange Act and Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), with respect to our financial condition, results of operations, business strategies, operating efficiencies, competitive positions, growth opportunities for existing services, plans and objectives of management, markets for stock and other matters.

These forward-looking statements, including, among others, those relating to our future business prospects, revenues, and the potential benefit of acquisitions (including statements regarding growth and cost savings) wherever they may occur in this report and the exhibits, are necessarily estimates reflecting the best judgment of our senior management and involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. As a consequence, these forward-looking statements should be considered in light of various important factors, including those set forth in this report. Important factors that could cause actual results to differ materially from estimates or projections contained in the forward-looking statements include, without limitation: overall economic and business conditions in South Africa, Papua New Guinea, Australia and elsewhere; estimates of future earnings, and the sensitivity of earnings to gold and other metals prices; estimates of future gold and other metals production and sales; estimates of future cash costs; estimates of future cash flows, and the sensitivity of cash flows to the gold and other metals prices; estimates of provision for silicosis settlement; statements regarding future debt repayments; estimates of future capital expenditures; the success of our business strategy, development activities and other initiatives; future financial position, plans, strategies, objectives, capital expenditures, projected costs and anticipated cost savings and financing plans; estimates of reserves statements regarding future exploration results and the replacement of reserves; the ability to achieve anticipated efficiencies and other cost savings in connection with past and future acquisitions, as well as at existing operations; fluctuations in the market price of gold; the occurrence of hazards associated with underground and surface gold mining; the occurrence of labour disruptions; power cost increases as well as power stoppages, fluctuations and usage constraints; supply chain shortages and increases in the prices of production imports and the availability, terms and deployment of capital; changes in government regulation and the political environment, particularly tax, mining rights, environmental regulation and business ownership including any interpretation thereof; fluctuations in exchange rates and currency devaluations and other macroeconomic monetary policies; the adequacy of the Group's insurance coverage; and socio-economic or political instability in South Africa, Papua New Guinea, Australia and other countries in which we operate.

The foregoing factors and others described under "Risk Factors" should not be construed as exhaustive.

For a more detailed discussion of such risks and other factors (such as availability of credit or other sources of financing), see the company's latest Form 20-F which is on file with the Securities and Exchange Commission, as well as the company's other Securities and Exchange Commission filings. The company undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this report or to reflect the occurrence of unanticipated events, except as required by law. All subsequent written or oral forward-looking statements attributable to Harmony or any person acting on its behalf are qualified by the cautionary statements herein.

DIRECTORATE AND ADMINISTRATION

HARMONY GOLD MINING COMPANY LIMITED

Harmony Gold Mining Company Limited was incorporated and registered as a public company in South Africa on 25 August 1950

Registration number: 1950/038232/06

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JA Chissano*[1]^
FFT De Buck*^
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