MINING *with* purpose

HARMONY™

2022 MINERAL RESOURCES AND MINERAL RESERVES REPORT

At 30 June 2022

HARMONY™

www.harmony.co.za

Our 2022 reporting suite

This report is supplemented by and should be read with our full reporting suite, comprising:

Integrated annual report

The report is the primary platform we use to provide our stakeholders with a balanced, holistic and transparent overview of our business model, strategy, performance and value creation.

ESG report

This report provides insight into our ESG performance for 2022 and over the past five years, along with our aspirations. It is intended as a useful guide to support analysis.

Report to shareholders

We outline our contributions to key stakeholders and recent developments impacting these relationships in this report. It also includes the consolidated financial statements, notice of annual general meeting and proxy form.

Financial report

The financial report is a comprehensive report of our financial performance for 2022.

Operational report

We provide detailed technical and operational information about our operations in this report.

Form 20-F

This is an annual report filed with the United States Securities and Exchange Commission, in compliance with the listing requirements of the New York Stock Exchange.

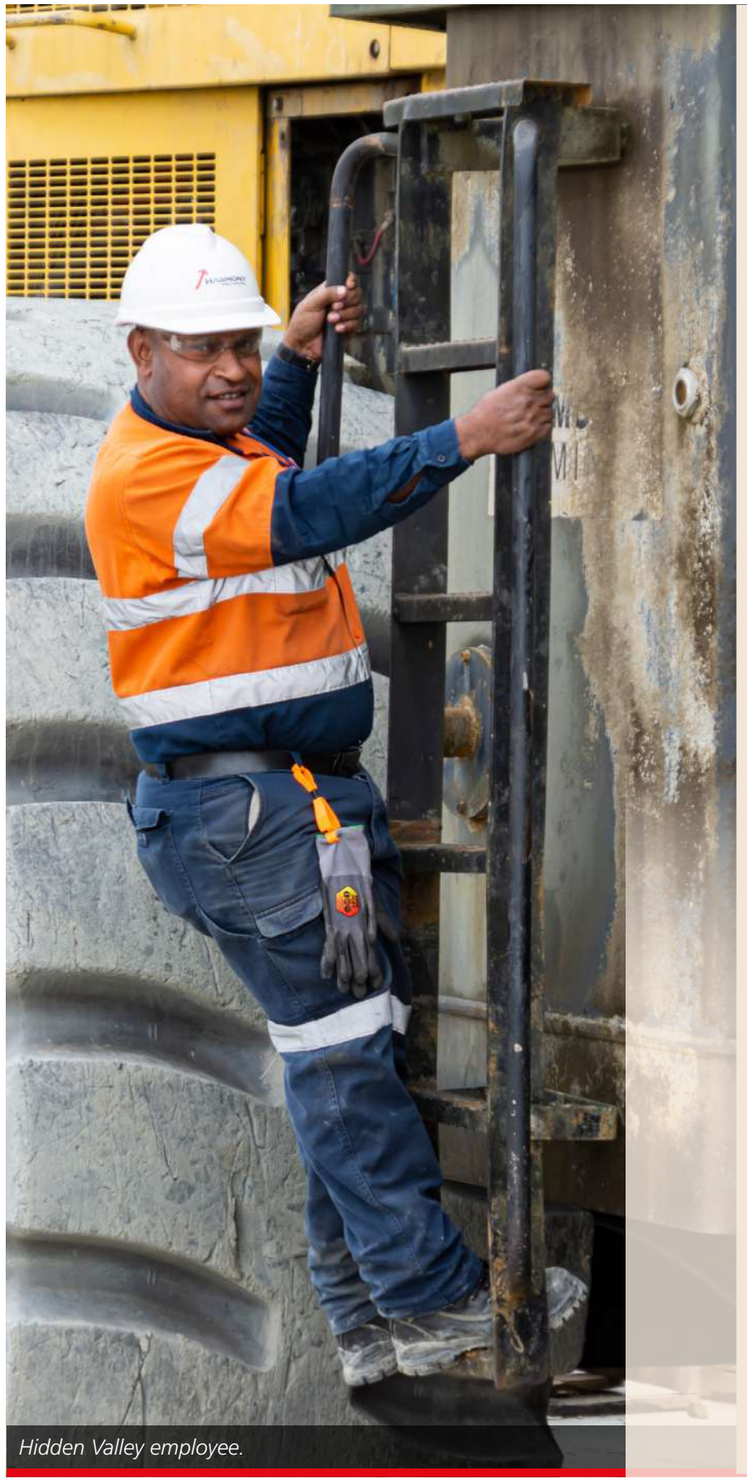
Climate-related financial disclosures*

Harmony made a strategic decision to align its annual reporting with international best practice in terms of global climate reporting. We use this report to disclose our TCFD governance, risk management, strategy and metrics and targets.

** Referred to in our reporting suite as TCFD report.*

These reports and supporting documents are available at **www.harmony.co.za**.

Scan QR code to download our full suite of 2022 annual reports.



Hidden Valley employee.

HARMONY™

About this report

This statement of Harmony's Mineral Resources and Mineral Reserves (South Africa and Papua New Guinea) as at 30 June 2022 is produced in accordance with the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC), section 12.13 of the JSE Listings Requirements (as updated from time to time) and the requirements of the United States Securities and Exchange Commission (SEC) regulation S-K Subpart 1300.

In our Form 20-F the Mineral Resources are reported exclusive of Reserves. United States investors are urged to consider the disclosure in this regard in our Form 20-F which will be available on our website at www.harmony.co.za/invest/annual-reports on 31 October 2022

Note

- Unless otherwise stated, Harmony's equity interest is 100%
- The convention adopted in this report is that the Measured and Indicated Mineral Resource estimates are reported inclusive of the portion converted to Mineral Reserves
- Throughout this report, "US$" or "dollar" refers to US dollar, unless otherwise stated
- "K" refers to kina, the currency of Papua New Guinea
- "Moz" refers to million ounces, "Mt" refers to million tonnes and "Mlb" refers to million pounds
- All production volumes are in metric tonnes (t), unless specifically stated as being imperial tons
- Rounding of figures may result in minor computational discrepancies in the Mineral Resource and Mineral Reserve tabulations
- In the case where tonnes and/or kilograms is so small that rounding to specified significant figures is zero, the number of decimals displayed was increased
- Where Harmony has included the Inferred Mineral Resource in a feasibility study, this is disclosed under the relevant project
- While our reporting currency is the South African rand, the US dollar equivalents of significant financial metrics, together with the applicable percentage movements, are also provided to aid sector and peer comparisons.

Content

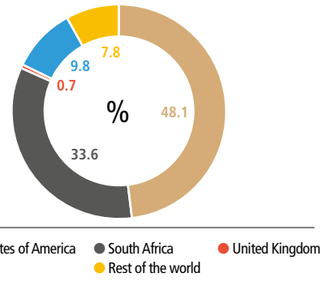
Cover: Tshepong operations – Phakisa section.

Corporate profile

Who we are

Harmony is a global, sustainable gold mining and exploration company with a copper footprint in our Tier 1 Wafi-Golpu asset. We are also a significant operator of gold tailings retreatment facilities.

Geographic representation of shareholders
at 30 June 2022



Headquartered in Randfontein, South Africa, Harmony has a primary listing on Johannesburg's stock exchange, the JSE Limited (HAR) and an American depositary receipt programme listed on the New York Stock Exchange (HMY). African Rainbow Minerals Limited (ARM) is our largest shareholder with a 12.12% stake. Our remaining shareholders are geographically diverse and include some of the largest fund managers globally. The largest shareholder base is in the United States (48%), followed by South Africa.

Refer to **Shareholder information** in the **Integrated annual report**.

70+ years' gold mining experience in South Africa and almost two decades operating in Papua New Guinea	**1.5Moz** produced (2021: 1.5Moz)
Market capitalisation of **R32.0 billion (US$2.0 billion)** at 30 June 2022 (2021: R32.5 billion (US$2.3 billion)	**39.8Moz** gold and gold equivalent Mineral Reserves (2021: 42.5Moz)

What we do

Exploration and acquisitions
Exploring for and evaluating economically viable gold-bearing 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 doré bars

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

Stewardship and responsible mine closure
Empowering communities and employees throughout and beyond the life of our mines. Being responsible to our environment during operations. Restoring mining impacted land for alternative economic use post-mining and having approved mine closure commitments

How we do it

Mining with purpose

Our purpose is to be a global, sustainable gold producer, creating shared value for all stakeholders while leaving a lasting positive legacy through:

- Creating longevity, profitability and sustainability
- Committing to safe, ethical, social and ecologically responsible mining
- Positioning our business to contribute to a low-carbon future.

Our mission

To create value by operating safely and sustainably, and growing our margins.

Our values

- No matter the circumstances, safety is our main priority
- We are all accountable for delivering on our commitments
- Achievement is core to our success
- We are all connected as one team
- We uphold honesty in all our business dealings and communicate openly with stakeholders

Delivering impact

At Harmony, we understand that our activities and the way we conduct business affects the lives of the people we employ, communities surrounding our mines and the environment. This impact has economic and social implications for our stakeholders and the countries where we operate.

In line with our purpose, we strive to ensure that our overall contribution is positive and that our positive legacy endures once mining stops.

Our investment case

Doing what we **know best**

Our embedded ESG practices will create lasting legacies and ensure a sustainable future for all stakeholders

- Safety – a core value that always precedes production
- Focus – quality ounces and cost reduction aimed at lowering all-in sustaining costs
- Proven track record – sustaining and prolonging operating lives of deep-level mines
- Wealth of mining expertise – combined, senior executive management and prescribed officers have decades of industry experience
- Digitisation – driving further improvements in our safety journey
- Decarbonisation – greener energy mix, focusing on renewables
- Collaboration – feeding excess energy generated by our solar plants while working with government on additional solutions that address the energy crisis in South Africa.

We are geared to the rand gold price, with rand costs and US dollar revenue

- Positioned to benefit from gold price and foreign exchange (operating free cash flow highly geared to current gold price environment).

As a 1.5Moz gold producer, we are expanding our margins through organic growth and new projects, as we transition into a low-cost copper-gold producer

- Transition to a low-cost copper-gold miner – Tier 1 copper-gold asset in Papua New Guinea, Wafi-Golpu. This will be further strengthened on closing the Copper Mountain transaction, when we would add a near-term copper project to our portfolio
- Emerging-market specialist (South Africa and Papua New Guinea)
- Meaningful value-enhancing improvement in South African recovered grade through acquisition and development
- Locking in high margin for future returns
- Acquisition synergies and other investments have potential to reduce all-in sustaining costs.

We have re-engineered our portfolio and deleveraged our balance sheet to create optionality and pay a dividend while growing the company

- Positive shareholder returns through sustainable mining
- Strengthened balance sheet supports future growth and capital returns
- Capital allocation towards high-grade underground assets and high-margin surface operations to deliver superior returns and improved cash flow generation
- Portfolio value supported by joint ownership of Wafi-Golpu asset.

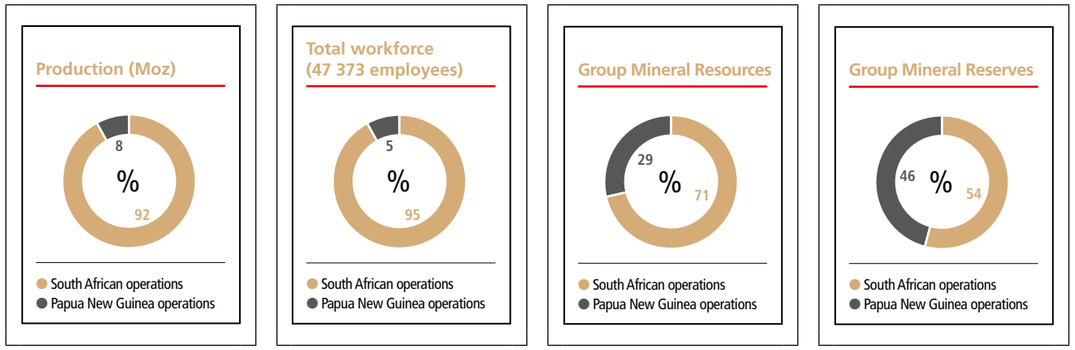
Our operations

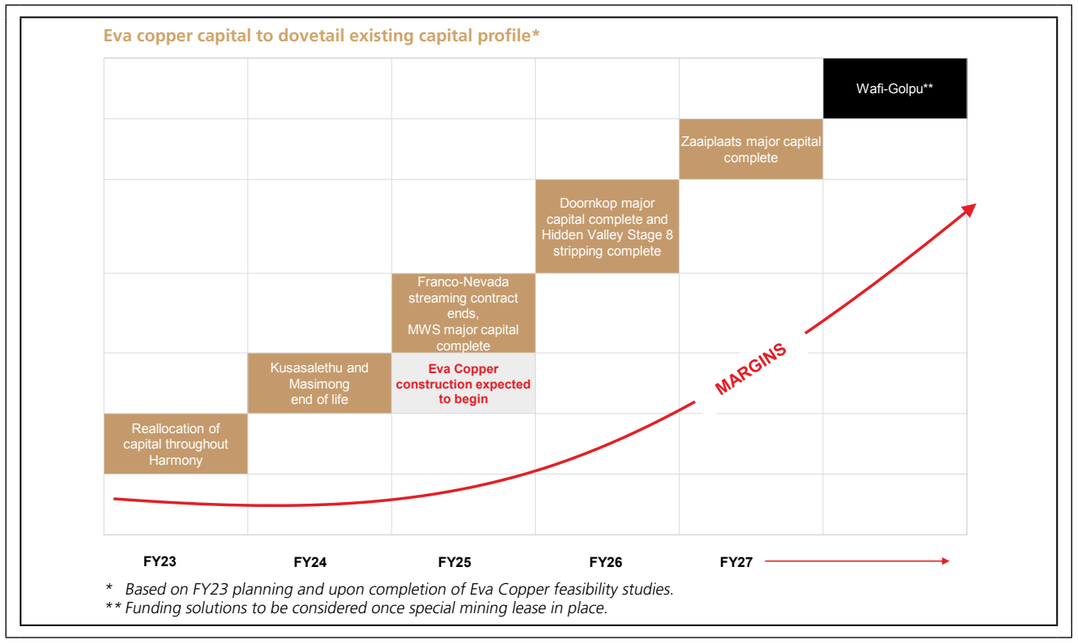
With operations in South Africa and Papua New Guinea, Harmony is a profitable, sustainable gold producer creating shared value for all stakeholders and leaving a lasting positive legacy – delivering high-impact and greener gold through embedding ESG in everything we do. With an abundance of opportunities to deploy capital across the world, we carefully determine which projects will deliver optimal shareholder returns on the basis of where we operate, how we manage risk and what skills we can leverage.

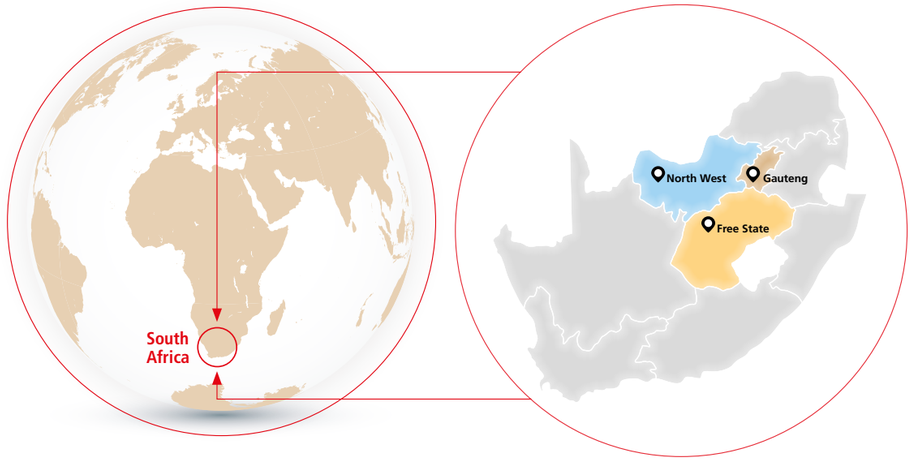
We have actively pursued opportunities to extend the life of some of our larger and higher-grade assets, adding lower-risk, higher-margin ounces to our portfolio. This included re-engineering our portfolio between 2017 and 2021 through the Hidden Valley, Moab Khotsong and Mponeng acquisitions, reducing our debt and identifying substantial opportunities in our existing portfolio through exploration and brownfield projects. On 6 October 2022, we entered into an agreement with Copper Mountain Corporation, to acquire its wholly owned Eva Copper Project in Queensland, Australia. The total consideration is up to US$230 million, and incudes an upfront cash payment as well as two contingent payments based on various criteria. The closing of the transaction is still subject to certain customary conditions but has received approval from the South African Reserve Bank.

To demonstrate our commitment to good ESG practices and achieving a low-carbon future, we are accelerating the expansion and rollout of numerous renewable energy projects. Refer to **Environment** in the **ESG report** for more information.

A summary of our operations is presented below and detailed information can be found in **Operational performance** in the **Integrated annual report 2022**.







South African operations

Location: Witwatersrand Basin and Kraaipan Greenstone Belt
Production: 1.37Moz (92%) (FY21: 1.38Moz (90%))
Total workforce: 45 002
Assets:
- **Eight** underground operations*
- **One** open-pit mine
- **Several** surface source operations.

We have grouped our underground assets based on grade and life-of-mine (LoM) as follows:
- High-grade, long-life assets: Moab Khotsong and Mponeng
- Short to medium-life assets with a focus on free-cash generation: Tshepong Operations*, Doornkop, Joel, Target 1, Kusasalethu and Masimong

Major capital allocation for our underground assets will be determined by grade and returns.

Our high-margin surface assets comprise Mine Waste Solutions, Phoenix, Central Plant reclamation and dumps.

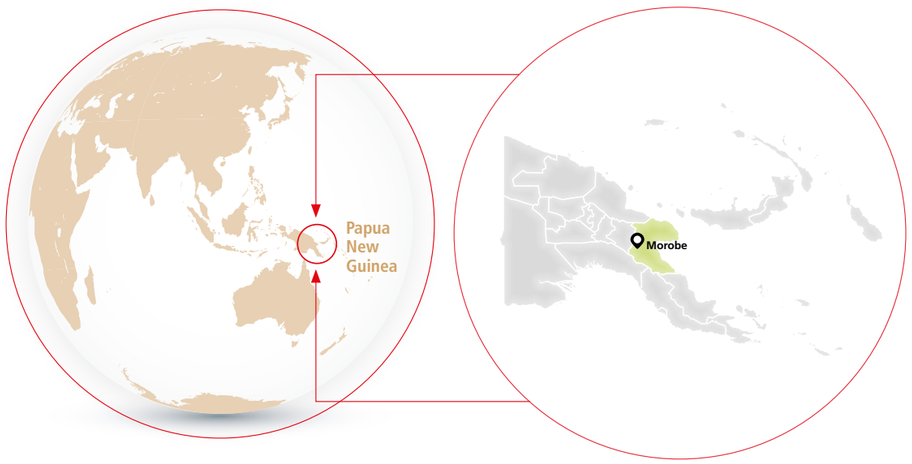
At 30 June 2022, our South African operations accounted for 71% of group Mineral Resources and 54% of group Mineral Reserves, both inclusive of gold and gold equivalent ounces.

** At 30 June 2022, includes Tshepong Operations, which will be restructured in FY23 and reported as Tshepong North and Tshepong South.*

Papua New Guinea operations

Location: New Guinea Mobile Belt in Morobe
Production: 0.12Moz (8%) (FY21: 0.15Moz (10%))
Total workforce: 2 306
Assets:
- **Hidden Valley** (open-pit gold and silver mine)
- **Wafi-Golpu** project (significant copper-gold portfolio)
- **Multiple** exploration areas.

At 30 June 2022, our Papua New Guinea operation accounted for 29% of group Mineral Resources and 46% of group Mineral Reserves, both inclusive of gold and gold equivalent ounces.



South Africa

Underground

North West	West Rand[1]
	

Moab Khotsong	Doornkop	Kusasalethu	Mponeng
6 518	**4 093**	**4 127**	**5 287**
209 237oz 6.79g/t grade	110 726oz 3.94g/t grade	146 833oz 7.52g/t grade	195 669oz 7.25g/t grade
22 years[2] 10.2Moz Resources 4.0Moz Reserves	**16 years** 7.4Moz Resources 1.9Moz Reserves	**2 years** 3.9Moz Resources 0.3Moz Reserves	**7 years** 24.3Moz Resources 1.9Moz Reserves

Free State

Tshepong Operations[3]	Target 1	Joel	Masimong
9 074	**1 859**	**2 063**	**2 033**
225 763oz 4.50g/t grade	57 872oz 3.96g/t grade	50 026oz 3.59g/t grade	61 407oz 3.93g/t grade
8 years 25.6Moz Resources 1.7Moz Reserves	**6 years** 3.5Moz Resources 0.6Moz Reserves	**8 years** 3.0Moz Resources 0.6Moz Reserves	**2 years** 0.8Moz Resources 0.1Moz Reserves

WORKFORCE *(includes permanent employees and contractors)*

PRODUCTION

LOM

[1] *Border between Gauteng and North West.*
[2] *Includes Zaaiplaats.*
[3] *From FY23, Tshepong Operations will be reported on separately as Tshepong North and Tshepong South.*

Surface

Surface	Waste rock dumps
	

Kalgold	Free State	North West	West Rand
684	**431***	**766***	**1 031***
36 555oz 0.79g/t grade	20 834oz 0.37g/t grade	20 062oz 0.35g/t grade	49 576oz 0.28g/t grade
11 years 2.0Moz Resources 0.8Moz Reserves	**±1 year** 0.25Moz Resources	**±1 year** 0.05Moz Resources	**±1 year** 0.02Moz Resources

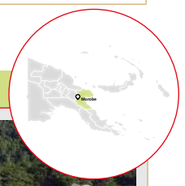
** Some of this material is treated along with reef, while some is treated at dedicated waste rock treatment plants. The numbers for the Free State, North West and West Rand facilities above exclude MWS, Phoenix, CPR and Kalgold.*

Tailings

North West	Free State
	

Mine Waste Solutions (MWS)	Phoenix	Central Plant Reclamation (CPR)
1 425	**359**	**248**
93 205oz 0.12g/t grade	24 659oz 0.12g/t grade	18 840oz 0.15g/t grade
17 years 2.7Moz Resources 2.2Moz Reserves	**6 years** 0.5Moz Resources 0.3Moz Reserves	**13 years** 0.4Moz Resources 0.4Moz Reserves

Papua New Guinea



Surface	Project
	

Hidden Valley	Wafi-Golpu Project
2 191	**59**
119 182oz 1.15g/t grade	n/a
5 years 3.1Moz Resources 1.2Moz Reserves	**27 years** 37.7Moz Resources 17.0Moz Reserves

Compliance and summary

As at 30 June 2022

Harmony's statement of Mineral Resources and Mineral Reserves as at 30 June 2022 is produced in accordance with the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC). It should be noted that the Mineral Resources are reported inclusive of the Mineral Reserves.

In our Form 20-F the Mineral Resources are reported exclusive of Reserves. United States investors are urged to consider the disclosure in this regard in our Form 20-F which will be available on our website at **www.harmony.co.za/invest/annual-reports** on 31 October 2022.

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 reporting on exploration results, Mineral Resources and Mineral Reserves for companies listed on the JSE.

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 12.13 of the JSE Listings Requirements was subsequently updated with the revised SAMREC and South African Code for the Reporting of Mineral Asset Valuation (SAMVAL) 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 investors 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.

Harmony's Mineral Resources and Mineral Reserves reporting for the financial year ended 30 June 2022, complies with the SAMREC and new SEC S-K 1300 modernisation rules for technical disclosure. These amendments rescind SEC Industry Guide 7 and consolidate the disclosure requirements for registrants in a new subpart of Regulation S-K.

Our strategy

We have a clear strategy to invest in projects that will generate the best possible returns, ensuring we meet our long-term objectives. It is for this reason we have dedicated significant resources towards improving the safety and operational performance throughout all our operations. Harmony is in the business of converting resources into shared value. Sustainability is at the centre of all strategic decisions. Delivering meaningful returns to our shareholders while at the same time effecting positive change and maintaining the trust of all of our stakeholders is what we call 'Mining with Purpose'.

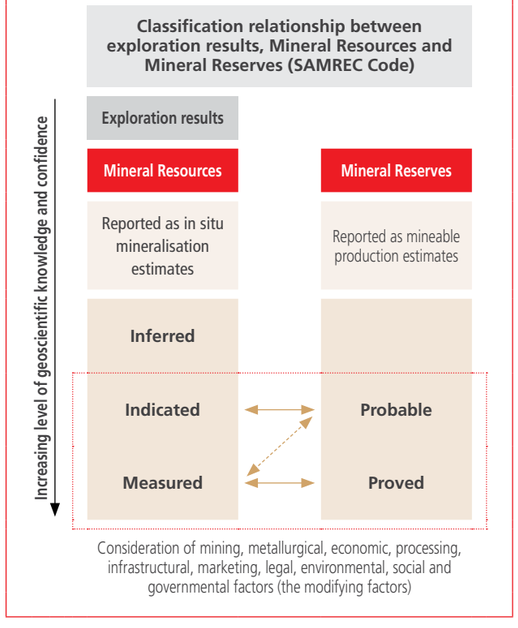
ASSUMPTIONS

In converting Mineral Resources to Mineral Reserves, the following commodity prices and exchange rates were applied:

- A gold price of US$1 546/oz
- An exchange rate of R/US$15.35
- The above parameters resulted in a rand gold price of R763 000/kg for the South African assets
- The Wafi-Golpu (joint venture) project used commodity prices of US$1 200/oz Au and US$3.00/lb Cu and PGK:US$ exchange rate of 3.10
- Gold equivalent ounces are calculated assuming the following: US$1 546/oz Au, US$3.30/lb Cu and US$22.35/oz Ag, and assuming a 100% recovery for all metals.

Note
Au = gold **Cu** = copper **Ag** = silver U_3O_8 = uranium

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



Independent review

Individual mines are independently reviewed on a three-year rotational basis. This year, the Mineral Resources and Mineral Reserves at Doornkop and Mponeng as well as the group SAMREC statement were independently reviewed by The Mineral Corporation for compliance with SAMREC. Hidden Valley is reviewed by Derisk Geomining Consultants.

Competent persons' declaration

The Mineral Resources and Mineral Reserves estimates in this report are based on information compiled by the two competent persons whose details are presented below. Both these full-time employees of Harmony Gold Mining Company Limited consent to the inclusion of the information in this report in the form and context in which it appears. They are:

MINERAL RESOURCES AND MINERAL RESERVES, SOUTH AFRICA

Jaco Boshoff, *BSc (Hons), MSc, MBA*, has 27 years' relevant experience. He is registered with the South African Council for Natural Scientific Professions (SACNASP), and is a member of the South African Institute of Mining and Metallurgy (SAIMM) and 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, PAPUA NEW GUINEA

Gregory Job, *BSc, MSc*, has 34 years' relevant experience and is a member of the Australasian 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

In South Africa, Harmony employs an Ore Reserve manager at each of its operations who takes responsibility as competent person for the compilation and reporting of Mineral Resources and Mineral Reserves at their respective operation. In Papua New Guinea, competent persons are appointed for the Mineral Resources and Mineral Reserves for specific projects and operations. Details on these competent persons are presented in the respective operational Mineral Resource and Mineral Reserve statements in this report.

Administrative information for professional organisations

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

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

Southern African Institute of Mining and Metallurgy (SAIMM)
Postal: PostNet Suite #212, Private Bag X31, Saxonwold, 2132
Physical: 7th Floor, Rosebank Towers, 19 Biermann Avenue, Rosebank, 2196
Telephone: +27 11 538 0231
Website: **www.saimm.co.za**

Geological Society of South Africa (GSSA)
CSIR Miningtek
Carlow and Rustenburg Roads
Melville, Johannesburg
South Africa
Website: **www.gssa.org.za**

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 Mineral and Petroleum Resources Development Act (MPRDA) 28 of 2002.

In Papua New Guinea, Harmony operates under the Independent State of Papua New Guinea Mining Act, 20 of 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, and complying with environmental legislation and regulations.

For further information regarding Harmony's approach to sustainability and environmental performance refer to the **ESG report 2022**, which is available at **www.harmony.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 2022**. This is also available online at **www.harmony.co.za**.

Compliance and summary continued

As at 30 June 2022

Mineral Resources and Mineral Reserves – summary

The company's attributable gold and gold equivalent Mineral Resources are declared as 132.6Moz as at 30 June 2022, a 6% decrease year on year from the 141.2Moz declared as at 30 June 2021. The total gold contained in the Mineral Resources at the South African operations represents 71% of the company total, with the Papua New Guinea (PNG) operations representing 29% of Harmony's total gold and gold equivalent Mineral Resources as at 30 June 2022. Harmony's attributable gold and gold equivalent Mineral Reserves amount to 39.80Moz, a 6% decrease from the 42.45Moz declared at 30 June 2021. The gold reserve ounces in South Africa represent 54%, while the PNG gold and gold equivalent ounces represent 46% of Harmony's total Mineral Reserves as at 30 June 2022.
(See Appendix for Mineral Resources and Reserves detail per operation.)

South Africa

Underground operations

The company's Mineral Resources at the South African underground operations as at 30 June 2022 are 80.12Moz (249.4Mt at 9.99g/t), a decrease of 5% year on year from the 83.96Moz (262.1Mt at 9.96g/t) declared as at 30 June 2021. This decrease is mainly due to a reduction in Mineral Resources at the Kusasalethu and Moab Khotsong operations.

The company's Mineral Reserves at the South African underground operations as at 30 June 2022 are 11.1Moz (54.02Mt at 6.40g/t), a decrease of 22% year on year from the 14.3Moz (70.46Mt at 6.31g/t) declared as at 30 June 2021. The decrease is mainly due to the Mineral Reserves reduction at the Tshepong and Bambanani operations as a result of the reduction of the life-of-mine of the respective operations.

Surface operations (including Kalgold)

The company's Mineral Resources at the South African surface operations as at 30 June 2022 are 14.52Moz (1 622.5Mt at 0.28g/t), a decrease of 9%, mainly due to the reduction of Mineral Resources from the Vaal River tailings.

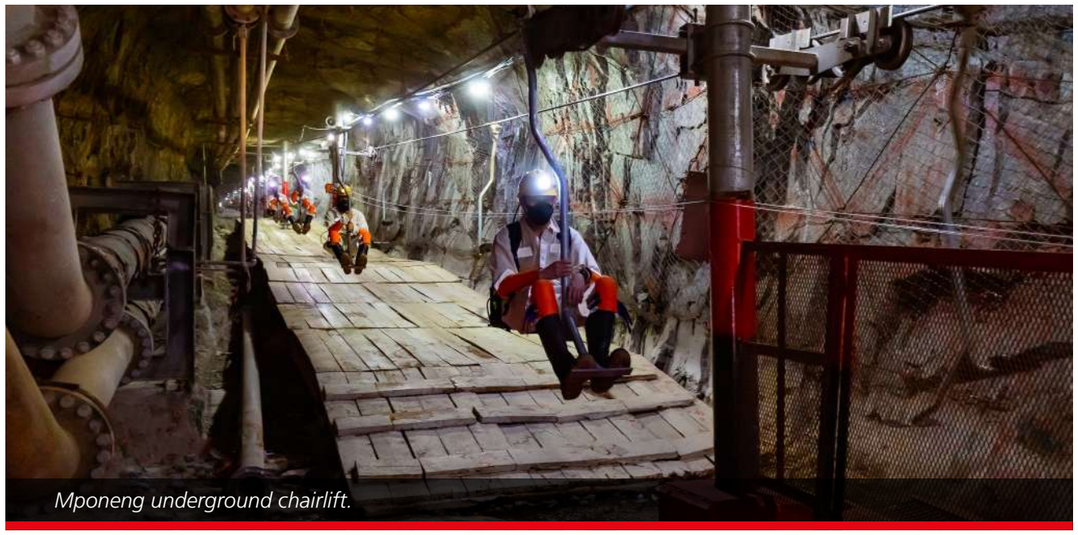
The company's Mineral Reserves after normal depletion at the South African surface operations as at 30 June 2022 are 10.4Moz (1 230.7Mt at 0.26g/t). The Mineral Reserves remained constant year on year.

Papua New Guinea

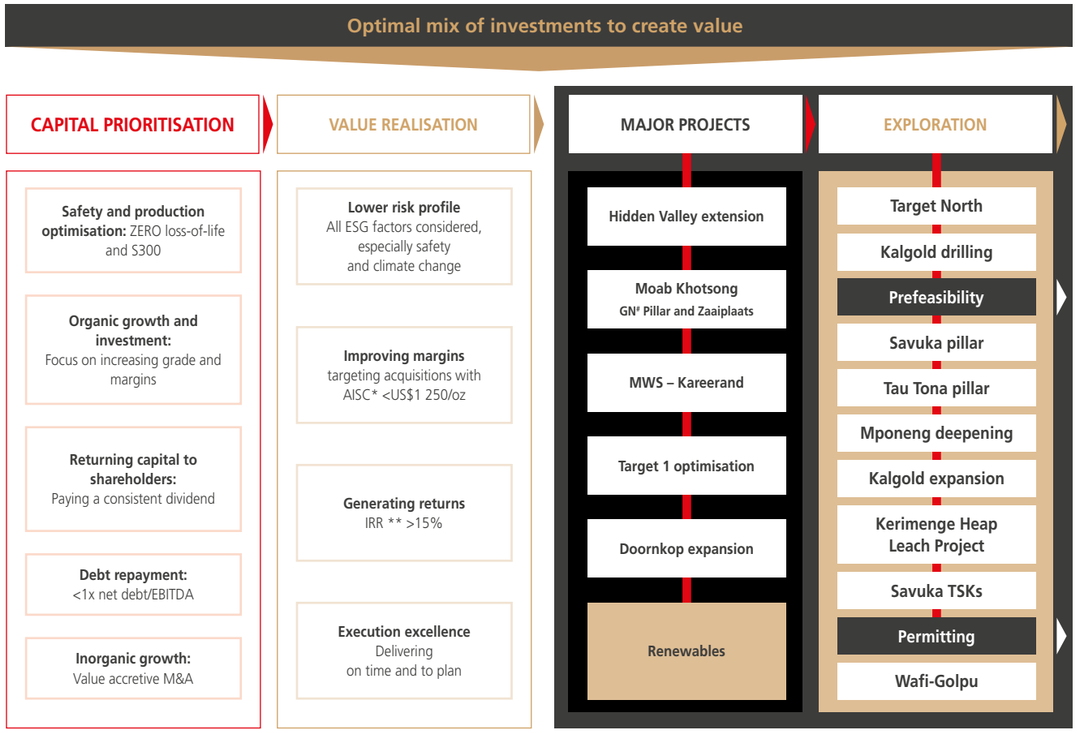
Operations

The company's attributable gold and gold equivalent Mineral Resources at the Papua New Guinea operations as at 30 June 2022 are 37.9Moz, a decrease of 8% year on year from the 41.3Moz declared as at 30 June 2021. This decrease is mainly due to the imminent sale of the Kili Teke project.

The company's gold and gold equivalent Mineral Reserves at the Papua New Guinea operations as at 30 June 2022 are 18.2Moz, an increase of 3% year on year from the 17.7Moz declared as at 30 June 2021. The increase is mainly due to an increase in gold and equivalent gold ounces at Golpu.



Mponeng underground chairlift.



* *AISC: All-in sustaining cost.*
** *IRR: Internal rate of return.*
\# *GN: Great Noligwa.*

Exploration

Our exploration strategy is to predominantly pursue brownfields exploration targets close to existing infrastructure. This will drive short to medium-term organic Mineral Reserve replacement and growth to support our current strategy of increasing quality ounces and to mitigate the risk of a depleting Mineral Reserve base.

Key work streams underpinning the FY22 exploration programme include:
- Brownfield exploration at Hidden Valley and Kalgold to optimise existing open-pit operations and extend mine life
- Brownfield exploration at our underground operations in South Africa
- Greenfield exploration at Target North
- Reviewing exploration opportunities as part of our new business strategy.

Compliance and summary continued

As at 30 June 2022

Target North

The exploration drilling programme from surface advanced and a total of 14 408 metres was drilled.

Mal21A drill hole was completed and a deflection programme produced 10 intersections.

At a second drill hole (Mal22), the mother hole was completed and deflection drilling commenced.

Drilling of the third borehole, Mal23, commenced in November 2021 and the hole advanced to a depth of 2 845 metres. Drilling continues. The Resource model of Target North will be updated once Mal23 is completed.

Kalgold

Resource extension drilling was carried out for the Windmill Zone. A total of 30 boreholes were drilled (4 745 metres of RC drilling). Drilling returned very encouraging initial results. A Windmill resource model update is planned once all assay results are obtained and verified. Exploration aimed at improving understanding of the potential to develop the Kraaipan Greenstone Belt into a new mineralised province with multiple mining centres.

Prefeasibility

Savuka and Tau Tona pillar

Study will aim to understand if portions within the shaft pillars can be extracted safely and economically to extend the current life-of-mine.

Mponeng deepening

Study will aim to access ground below current infrastructure for the VCR and CLR reefs economically. This is essential to ensure a life-of-mine beyond the current FY28/29 expectation.

Kalgold expansion

A feasibility study was completed. The study has investigated the building of a new 300 000 tonnes per month plant which would see the current plant stopping production. The project, although positive, requires significant capital. Additional resource are required in order to boost return on investment.

Kerimenge Heap Leach Project

The Kerimenge prospect is located approximately 8km to the east of the Hidden Valley mine. Review of existing drill data commenced with the aim of developing a new resource estimate. Kerimenge is a historic gold deposit outlined by previous explorers that contains components of refractory and free milling oxide gold mineralisation.

Savuka TSFs

Upgrade tailings reclamation to 300 000 tonnes per month.

Borehole – Mal23 core.

Permitting

Papua New Guinea

Wafi-Golpu project

The Wafi-Golpu project is in the permitting phase. The proposal for development underpinning the special mining lease 10 (SML 10) application was submitted to the Papua New Guinea Mineral Resources Authority in August 2016 and was updated in March 2018, when the feasibility study update was completed.

This update identified deep-sea tailings placement as the tailings management solution for the project. Informed by the feasibility study update, the environment impact statement (EIS) was submitted to the Conservation and Environment Protection Agency in July 2018.

Negotiations with the State Negotiating Team regarding the terms and conditions of the grant of SML 10 and its associated tenements, including the terms and conditions of participation in the project by the State and its nominees, commenced in April 2018. In December 2018, the Wafi-Golpu joint venture participants entered into a memorandum of understanding (MoU) with the State of PNG, establishing a framework for the parties to progress the permitting of the Wafi-Golpu project.

In May 2019, the permitting process was injuncted pursuant to a stay order given in an action for judicial review of the MoU brought by the governor of the Morobe Province, which injunction remained in place until February 2020 when the State withdrew from the MoU and the judicial review was dismissed on that basis.

In December 2020, the Conservation and Environment Protection Agency concluded its assessment of the Wafi-Golpu project's environment permit application and granted an environment permit approving deep-sea tailings placement as the project's tailings management method. In March 2021, the governor of Morobe Province and the Morobe Provincial Government commenced legal proceedings seeking judicial review of the grant of the environment permit, and for interim orders to stay the environment permit and restrain the State of PNG from granting a special mining lease for the Wafi-Golpu project.

The legal proceedings are continuing, but do not prevent the conduct of the SML 10 negotiations, which resumed in early 2022 and is ongoing.

In the interim, no mining has occurred in the project area.

Major projects

We have identified substantial opportunities in our existing portfolio through exploration and brownfield projects which will extend the life of some of our larger and higher-grade assets, adding lower-risk, higher-margin ounces to Harmony's portfolio. Each project brings multiple benefits to Harmony and exceeds all our minimum criteria for allocating capital. We will continue to focus on ensuring all our mines operate safely and optimally and will continue to invest across all our operations to ensure optimal production.

The salient features of our key projects are:

Papua New Guinea

Hidden Valley brownfield exploration

Kerimenge prospect – The Kerimenge prospect is located approximately 8km to the east of the Hidden Valley mine. Review of existing drill data commenced with the aim of developing a new resource estimate. Kerimenge is a historic gold deposit outlined by previous explorers that contains components of refractory and free milling oxide gold mineralisation.

Webiak prospect – Assay results were returned for drilling at the Webiak prospect, located approximately 7.5km north of Hidden Valley. While no significant gold assays were obtained, results highlighted several zones of coincident anomalous silver-arsenic-antimony-mercury element, as anomalism consistent with the upper parts of a low sulphidation precious metal system.

Hidden Valley extension

This project in Papua New Guinea will be self-funded and will extend the life-of-mine to 2027. We expect the project to deliver approximately 160 000oz to 200 000oz of gold per annum and 2.1Moz to 3.1Moz of silver per annum at a life of mine all-in sustaining cost of US$1 150/oz.

Compliance and summary continued

As at 30 June 2022

South Africa

Zaaiplaats project

Implementation of the project has commenced in October 2021 and the project progressed with limited detailed design requirements. Development and project construction have commenced in order to support project deliverables on the 101 level area. The project developed 1 164m in FY22 to create the platform for the future decline development to commence in FY23.

The project was integrated into the operations business plan for FY23 and continues to show economic value add as a life-extension project.

Moab Khotsong – Great Noligwa shaft pillar extraction

The GN shaft Pillar continued with project execution phase in FY22. The waste development achieved 1 443m and reef development achieved 404m for FY22. Infrastructure rehabilitation upgrades were conducted on the GN shaft surface and underground access routes. Opening up and rehabilitation were conducted on the required development ends on 70, 71 and 73 levels. The over-stoping of 73 level infrastructure was completed in FY22.

MWS – Kareerand

Mine Waste Solutions (MWS) is a reclamation operation in the Stilfontein/Orkney area treating 2.2 million tonnes per month from historical tailings facilities through the MWS plant. The residue is deposited on the existing Kareerand Tailings Storage Facility (TSF). Kareerand TSF is a cyclone facility on a 560ha footprint and based on the current production plan will reach its authorised height of 80 metres in 2025. The existing Kareerand TSF was sized to receive the reprocessed tailings from the MWS sources. The inclusion of additional sources into the MWS business in 2012 required additional deposition facilities. The study to select the suitable site for the replacement TSF was initiated in 2016. The prefeasibility study investigated seven options and the outcome was to extend the current footprint by 340ha while increasing the height of the combined complex. The project progressed through feasibility study and detailed design.

Target 1 optimisation

A new sub-level open stope method was adopted in BLK12, which will do away with the NRM de-stressing and the use of backfill. Mining will commence from top to bottom in the western margin of EA1, EA2 and EA3 reefs. The top massive stopes will create a de-stressed window which retreats ahead of the lower massive stopes below.

Doornkop expansion

Exploration drilling is set to continue in the coming financial year. Focus will be on targeting areas with limited geological information and those that are potentially high grade in order to increase the geological confidence and payable ounces.

Renewables

In order to achieve the renewable energy targets as set out in the Harmony Energy Efficiency and Climate Change Strategy document, it became necessary to implement a number of renewable energy technologies, including built PV plants, wheeling of wind renewable energy, syngas (or LNG) generated electricity as well as small-scale solar PV plants.

MWS Kareerand dam.

Environmental, social and governance (ESG) summary

To deliver on our ESG commitments, we are guided by our sustainable development framework. The framework design ensures that sustainable development principles are embedded in everything we do, including our strategy, daily operations and decision making.

Our approach

- Including all elements of sustainable development under the **responsible stewardship** strategic pillar
- Guided by **sustainable development guidelines and frameworks**
- Supporting the achievement of the **UN SDGs**
- Enhancing **disclosure and measuring our performance** through benchmarking against global best practice and industry peers, and setting group targets

Our sustainable development framework is supported by ESG philosophies, with key tenets for measuring our progress against achieving specific targets.

ENVIRONMENTAL PHILOSOPHY	SOCIAL PHILOSOPHY	GOVERNANCE PHILOSOPHY
To co-exist with the natural environment, we must understand and fully appreciate the negative effects of our operations. Our environmental strategy enables us to manage, mitigate or offset environmental risks associated with our operations. The strategy sets out clear plans for us to operate, decommission or close our mines responsibly while going beyond compliance. Performance, reputational benefit and risk management are the cornerstone of this strategy.	We have a responsibility to: • Create relationships of trust with our employees, suppliers, host communities and government • Promote shared value for all • Close our operations with dignity knowing that we have left a positive and enduring value where we operated.	Ethical mining equals ethical leadership that equals corporate trust. Good governance lies at the heart of our performance and our reporting. Guided by our policies and codes, we aim to do the right thing and tell our story honestly. Harmony is a business, but we operate in a broader, interlinked context. Considering every element of those links in our thinking and actions will make Harmony a sustainable business – poised for growth.
Tenets Targets and interventions are unpacked in the relevant sections in the **ESG report**.		
• Decarbonising our business • Environmental stewardship of natural resources • Restoration and value creation.	• Employee safety and health • Employment, labour relations and fair practice • Human rights and diversity • Employee and community safety and health • Philanthropy and socio-economic development.	• Fairness and equality • inclusivity • Political stability • Governance • Assurance and transparency • Accountability • Corruption and conflict. • Risk and performance management • Values and ethics.

The social and ethics committee is responsible for governance of the sustainable development framework, with the board having ultimate accountability.

Measuring how we perform

We recognise the importance of reporting transparently and accurately and continue working to enhance the quality and quantity of our ESG disclosure. We monitor our ESG scores closely, particularly any areas where we may be underperforming against our industry peers. Our ESG performance is annually assessed by global ratings agencies. In FY22, we received the following scores:

FTSE4Good	MSCI	Sustainalytics	Bloomberg Gender-Equality Index 2021	CDP DRIVING SUSTAINABLE ECONOMIES
4.0 out of 5.0 FTSE Russell ESG rating • Environment: 4.2 • Social: 3.0 • Governance 5.0. Harmony ranks 91st percentile improving from 64th percentile last year.	• CCC to B ESG rating Overall, we performed better than the industry average but acknowledge that we need to improve our health and safety, labour management and community relations performance.	Harmony ranks in the top 50 under the precious metals category.	Harmony was included in the Bloomberg Gender Equality Index 2022.	CDP score of "A" for water management.

We also measure our sustainable development performance by group aggregate targets.

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

26 August 2022

Dear Mr Boshoff

ASSURANCE LETTER: INDEPENDENT AUDIT OF THE 2022 MINERAL RESOURCES AND MINERAL RESERVES

Mineral Corporation Consultancy (Pty) Limited (The Mineral Corporation or TMC), at the request of Harmony Gold Mining Company Limited (Harmony), carried out an independent audit (the Audit) of the 30 June 2022 Mineral Resource and Mineral Reserve Estimates and Statement for Harmony's various gold operations in South Africa (Harmony SA Operations). The Mineral Resource and Mineral Reserve Estimates audited by TMC were prepared and signed off as at 30 June 2022 by in-house Competent Persons appointed by Harmony following the guidelines of the 2016 Edition of the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code, 2016) for inclusion in the Group Mineral Resources and Mineral Reserves Statement for 2022 and disclosure according to Section 12 of the JSE Limited Listing Requirements and the United States Securities and Exchange Commission's (SEC's) Subpart 1300 of Regulation S K.

The Audit was carried out by Mineral Resource and Mineral Reserve Competent Persons from TMC following a risk-based audit methodology with reference to the guidelines of The SAMREC Code (2016). The Moab Khotsong, Kalgold and Target gold operations were subjected to detailed audit whereas the remainder of the operations were subjected to high-level audit. The Audit entailed systematic and detailed reviews of the key elements of the Mineral Resource and Mineral Reserve estimation processes and the estimates to validate adherence to internal procedures and to identify any fatal flaws and material errors and/or omissions for remediation by Harmony. The Audit also included detailed reviews of the input base data, grade block models, Modifying Factors, Life of Mine Plans, economic testing and the classification and reporting of the Mineral Resources and Mineral Reserves.

Through the Audit, TMC could not identify any fatal flaws or material errors and/or omissions in relation to the input data, geological modelling, mine planning and estimation, classification and reporting of the 2022 Mineral Resources and Mineral Reserves for Harmony SA Operations. The input data, estimation processes and final estimates were subjected to scrutiny and validation before sign-off by the in-house Competent Persons. In addition, the Modifying Factors and planning parameters employed to develop Life of Mine Plans for the various operations were benchmarked to historical performance. The Mineral Resource Estimates satisfy The SAMREC Code (2016) requirements for reasonable prospects for eventual economic extraction while the Life of Mine Plans and the Mineral Reserves were tested for economic viability using reasonable economic parameters and price forecasts. TMC has provided Harmony with recommendations for continuous improvement, where relevant.

TMC concludes that the 30 June 2022 Mineral Resources and Mineral Reserve Estimates for Harmony SA Operations have been compiled following Harmony's internal procedures and the guidelines of The SAMREC Code (2016), and with no material errors. Accordingly, the Mineral Resources and Mineral Reserve Estimates can be included in the Harmony Consolidated Mineral Resource and Mineral Reserve Statements for 2022, and disclosed according to Section 12 of the JSE Limited Listing Requirements and the SEC's Subpart 1300 of Regulation S-K.

These opinions do not imply that TMC has assumed the role of Competent Person for the purpose of reporting the 30 June 2022 Mineral Resources and Mineral Reserves for the Harmony SA Operations. Such role resides with the nominated personnel of Harmony.

Yours faithfully

Darren Portela
Director
BSc (Honours), Pr.Sci.Nat. (400040/12)

DIRECTORS: JE Murphy (Managing), AH Hart, RA Heins (British), C Madamombe (Zimbabwean), D Portela, GK Wilson

Mineral Corporation Consultancy (Pty) Ltd
Reg. No. 1995/000999/07
Trading as: The Mineral Corporation

Homestead Office Park
65 Homestead Avenue
Bryanston 2021 South Africa

P O Box 1346
Cramerview
2060 South Africa

Tel: +27 11 463 4867
Fax: +27 11 706 8616
email: business@mineralcorp.co.za

www.mineralcorp.co.za

> ADVISORS TO THE MINERAL BUSINESS

Relationship between Harmony's Mineral Resources and Mineral Reserves

Increasing level of geoscientific knowledge and confidence

South Africa underground

Mineral Resources (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
249.4	9.99	2 492	80 122

Reported as in situ mineralisation estimates

Mineral Reserves (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
54.0	6.40	346	11 123

Reported as mineable production estimates

Inferred

Tonnes		Gold	
Mt	g/t	000kg	000oz
96.4	10.14	977	31 404

Indicated

Tonnes		Gold	
Mt	g/t	000kg	000oz
82.0	10.63	871	28 015

Probable

Tonnes		Gold	
Mt	g/t	000kg	000oz
27.7	7.04	195	6 267

Measured

Tonnes		Gold	
Mt	g/t	000kg	000oz
71.0	9.06	644	20 704

Proved

Tonnes		Gold	
Mt	g/t	000kg	000oz
26.3	5.74	151	4 856

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

Increasing level of geoscientific knowledge and confidence

South Africa – Surface (including Kalgold)

Mineral Resources (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
1 622.5	0.28	452	14 520

Reported as in situ mineralisation estimates

Mineral Reserves (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
1 230.7	0.26	325	10 434

Reported as mineable production estimates

Inferred

Tonnes		Gold	
Mt	g/t	000kg	000oz
60.4	0.32	19	626

Indicated

Tonnes		Gold	
Mt	g/t	000kg	000oz
1 253.4	0.28	347	11 161

Probable

Tonnes		Gold	
Mt	g/t	000kg	000oz
1 080.9	0.26	280	8 997

Measured

Tonnes		Gold	
Mt	g/t	000kg	000oz
308.7	0.28	85	2 733

Proved

Tonnes		Gold	
Mt	g/t	000kg	000oz
149.7	0.30	45	1 437

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

Relationship between Harmony's Mineral Resources and Mineral Reserves continued

Increasing level of geoscientific knowledge and confidence

South Africa – Total

Mineral Resources (total)

Tonnes	Gold	
Mt	000kg	000oz
1 871.9	2 944	94 643

Reported as in situ mineralisation estimates

Mineral Reserves (total)

Tonnes	Gold	
Mt	000kg	000oz
1 284.7	670	21 557

Reported as mineable production estimates

Inferred

Tonnes	Gold	
Mt	000kg	000oz
156.7	996	32 030

Indicated

Tonnes	Gold	
Mt	000kg	000oz
1 335.4	1 219	39 176

Probable

Tonnes	Gold	
Mt	000kg	000oz
1 108.6	475	15 264

Measured

Tonnes	Gold	
Mt	000kg	000oz
379.8	729	23 437

Proved

Tonnes	Gold	
Mt	000kg	000oz
176.1	196	6 292

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

Increasing level of geoscientific knowledge and confidence

Papua New Guinea – Attributable gold

Mineral Resources (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
584.5	0.89	520	16 654

Reported as in situ mineralisation estimates

Mineral Reserves (total)

Tonnes		Gold	
Mt	g/t	000kg	000oz
219.1	0.92	203	6 514

Reported as mineable production estimates

Inferred

Tonnes		Gold	
Mt	g/t	000kg	000oz
131.8	0.80	105	3 322

Indicated

Tonnes		Gold	
Mt	g/t	000kg	000oz
450.2	0.92	415	13 262

Probable

Tonnes		Gold	
Mt	g/t	000kg	000oz
216.6	0.93	200	6 443

Measured

Tonnes		Gold	
Mt	g/t	000kg	000oz
2.5	0.86	2	70

Proved

Tonnes		Gold	
Mt	g/t	000kg	000oz
2.5	0.86	2	70

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

Increasing level of geoscientific knowledge and confidence

Total attributable gold – Harmony underground and surface

Mineral Resources (total)

Tonnes	Gold	
Mt	000kg	000oz
2 456.4	3 464	111 297

Reported as in situ mineralisation estimates

Mineral Reserves (total)

Tonnes	Gold	
Mt	000kg	000oz
1 503.8	873	28 070

Reported as mineable production estimates

Inferred

Tonnes	Gold	
Mt	000kg	000oz
288.5	1 102	35 352

Indicated

Tonnes	Gold	
Mt	000kg	000oz
1 785.5	1 633	52 437

Probable

Tonnes	Gold	
Mt	000kg	000oz
1 325.2	675	21 708

Measured

Tonnes	Gold	
Mt	000kg	000oz
382.3	731	23 507

Proved

Tonnes	Gold	
Mt	000kg	000oz
178.6	198	6 363

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

Increasing level of geoscientific knowledge and confidence

Total attributable gold and gold equivalents – Harmony underground and surface

Mineral Resources (total)

Tonnes	Gold	
Mt	000kg	000oz
2 456.4	4 125	132 553

Reported as in situ mineralisation estimates

Mineral Reserves (total)

Tonnes	Gold	
Mt	000kg	000oz
1 503.8	1 238	39 804

Reported as mineable production estimates

Inferred

Tonnes	Gold	
Mt	000kg	000oz
288.5	1 197	38 414

Indicated

Tonnes	Gold	
Mt	000kg	000oz
1 785.5	2 198	70 610

Probable

Tonnes	Gold	
Mt	000kg	000oz
1 325.2	1 039	33 419

Measured

Tonnes	Gold	
Mt	000kg	000oz
382.3	732	23 529

Proved

Tonnes	Gold	
Mt	000kg	000oz
178.6	199	6 384

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

Mineral Resources statement Metric

Estimates at 30 June 2022

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 region												
Tshepong	15.7	11.57	182	4.2	10.43	44	9.4	10.18	96	29.4	10.96	322
Phakisa	7.7	12.25	95	7.4	11.24	83	27.5	10.77	296	42.6	11.12	474
Tshepong Operations	23.4	11.79	277	11.6	10.94	127	36.9	10.62	392	72.0	11.05	796
Joel	4.2	7.64	32	3.7	6.80	25	7.0	5.11	36	14.9	6.24	93
Masimong	2.6	9.25	24	0.2	7.12	2	0.02	6.91	0.2	2.9	9.06	26
Target 1	7.2	7.16	51	5.0	6.42	32	4.0	5.96	24	16.2	6.63	107
Target 3	0.6	9.19	6	2.9	10.17	30	1.2	8.66	11	4.8	9.66	46
Total Free State Underground	**38.0**	**10.25**	**390**	**23.5**	**9.20**	**216**	**49.2**	**9.40**	**463**	**110.8**	**9.65**	**1 069**
West Rand region												
Doornkop South Reef	4.7	7.57	36	4.8	7.41	35	3.3	7.73	25	12.8	7.55	96
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 Kimberly Reef	18.1	3.36	61	12.1	3.15	38	10.1	3.28	33	40.3	3.28	132
Kusasalethu	2.1	11.53	24	8.6	9.28	80	2.0	8.85	18	12.7	9.58	121
Mponeng	4.0	15.65	63	21.2	14.34	304	29.1	13.35	389	54.4	13.91	756
Total West Rand region	**29.0**	**6.34**	**184**	**46.7**	**9.79**	**458**	**44.6**	**10.44**	**465**	**120.3**	**9.20**	**1 107**
Klerksdorp operation												
Moab Khotsong	4.0	17.62	70	11.8	16.80	198	2.6	19.09	49	18.3	17.30	317
Total North West region	**4.0**	**17.62**	**70**	**11.8**	**16.80**	**198**	**2.6**	**19.09**	**49**	**18.3**	**17.30**	**317**
Total South Africa Underground	**71.0**	**9.06**	**644**	**82.0**	**10.63**	**871**	**96.4**	**10.14**	**977**	**249.4**	**9.99**	**2 492**
South Africa Surface												
Kraaipan Greenstone Belt												
Kalgold open pit	5.8	1.07	6	47.7	1.14	54	1.6	1.40	2	55.1	1.14	63
Kalgold tailing dam	—	—	—	—	—	—	23.8	0.26	6	23.8	0.26	6
Kalgold	**5.8**	**1.07**	**6**	**47.7**	**1.14**	**54**	**25.4**	**0.34**	**9**	**78.9**	**0.87**	**69**
Free State region – Surface Tailings												
Other Free State tailings	169.3	0.27	46	578.7	0.22	129	15.5	0.19	3	763.5	0.23	178
Phoenix	58.4	0.28	16	—	—	—	—	—	—	58.4	0.28	16
Central	—	—	—	47.9	0.27	13	—	—	—	47.9	0.27	13
Waste rock dumps												
Free State WRD	—	—	—	1.1	0.39	0.4	17.0	0.43	7	18.0	0.43	8
Total Free State	**227.7**	**0.27**	**62**	**627.7**	**0.23**	**143**	**32.4**	**0.32**	**10**	**887.8**	**0.24**	**215**
North West region – Surface Tailings												
Mispah	—	—	—	75.6	0.30	23	—	—	—	75.6	0.30	23
Kop Paydam	—	—	—	11.0	0.20	2	—	—	—	11.0	0.20	2
Vaal River tailings	—	—	—	280.3	0.25	69	—	—	—	280.3	0.25	69
Mine Waste Solutions	75.2	0.22	17	165.4	0.25	41	—	—	—	240.6	0.24	58
Waste rock dumps												
Moab MOD	—	—	—	2.5	0.30	1	—	—	—	2.5	0.30	1
Vaal River WRD	—	—	—	—	—	—	2.5	0.28	1	2.5	0.28	1
Total North West	**75.2**	**0.22**	**17**	**534.7**	**0.25**	**135**	**2.5**	**0.28**	**1**	**612.4**	**0.25**	**153**
West Rand region – Surface Tailings												
West Wits tailings	—	—	—	42.2	0.34	15	—	—	—	42.2	0.34	15
Waste rock dumps												
West Wits WRD	—	—	—	1.1	0.47	1	—	—	—	1.1	0.47	1
Total West Rand	**—**	**—**	**—**	**43.3**	**0.35**	**15**	**—**	**—**	**—**	**43.3**	**0.35**	**15**
Total South Africa Surface (including Kalgold)	**308.7**	**0.28**	**85**	**1 253.4**	**0.28**	**347**	**60.4**	**0.32**	**19**	**1 622.5**	**0.28**	**452**
Total South Africa	**379.8**		**729**	**1 335.4**		**1 219**	**156.7**		**996**	**1 871.9**		**2 944**
Papua New Guinea[1]												
Hidden Valley	2.5	0.86	2	49.3	1.48	73	1.2	1.21	1	53.1	1.45	77
Hamata	—	—	—	1.9	1.90	4	0.2	1.50	0.3	2.1	1.86	4
Wafi	—	—	—	54.0	1.66	89	20.0	1.37	26	74.0	1.58	114
Golpu	—	—	—	345.0	0.72	249	70.0	0.62	44	415.0	0.70	292
Nambonga	—	—	—	—	—	—	24.0	0.69	16	24.0	0.69	16
Kerimenge	—	—	—	—	—	—	16.4	1.07	18	16.4	1.07	18
Total Papua New Guinea	**2.5**	**0.86**	**2**	**450.2**	**0.92**	**415**	**131.8**	**0.80**	**105**	**584.5**	**0.89**	**520**
Grand total	**382.3**		**731**	**1 785.5**		**1 633**	**288.5**		**1 102**	**2 456.4**		**3 464**

Operations	Measured Resources		Indicated Resources		Inferred Resources		Total Mineral Resources	
Gold equivalents[1]	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)	Tonnes (Mt)	Au eq (000kg)
Silver								
Hidden Valley	2.5	1	49.3	16	1.2	0.4	53.1	17
Total	**2.5**	**1**	**49.3**	**16**	**1.2**	**0.4**	**53.1**	**17**
Copper								
Golpu	—	—	345.0	549	70.0	88	415.0	637
Nambonga	—	—	—	—	24.0	7	24.0	7
Total	**—**	**—**	**345.0**	**549**	**94.0**	**95**	**439.0**	**644**
Total silver and copper as gold equivalents	**2.5**	**1**	**394.3**	**565**	**95.2**	**95**	**492.1**	**661**
Total PNG (including gold equivalents)	**2.5**	**3**	**450.2**	**980**	**131.8**	**201**	**584.5**	**1 181**
Total Harmony (including equivalents)	**382.3**	**732**	**1 785.5**	**2 198**	**288.5**	**1 197**	**2 456.4**	**4 125**

Other metals

Papua New Guinea[1]	Measured Resources			Indicated Resources			Inferred Resources			Total Mineral Resources		
Silver	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)
Hidden Valley	2.5	18.32	47	49.3	22.13	1 090	1.2	23.12	29	53.1	21.97	1 166
Golpu	—	—	—	345.0	1.30	435	70.0	1.10	72	415.0	1.30	507
Total	**2.5**	**18.32**	**47**	**394.3**	**3.87**	**1 525**	**71.2**	**1.41**	**101**	**468.1**	**3.57**	**1 673**

	Tonnes	Grade	Cu	Tonnes	Grade	Cu	Tonnes	Grade	Cu	Tonnes	Grade	Cu
Copper	(Mt)	(%)	(000t)	(Mt)	(%)	(000t)	(Mt)	(%)	(000t)	(Mt)	(%)	(000t)
Golpu	—	—	—	345.0	1.10	3 800	70.0	0.86	600	415.0	1.10	4 300
Nambonga	—	—	—	—	—	—	24.0	0.20	47	24.0	0.20	47
Total	**—**	**—**	**—**	**345.0**	**1.10**	**3 800**	**94.0**	**0.69**	**647**	**439.0**	**0.99**	**4 347**

	Tonnes	Grade	Mo	Tonnes	Grade	Mo	Tonnes	Grade	Mo	Tonnes	Grade	Mo
Molybdenum	(Mt)	(ppm)	(000t)	(Mt)	(ppm)	(000t)	(Mt)	(ppm)	(000t)	(Mt)	(ppm)	(000t)
Golpu	—	—	—	345.0	94.00	32	70.0	72.00	5	415.0	90.00	37
Total	**—**	**—**	**—**	**345.0**	**94.00**	**32**	**70.0**	**72.00**	**5**	**415.0**	**90.00**	**37**

South Africa

	Tonnes	Grade	U_3O_8	Tonnes	Grade	U_3O_8	Tonnes	Grade	U_3O_8	Tonnes	Grade	U_3O_8
Uranium	(Mt)	(kg/t)	(Mkg)	(Mt)	(kg/t)	(Mkg)	(Mt)	(kg/t)	(Mkg)	(Mt)	(kg/t)	(Mkg)
Free State surface	—	—	—	173.7	0.10	18	—	—	—	173.7	0.10	18
Mispah 1	—	—	—	75.6	0.12	9	—	—	—	75.6	0.12	9
Kop Paydam	—	—	—	11.0	0.13	1	—	—	—	11.0	0.13	1
Vaal River tailings	—	—	—	280.3	0.07	20	—	—	—	280.3	0.07	20
Mine Waste Solutions	75.2	0.07	5	165.4	0.08	13	—	—	—	240.6	0.08	19
North West surface	75.2	0.07	5	532.2	0.08	44	—	—	—	607.4	0.08	50
Moab Khotsong underground	—	—	—	15.7	0.72	11	2.6	0.71	2	18.3	0.72	13
Grand total	**75.2**	**0.07**	**5**	**721.7**	**0.10**	**73**	**2.6**	**0.71**	**2**	**799.4**	**0.10**	**80**

[1] *Total attributable.*
Gold equivalent ounces are calculated assuming a US$1 546/oz Au, US$3.30/lb Cu and US$22.35/oz Ag with 100% recovery for all metals.
NB Rounding of numbers may result in slight computational discrepancies.
Note: 1 tonne = 1 000kg = 2 204lbs.
1 troy ounce = 31.10348 grams.

Mineral Reserves statement Metric

Estimates at 30 June 2022

Operations	Proved Reserves			Probable Reserves			Total Mineral Reserves		
Gold	Tonnes (Mt)	Grade (g/t)	Gold[2] (000kg)	Tonnes (Mt)	Grade (g/t)	Gold[2] (000kg)	Tonnes (Mt)	Grade (g/t)	Gold[2] (000kg)
South Africa Underground									
Free State region									
Tshepong	4.2	5.15	21	0.3	7.63	3	4.5	5.34	24
Phakisa	3.8	6.98	26	0.2	6.49	1	3.9	6.96	27
Tshepong Operations	7.9	6.02	48	0.5	7.24	4	8.4	6.09	51
Joel	2.8	5.01	14	1.0	4.85	5	3.7	4.97	19
Masimong	0.7	4.95	4	0.3	3.47	1	1.0	4.55	5
Target 1	2.7	4.32	12	1.7	4.11	7	4.4	4.24	19
Total Free State Underground	**14.2**	**5.44**	**77**	**3.5**	**4.73**	**16**	**17.6**	**5.30**	**93**
West Rand region									
Doornkop South Reef	5.9	4.46	26	7.9	4.29	34	13.8	4.36	60
Kusasalethu	1.3	6.97	9	0.03	6.84	0.2	1.3	6.97	9
Mponeng	2.3	8.09	19	4.3	9.12	39	6.6	8.76	58
Total West Rand region	**9.5**	**5.68**	**54**	**12.2**	**5.99**	**73**	**21.7**	**5.86**	**127**
North West region									
Moab Khotsong	2.7	7.48	20	12.0	8.78	105	14.7	8.54	125
Total North West region	**2.7**	**7.48**	**20**	**12.0**	**8.78**	**105**	**14.7**	**8.54**	**125**
Total South Africa Underground	26.3	5.74	151	27.7	7.04	195	54.0	6.40	346
South Africa Surface									
Kraaipan Greenstone Belt									
Kalgold	5.6	0.94	5	15.8	1.16	18	21.4	1.10	24
Free State region – Surface Tailings									
Other Free State tailings	86.5	0.27	23	578.7	0.22	129	665.3	0.23	153
Phoenix	36.5	0.29	10	—	—	—	36.5	0.29	10
Central	—	—	—	47.9	0.27	13	47.9	0.27	13
Total Free State	**123.0**	**0.27**	**34**	**626.6**	**0.23**	**142**	**749.7**	**0.23**	**176**
North West region – Surface Tailings									
Mispah	—	—	—	75.2	0.30	23	75.2	0.30	23
Vaal River tailings	—	—	—	177.3	0.28	50	177.3	0.28	50
Mine Waste Solutions	21.1	0.26	6	166.8	0.24	41	187.8	0.25	46
Total North West	**21.1**	**0.26**	**6**	**419.2**	**0.27**	**113**	**440.3**	**0.27**	**119**
West Rand – Surface									
West Wits tailings	—	—	—	19.3	0.33	6	19.3	0.33	6
Total West Rand	**—**	**—**	**—**	**19.3**	**0.33**	**6**	**19.3**	**0.33**	**6**
Total South Africa Surface (including Kalgold)	149.7	0.30	45	1 080.9	0.26	280	1 230.7	0.26	325
Total South Africa	176.1		196	1 108.6		475	1 284.7		670
Papua New Guinea									
Hidden Valley	2.5	0.86	2	16.3	1.78	29	18.8	1.65	31
Hamata	—	—	—	0.3	1.48	0.4	0.3	1.48	0.4
Golpu[1]	—	—	—	200.0	0.86	171	200.0	0.86	171
Total Papua New Guinea	**2.5**	**0.86**	**2**	**216.6**	**0.93**	**200**	**219.1**	**0.92**	**203**
HV Hamata	2.5	0.86	2	16.6	1.77	29	19.1	1.65	32
Grand total	**178.6**		**198**	**1 325.2**		**675**	**1 503.8**		**873**

Operations	Proved Reserves		Probable Reserves		Total Mineral Reserves	
Gold equivalents	Tonnes (Mt)	Au eq[2] (000kg)	Tonnes (Mt)	Au eq[2] (000kg)	Tonnes (Mt)	Au eq[2] (000kg)
Silver						
Hidden Valley	2.5	1	16.3	5	18.8	6
Copper						
Golpu[1]	—	—	200.0	359	200.0	359
Total silver and copper as gold equivalents	**2.5**	**1**	**216.3**	**364**	**218.8**	**365**
Total PNG (including gold equivalents)	**2.5**	**3**	**216.6**	**565**	**219.1**	**567**
Total Harmony (including equivalents)	**178.6**	**199**	**1 325.2**	**1 039**	**1 503.8**	**1 238**

Other metals

Papua New Guinea	Proved Reserves			Probable Reserves			Total Mineral Reserves		
Silver	Tonnes (Mt)	Grade (g/t)	Ag[2] (000kg)	Tonnes (Mt)	Grade (g/t)	Ag[2] (000kg)	Tonnes (Mt)	Grade (g/t)	Ag[2] (000kg)
Hidden Valley	2.5	18.32	47	16.3	22.45	366	18.8	21.89	412
Copper	Tonnes (Mt)	Grade (%)	Cu[2] (000t)	Tonnes (Mt)	Grade (%)	Cu[2] (000t)	Tonnes (Mt)	Grade (%)	Cu[2] (000t)
Golpu[1]	—	—	—	200.0	1.20	2 450	200.0	1.20	2 450

South Africa									
Uranium	Tonnes (Mt)	Grade (kg/t)	U_3O_8[2] (Mkg)	Tonnes (Mt)	Grade (kg/t)	U_3O_8[2] (Mkg)	Tonnes (Mt)	Grade (kg/t)	U_3O_8[2] (Mkg)
Moab Khotsong underground	—	—	—	14.7	0.30	4	14.7	0.30	4

[1] *Total attributable.*
Gold equivalent ounces are calculated assuming a US$1 546/oz Au, US$3.30/lb Cu and US$22.35/oz Ag with 100% recovery for all metals.
[2] *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.*
NB Rounding of numbers may result in slight computational discrepancies.
Note: 1 tonne = 1 000kg = 2 204lbs.
1 troy ounce = 31.10348 grams.

Mineral Resources statement Imperial

Estimates at 30 June 2022

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 region												
Tshepong	17.3	0.337	5 841	4.7	0.304	1 421	10.4	0.297	3 088	32.4	0.320	10 350
Phakisa	8.5	0.357	3 049	8.2	0.328	2 676	30.3	0.314	9 515	47.0	0.324	15 239
Tshepong Operations	25.8	0.344	8 890	12.8	0.319	4 097	40.7	0.310	12 602	79.4	0.322	25 589
Joel	4.6	0.223	1 028	4.0	0.198	801	7.8	0.149	1 156	16.4	0.182	2 985
Masimong	2.9	0.270	785	0.3	0.208	53	0.03	0.202	5	3.2	0.264	843
Target 1	7.9	0.209	1 647	5.5	0.187	1 037	4.4	0.174	772	17.9	0.193	3 456
Target 3	0.7	0.268	178	3.3	0.297	965	1.3	0.253	340	5.3	0.282	1 483
Total Free State Underground	**41.9**	**0.299**	**12 527**	**25.9**	**0.268**	**6 953**	**54.3**	**0.274**	**14 876**	**122.1**	**0.281**	**34 355**
West Rand region												
Doornkop South Reef	5.2	0.221	1 149	5.2	0.216	1 134	3.6	0.225	819	14.1	0.220	3 101
Doornkop Main Reef	0.1	0.157	14	0.1	0.161	8	0.02	0.155	3	0.2	0.158	25
Doornkop Kimberly 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	2.3	0.336	761	9.5	0.271	2 559	2.2	0.258	576	13.9	0.279	3 896
Mponeng	4.5	0.457	2 037	23.4	0.418	9 785	32.1	0.389	12 496	60.0	0.406	24 319
Total West Rand region	**32.0**	**0.185**	**5 919**	**51.5**	**0.286**	**14 711**	**49.1**	**0.305**	**14 960**	**132.6**	**0.268**	**35 590**
Klerksdorp operation												
Moab Khotsong	4.4	0.514	2 259	13.0	0.490	6 350	2.8	0.557	1 568	20.2	0.505	10 177
Total North West region	**4.4**	**0.514**	**2 259**	**13.0**	**0.490**	**6 350**	**2.8**	**0.557**	**1 568**	**20.2**	**0.505**	**10 177**
Total South Africa Underground	**78.3**	**0.264**	**20 704**	**90.4**	**0.310**	**28 015**	**106.2**	**0.296**	**31 404**	**274.9**	**0.291**	**80 122**
South Africa Surface												
Kraaipan Greenstone Belt												
Kalgold	6.4	0.031	201	52.5	0.033	1 744	1.8	0.041	74	60.8	0.033	2 018
Kalgold tailing dam	—	—	—	—	—	—	26.2	0.008	201	26.2	0.008	201
Total Kalgold	**6.4**	**0.031**	**201**	**52.5**	**0.033**	**1 744**	**28.0**	**0.010**	**275**	**87.0**	**0.026**	**2 220**
Free State region – Surface Tailings												
Other Free State tailings	186.6	0.008	1 476	637.9	0.007	4 156	17.0	0.006	94	841.6	0.007	5 726
Phoenix	64.3	0.008	523	—	—	—	—	—	—	64.3	0.008	523
Central	—	—	—	52.8	0.008	413	—	—	—	52.8	0.008	413
Waste rock dumps												
Free State WRD	—	—	—	1.2	0.011	13	18.7	0.013	234	19.8	0.012	248
Total Free State	**251.0**	**0.008**	**1 999**	**691.9**	**0.007**	**4 582**	**35.7**	**0.009**	**329**	**978.6**	**0.007**	**6 910**
North West region – Surface Tailings												
Mispah	—	—	—	83.3	0.009	730	—	—	—	83.3	0.009	730
Kop Paydam	—	—	—	12.1	0.006	72	—	—	—	12.1	0.006	72
Vaal River tailings	—	—	—	309.0	0.007	2 209	—	—	—	309.0	0.007	2 209
Mine Waste Solutions	82.9	0.006	533	182.3	0.007	1 317	—	—	—	265.2	0.007	1 849
Waste rock dumps												
Moab MOD	—	—	—	2.7	0.009	24	—	—	—	2.7	0.009	24
Vaal River WRD	—	—	—	—	—	—	2.8	0.008	22	2.8	0.008	22
Total North West	**82.9**	**0.006**	**533**	**589.4**	**0.007**	**4 351**	**2.8**	**0.008**	**22**	**675.1**	**0.007**	**4 906**
West Rand region – Surface Tailings												
West Wits tailings	—	—	—	46.5	0.010	468	—	—	—	46.5	0.010	468
Waste rock dumps												
West Wits WRD	—	—	—	1.2	0.014	16	—	—	—	1.2	0.014	16
Total West Rand	**—**	**—**	**—**	**47.8**	**0.010**	**484**	**—**	**—**	**—**	**47.8**	**0.010**	**484**
Total South Africa Surface (including Kalgold)	**340.3**	**0.008**	**2 733**	**1 381.6**	**0.008**	**11 161**	**66.5**	**0.009**	**626**	**1 788.5**	**0.008**	**14 520**
Total South Africa	**418.6**		**23 437**	**1 472.0**		**39 176**	**172.8**		**32 030**	**2 063.4**		**94 643**
Papua New Guinea[1]												
Hidden Valley	2.8	0.025	70	54.3	0.043	2 347	1.4	0.035	48	58.5	0.042	2 466
Hamata	—	—	—	2.1	0.055	115	0.2	0.044	9	2.3	0.054	124
Wafi	—	—	—	59.5	0.047	2 800	22.0	0.036	800	81.6	0.044	3 600
Golpu	—	—	—	380.3	0.021	8 000	77.2	0.018	1 400	457.5	0.021	9 400
Nambonga	—	—	—	—	—	—	26.5	0.019	500	26.5	0.019	500
Kerimenge	—	—	—	—	—	—	18.1	0.031	565	18.1	0.031	565
Total Papua New Guinea	**2.8**	**0.025**	**70**	**496.2**	**0.027**	**13 262**	**145.3**	**0.123**	**3 322**	**644.3**	**0.026**	**16 654**
Grand total	**421.4**		**23 507**	**1 968.2**		**52 437**	**318.1**		**35 352**	**2 707.7**		**111 297**

Operations	Measured Resources		Indicated Resources		Inferred Resources		Total Mineral Resources	
Gold equivalents[1]	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)	Tons (Mt)	Au eq (000oz)
Silver								
Hidden Valley	2.8	22	54.3	507	1.4	13	58.5	541
Total	**2.8**	**22**	**54.3**	**507**	**1.4**	**13**	**58.5**	**541**
Copper								
Golpu	—	—	380.3	17 666	77.2	2 827	457.5	20 493
Nambonga	—	—	—	—	26.5	221	26.5	221
Total	**—**	**—**	**380.3**	**17 666**	**103.6**	**3 048**	**483.9**	**20 714**
Total silver and copper as gold equivalents	**2.8**	**22**	**434.6**	**18 173**	**105.0**	**3 061**	**542.4**	**21 256**
Total PNG (including gold equivalents)	**2.8**	**92**	**496.2**	**31 435**	**145.3**	**6 384**	**644.3**	**37 910**
Total Harmony (including equivalents)	**421.4**	**23 529**	**1 968.2**	**70 610**	**318.1**	**38 414**	**2 707.7**	**132 553**

Other metals

Papua New Guinea[1]	Measured Resources			Indicated Resources			Inferred Resources			Total Mineral Resources		
Silver	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)
Hidden Valley	2.8	0.534	1 501	54.3	0.645	35 058	1.4	0.674	917	58.5	0.641	37 475
Golpu	—	—	—	380.3	0.037	14 000	77.2	0.030	2 300	457.5	0.037	17 000
Nambonga	—	—	—	—	—	—	—	—	—	—	—	—
Total	**2.8**	**0.534**	**1 501**	**434.6**	**0.113**	**49 058**	**78.5**	**0.041**	**3 217**	**515.9**	**0.106**	**54 475**
Copper	**Tons (Mt)**	**Grade (%)**	**Cu (Mlb)**	**Tons (Mt)**	**Grade (%)**	**Cu (Mlb)**	**Tons (Mt)**	**Grade (%)**	**Cu (Mlb)**	**Tons (Mt)**	**Grade (%)**	**Cu (Mlb)**
Golpu	—	—	—	380.3	0.999	8 300	77.2	0.778	1 300	457.5	0.962	9 600
Nambonga	—	—	—	—	—	—	26.5	0.177	104	26.5	0.177	104
Total	**—**	**—**	**—**	**380.3**	**0.999**	**8 300**	**103.6**	**0.624**	**1 404**	**483.9**	**0.919**	**9 704**
Molybdenum	**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)**
Golpu	—	—	—	380.3	0.188	71	77.2	0.144	11	457.5	0.179	82
Total	**—**	**—**	**—**	**380.3**	**0.188**	**71**	**77.2**	**0.144**	**11**	**457.5**	**0.179**	**82**

South Africa

Uranium	**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)**
Free State surface	—	—	—	191.5	0.202	39	—	—	—	191.5	0.202	39
Mispah 1	—	—	—	83.3	0.243	20	—	—	—	83.3	0.243	20
Kop Paydam	—	—	—	12.1	0.260	3	—	—	—	12.1	0.260	3
Vaal River tailings	—	—	—	309.0	0.145	45	—	—	—	309.0	0.145	45
Mine Waste Solutions	82.9	0.137	11	182.3	0.162	30	—	—	—	265.2	0.154	41
North West Surface	82.9	0.137	11	586.7	0.167	98	—	—	—	669.6	0.163	109
Moab underground	—	—	—	17.4	1.447	25	2.8	1.422	4	20.2	1.443	29
Grand total	**82.9**	**0.137**	**11**	**795.5**	**0.203**	**162**	**2.8**	**1.422**	**4**	**881.2**	**0.201**	**177**

[1] *Total attributable.*
Gold equivalent ounces are calculated assuming a US$1 546/oz Au, US$3.30/lb Cu and US$22.35/oz Ag with 100% recovery for all metals.
NB Rounding of numbers may result in slight computational discrepancies.
Note: 1 ton = 907kg = 2 000lbs.
1 troy ounce = 32.1507 grams.

Mineral Reserves statement Imperial

Estimates at 30 June 2022

Operations	Proved Reserves			Probable Reserves			Total Mineral Reserves		
Gold	Tons (Mt)	Grade (oz/t)	Gold[2] (000oz)	Tons (Mt)	Grade (oz/t)	Gold[2] (000oz)	Tons (Mt)	Grade (oz/t)	Gold[2] (000oz)
South Africa Underground									
Free State region									
Tshepong	4.6	0.150	689	0.4	0.223	82	5.0	0.156	771
Phakisa	4.1	0.204	844	0.2	0.189	37	4.3	0.203	880
Tshepong Operations	8.7	0.176	1 532	0.6	0.211	119	9.3	0.178	1 652
Joel	3.1	0.146	448	1.1	0.142	149	4.1	0.145	597
Masimong	0.8	0.144	117	0.3	0.101	30	1.1	0.133	147
Target 1	3.0	0.126	378	1.9	0.120	228	4.9	0.124	606
Total Free State Underground	**15.6**	**0.159**	**2 475**	**3.8**	**0.138**	**526**	**19.4**	**0.155**	**3 002**
West Rand region									
Doornkop South Reef	6.5	0.130	842	8.7	0.125	1 093	15.2	0.127	1 934
Kusasalethu	1.4	0.203	294	0.03	0.199	7	1.5	0.203	301
Mponeng	2.5	0.236	597	4.7	0.266	1 258	7.3	0.255	1 855
Total West Rand region	**10.5**	**0.166**	**1 733**	**13.5**	**0.175**	**2 357**	**24.0**	**0.171**	**4 091**
North West region									
Moab Khotsong	3.0	0.218	647	13.2	0.256	3 384	16.2	0.249	4 031
Total North West region	**3.0**	**0.218**	**647**	**13.2**	**0.256**	**3 384**	**16.2**	**0.249**	**4 031**
Total South Africa Underground	**29.0**	**0.167**	**4 856**	**30.5**	**0.205**	**6 267**	**59.5**	**0.187**	**11 123**
South Africa Surface									
Kraaipan Greenstone Belt									
Kalgold	6.2	0.028	170	17.4	0.034	587	23.6	0.032	758
Free State region – Surface									
Tailings									
Other Free State tailings	95.4	0.008	753	637.9	0.007	4 156	733.3	0.007	4 909
Phoenix	40.3	0.008	335	—	—	—	40.3	0.008	335
Central	—	—	—	52.8	0.008	413	52.8	0.008	413
Total Free State	**135.6**	**0.008**	**1 088**	**690.7**	**0.007**	**4 569**	**826.4**	**0.007**	**5 657**
North West region – Surface									
Tailings									
Mispah	—	—	—	82.9	0.009	728	82.9	0.009	728
Vaal River tailings	—	—	—	195.4	0.008	1 604	195.4	0.008	1 604
Mine Waste Solutions	23.2	0.008	179	183.8	0.007	1 307	207.1	0.007	1 485
Total North West	**23.2**	**0.008**	**179**	**462.1**	**0.008**	**3 639**	**485.3**	**0.008**	**3 817**
West Rand – Surface									
West Wits tailings	—	—	—	21.3	0.009	202	21.3	0.009	202
Total West Rand	**—**	**—**	**—**	**21.3**	**0.009**	**202**	**21.3**	**0.009**	**202**
Total South Africa Surface (including Kalgold)	**165.1**	**0.009**	**1 437**	**1 191.5**	**0.008**	**8 997**	**1 356.6**	**0.008**	**10 434**
Total South Africa	**194.1**		**6 292**	**1 222.1**		**15 264**	**1 416.1**		**21 557**
Papua New Guinea									
Hidden Valley	2.8	0.025	70	18.0	0.052	930	20.8	0.048	1 001
Hamata	—	—	—	0.3	0.043	13	0.3	0.043	13
Golpu[1]	—	—	—	220.5	0.025	5 500	220.5	0.025	5 500
Total Papua New Guinea	**2.8**	**0.025**	**70**	**238.7**	**0.027**	**6 443**	**241.5**	**0.027**	**6 514**
HV Hamata	**2.8**	**0.025**	**70**	**18.3**	**0.052**	**943**	**21.1**	**0.048**	**1 014**
Grand total	**196.9**		**6 363**	**1 460.8**		**21 708**	**1 657.7**		**28 070**

Operations	Proved Reserves		Probable Reserves		Total Mineral Reserves	
Gold equivalents	Tons (Mt)	Au eq[2] (000oz)	Tons (Mt)	Au eq[2] (000oz)	Tons (Mt)	Au eq[2] (000oz)
Silver						
Hidden Valley	2.8	22	18.0	170	20.8	192
Copper						
Golpu[1]	—	—	220.5	11 542	220.5	11 542
Total silver and copper as gold equivalents	2.8	22	238.4	11 712	241.2	11 733
Total PNG (including gold equivalents)	2.8	92	238.7	18 155	241.5	18 247
Total Harmony (including equivalents)	**196.9**	**6 384**	**1 460.8**	**33 419**	**1 657.7**	**39 804**

Other metals

Papua New Guinea[1]	Proved Reserves			Probable Reserves			Total Mineral Reserves		
Silver	Tons (Mt)	Grade (oz/t)	Ag[2] (000oz)	Tons (Mt)	Grade (oz/t)	Ag[2] (000oz)	Tons (Mt)	Grade (oz/t)	Ag[2] (000oz)
Hidden Valley	2.8	0.534	1 501	18.0	0.655	11 758	20.8	0.639	13 259
Copper	Tons (Mt)	Grade (%)	Cu[2] (Mlb)	Tons (Mt)	Grade (%)	Cu[2] (Mlb)	Tons (Mt)	Grade (%)	Cu[2] (Mlb)
Golpu	—	—	—	220.5	1.111	5 400	220.5	1.111	5 400

South Africa									
Uranium	Tons (Mt)	Grade (lb/t)	U_3O_8[2] (Mlb)	Tons (Mt)	Grade (lb/t)	U_3O_8[2] (Mlb)	Tons (Mt)	Grade (lb/t)	U_3O_8[2] (Mlb)
Moab Khotsong underground	—	—	—	16.2	0.608	10	16.2	0.608	10

[1] *Total attributable.*
Gold equivalent ounces are calculated assuming a US$1 546/oz Au, US$3.30/lb Cu and US$22.35/oz Ag with 100% recovery for all metals.
[2] *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.*
NB Rounding of numbers may result in slight computational discrepancies.
Note: 1 ton = 907kg = 2 000lbs.
1 troy ounce = 32.1507 grams.

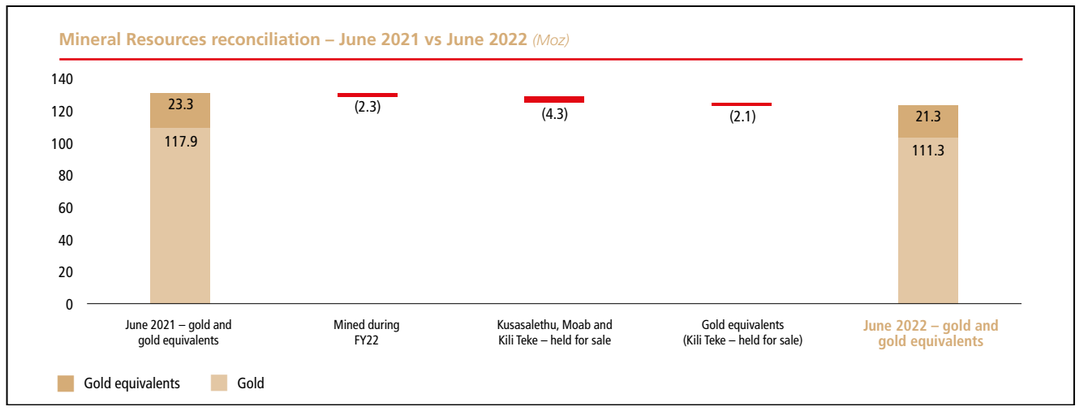
Mineral Resource and Mineral Reserve reconciliation

Mineral Resources

As at 30 June 2022, attributable gold and gold equivalent Mineral Resources were 132.6Moz, down from 141.2Moz in June 2021. The following tables show the year-on-year reconciliation of the Mineral Resources.

Mineral Resource reconciliation – gold and gold equivalents

	kg (000)	Moz
June 2021 – Gold and gold equivalents	4 395	141.2
Changes during FY22:		
Mined	(72)	(2.3)
Net of depletion variance excluding gold equivalents	(133)	(4.3)
Gold equivalents	(65)	(2.1)
June 2022 – Gold and gold equivalents	4 125	132.6



Mineral Resource comparison – FY21 vs FY22

South Africa underground	FY21 Gold oz (mil)	**FY22 Gold oz (mil)**	Depletion Gold oz (mil)	Net of depletion variance Gold oz (mil)	Net of depletion % variance Gold oz (mil)	Comments
Tshepong	10.498	**10.350**	0.222	0.074	0.7	Increased year-on-year mainly due to the increase in the B Reef Resources in the decline section of the mine. Resources have not been negatively affected by the restructuring of the mine
Phakisa	15.098	**15.239**	0.164	0.305	2.0	Due to an increase in Basal Reef grade as from the 34 line to the South of the mine and also positively influenced by an increase in the B Reef footprint to the north of the shaft
Bambanani	0.181	**—**	0.076	(0.105)	(58.2)	Mine closure June 2022
Joel	3.113	**2.985**	0.075	(0.053)	(1.7)	As a result of the effect of the variable thin channel reef to the east of the mine
Masimong 5	0.757	**0.843**	0.126	0.213	28.2	Footprint of Resource increased with extension of the LOM to two years as additional ground became available to mine as the result of good development grades achieved in FY21 financial year
Target 1	3.627	**3.456**	0.068	(0.104)	(2.9)	As a result of the increase in Resource cut-off grade from 2.98 g/t to 3.05 g/t
Target 3	1.483	**1.483**	—	—	—	
Total Free State underground	34.756	**34.355**	0.730	0.330	0.9	
West Rand						
Doornkop South Reef	3.024	**3.101**	0.176	0.252	8.3	LIB exploration drilling confirmed a flatter dipping reef which resulted in additional Resources above infrastructure
Doornkop Main Reef	0.025	**0.025**	—	—	—	
Doornkop Kimberly Reef	4.249	**4.249**	—	—	—	
Total Doornkop	7.299	**7.375**	0.176	0.252	3.5	
Kusasalethu	5.919	**3.896**	0.174	(1.849)	(31.2)	As result of a 19% increase in Resource cut-off grade
Mponeng	23.581	**24.319**	0.243	0.981	4.2	Gains resulted from updates of the rock engineering planned pillar positions and structural model updates
Total West Rand	36.798	**35.590**	0.593	(0.615)	(1.7)	
North West						
Moab Khotsong (including Zaaiplaats)	12.402	**10.177**	0.346	(1.879)	(15.2)	Rock engineering pillars introduced in the Zaaiplaats project and Resource not part of the current project moved to inventory (Harmar Block)
Total North West	12.402	**10.177**	0.346	(1.879)	(15.2)	
Total South Africa underground	83.957	**80.122**	1.670	(2.164)	(2.6)	

Mineral Resource and Mineral Reserve reconciliation continued

Gold	FY21 Gold oz (mil)	**FY22 Gold oz (mil)**	Depletion Gold oz (mil)	Net of depletion variance Gold oz (mil)	Net of depletion % variance Gold oz (mil)	Comments
South Africa Surface						
Kraaipan Greenstone Belt						
Kalgold	2.299	**2.018**	0.043	(0.238)	(10.3)	Windmill model refinement from the latest exploration data and revision of economic Resource cut-off grade from 0.30g/t to 0.54g/t
Kalgold tailing dam	0.201	**0.201**	—	—	—	
Total	2.501	**2.220**	0.043	(0.238)	(9.5)	
Free State Surface						
Other Free State tailings	4.200	**5.726**	—	1.526	36.3	Three out of the four sources from the original St Helena Project are now part of other Free State Tailings
Free State (Phoenix)	0.385	**0.523**	0.055	0.194	50.3	One source (FSS6) from the original St Helena is now part of Phoenix
Free State (St Helena)	1.656	**—**	—	(1.656)	(100.0)	St Helena project no longer exists from 2022
Free State (Central)	0.450	**0.413**	0.040	0.003	0.6	
Waste rock dumps	0.267	**0.248**	0.124	0.105	39.3	Depletion replaced with new WRD
Total Free State Surface	6.958	**6.910**	0.219	0.171	2.5	
North West Surface						
Mispah	0.719	**0.730**	—	0.011	1.5	Additions to Mispah 1 TSF from underground waste hoisted at Moab Khotsong Mine
Kop Paydam	0.072	**0.072**	—	—	—	
Moab MOD	0.045	**0.024**	—	(0.021)	(46.7)	Processing of Moab MOD through Noligwa and Mispah Gold plant
Vaal River tailings	3.140	**2.209**	—	(0.931)	(29.6)	Depletions from Sulphur Paydam, East TSF and South East Extension through Mine Waste Solutions plant. Resource clean-up post AGA acquisition
Vaal River WRD	0.060	**0.022**	—	(0.037)	(62.3)	New plan excludes Moab MOD and only includes processing from Buffels 9 and Margaret WRD through Kopanang and Mispah Gold plant
Mine Waste Solutions	1.946	**1.849**	0.229	0.132	6.8	Processing of Harties 1 and 2 through Mine Waste Solutions as well as restatement of MWS 5 Block Model Resources
Total North West Surface	5.981	**4.906**	0.229	(0.845)	(14.1)	
West Wits Surface						
West Wits tailings	0.503	**0.468**	—	(0.036)	(7.1)	Processing of Old North L 19 TSF through Savuka Gold plant
West Wits WRD	0.029	**0.016**	—	(0.012)	(42.2)	Mponeng WRD Processing
Total West Wits Surface	0.532	**0.484**	—	(0.048)	(9.0)	
Total South Africa Surface (including Kalgold)	15.971	**14.520**	0.491	(0.960)	(6.0)	
Total South Africa (including underground, surface, Kalgold)	99.928	**94.643**	2.161	(3.124)	(3.1)	
Papua New Guinea						
Hidden Valley/Kaveroi	2.622	**2.466**	0.146	(0.011)	(0.4)	Adoption of a new Resource model
Hamata	0.124	**0.124**	—	—	(0.3)	
Wafi	3.600	**3.600**	—	—	—	
Golpu	9.300	**9.400**	—	0.100	1.1	Changes due to rounding of significant figures
Nambonga	0.500	**0.500**	—	—	—	
Kili Teke	1.810	**—**	—	(1.810)	(100.0)	Kili Teke Project – held for sale.
Kerimenge	—	**0.565**	—	0.565	100.0	New Kerimenge Resource declared
Total Papua New Guinea	17.956	**16.654**	0.146	(1.156)	(6.4)	
Grand total	117.884	**111.297**	2.306	(4.280)	(3.6)	
Silver – Equivalent gold ounces						
Hidden Valley	0.573	**0.541**	—	(0.031)	(5.5)	New model and commodity price changes
Copper – Equivalent gold ounces						
Golpu	19.030	**20.493**	—	1.463	7.7	Commodity price changes
Nambonga	0.207	**0.221**	—	0.014	6.7	Commodity price changes
Kili Teke	3.538	**—**	—	(3.538)	(100.0)	Kili Teke Project – held for sale.
Total Copper – Equivalent gold ounces	22.775	**20.714**	—	(2.060)	(9.0)	
Total PNG – Equivalent gold ounces	23.347	**21.256**	—	(2.092)	(9.0)	
Total PNG (including equivalent gold ounces)	41.304	**37.910**	0.146	(3.248)	(7.9)	
Grand total (excluding equivalent)	117.884	**111.297**	2.306	(4.280)	(3.6)	
Grand total (including equivalent)	141.231	**132.553**	2.306	(6.372)	(4.5)	

Silver	FY21 (Moz)	**FY22 (Moz)**	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion % variance (Moz)	Comments
Hidden Valley	41.508	**37.475**	—	(4.033)	(9.7)	Adoption of a new Resource model
Golpu	17.000	**17.000**	—	—	—	
Total silver	58.508	**54.475**	—	(4.033)	(6.9)	

Copper	FY21 (Mlb)	**FY22 (Mlb)**	Depletion (Mlb)	Net of depletion variance (Mlb)	Net of depletion % variance (Mlb)	
Kili Teke	1 766.987	**—**	—	(1 766.987)	(100.0)	Kili Teke Project – held for sale
Golpu	9 500.000	**9 600.000**	—	100.000	1.1	Changes due to rounding of significant figures
Nambonga	103.503	**103.503**	—	—	—	
Total copper	11 370.491	**9 703.503**	—	(1 666.987)	(14.7)	

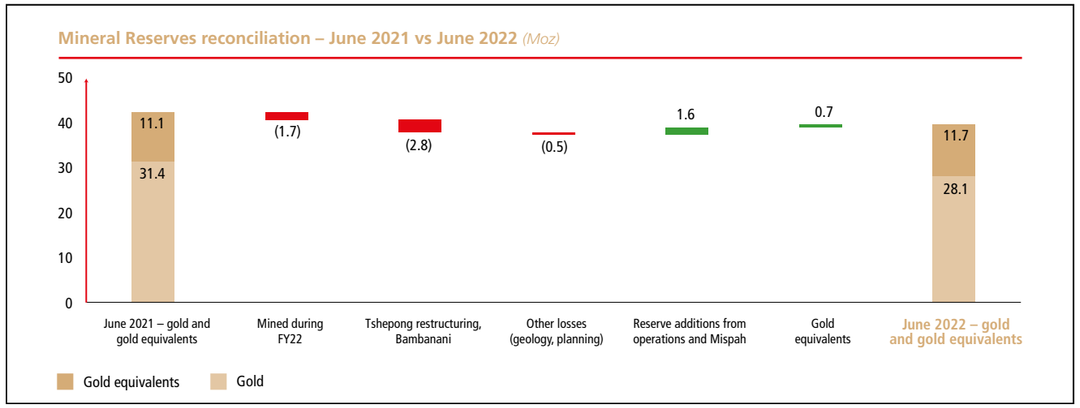
Molybdenum	FY21 (Mlb)	**FY22 (Mlb)**	Depletion (Mlb)	Net of depletion variance (Mlb)	Net of depletion % variance (Mlb)	
Kili Teke	87.568	**—**	—	(87.568)	(100.0)	Kili Teke Project – held for sale
Golpu	81.341	**82.000**	—	0.659	0.8	Changes due to rounding of significant figures
Total Molybdenum	168.909	**82.000**	—	(86.909)	(51.5)	

Mineral Reserves

As at 30 June 2022, Harmony's attributable gold and gold equivalent Mineral Reserves were 39.8Moz, down from 42.5Moz. The year-on-year Mineral Reserve reconciliation is shown below.

Mineral Reserve reconciliation – gold and gold equivalents

	kg (000)	Moz
June 2021 – Gold and gold equivalents	1 320	42.5
Changes during FY22:		
Mined	(51)	(1.7)
Net of depletion variance excluding gold equivalents	(51)	(1.6)
Gold equivalents	20	0.7
June 2022 – Gold and gold equivalents	1 238	39.8



Mineral Reserve comparison – FY21 vs FY22

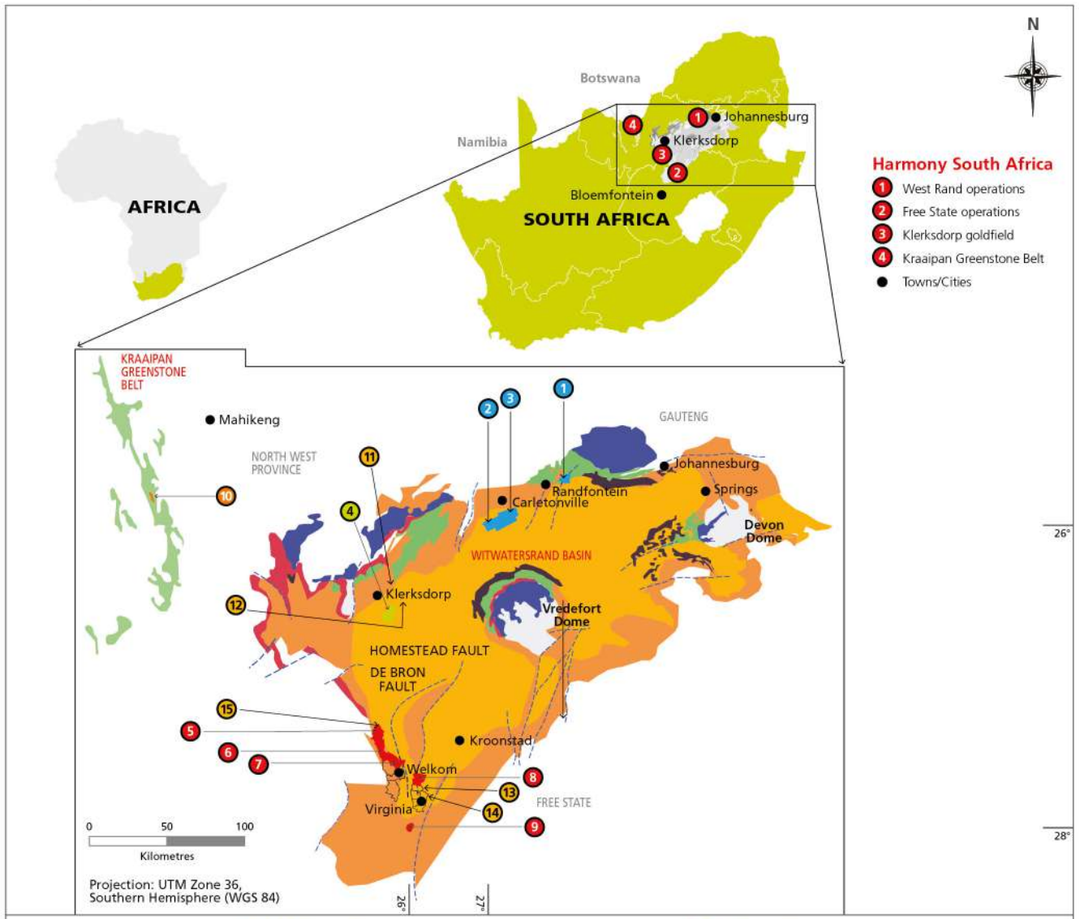
Gold	FY21 (Moz)	**FY22 (Moz)**	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion % variance (Moz)	Comments
South Africa underground						
Free State						
Tshepong	3.518	**0.771**	0.136	(2.611)	(74.2)	Due to a significant change in life-of-mine strategy at the operation
Phakisa	0.876	**0.880**	0.101	0.106	12.1	Due to an increase in Basal Reef grade as from the 34 line to the South of the mine and also positively influenced by an increase in the B Reef footprint to the north of the shaft
Bambanani	0.152	**—**	0.049	(0.103)	(67.9)	Mine closure June 2022
Joel	0.639	**0.597**	0.053	0.011	1.8	Remained constant year on year
Masimong 5	0.108	**0.147**	0.065	0.105	97.1	Increase in Reserves due to extension of LOM to two years as additional ground became available to mine as the result of good development grades achieved in FY 21 financial year
Target 1	0.647	**0.606**	0.061	0.020	3.1	Increase is due to additional pillars that became available to be mined in the life of mine plan
Total Free State	5.939	**3.002**	0.465	(2.472)	(41.6)	
West Rand						
Doornkop South Reef	1.513	**1.934**	0.114	0.535	35.3	Due to LIB exploration drilling and on reef development which increased ore body confidence classification. LIB exploration drilling confirmed a flatter dipping reef which resulted in additional Resources above infrastructure that were converted to Reserves
Kusasalethu	0.498	**0.301**	0.154	(0.043)	(8.6)	Reduction of life-of-mine as result of new planning parameters
Mponeng	2.104	**1.855**	0.199	(0.049)	(2.3)	Due to structure updates and rock engineering pillar designs changes as well as delays in accessing blocks of ground at the end of the life-of-mine
Total West Rand	4.115	**4.091**	0.467	0.442	10.7	
North West						
Moab Khotsong including Zaaiplaats	4.245	**4.031**	0.216	0.001	—	Remained constant
Total North West	4.245	**4.031**	0.216	0.001	—	
Total South Africa underground	14.299	**11.123**	1.148	(2.029)	(14.2)	

Mineral Resource and Mineral Reserve reconciliation continued

Gold	FY21 (Moz)	FY22 (Moz)	Depletion (Moz)	Net of depletion variance (Moz)	Net of depletion % variance (Moz)	Comments
South Africa Surface						
Kraaipan Greenstone Belt						
Kalgold	0.631	**0.758**	0.043	0.170	26.9	Windmill model refinement from latest exploration data impact offset by the revised geotechnical inputs allowing deeper mining in Watertank and A Zone pits
Total Kalgold	0.631	**0.758**	0.043	0.170	26.9	
Free State Surface						
Other Free State tailings	4.106	**4.909**	—	0.803	19.6	Three out of the four sources from the original St Helena Project are now part of other Free State Tailings.
Phoenix	0.385	**0.335**	0.055	0.005	1.4	One source (FSS6) from the original St Helena is now part of Phoenix
St Helena	0.933	**—**	—	(0.933)	(100.0)	St Helena project no longer exists from 2022
Central	0.450	**0.413**	0.040	0.003	0.6	
Total Free State Surface	5.873	**5.657**	0.094	(0.122)	(2.1)	
North West Surface						
Vaal River tailings	1.789	**1.604**	—	(0.185)	(10.3)	West complex design and scheduling done in the new ORM Planning System (Deswik)
Mine Waste Solutions	1.749	**1.485**	0.229	(0.034)	(1.9)	Restatement of MWS 5 Block Model
Mispah	—	**0.728**	—	0.728	100.0	Mispah 1 scheduled to be processed in MWS plant
Total North West Surface	3.538	**3.817**	0.229	0.509	14.4	
West Rand Surface						
West Wits tailings	0.398	**0.202**	—	(0.196)	(49.2)	Life of mine shortened to 2028 due to deposition constraint
Total West Rand Surface	0.398	**0.202**	—	(0.196)	(49.2)	
Total South Africa Surface (including Kalgold)	10.440	**10.434**	0.367	0.360	3.5	
Total South Africa (including underground, surface, Kalgold)	24.739	**21.557**	1.514	(1.688)	(6.7)	
Papua New Guinea						
Hidden Valley/Kaveroi	1.119	**1.001**	0.139	0.020	1.8	Adoption of a new Resources model and a new mine plan
Hamata	0.015	**0.013**	—	(0.002)	(11.8)	Mine plan changes
Golpu	5.500	**5.500**	—	—	—	
Total Papua New Guinea	6.634	**6.514**	0.139	0.018	0.3	
Grand total	31.373	**28.070**	1.653	(1.650)	(5.3)	
Silver – Equivalent gold ounces						
Hidden Valley	0.266	**0.192**	—	(0.074)	(27.8)	Commodity price changes
Copper – Equivalent gold ounces						
Golpu	10.814	**11.542**	—	0.727	6.7	Commodity price changes
Total PNG – Equivalent gold ounces	11.080	**11.733**	—	0.654	5.9	
Total PNG (including equivalent gold ounces)	17.714	**18.247**	0.139	0.672	3.8	
Grand total (excluding equivalent)	31.373	**28.070**	1.653	(1.650)	(5.3)	
Grand total (including equivalent)	42.453	**39.804**	1.653	(0.996)	(2.3)	

Location and geological setting of operations, projects and exploration

Harmony – South Africa



LEGEND

- Exposed Central Rand Group
- Covered Central Rand Group
- Exposed West Rand Group
- Covered West Rand Group
- Dominion Group
- Exposed Granitoid Basement
- Major faults

West Rand operations

	Latitude	Longitude
1 Doornkop	26°13'03.36"S	27°47'26.55"E
2 Kusasalethu	26°27'16.23"S	27°21'32.91"E
3 Mponeng	26°26'15.60"S	27°25'41.24"E

Klerksdorp goldfield

	Latitude	Longitude
4 Moab Khotsong	26°59'12.7"S	26°48'03.3"E
15 Exploration Target North		
MAL21A	27°40'58.29"S	26°36'11.95"E
MAL22	27°40'43.75"S	26°36'12.49"E
MAL23	27°40'42.26"S	26°36'06.32"E

Free State operations

	Latitude	Longitude
5 Target 1	27°45'42.59"S	26°38'24.92"E
6 Target 3*	27°49'42.93"S	26°38'29.27"E
7 Tshepong operations**	27°51'56.45"S	26°42'45.15"E
8 Masimong	27°58'23.93"S	26°52'39.41"E
9 Joel	28°16'17.19"S	26°48'57.97"E

Surface sources

Kraaipan Greenstone Belt

	Latitude	Longitude
10 Kalgold	26°10'12.85"S	25°14'02.70"E

MWS Klerksdorp

	Latitude	Longitude
11 MWS Plant	26°50'10.50"S	26°47'50.41"E
12 Kareerand	26°53'21.49"S	26°53'21.24"E

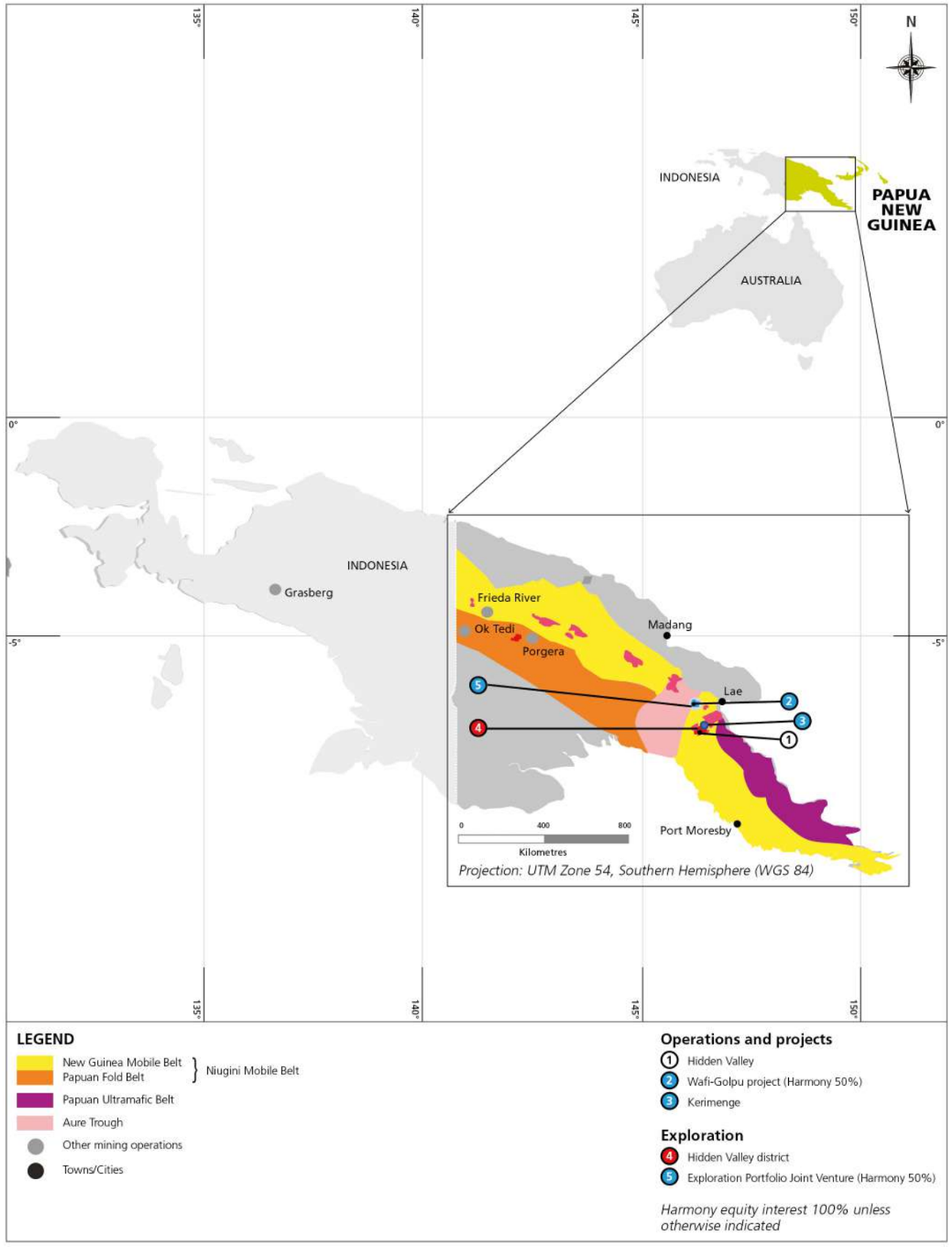
Free State

	Latitude	Longitude
13 Saaiplaas Plant	28°2'6.64"S	26°52'4.02"E
14 Central Plant	28°3'36.57"S	26°53'14.18"E

* *Care and maintenance*
** *Tshepong Operations includes Tshepong and Phakisa sections combined*

Location and geological setting of operations, projects and exploration continued

Harmony – Papua New Guinea



Exploration

Key work streams underpinning the FY22 exploration programme included:

- Brownfield exploration at Hidden Valley and Kalgold to optimise existing open-pit operations and extend mine life. Kerimenge deposit scoping study and commencement of prefeasibility study
- Brownfield exploration at our underground operations in South Africa
- Greenfield exploration at Target North
- Reviewing exploration opportunities as part of the new business strategy.

In line with the company's strategy and growth targets, capital allocated to exploration projects for organic growth in FY22 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.

Papua New Guinea

Key geological features

Papua New Guinea is one of the world's most prospective, yet underexplored, 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 rock belt 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 that 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 that form at deeper levels in the crust and 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

Mining in Papua New Guinea is governed by a range of legislation, including the Mining Act 1992, the Mining (Safety) Act 1977 and the Environment Act 2000.

Under the Mining Act, minerals are owned by the State, which issues and administers mining tenement under a concessionary system through the offices of the Mineral Resources Authority. The following types of tenement are available under the Act, namely 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 commencement 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 entering into a memorandum of agreement with local, provincial and national governments and landowners regarding the allocation to those parties of a share of the royalties payable by the company to the State, and other community and local business-related matters. If the Minister determines that a special mining lease is required, it will be necessary to enter into a mining development contract with the State, setting out the applicable project implementation, fiscal and other arrangements in respect of the proposed mining operation. Other relevant agreements include a fiscal stability agreement and a state equity acquisition agreement if the State takes up an interest pursuant to the purchase option in the exploration licence
- Applying to the Conservation and Environment Protection Authority for a level 3 environment permit. This includes undertaking an environmental impact study.

The permitting process can be very prolonged, particularly in the case of special mining leases.

Since 2009, the mining regime in PNG has been the subject of a comprehensive review involving various PNG Government agencies. Legislation on 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. In addition, the review

has addressed mineral policy generally and such mining-specific issues as biodiversity offsets, offshore mining, sustainable development, involuntary relocation and mine closure.

The review is ongoing, and its outcomes are presently unclear. Various draft revisions of the Mining Act have been circulated and submitted to the PNG Chamber of Mines and Petroleum for its comments. The most recent draft revisions include an increase in the royalty rate, changes to the terms of the PNG Government's right to acquire an interest in a mine discovery, the introduction of a development levy and a waste fee, the introduction of an obligation to maintain production at minimum prescribed levels, a prohibition on non-local "Fly-In, Fly-Out" employment practices, and the introduction of downstream processing obligations.

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.

In June 2020, the Mining (Amendment) Act 2020 was enacted to require the real-time provision of production and mineral sale data to the Mineral Resource Authority and expand the State's ability, via a holding company, to apply for tenement and other related permits and authorisations in respect of reserved land.

In July 2020, a proposed Organic Law on Ownership and Development of Hydrocarbons and Minerals and the Commercialisation of State Businesses was tabled for comment. The Organic Law (if adopted) will materially alter the legislative and regulatory regime governing mining in Papua New Guinea, including the ownership of minerals by government and the transformation of the methodology of its participation in mining operations from a concessionary to a production-sharing regime.

The Papua New Guinea Chamber of Mines and Petroleum, as the representative mining industry body, has engaged with the State in response to these proposed legislative changes, some of which the industry considers to be materially adverse. However, there has been only limited engagement with the State.

Harmony's operations and projects in Papua New Guinea will potentially be adversely affected by the changes presently being considered. If introduced and applied to Harmony's operations and projects in PNG, the changes could have a material adverse effect on Harmony's business, operating results and financial condition.

Harmony in Papua New Guinea – a summary

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 tenement areas.

In line with the company's strategy and growth targets, capital allocated to exploration projects for organic growth in FY22 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 and a rationalisation of tenure has continued for exposure to major new gold and copper-gold discoveries in highly prospective under-explored terranes and mining districts throughout Papua New Guinea. The country is highly prospective and under explored and the case for exploration investment in Papua New Guinea will remain strong if the current or proposed legislative environment remains supportive.

Exploration FY22

Key work streams underpinning the FY22 exploration programme included:

- The Wafi-Golpu copper-gold deposit permitting process and progressing the special mining lease application
- Kerimenge deposit scoping study and commencement of prefeasibility study
- Consolidation/rationalisation of greenfield tenement holdings to focus on priority near-mine targets.

In FY22, we spent R71.5 million (US$4.7 million) on exploration in Papua New Guinea, driven largely by activities related to the Wafi-Golpu project. Exploration expenditure of R203.9 million (US$13.3 million) is planned for FY23.

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. The aggregate tenement package in Morobe Province, held in a 50:50 joint venture between Newcrest and Harmony, stands at 152.81km² (unchanged year on year). These tenements encompass the Wafi-Golpu project and span the Wafi transfer zone and its strike extensions.

The Wafi-Golpu project is presently in the permitting phase, and the relevant agreements with the State and other stakeholders in the project are presently being negotiated.

The Wafi transfer zone and its strike extensions are prospective for epithermal gold and porphyry style copper-gold deposits, and 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 line with the greater focus on brownfields exploration, regional joint venture work concentrated on tenements contiguous with the Wafi-Golpu project.

During FY22, generative work to further evaluate an epithermal target approximately 1.5km north-west of the Golpu porphyry was completed in order to develop near-mine drill targets within the Wafi-Golpu project area.

Exclusively held tenements

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

Consolidation and rationalisation of regional greenfield tenure within Harmony's 100%-owned tenement portfolio in Papua New Guinea continued.

An agreement to divest EL2310 (Kili Teke) was executed on 6 April 2022 and is due for completion in FY23. The sale allows Harmony to focus on key brownfield opportunities at Wafi-Golpu, Hidden Valley, together with other priority targets in the Hidden Valley District.

A tenement consolidation application was submitted in February for Hidden Valley District exploration licences 497, 677 and 2 313 and was approved by the Mining Minister on 9 May 2022. The consolidation amalgamates the three exploration tenements that surround the Hidden Valley mining lease into a single exploration licence (EL2751) which streamlines statutory requirements and allows focus on priority near-mine targets.

The tenement portfolio comprised 255.5km² as at 30 June 2022, compared with FY21: 464km² (a 45% decrease year on year reflecting the sale of Kili Teke).

Work programme expenditure focused on study work on the depth extension of the Hidden Valley deposit and the scoping study, and then commencement of the prefeasibility study, on the Kerimenge gold deposit.

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

Objectives	Progress in FY22	Targets/plans for FY23
Exploration portfolio tenements (Wafi-Golpu district)		
Wafi transfer zone – grassroots exploration targeting discovery of additional resources to expand Wafi-Golpu into a mineral district.	• Work programmes were undertaken across the tenure package in line with requirements to maintain tenure in good standing • Encouraging results continued from the Buvu fault prospect located on the western side of Nambonga Creek, approximately 2.5km north-west of the Wafi camp. Surface sampling was extended to develop a coincident gold and base metal anomaly. Assays to date outline a high-order arcuate gold and base metal anomaly with over 550m of strike.	• Target development and ranking, including review of historic drilling near the Buvu fault prospect to provide alteration and geological context for the mineralisation • Greenfield generative work programmes focused on developing new centres of mineralisation away from the special mining lease (SML) application.
Hidden Valley district brownfields exploration		
Brownfields exploration within a 10km radius of the Hidden Valley plant to develop replacement resources and support the mine-life extension and investigate the potential for standalone projects.	• Scoping study work to investigate the economic viability of open-pit mining and heap leach processing of the Kerimenge oxide resource was undertaken and included: – Relogging of available historic drill holes focusing on oxidation plus capture of pXRF data and digital core photography – Resource estimation – Metallurgical sampling and testwork to validate modelled recoveries – Resampling and assaying of selected drill core intervals from historic drill holes for validation of QAQC in resource estimation reporting, commencement of baseline environmental monitoring – LiDAR survey • Results to date have been highly encouraging and drill camp construction and drill pad preparation are currently underway ahead of the planned infill Resource drilling programme • Exploration work also included systematic, grid-based, surface geochemical sampling over the southern extension from the Kerimenge deposit over an area with incomplete historic data. 256 augered soil and 27 rock chip samples with coincident mapping were completed.	• Work to underpin a prefeasibility study is planned for Kerimenge and includes: – Infill drilling to improve orebody knowledge and derisk geological interpretations, resource estimation, geotechnical and metallurgical study work – Prospect development and drill testing of brownfield oxide gold targets including the Kerimenge trend – Daulo, historic Wau Mine Area – Golden Peaks (Namie Body "F") and Upper Ridges.

South Africa

All our underground mines are located within the Witwatersrand Supergroup. Most are situated in the south-western corner of the Witwatersrand Basin or Free State goldfields, and comprise sedimentary rocks extending 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 geology is provided per operation in this report.

Exploration FY22

In FY22, Harmony spent R121 million (US$8 million) on exploration in South Africa (FY21: R91 million; US$6 million). Expenditure of R232 million (US$15 million) planned for FY23 includes R56 million budgeted for Target North and R16 million budgeted for Kalgold.

Underground resource definition drilling

In all, 63 253 metres were drilled across Harmony's underground operations in South Africa (FY21: 61 630 metres).

Using a method known as continuous coring, underground exploration drilling is conducted 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 geological features in the immediate surrounding lithology. It assists in structural geological interpretation and evaluation of specific areas as well as 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.

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.

The brownfield infill drill campaign carried out in FY20 focused on the main line of lode and potential satellite targets. Intercepts returned confirmed an expanded, robust mineralised system with over 2.1 kilometres of strike, extending more than 300 metres below surface (a full list of drill intercepts is included in the SAMREC Table 1 report available at www.harmony.co.za). The expanded resource base underpins the Kalgold expansion prefeasibility study that was completed this year.

South Africa – summary of brownfields exploration

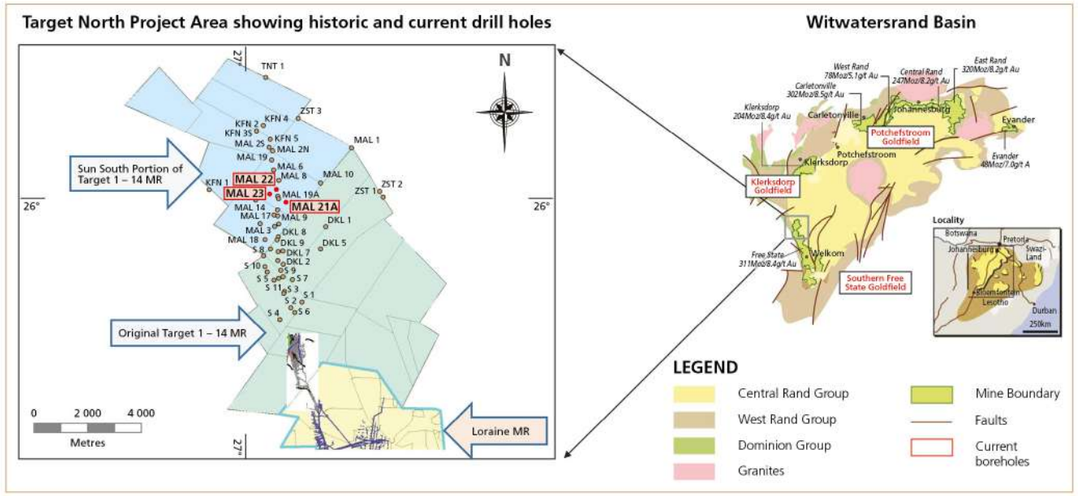
Objectives	Progress in FY22	Targets/plans for FY23
Kalgold expansion		
Advance feasibility studies in support of an expansion of the Kalgold open-pit mining operation: • **Additional Resource growth to underpin expansion studies and improve operational flexibility** • **New high-grade satellite resources** • **Extensions to known deposits.**	Resource extension drilling was carried out for the Windmill Zone. A total of 30 boreholes[1] were drilled (4 745 metres of RC drilling). Drilling returned very encouraging initial results. A Windmill Resource model update is planned once all assay results are obtained and verified.	Geotechnical, condemnation and water borehole drilling were also completed to support the various components of the feasibility study and provide input into the mine planning. All proposed sites have now been cleared for the future development. A feasibility study has advanced and will be concluded during the year.
Kalgold prospecting rights		
Exploration aimed at improving understanding of the potential to develop the Kraaipan Greenstone Belt into a new mineralised province with multiple mining centres.	The systematic geochemical soil sampling survey was completed over the selected anomalies identified by magnetic and electro-magnetic surveys. A total of 1 806 auger holes were drilled and 3 476 outcrop samples were obtained and analysed. Integration of these results with all historical geological information was concluded and identified excellent drilling targets associated with favourable Cherty BIF sequence.	Planned regional exploration includes a reverse circulation drilling programme over the selected potential targets and continuation of systematic, geological investigations of the identified geophysical anomalies, including mapping and surface geochemistry.

[1] *Complete assay results and resource details are tabulated in the technical annexure available on the website at www.harmony.co.za: SAMREC Table 1 Report – Kalgold operation, North West province, Republic of South Africa.*

South Africa – summary of brownfields exploration

Objectives	Progress in FY22	Targets/plans for FY23
Doornkop – South Reef		
The objective of the project is to improve the geological confidence and establish a better understanding of the grade trends in order to de-risk the mine from a geological perspective. **The main aim is to better define the Resource above 207 and 212 levels while reducing the Inferred Resource in the life-of-mine.**	A total of 34 (including deflections) boreholes have been drilled to date which has assisted with the structural geological confidence.	Exploration will continue into identified areas to further increase the geological confidence and grow the Resource base. LIB drilling sites are strategically selected to give enough drilling coverage to target Resource blocks that will be mined in the life-of-mine. Exploration targets: • North-eastern block • South-western block.
Tshepong Operations: Phakisa section, B Reef		
Stoping has not yet started on the B Reef at Phakisa shaft, however, footwall development is in progress to access the EV10 payshoot area. Exploration drilling is in progress to determine areas of economic value in the down-dip extensions of the B Reef channels being mined in the south-west area of Tshepong shaft. There is significant potential to mine B Reef at Phakisa shaft.	Significant progress has been made in the footwall development, allowing for much more intensive exploration drilling of the EV10 payshoot area. The existence of the B3 facies has been confirmed, with the normal variations in reef development. Footwall development has been expanded according to information gathered regarding geological structure.	The exploration drilling is ongoing, to better define the reef development and grade distribution in the expected payshoot. Once the on-reef development starts it will allow for much more continuous sampling and study of the B Reef in the payshoot area, especially regarding the occurrence of carbon on the reef contact. Drilling will continue to determine variations of the reef on strike.
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 a potential block of well-mineralised Ventersdorp Contact Reef where it overlies the alluvial fans of the upper Elsburg and Dreyerskuil reefs. Two fans have been interpreted in the Target North area: the Dreyerskuil and Mariasdal fans. **Further resource definition drilling will be planned, pending the results of the current exploration programme.**	The exploration drilling programme from surface advanced and a total of 14 408 metres was drilled. Mal21A drill hole was completed and a deflection programme produced 10 intersections. At a second drill hole (Mal22), the mother hole was completed and deflection drilling commenced. Drilling of the third borehole, Mal23, commenced in November 2021 and the hole advanced to a depth of 2 845 metres. Drilling continues.	Complete the remaining drilling programme for Mal22 and Mal23 drill holes. Update the geological model and Resource estimate with all new exploration data.

South Africa – summary of brownfields exploration



Objectives	Progress in FY22	Targets/plans for FY23
Joel – high-grade Beatrix Reef extension (Klippan)		
Exploration is planned to upgrade the Mineral Resource to Indicated level and determine the economic mining limit in the south and south-east originally classified as the non-depositional zone with a 40m down-throw fault. Opening up this area will greatly reduce the risk of having too many crews mining 137 level.	Currently five holes have been drilled from 117 east haulage. Three holes intersected Klippan erosional channel and two holes intersected the Beatrix Reef. The holes that intersected Klippan were drilled more towards 110 level. The holes that intersected Beatrix Reef were drilled halfway between 117 level and 110 level.	Three holes have been planned from 121 east haulage 2 to determine the values and facies on the eastern side of the shaft between 121 and 117 levels. There is little information known in that area. These holes will also determine the existence of the CD fault.
Joel – 145 level and 137 east exploration		
Exploration here is aimed at upgrading the current Mineral Resource to Indicated level and to determine the economic mining limit to the north and north-east, below the current mining infrastructure, to ensure the 145 level decline project remains economically viable. These explorations will also assist in confirming the surface holes' values and facies on the eastern side of the shaft at 137 level.	Currently five holes have been drilled towards 145 level with three holes intersecting reef.	Two new holes and the hole that is being redrilled have been planned towards 145 level to further determine the values and facies towards 145 level. Three long holes with three short holes have also been planned from 137 east haulage to confirm the surface holes' values and facies on the eastern side of the shaft.

Projects

Harmony currently has two projects in Papua New Guinea:

- 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
- Hidden Valley extension project – was approved for execution in FY22. The 2nd tailings storage dam is approved and the project will provide a 2.5-year mine-life extension to FY27 and additional gold production of 350Koz.

Harmony has several projects underway in Papua New Guinea and South Africa which are essential to the longevity of the business. The aim of these projects is to ensure a pipeline of exploitable, cost-efficient Mineral Reserves.

Papua New Guinea

Harmony currently has two major projects in Papua New Guinea, both located in the Morobe Province:

- The Wafi-Golpu project, being a greenfield undeveloped deep-level block cave mine. The project is held under a 50:50 unincorporated Wafi-Golpu joint venture between wholly owned PNG-registered subsidiaries of, respectively, Harmony Gold Mining Company Limited (namely, Wafi Mining Limited) and Newcrest Mining Limited (namely, Newcrest PNG2 Limited), and is currently in the permitting phase
- The Hidden Valley extension project, being a life of mine extension of the established Hidden Valley Mine which is owned by a wholly owned PNG-registered subsidiary of Harmony Gold Mining Company Limited (namely, Morobe Consolidated Goldfields Limited). The project is underpinned by a completed feasibility study and was recently permitted.

Wafi-Golpu project (Harmony 50%)

Headline summary

- **Location:** Eastern Papua New Guinea in the Morobe Province (supports Harmony's geographical diversification strategy)
- **Tenement holding:** The Wafi-Golpu joint venture participants are the holders in equal shares of exploration licences EL440 and EL1105. The Golpu, Wafi and Nambonga deposits are located on exploration licence EL440
- **Commodity:** Copper-gold (supports Harmony's commodity diversification strategy)
- **Deposits:** The Golpu, Wafi and Nambonga deposits
- **Resource:** Contains 18.6Moz gold and 8.6Mt copper
- **Level of confidence:** Feasibility study completed March 2018
- **Mining method:** Block cave with multi-cave options
- **Production rate:** 16.85Mtpa, steady-state production estimated at 161 000t of copper, 266 000oz of gold (more than 1.4Moz of gold equivalent ounces annually)
- **Grade:** Above average grades for gold – 0.90g/t and copper – 1.27%
- **Costs:** Of US$0.26/lb are in the lowest decile for copper production
- **All-in sustaining cost:** Expressed in terms of gold production minus US$2 128/oz is estimated
- **Operating life-of-mine:** >28 years (potential to extend to 40 years)
- **Project lifecycle:** In permitting phase. The Wafi-Golpu joint venture participants have applied for a special mining lease (SML 10) and an environment permit to undertake the construction, operation and ultimately, closure of the greenfield block cave copper-gold mine. The environment permit was granted in December 2020.

Project technical overview

The Golpu, Wafi and Nambonga deposits are located in eastern Papua New Guinea (PNG), approximately 60km south-west of Lae in Morobe Province. The proposed mine site is situated at an elevation of approximately 400m above sea level in moderately hilly terrain located near the Watut River, approximately 30km upstream from its confluence with the Markham River. Lae, the second largest city in Papua New Guinea, will host at its port the project's concentrate export facilities, which will be linked to the mine site by a concentrate pipeline. Tailings will be disposed of by means of deep-sea tailings placement in the Huon Gulf, near the mouth of the Markham River.

The 2018 feasibility study update, which remains the basis for the business case, is based on block caving the Golpu Resource. The project is a viable development of a high-quality Resource, capitalising on the high-grade nature of the copper-gold Golpu orebody, an 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 early.

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, BC42 and BC40.

Project permitting overview

The Wafi-Golpu project is in the permitting phase. The proposal for development underpinning the special mining lease 10 (SML 10) application was submitted to the Papua New Guinea Mineral Resources Authority in August 2016 and was updated in March 2018, when the feasibility study update was completed.

This update identified deep-sea tailings placement as the tailings management solution for the project. Informed by the feasibility study update, the environment impact statement (EIS) was submitted to the Conservation and Environment Protection Agency in July 2018.

Negotiations with the State Negotiating Team regarding the terms and conditions of the grant of SML 10 and its associated tenements, including the terms and conditions of participation in the project by the State and its nominees, commenced in April 2018. In December 2018, the Wafi-Golpu joint venture participants entered into a memorandum of understanding (MoU) with the State of PNG, establishing a framework for the parties to progress the permitting of the Wafi-Golpu project.

In May 2019, the permitting process was injuncted pursuant to a stay order given in an action for judicial review of the MoU brought by the governor of the Morobe Province, which injunction remained in place until February 2020 when the State withdrew from the MoU and the judicial review was dismissed on that basis.

In December 2020, the Conservation and Environment Protection Agency concluded its assessment of the Wafi-Golpu project's environment permit application and granted an environment permit approving deep-sea tailings placement as the project's tailings management method. In March 2021, the governor of Morobe Province and the Morobe Provincial Government commenced legal proceedings seeking judicial review of the grant of the environment permit, and for interim orders to stay the environment permit and restrain the State of PNG from granting a special mining lease for the Wafi-Golpu project.

The legal proceedings are continuing, but do not prevent the conduct of the SML 10 negotiations, which resumed in early 2022 and is ongoing.

In the interim, no mining has occurred in the project area.

The Wafi-Golpu project will progress to execution only once:

- SML 10 and all other associated tenements and necessary permits required for project development have been granted. This will only occur after all required agreements with the State have been negotiated and executed, including a mining development contract, a fiscal stability agreement and a state equity agreement
- All required agreements with the State and landowners have been negotiated and executed, including a memorandum of agreement and individual compensation agreements
- The judicial review of the environment permit has been dismissed, and/or the validity of the environment permit for the life of the project has been confirmed
- All necessary approvals have been received from the boards of directors of the ultimate holding companies of the Wafi-Golpu joint venture participants, namely Harmony and Newcrest Mining Limited.

Initial activities after the achievement of the above execution conditions will focus on the establishment of project delivery capacity and capability. This will be followed by the validation and update of the feasibility study completed in March 2018 which will further inform decisions associated with the commencement of site access roads and bridges, the construction of accommodation facilities and the construction of the Nambonga and Watut declines.

Hidden Valley extension project (Harmony 100%)

Headline summary

- **Location:** Eastern Papua New Guinea in the Morobe Province (supports Harmony's geographical diversification strategy)
- **Tenement holding:** Morobe Consolidated Goldfields Limited, being a wholly owned subsidiary of Harmony registered in Papua New Guinea, is the 100% owner and operator of the Hidden Valley Mine, which is situated on Mining Lease ML 151
- **Environment permit:** EP L3(578).

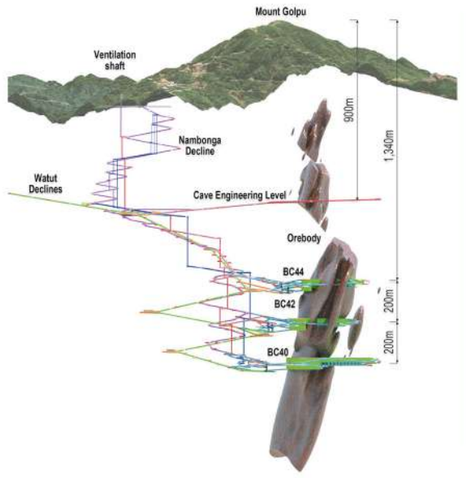
The Hidden Valley extension project reported on last year was completed, gated and approved for execution commencing in FY22. The project now informs the production base and Mineral Reserves. The project will deliver to the Hidden Valley operation:

- A 2.5-year mine-life extension to FY27
- Additional gold production of 350Koz
- Additional silver production of 5.4Moz
- Ave AISC US$1 150.

The extension of the mining lease and the amendment to the environment permit required to facilitate this extension were granted in June 2021.

Morobe Consolidated Goldfields Limited is in continuing discussions with the Mineral Resources Authority regarding the conditions of the grant of the extension of the mining lease.

Papua New Guinea



Decline Cross Section – Ore Body.

PREFERRED DEVELOPMENT OPTION FOR WAFI-GOLPU

The diagram alongside 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 68Mt (BC40), 93Mt (BC42) and 215Mt (BC44). The values (tonnages and durations) per block cave level refer to production from the drawpoints, not development.

Papua New Guinea – Prefeasibility

Objectives	Progress in FY22	Targets/plans for FY23
Kerimenge Heap Leach Project		
To add meaningful ounces and margin, and to extend the life, of Harmony's PNG Operations. **Contributes towards HSEAsia production profile at a time Hidden Valley is moving towards closure and the Wafi-Golpu Project production is delayed due to permitting.**	Land access granted and construction of the drilling camp commenced. Commenced community consultation. Completed re-assessment of historic core, including re-logging, check assay and photography. Completed a Resource update on the deposit, 16Mt @ 1.1g/t for 565Koz (Inferred). Completed preliminary metallurgical test work and ore characterisation study. Completed preliminary mine plan.	Complete the construction of the exploration camp. Commence and complete Phase 1 of the infill drilling programme and update the Resource model. Undertake and complete a geotechnical and engineering study on the deposit. Complete metallurgical studies. Complete detailed Lidar survey of the proposed Heap Leach pad areas and the mine site. ESCH studies and assessment work, including commencing the EIS. Complete PFS by end FY24.

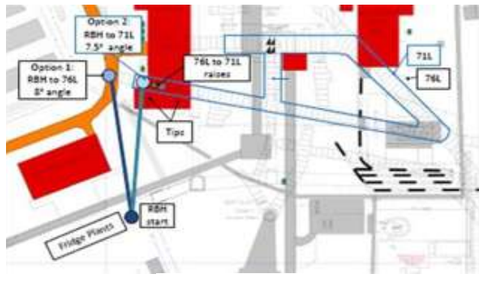
South Africa

In South Africa, projects are currently in progress at Kalgold, Doornkop, Joel and Moab Khotsong, all of which are aimed at extending the life-of-mine at these operations.

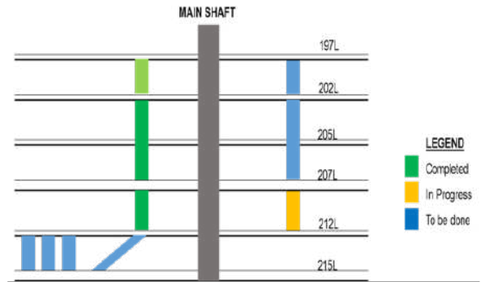
South Africa – summary of projects currently underway

South Africa – summary projects

Objectives	Progress in FY22	Targets/plans for FY23
Kalgold – expansion project		
The Kalgold plant currently treats approximately 130 000 tonnes a month. Following on from the current exploration drilling programme, the project is aimed at increasing production.	A feasibility study was completed. The study has investigated the building of a new 300 000tpm plant which would see the current plant stopping production. The project, although positive, requires significant capital. Additional Resources are required in order to boost return on investment.	Investigate an incremental expansion of the Kalgold production levels utilising current Kalgold plant. A study to increase volume to 170 000 tonnes a month and an upgrade of the current Kalgold plant will be carried out.
Doornkop – 207 and 212 levels project		
The project extends the mining of the orebody at depth. The levels need to be developed, while the shaft infrastructure needs to be completed in order for both levels to be able to handle the planned production. An ore handling system incorporating 215 level also needs to be put in place. **The 10MW fridge plant will be constructed in conjunction with the 5.5m diameter new ventilation shaft from surface to 76 level in order to cool the air going to the work places on 207 and 212 levels.**	The development on 207 level and widening (drilling and drop raising) of the 192 to 212 level orepasses are in progress, albeit with some delays. Recommissioning of the ventilation shaft rock hoisting between 212 level and 106 level is complete. Work to recommission mid-shaft loading arrangements is in progress. Completion of mid-shaft loading arrangements will conclude the early works for Doornkop 207 and 212 levels project. Exploration drilling is in progress to improve the geological confidence, increase the Mineral Reserves and better define the resource.	The project is scheduled to continue to complete the mid-shaft loading and drop raises. Exploration will continue in line with a strategy that supports better definition of the Resource base. Detailed designs for the 10MW fridge plant are in progress, and are scheduled to be completed by the end of 2022. On completion of the tender for raiseboring of the new ventilation shaft, pilot hole drilling can be initiated, followed by reaming of the ventilation shaft from surface to 76 level.



Orepass on level 212.



Drop raising layout.

South Africa – summary projects

Objectives	Progress in FY22	Targets/plans for FY23
Doornkop expansion		
To better delineate the South Reef ore body, improve the geological confidence and de-risk the operation.	Exploration drilling will continue. Focus will be on targeting areas that are potentially high grade and have limited geological information in order to increase the geological confidence and payable ounces. 4933 meters were drilled and the operation increased the Resources and Reserves above infrastructure and the Life of Mine.	5580 meters planned targeting areas with a low geological confidence.
Moab Khotsong – Mispah tailings dam retreatment project		
The opportunity was identified to reclaim the Mispah 1 Tailings Storage Facility (TSF) through Mine Waste Solutions. **The feasibility study will investigate the viability of reclaiming 67.4Mt from the Mispah 1 TSF at a rate of 28ktpd and pumping it to MWS plant via the East Pump station and treating it through the MWS stream 2 as replacement tonnage in the future reclamation profile and not as additional reclamation tonnage over and above the planned current reclamation rate of MWS.** **It is anticipated the slurry transfer pipeline from the Mispah 1 TSF over the Vaal River to the East Pump station will trigger a full environmental impact assessment, which will probably determine the project critical path.**	Phase 1 of the feasibility study is completed. This entailed: • Design criteria, mass balance and process flow diagrams • Slurry transfer and low-pressure water pipeline specifications • Pipe route selection • Preparation of data pack for pipeline route environmental authorisation • Scope and initiation of environmental authorisation for pipelines.	Phase 2 of the feasibility study which entails: • Mispah 1 Reclamation pumpstation and pipeline detailed design • Feasibility level cost and schedule study.
Tau Tona pillar		
The objective of this project is to assess the feasibility of extracting both VCR and Carbon Leader Reef shaft pillars. The safest sequence will be investigated as well as optimal timing to protect infrastructure and enhance the gold production during the life of mine.	A prefeasibility study has been approved to commence with this study work. Geotechnical modelling has commenced to determine feasible mining methods. Limited conceptual study work has commenced on reef boring methods of shaft pillar extraction.	The prefeasibility is planned to be completed in FY23. It will be subject to a gate review to determine whether further study detail is required. Conceptual study work on the reef boring method will be completed and subjected to a gate review process.
Mponeng Deepening		
The Depth Extension project is aimed at mining the orebody below existing infrastructure to safely and productively extend the life of mine. The VCR reef requires the existing infrastructure to be extended below 126 level. The Carbon Leader Reef requires new infrastructure below 120 level. Feasible access of these orebodies could extend Mponeng mine life considerably.	A feasibility study was approved for assessing the VCR orebody below 126 level and which has commenced. Significant consideration has been given to how the study scope should address successful integration with the existing operations on 126 level.	The feasibility study is planned to be completed in FY23. The study will also identify work required to facilitate any early start opportunities. Study work on the Carbon Leader Reef is planned to commence to identify co-extraction synergies with the VCR. If the current study concludes that the project is financially attractive, approval for early works and project execution will be pursued. In addition, approval to progress the CLR study from a concept level study to a feasibility level study will be pursued.

South Africa – summary projects

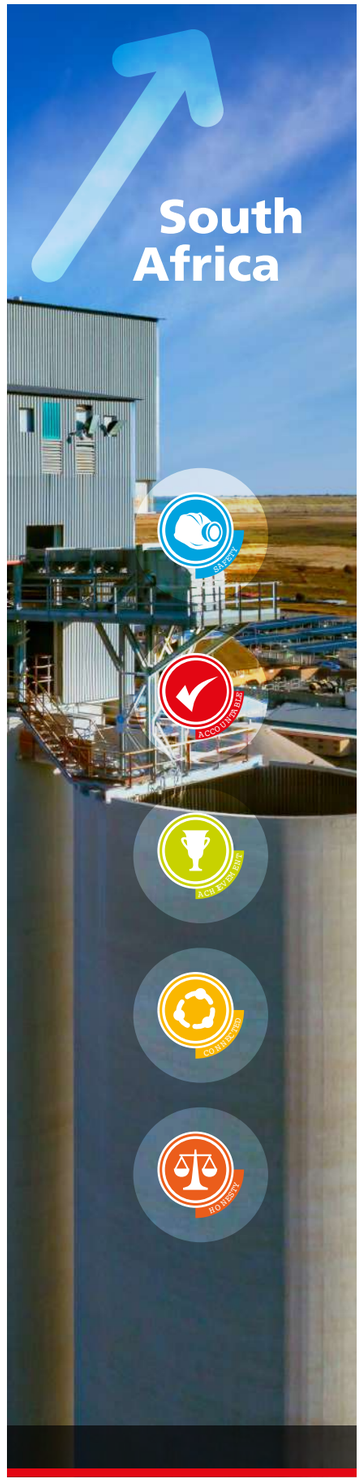
Objectives	Progress in FY22	Targets/plans for FY23
Moab Khotsong – Great Noligwa shaft pillar extraction		
This project was approved by the board for implementation in FY20. The chosen option is based on the partial extraction of reef blocks with a central stabilising pillar to maintain the integrity of both shaft barrels.	The GN shaft Pillar continued with project execution phase in FY22. The waste development achieved 1 443m and reef development achieved 404m for FY22. Infrastructure rehabilitation upgrades were conducted on the GN shaft surface and underground access routes. Opening up and rehabilitation were conducted on the required development ends on 70, 71 and 73 levels. The over-stoping of 73 level infrastructure was completed in FY22. The focus for FY22 is to install the GN sub-shaft dewater column infrastructure in FY22.	The GN shaft Pillar capital was approved to continue with project execution in FY23. The project is scheduled to continue with waste development on 70 and 71 levels. Infrastructure rehabilitation and support upgrades are scheduled to continue at GN.
Moab Khotsong – Zaaiplaats project		
The Zaaiplaats project was approved by the board for implementation in October 2021. The project scope is to mine the Zaaiplaats orebody situated below the current Moab Khotsong middle mine area from 101 level to 114 level. Three new declines and associated infrastructure must be developed, equipped and commissioned below 101 level to allow the safe and economic mining of the Zaaiplaats orebody.	Implementation of the project has commenced in October 2021 and the project progressed with limited detailed design requirements. Development and project construction have commenced in order to support project deliverables on the 101 level area. The project developed 1 164m in FY22 to create the platform for the future decline development to commence in FY23. The project was integrated into the operations business plan for FY23 and continues to show economic value add as a life-extension project.	Further implementation and procurement-related activity is planned for FY23 in order to facilitate project build up.
MWS – Kareerand		
Mine Waste Solutions (MWS) is a reclamation operation in the Stilfontein/Orkney area treating 2.2 million tonnes per month from historical tailings facilities through the MWS plant. The residue is deposited on the existing Kareerand Tailings Storage Facility (TSF). Kareerand TSF is a cyclone facility on a 560ha footprint and based on the current production plan will reach its authorised height of 80 metres in 2025. The existing Kareerand TSF was sized to receive the reprocessed tailings from the MWS sources. The inclusion of additional sources into the MWS business in 2012 required additional deposition facilities. The study to select the suitable site for the replacement TSF was initiated in 2016. The prefeasibility study investigated seven options and the outcome was to extend the current footprint by 340ha while increasing the height of the combined complex. The project progressed through feasibility study and detailed design.	The project was approved by the board in August 2021. The construction of the project infrastructure is preceded by legislated authorisations and licences. The environmental authorisation was issued by the Department of Minerals and Energy (DMRE) on 11 November 2021 and the water use licence (WUL) was received on 10 June 2022 from the Department of Water and Sanitation (DWS). The application for the licence to construct was submitted on 13 June 2022. The legislated period for the licence to construct is 90 days and is obtained from the Dam Safety Office – Department of Water and Sanitation. The licence to construct is required before any construction work within the solution trench of the extension footprint may commence	The instruction for commencement of works was issued for 18 July 2022 to WBHO (main contractor). Early activities include site establishment and contractor's yard construction. The mobilised staff and plant will construct the return water dams, access roads, remove existing stockpiles, and secure the construction area. Construction activities in the basin will start once the licence to construct is received.

South Africa

SA OPERATIONS

Our focus on zero harm is an investment in our business and in our people.

Harmony's South African operations include eight deep-level mines, an open-pit mining operation and several surface retreatment facilities. Combined, these account for gold Mineral Resources of 94.6Moz and gold Mineral Reserves of 21.6Moz. These are equivalent to 71% and 54% respectively of total group Mineral Resources and Mineral Reserves.



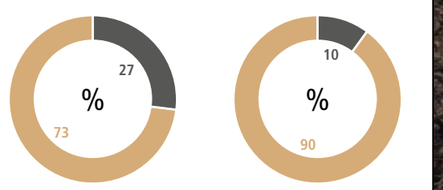
Mineral Resources (inclusive)
35.6Moz

Mineral Reserves
4.1Moz

WEST RAND

MINERAL RESOURCES AND MINERAL RESERVES BY OPERATION	
West Rand	**50 – 77**
Doornkop	**54**
Kusasalethu	**60**
Mponeng	**66**

Gold and Gold equivalents
Contribution to Harmony



Kusasalethu shaft.

Location of West Rand operations

Harmony's West Rand operations are located on the north and north-western rim of the Witwatersrand Basin.

The Doornkop shaft complex is south of Krugersdorp, 30km west of Johannesburg, in the province of Gauteng. The property lies between Sibanye-Stillwater's Cooke 1 shaft and Durban Roodepoort Deep.

Kusasalethu is on the West Wits Line, adjacent to the Savuka and Mponeng mines to the east and the dormant Deelkraal to the west. Kusasalethu is situated 14km south of Carletonville and 90km south-west of Johannesburg. Post-year end 2020 the acquisition from AngloGold Ashanti of Mponeng, as well as infrastructure related to Tau Tona and Savuka, was completed.

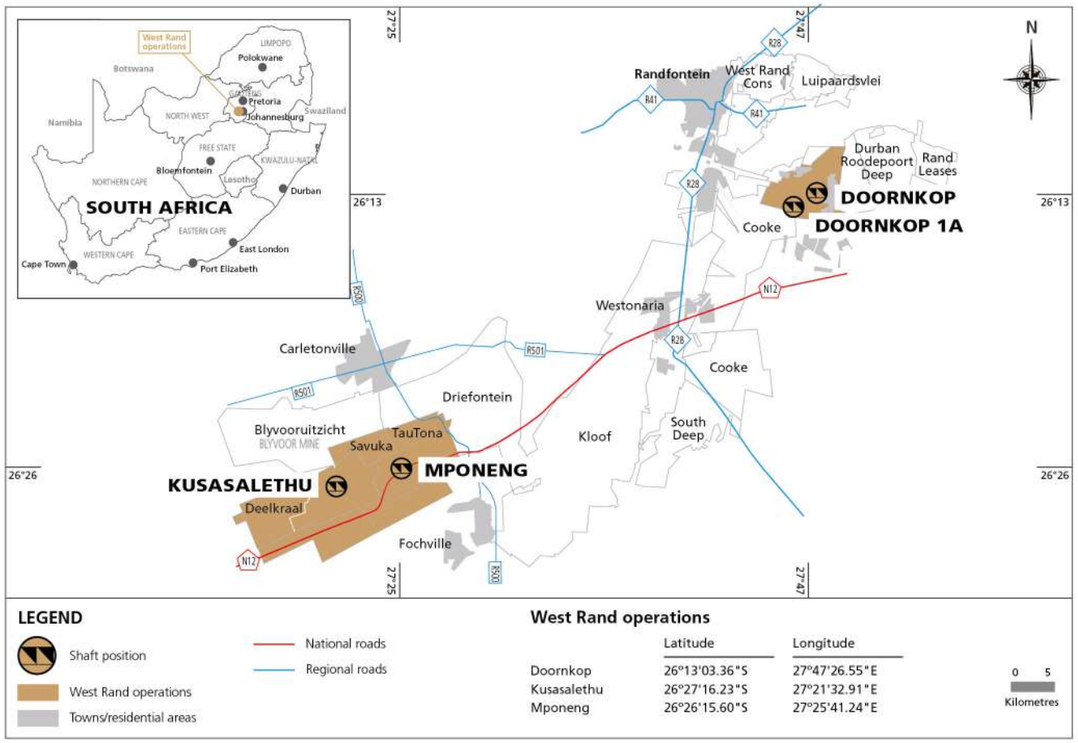
Mponeng Mine was purchased by Harmony Gold in October 2020 as part of the transaction whereby the ownership of the remaining AngloGold Ashanti Limited South African operations was transferred. Mponeng Mine is 100% owned by Harmony Gold and forms part of the West Rand operations.

Regional geology

For a description of the geological characteristics of the West Rand, refer to the Geology section under each operation.

KUSASALETHU/MPONENG STRATIGRAPHIC COLUMN

SACS no 42 (2006)					Mponeng	
			Formation	Member	Mponeng classification (2010)	LOG
Witwatersrand Supergroup	Ventersdorp Supergroup	Klipriviersberg group	Alberton Porphyry		Alberton lava	
			Ventersdorp			
					VCR	
	Central Rand Group	Turffontein subgroup	Elsburg		Elsburg Quartzite Denny's Quartzite	
			Kimberley	Libanon Reef	LIBA5, LIBA4 LIBA3, LIBA2 LIBARZ Libanon Reef	
		Johannesburg subgroup	Booysens	Doornkop member	Doornkop Quartzite Booysens Shale	
			Krugersdorp	Bird Reef	Krugersdorp Quartzite Bird Reef	
			Luipaardsvlei	Livingstone Reef	Luipaardsvlei Quartzite Livingstone Reef	
			Randfontein	Johnstone Reefs Middlevlei Reef	Johnstone Reef Randfontein Quartzite Middlevlei Reef	
			Main	Carbon Leader	Main Quartzite Green Bar Carbon Leader	
			Blyvooruitzicht		Blyvooruitzicht Quartzite North Leader Reef	
	West Rand Group	Jeppestown Subgroup	Maraisburg		Maraisburg Quartzite	
			Roodepoort		Transition Zone Roodepoort Shales	
			Crown		Crown Lavas	
			Babrosco	Veldschoen Reef	Florida Quartzites Veldschoen Reef	



WEST RAND STRATIGRAPHIC COLUMN (DOORNKOP)

Group	Sub-group	Formation	Informal unit	Member
Klipriviers-berg		Westonaria	Klipriviersberg	
		Venterspost	VCR	VCR
Central Rand Group	Turffontein	Elsburg	Elsburg massives and individuals	Modderfontein Waterpan
		Westonaria	Quartzites and conglomerates	Gemsbokfontein Panvlakte Gemspost Vlakfontein
		Robinson	Shale	Kimberley Reefs
	Johannesburg	Booysens Shale	Upper transitional Shale Lower transitional	Kimberley Shale
		Krugersdorp	Bird Amygdaloid Bird Reefs White Reef	Bird
			Luipaardsvlei Quartzite	Luipaardsvlei
		Livingstone Conglomerate	Livingstone Reef	Livingstone Reef
		Randfontein Quartzite		
		Johnstone Conglomerate	Johnstone Reef	Johnstone Reef
		Langlaagte Quartzite		
		Main Conglomerate	Main Reef, Leader Reef, South Reef	Langlaagte
West Rand Group	Jeppestown	Roodepoort		

DOORNKOP

Doornkop shaft.

Mineral Resources (inclusive)

7.4Moz

Mineral Reserves

1.9Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

History

Exploration in the area started in the early 1930s with the sinking of the main and ventilation shafts, by JCI, from 1983. By 1989, steady production had been achieved from mining the Kimberley Reef, which is shallower than the South Reef that is currently being mined. The South Reef shaft extension was approved in October 1991 and the reef was intersected in October 1993. Stoping of the South Reef began in 1995. Shaft deepening continued with stoppages between November 1996 and May 1999. Harmony acquired Doornkop in January 2000. The South Reef project was relaunched 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 currently exploiting the South Reef to some 2 000m below surface. The narrow South Reef is exploited by means of conventional stoping. The ore mined at Doornkop is processed at the mine's carbon-in-pulp plant, which is directly beside the shaft. Mining of the Kimberley Reef was suspended during FY14 to focus on the build-up production from the South Reef and to prevent losses as a result of the lower gold price. Mining of the Kimberley Reef may resume should economic circumstances improve sufficiently.

Geology

The Doornkop shaft lease area lies to the south-east of the major north-easterly 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 Rand Group, with the overlying Central Rand Group sediments having been removed by erosion. Doornkop is bounded by the Roodepoort fault and a number of other faults, including the Saxon fault, which constitute conspicuous structural breaks. Another 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.

As nearly the entire upper Witwatersrand section lies within the lease area, all major zones are present. However, given 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 Kimberley 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 quartzite with non-persistent bands of "blue shot" grit and thin argillite partings. The South Reef footwall 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.

Exploration drilling is set to continue in the coming financial year. Focus will be on targeting areas with limited geological information and those that are potentially high grade in order to increase the geological confidence and payable ounces.

Mineral rights/legal aspects and tenure

The current mining right encompasses an area of 2 941.021ha 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. The Department of Mineral Resources and Energy reference GP30/5/1/2/2/09MR is valid from 7 October 2008 to 6 October 2038.

Mining methods and mine planning

The mining method used is longwall mining with stability pillars on major geological structures. Geotechnical dip pillars have been introduced between raiseline to minimise seismicity. 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, ventilation and in the long lead times between the start of cross-cuts development to completion of stoping per raise line.

Mineral processing

The carbon-in-pulp plant has a monthly milling capacity of 225 000 tonnes. Before Sibanye-Stillwater's Cooke shafts were placed on care and maintenance, this included toll treatment of approximately 120 000 tonnes a month of ore from these shafts.

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. Plans are in place to eventually make these levels track-bound. 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.

Mineral Resource estimation

The estimation method used for local measured data on the shaft is ordinary kriging. For local Indicated and Inferred data, it 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 unkriged 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 the Mineral and Petroleum Resources Development Act (MPRDA), Doornkop has the environmental management programme (Ref: GP 30/5/1/2/2/ (09) EM), approved by the Department of Minerals Resources and Energy (DMRE) on 7 June 2010. According to the Environmental Management Programme (EMPr) approval, and regulation 55(3) of the MPRDA regulations as well as the EMPr itself, regular scheduled EMPr audits should be undertaken and are required to be submitted to the DMRE. The audit conducted for the year 2019/20 indicates that the Harmony Doornkop operation obtained a total compliance score of 94.31% for the audit.

All environmental impacts emanating from mining, processing activities and associated infrastructure are documented in the EMPr and in the environmental aspect register, as required by both the MPRDA and ISO 14001.

Annual environmental compliance audits/inspections are conducted by the relevant government departments and independent environmental auditors to verify the status of compliance against all applicable environmental laws such as the National Water Act, National Environmental Management Act and the National Nuclear Regulator Act.

An online Doornkop environmental legal register, available at www.drayer-legal.co.za, is used to monitor compliance and to obtain relevant legal environmental updates for the operation to ensure compliance.

Environmental monitoring of key environmental indicators is also undertaken by the operation to monitor compliance which includes:

- Air quality monitoring
- Ground and surface water monitoring
- Biodiversity
- Monitoring the ecological status of the Klipriver.

Doornkop operation is both certified in terms of ISO 14001:2015 and by the International Cyanide Management Institute in terms of the cyanide management code. As required by both ISO 14 001 and the cyanide management code, every effort is made to either eliminate or minimise the impacts of mining activities on the environment and surrounding communities.

South Africa – West Rand **Doornkop** continued

Material risks

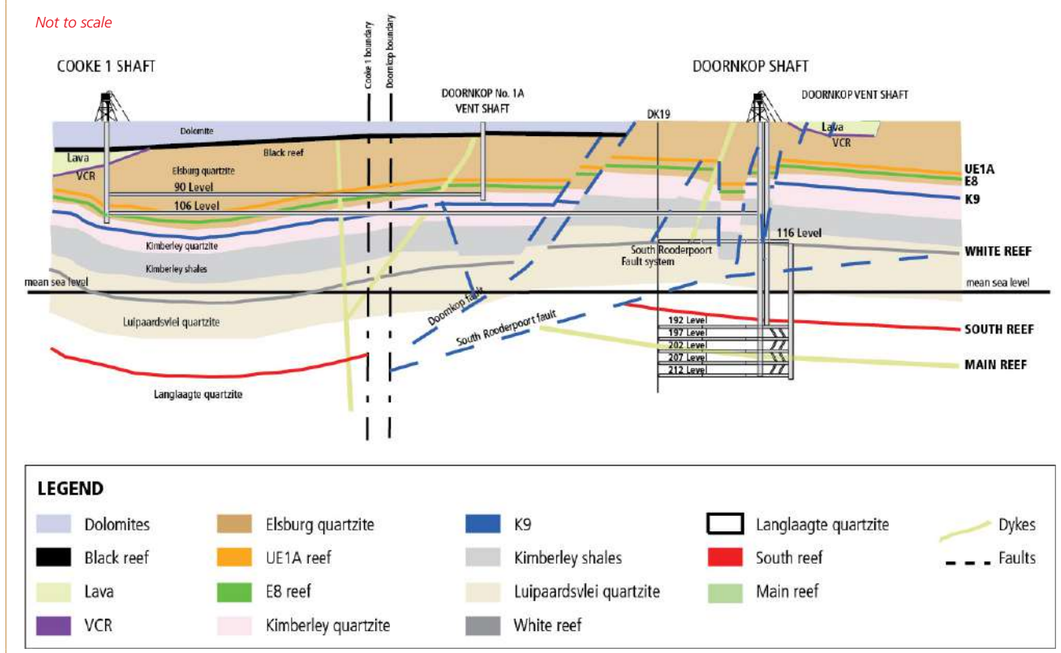
Material risks that may impact Doornkop's Mineral Resource and Reserve statement:

Significant risk	Remedial action
• Unexpected geological features.	• Exploration drilling planned into all areas with low geological confidence included in the life-of-mine.

Competent person

Ore Reserve manager

Hilton Chirambadare
BSc (Geology, Mathematics), BSc (Hons) (Geology), GDE, MENG, MBA, SACNASP
20 years' experience in gold mining, 16 years on Witwatersrand gold deposits (underground) and three years on the Kraaipan Greenstone Belt (surface).



Doornkop geological section looking west.

Doornkop

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	(g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	(g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	(g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	(g/t)	Gold (000kg)	Gold (000oz)
South Reef	4.7	7.57	36	1 149	4.8	7.41	35	1 134	3.3	7.73	25	819	12.8	7.55	96	3 101
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	**22.9**	**4.23**	**97**	**3 120**	**16.9**	**4.35**	**74**	**2 368**	**13.4**	**4.38**	**59**	**1 887**	**53.3**	**4.31**	**229**	**7 375**

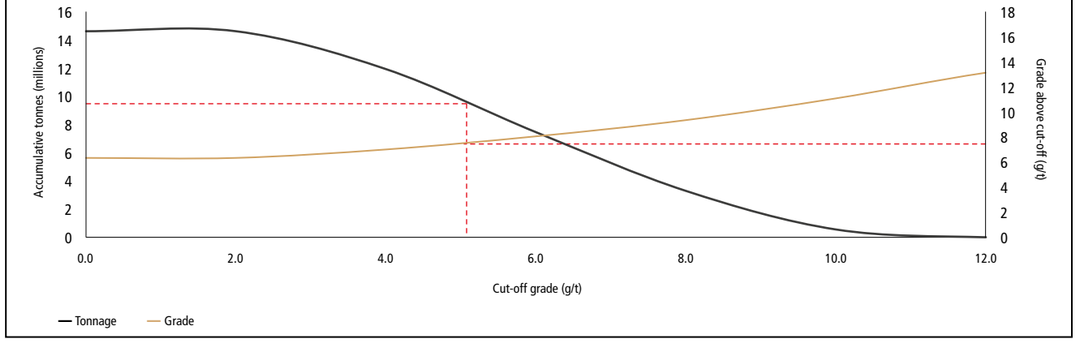
Modifying factors

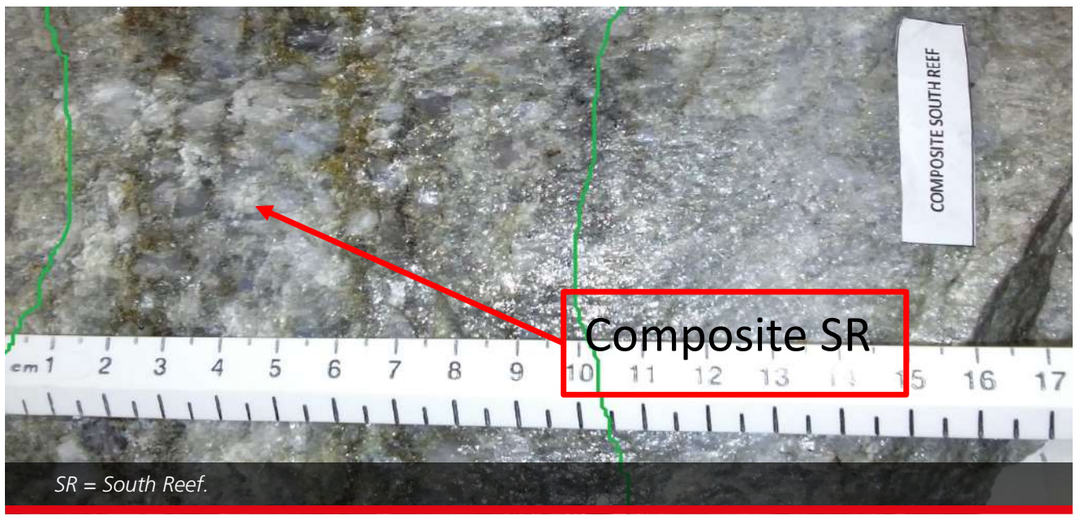
South Reef	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2021	79	124	152	96	739
2022	81	123	151	97	739

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes (Mt)	(g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	(g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	(g/t)	Gold (000kg)	Gold (000oz)
South Reef	5.9	4.46	26	842	7.9	4.29	34	1 093	13.8	4.36	60	1 934

Doornkop Mine: South Reef
Measured and Indicated Mineral Resource grade-tonnage curve





SR = South Reef.

South Africa – West Rand **Doornkop** continued

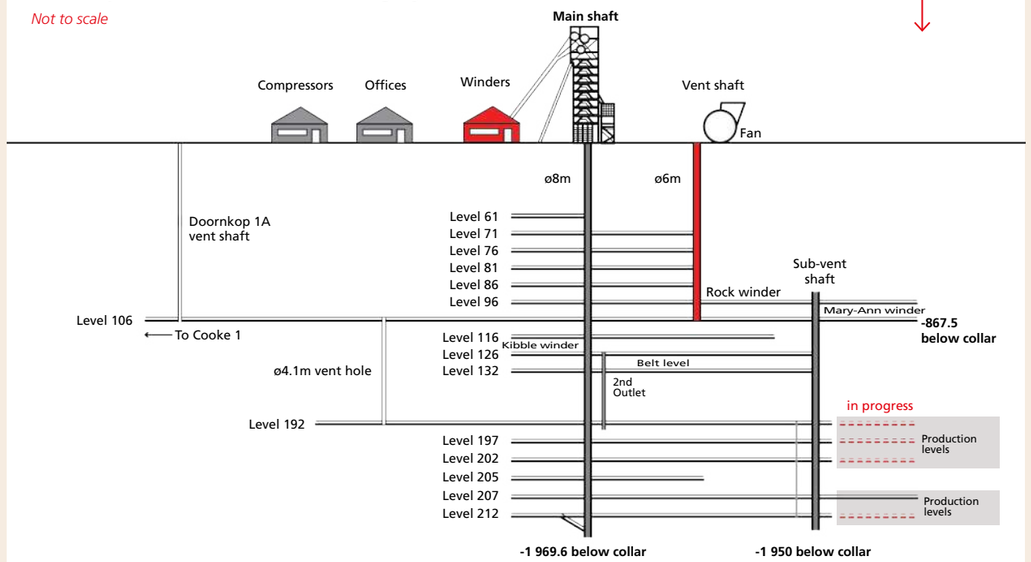
Operational performance

Doornkop: Key operating statistics

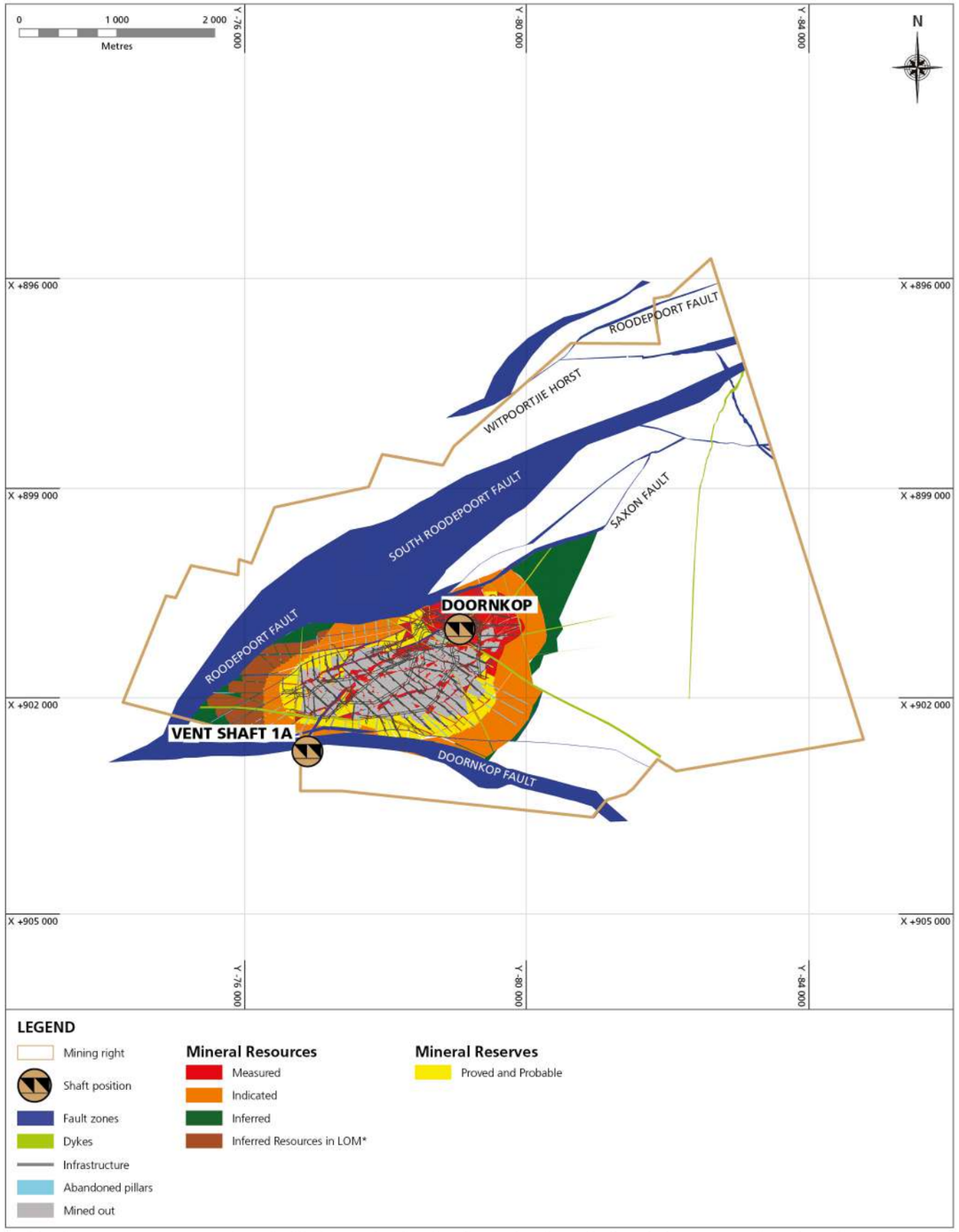
	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**874**	851	681	730	696
	000t (imperial)	**963**	983	750	805	767
Gold produced	kg	**3 444**	3 670	2 994	3 273	3 429
	oz	**110 726**	117 993	96 259	105 229	110 245
Grade	g/t	**3.94**	4.31	4.40	4.48	4.93
	oz/t	**0.115**	0.126	0.128	0.131	0.144
Development						
Total metres (excluding capital metres)		**6 500**	6 271	6 042	8 337	9 595
Reef metres		**1 449**	1 713	1 474	1 621	1 478
Capital metres		**2 708**	1 149	315	497	806
Financial						
Average gold price received	R/kg	**896 779**	853 957	747 282	593 301	575 077
	US$/oz	**1 834**	1 725	1 484	1 302	1 392
Capital expenditure	Rm	**491**	425	281	308	274
	US$m	**32**	28	18	22	21
Cash operating cost	R/kg	**729 965**	595 550	567 632	486 795	413 586
	US$/oz	**1 493**	1 203	1 127	1 068	1 001
All-in sustaining cost	R/kg	**823 966**	680 524	649 041	572 132	508 065
	US$/oz	**1 685**	1 374	1 289		

Doornkop: Schematic of shaft and mining layout

Not to scale



Doornkop Mine – South Reef: Mineral Resources and Mineral Reserves – June 2022



** Inferred Resources are incorporated into the life-of-mine plan, based on the good track record of our ability to convert Inferred Mineral Resources into Indicated and Measured Mineral Resources through ongoing development and exploration work.*

KUSASALETHU

Kusasalethu shaft.

Mineral Resources (inclusive)

3.9Moz

Mineral Reserves

0.3Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

History

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

Nature of the operation

The 10m-diameter rock/ventilation shaft was initially 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 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 the Mineral Reserve 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.

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. The Sandy Terrace Complex is found on the same elevation as the 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 separate facies in these areas.

The Elsburg 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, these 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).

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

Mining methods and mine planning

Mining is by means of sequential grids with regional dip stabilising pillars, backfill and preconditioning 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 mine 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 at the Mponeng gold plant, which is 17km from the mine. Gold is extracted by means of milling, cyanide leaching, carbon-in-pulp concentration and electrowinning to absorb the carbon to produce ore. Smelting is done on-site and the unrefined gold is dispatched to Rand Refinery.

Infrastructure

Ore mined is transported by rail-bound equipment to the shaft's main orepass system where it gravity feeds to 115 level. Ore is then hoisted via the sub-vertical shaft to above 73 level and then to surface. Given the depth of mining, major engineering infrastructure required includes refrigeration and cooling installations 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 quality assurance/quality control, as prescribed by SAMREC, to ensure data quality and accuracy. 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's environmental aspects and impacts are managed according to the Environmental Management Programme (EMPr), as approved by the Department of Mineral Resources and Energy (DMRE), in terms of the 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 MPRDA and ISO 14001:2015.

The approved EMPr was amended in 2014, in terms of section 102 of the MPRDA. This amendment allowed for the inclusion of the dimensions of the waste rock dumps, as well as the 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 the farm Deelkraal 142 IQ. The DMRE approved the amendments in 2018.

Annual performance monitoring audits are conducted by various departments, including the DMRE and the Department of Water and Sanitation to verify compliance with the following legislation:

- Mine Health and Safety Act
- National Water Act
- National Environmental Management Act
- MPRDA.

All environmental impacts arising from mining activities are managed in terms of the requirements of the approved EMPr, the water use licence, the waste permit and in line with ISO 14001:2015. As required by relevant regulations, environmental audits or performance assessments to verify compliance with the approved EMPr are conducted every second year by independent environmental consultants and a report is submitted to the DMRE. 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 successfully implemented an alien invader plant eradication programme since 2016. To date, this programme, which continues to run, has cleared invasive plant species from more than 3 500ha of 5 113ha of the surface mining right area.

Biomonitoring surveys are also conducted on surface water Resources, close to the operation, to safeguard the scarce Resource and to ensure compliance with the conditions of the water use licence issued in terms of the National Water Act to:

- Determine the condition of biological communities in the rivers and streams and to determine the chemical water quality in 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.

Full chemical analyses include:

- Monthly sampling of surface streams
- Quarterly analysis of borehole water to monitor groundwater quality.

Kusasalethu is ISO 14001:2015 certified and complies with the requirements of ISO 14001:2015 for which it is audited annually by an independent certification body. The operation was initially certified in 2011, and most recently in 2018, under the new ISO 14001 (2015). In line with this accreditation, every effort is made to eliminate or minimise the negative effects of mining activities on the environment and adjacent communities.

The operation has also been accredited in terms of the Cyanide Code by the International Cyanide Management Institute. Independent third-party audits are conducted every three years to check compliance with the Cyanide Code.

Material risks

Material risks that may impact Kusasalethu's Mineral Resource and Reserve statement:

Significant risks	Remedial action
• Seismicity • Water build-up at Deelkraal • Backfill volumes • Major engineering infrastructure failure.	• Extended production breaks scheduled over the past three years to allow for infrastructure upgrades • Control of mining sequence and appropriate support systems • Dewatering of the Deelkraal area through 98 level • Waste rock dump on surface used to supplement backfill volumes.

Competent person

Johann Ackermann
BSc Geology with distinction (UFS, 2005), SAIMM
28 years' hard rock, deep-level and ultra-deep-level gold mining experience in the Witwatersrand Supergroup.

Sample of Ventersdorp Contact Reef (VCR) mined at our Kusasalethu mine

The sample description is as follows: Poorly sorted and moderately packed clast to matrix supported conglomerate of predominantly medium-sized quarts pebbles (oligomectic: with an 85:15 ratio: milky Quartz versus smokey Quartz ratio) – set within a medium-grained arenetic to pyritic matrix.

Well mineralised (20% – 25%) disseminated pyrite to heavily bottom-loaded pyrrhotite basal contact (with an estimated {AU value} of between 1 500 – 2 000 cm.g/t). At its base is a dual band – flow banded mylonite with micro xenoliths. The twin mylonite bands on the bottom contact is indicative of two distinct phases of deformation, likely associated with the world's largest known meteor crater, known as the Vredefort dome.

VCR Reef.

Kusasalethu

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes (Mt)	Gold (g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold (g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold (g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold (g/t)	Gold (000kg)	Gold (000oz)
Ventersdorp Contact Reef	2.1	11.53	24	761	8.6	9.28	80	2 559	2.0	8.85	18	576	12.7	9.58	121	3 896

Modifying factors

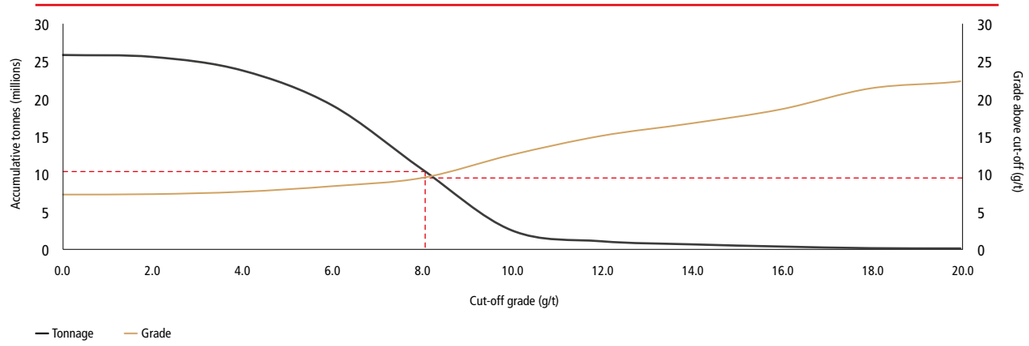
Ventersdorp Contact Reef	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2021	86	136	165	95	1 100
2022	86	133	164	96	1 100

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes (Mt)	Gold (g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold (g/t)	Gold (000kg)	Gold (000oz)	Tonnes (Mt)	Gold (g/t)	Gold (000kg)	Gold (000oz)
Ventersdorp Contact Reef	1.3	6.97	9	294	0.03	6.84	0.2	7	1.3	6.97	9	301

Kusasalethu Mine: Ventersdorp Contact Reef

Measured and Indicated Mineral Resource grade-tonnage curve



South Africa – West Rand **Kusasalethu** continued

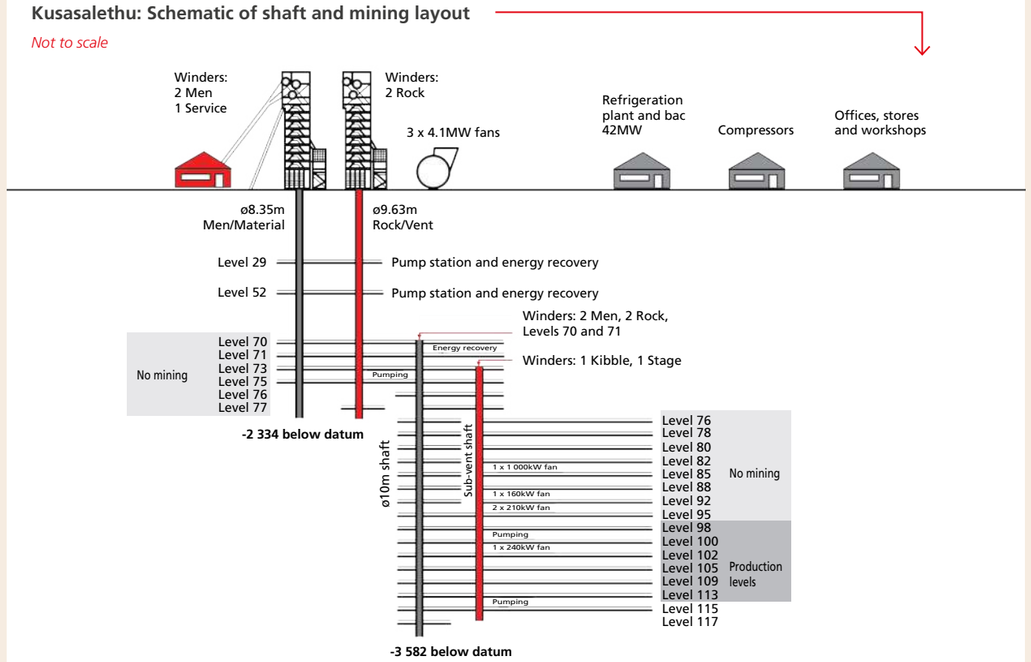
Operational performance

Kusasalethu: Key operating statistics

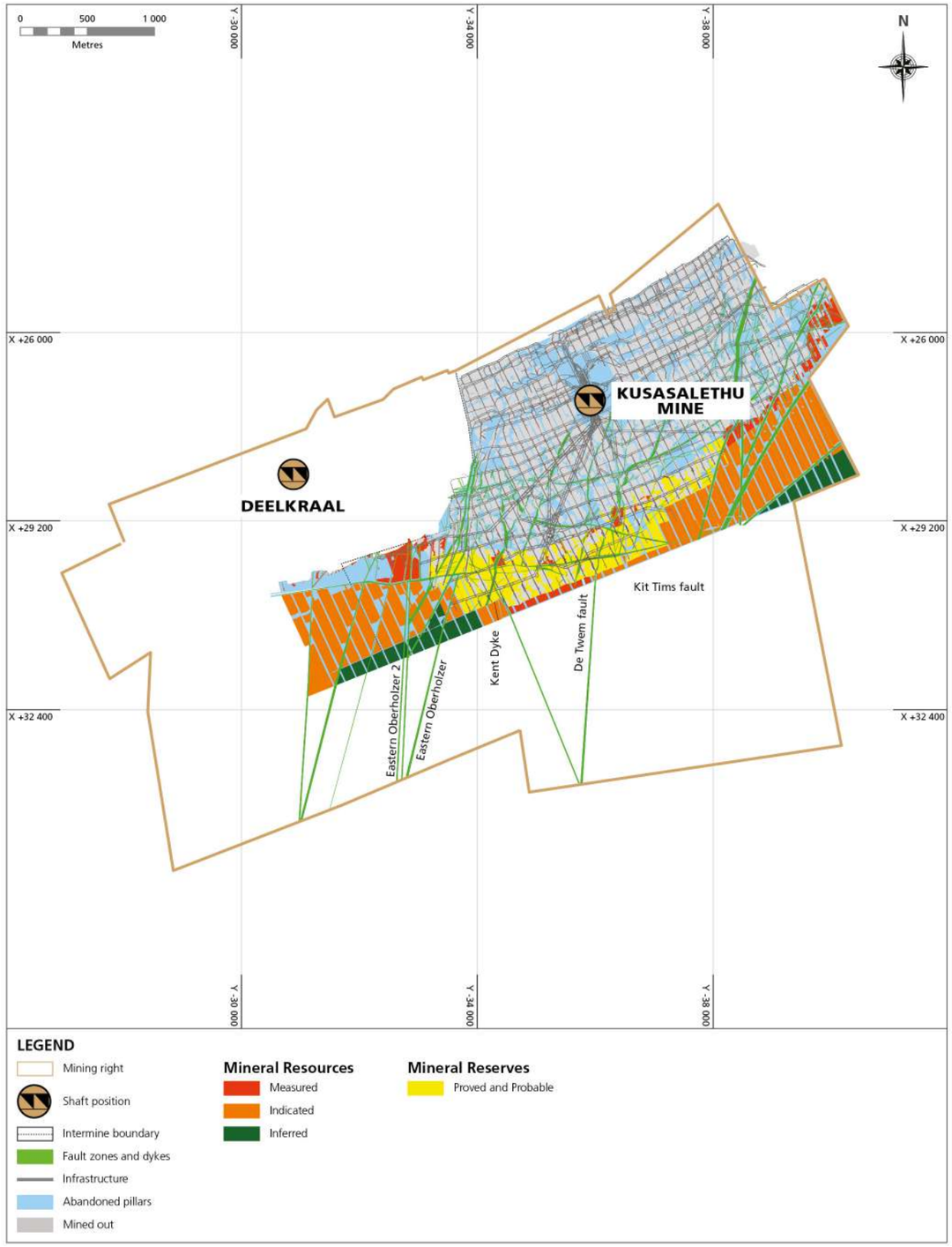
	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**607**	708	615	742	670
	000t (imperial)	**669**	780	678	817	738
Gold produced	kg	**4 567**	3 999	3 015	4 989	4 429
	oz	**146 833**	128 570	96 934	160 400	142 395
Grade	g/t	**7.52**	5.65	4.90	6.72	6.61
	oz/t	**0.219**	0.165	0.143	0.196	0.193
Development						
Total metres (excluding capital metres)		**2 817**	2 202	3 039	5 437	4 016
Reef metres		**1 025**	282	1 019	1 217	776
Capital metres		**—**	—	—	—	—
Financial						
Average gold price received	R/kg	**902 634**	854 201	743 153	591 742	577 313
	US$/oz	**1 846**	1 725	1 476	1 298	1 397
Capital expenditure	Rm	**210**	205	188	316	289
	US$m	**14**	13	12	22	22
Cash operating cost	R/kg	**678 403**	742 452	849 782	476 417	472 177
	US$/oz	**1 387**	1 500	1 687	1 045	1 143
All-in sustaining cost	R/kg	**739 681**	814 048	923 054	556 621	554 302
	US$/oz	**1 513**	1 644	1 833	1 221	1 342

Kusasalethu: Schematic of shaft and mining layout

Not to scale



Kusasalethu Mine – Ventersdorp Contact Reef: Mineral Resources and Mineral Reserves – June 2022



MPONENG

Mponeng shaft.

Mineral Resources (inclusive)

24.3Moz

Mineral Reserves

1.9Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

History

Mponeng Mine is located on a site that has been operational for 35 years.

Mponeng was previously known as the Western Deep Levels South shaft, or No 1 shaft. The original twin shaft sinking from surface commenced in 1981 and was commissioned along with the gold plant complex in 1986 when mining began. Production started through the use of two hoisting shafts, a sub-shaft and two service shafts. The name changed to Mponeng Mine in 1999.

In 2017, Savuka and Tau Tona mines commenced orderly closure and the remaining Tau Tona Mineral Resources and Ore Reserves are published as part of Mponeng Mine.

Western Deep Levels commenced mining in 1957 as part of the Anglo-American operations. Mponeng, previously known as Western Deep Levels 1 shaft or South Mine, commenced in February 1980 and the first ore was hoisted in June 1986. The initial scope of the operation was to set up the shaft infrastructure consisting of a main shaft and a service shaft that was complemented with horizontal development from Tau Tona Mine and Savuka Mine on 75 level and 81 level to establish the mining in the main shaft area.

The sub-shaft complex was established and commissioned to 109 level in 1993. The deepening project ensured access down to 120/123 level, by commissioning the shaft in 2001 and executing the Ore Reserve development in the period 2001 to 2004 to establish the mining area from 109 level to 120 level. The SSV shaft and the SS2 shaft were sunk and equipped in the period 2004 to 2009. In 2007, the Ventersdorp Contact Reef (VCR) B120 project was approved and is known today as B120 Phase 1. Phase 1 is currently being executed to accesses the VCR orebody through four parallel declines at 7.5 degrees down to 126 level which, at the time, was the limit of the Mponeng lease area. Mponeng Mine has been mining the VCR orebody extensively with co-extraction of the Carbon Leader Reef (CLR) ore that commenced during 2020 on the old Tau Tona lease area.

Nature of the operation

Mponeng Mine is a deep-level gold mine operating between 3 160m and 3 740m below mine datum (BMD) and is currently the deepest mine in the world with development at 3 841m BMD. Future mining is planned to deepen the shaft bottom to 4 227m BMD. The orebody is part of the Witwatersrand Basin and the majority of production was always from VCR with limited CLR mining commencing during 2020. Future expansion opportunities on both VCR and the CLR horizons are under review.

Geology

The VCR is the main reef horizon mined at Mponeng Mine.

The VCR forms the base of the Ventersdorp Supergroup, which caps the Witwatersrand Supergroup through an angular unconformity. The overlying Ventersdorp Lavas halted the deposition of the VCR, preserving it in its current state. The CLR, previously mined at Tau Tona and Savuka mines, is found within the Witwatersrand Supergroup. The CLR lies 900m beneath the VCR on Mponeng. The VCR is preserved across the Mponeng lease area and dips at approximately 22 degrees in a south-south-east direction.

The VCR was deposited on uneven footwall strata due to uplift and is now represented by a shallow angular unconformity. The footwall lithologies to the VCR therefore vary across Mponeng Mine as the unconformity cuts deeper in an easterly direction into older strata of the Witwatersrand Supergroup. Fluvial action during deposition of the VCR continually eroded and reworked the conglomerate, creating steep slopes and embayments between relatively undisturbed terraces.

The CLR conglomerate was deposited by several sedimentary cycles. Erosion and reworking of the conglomerate and quartzite sediments have resulted in the preservation of the CLR within the Central Rand Group of the Witwatersrand Supergroup.

Deposit type

The VCR consists of a quartz pebble conglomerate, which can be up to 3m thick in places. The footwall stratigraphy, following periods of uplift and erosion, controlled the development and preservation of the VCR, which is characterised by a series of channel terraces preserved at different relative elevations, and the highest gold values are preserved in these channel deposits.

The different channel terraces are divided by zones of thinner slope reef, which are of lower value and become more prevalent on the higher terraces and on the harder footwall units.

The relatively argillaceous protoquartzites of the Kimberley formation in the central portion of Mponeng are covered by the best-preserved VCR conglomerates.

The Elsburg formation in the west is relatively more durable, while the eastern side of the mine is dominated by shales and siltstones of the Booysens formation.

No VCR is preserved on the Krugersdorp formation on the far eastern side of Mponeng.

The CLR is the other gold-bearing reef reported as part of the total Mineral Resource for Mponeng. The CLR is located near the base of the Johannesburg Sub-group, which forms part of the Central Rand Group of the Witwatersrand Supergroup of rocks.

The CLR has historically been mined extensively at Savuka and Tau Tona mines and the remaining portions thereof have now been transferred to Mponeng Mine. The CLR in the West Wits consists of, on average, a 20cm thick, tabular, auriferous quartz pebble conglomerate and three sedimentary facies. Economically, the most important facies is Unit 1, which overlies Unit 2. Unit 1 is a complex channel deposit that is only present along the eastern side of the West Wits lease area.

Unit 2 can be up to 2m thick. Unit 3 is exposed in the southern edges of the lease area and is the oldest of the conglomerates.

Mineralisation style

Gold mineralisation followed an episode of deep burial, fracturing and alteration. A variant of Archean gold-bearing hydrothermal fluid was introduced into the conglomerates and circulated throughout in hydrothermal cells. The fluids precipitated gold and other elements through reactions that took place at elevated temperatures along the reef horizon, which was the more favourable fluid conduit. In the case of the VCR, the resulting gold grades are mostly uniformly distributed throughout the reef package.

CLR mineralisation associated with the conglomerate occurs in the form of fine layers and stringers of pyrite rather than finely disseminated pyrite around the pebbles. Flyspeck carbon can be frequently found at the base of the conglomerate. The hydrocarbon precipitated also in thin, flat veins, usually at the base of the carbon leader conglomerate, and this is where the majority of the gold is concentrated.

The VCR displays strong alteration features, which can be explained by the hydrothermal fluids that infiltrated the reef and have overprinted on the original mineral assemblage. Portions of the reef contain authigenic sulphides such as pyrite, pyrrhotite, chalcopyrite, sphalerite and galena, incorporated in the conglomerate matrix. Gold associations with these mineral assemblages indicate a strong correlation of gold mobilisation and redistribution at the time of the hydrothermal fluid influx. There is also a strong association of gold with a chloritisation event focused along the reef horizon. The chlorite alteration gives a dark coloration to the reef. Gold was precipitated by cooling and reactions between the fluids and wallrock, in this case pyritic conglomerates. Gold mineralisation was enhanced in certain areas of high fluid throughput, which were often the sites of high carbon precipitation and early alteration in the case of the CLR.

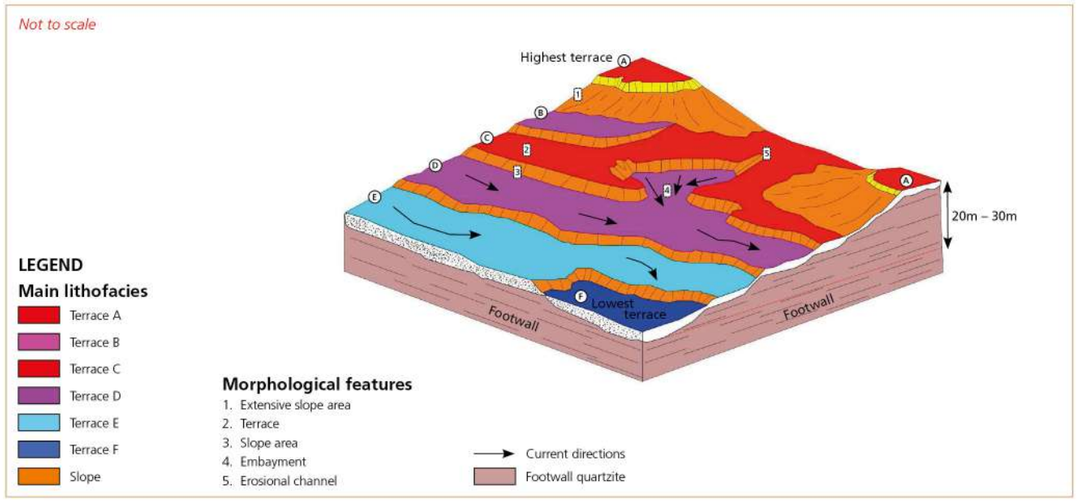
Reef sedimentology (VCR and CLR)

The VCR is characterised by a predominantly pebble to matrix-supported conglomerate that was deposited on an uneven topographic surface (see Figure 1).

The first pulse of VCR deposition followed a prolonged episode of regional uplift centred on the Bank Anticline to the east and north-east of the mine property. The VCR sedimentary package displays all the characteristics associated with a braided fluvial environment.

Following the initial depositional phase, a series of fluvial regressions, caused by continuing regional uplift, resulted in the erosion and reworking of the sediments. This created embayments which eroded into the original conglomerate terraces. The area between these embayments and terraces is referred to as slope, where extensive slumping often left only a thin veneer of preserved conglomerate.

Figure 1: Schematic 3D representation showing the depositional environment



The terraces are separated by narrow, laterally impersistent areas of slope reef. These slope reef areas can constitute up to approximately 10 – 15% in some areas. The preservation of the VCR across the softer footwall unit of the Booysens shale in the east is more erratic in nature where erosional channels on the terraces can result in reef channel widths reducing as well as slight relative elevation changes. Onto the west towards the Elsburg footwall sub-units, preservation is more consistent with very little relative changes in deposition and preservation.

Distribution and orientation of slopes and terraces were largely influenced by the nature of the underlying footwall rock and its natural susceptibility to fluvial and erosional processes. Consequently, the more competent and siliceous footwall lithologies generally host a high proportion of higher reef terraces, whereas the less competent lithologies host a higher proportion of lower terrace and channelised reef with occasional slope boundaries.

Quartzites of the Elsburg formation lie beneath the VCR on the western portion of Mponeng and Savuka. On Mponeng the quartzites generally host a poorly developed VCR that often consists of a single pebble layer. On Savuka, the VCR on the Elsburg footwall has been extensively mined, suggesting that a breakthrough might exist on Mponeng. On a local scale, prominent sub-crop-parallel channels of thicker reef occur which are oriented along sedimentary troughs in the footwall, and probably represent accumulation of sediment at the bases of ridges.

The Elsburg facies is thought to represent an extensive area of denudation where early VCR was washed off a gentle westward-facing surface by seasonal flooding, thus indicating an over-bank depositional environment. Recently, it has been exposed that VCR on the lower terraces has developed and eroded onto the Elsburg units further west than on the upper levels, showing good preservation and persistent channel development. The mine is currently mining 30% of its ore on the Elsburg footwall unit.

On the eastern side of Mponeng and Tau Tona, the VCR lies on the Booysens shale formation, which represents an area of highly variable and undulating palaeo-topography. Terrace elevation differences often exceed 15m. The Booysens facies VCR is considered as representing the more proximal facies of the reef, with a general increase in average pebble size compared with the adjacent Kimberley footwall. Reef thickness is generally reduced on the upper terraces due to the undulating topography but is above the mine average in the lower terraces. On the lower levels in the east the erratic nature of the VCR is dominant on the Booysens shale. The preservation of the VCR is erratic, and the terrain is currently exhibiting a thinly preserved VCR with thick channel developed in places.

The contact between the Booysens and the Krugersdorp is generally considered to be the eastern limit of economic VCR Resource.

The long axes of the lower terraces reflect the local palaeo-drainage direction during the reworking phase of the VCR. Drainage from the higher terraces onto slopes and lower terraces resulted in local embayments and valleys aligning perpendicular to the main drainage direction.

The reef channel orientations on the Booysens shale geozone appear to be similar to those on the Kimberley quartzites on the western side of the Booysens footwall, but swing parallel to the regional palaeo footwall strike on the eastern side of the geozone. Areas of slope, erosional facies or non-depositional facies separate the channels.

Deposition of the VCR was followed by rapid extrusion of lavas and tuffs of the Ventersdorp Supergroup. Fluvial activity was abruptly halted, causing preservation of the underlying palaeotopographic features.

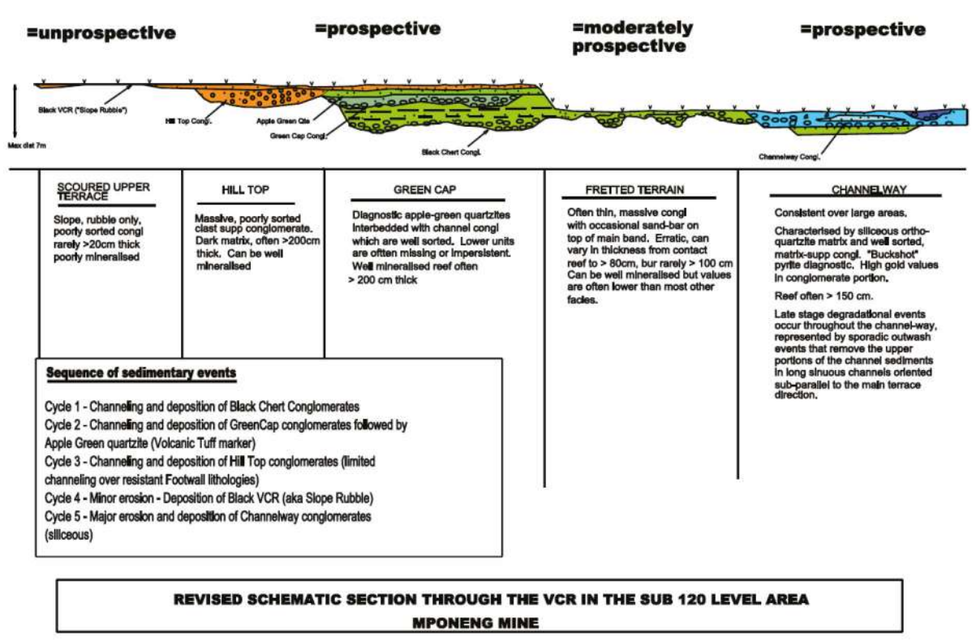
The facies model consists of three geological parameters: terrace elevation, footwall lithology, and channel development (or reef architecture).

The output of the model provides the geological basis for the evaluation model. Polygons defining areas of thick and thin VCR are outlined using new geological information. Figure 3 illustrates how the VCR orebody is subdivided according to the footwall lithology and used within the estimation process. The estimation domains are based on geological information.

The estimation domains are defined and refined using mostly data from chip sampling and, to a lesser extent, borehole sampling. The thick/thin (VTK/VTN) of the Kimberley domain split is largely confined to mined, and therefore sampled, areas, with very little projection of those areas into unmined ground. The unmined ground is estimated separately as a "mixed" domain (VMD) by means of a percentage krig in which each macro-block is assigned a certain percentage thick and thin channel.

The trends of new VTN areas are similar to those areas defined above 120 level and north of the Mponeng shaft area and the rest of the VCR areas above 120 level. A similar trend of the thick domain (VTK) is followed.

Figure 2: Schematic section of the proposed VCR palaeo-morphology indicating the variation of terrace deposition characteristics



REVISED SCHEMATIC SECTION THROUGH THE VCR IN THE SUB 120 LEVEL AREA MPONENG MINE

The dark blue of the Kimberley zone (Figure 3) defines the thick facies and the light blue defines the thin facies.

Similarly, on the Booysens domain where the yellow defines the thin facies and the pink defines the thick facies.

The other principal economic horizon mined at Mponeng Mine is the Carbon Leader Reef (CLR).

The CLR is part of the Central Rand Group near the base of the Carletonville formation. The CLR possesses a considerable lateral persistence, covering an area of approximately 5km x 30km. The CLR lies 800 – 900 metres stratigraphically deeper than the VCR. The CLR resides on a disconformity as it truncates the underlying North Leader, which appears to be a reef body in many ways with varying gold content.

Following the burial of the North Leader by a succession of protoquartzites and immature conglomerates (the footwall beds or Blyvooruitzicht formation), the West Wits area was eroded to produce a scoured but generally planar unconformity. Oligomictic small-pebble conglomerates (10 – 50cm thick), also known as CLR, were deposited on this unconformity, followed by mature sands. This conglomerate is referred to as the No 3 band. The No 3 band was gently folded, scoured and eroded and then overlain by a thick (c.400cm) package of sediments, the No 2 package. This unit in turn was gently folded and eroded. Later, a planar unconformity (possibly the result of a marine transgression) formed over the entire region. Pre-existing conglomerates were reworked in places, forming a very mature oligomictic conglomerate (the No 1 band) that was subsequently well mineralised with gold. No conglomerate is present on this No 1 unconformity in places, probably due to a combination of variations in transport direction and the presence of sandy material under the unconformity.

Gold mineralisation followed an episode of deep burial, fracturing and alteration. A variant of Achaean greenstone gold-bearing hydrothermal fluid was introduced into the reef environment and was probably circulated in hydrothermal cells.

The Carbon Leader conglomerate system proved a suitable fluid conduit and various minerals were precipitated in the permeable, often structurally prepared host. Solid hydrocarbon precipitated in very thin, flat veins, which usually formed at the base of the Carbon Leader. Gold was precipitated by cooling and reactions between the fluid and the wall rocks, in this case pyritic conglomerates. The regional distribution of gold was strongly influenced by subtle changes in the physical properties of the conglomerates and their footwall lithologies. Gold mineralisation was enhanced in areas of high fluid throughput, which were often the sites of high carbon precipitation and strong early alteration.

Mineral rights, legal aspects and tenure

Table 1: Prospecting and mining rights registered in the name of Harmony gold for Mponeng Mine

As part of the acquisition of AngloGold Ashanti's South African business, all mining rights related to Mponeng were transferred and are now held by Harmony. There are three mining rights that form Mponeng area that were successfully converted, executed and registered at the Mineral and Petroleum Resources Titles Office. The principal mining right (GP30/5/1/2/2(01) MR) covers an area of 64 773 hectares for the mining of gold, silver, nickel and uranium. This mining right was granted on 14 February 2000 and unless cancelled or suspended will continue in force for 36 years ending 13 February 2036. The other two mining rights, namely GP30/5/1/2/2(11) MR and GP30/5/1/2/2(248) MR, are related to the closed Savuka and Tau Tona mines, and are planned to be incorporated into the principal mining right (GP30/5/1/2/2(01) MR. On 15 February 2022, Harmony through its subsidiary Golden Core applied in terms of section 102 of the MPRDA, substantively similar to the AngloGold Application, to consolidate the mining rights and mining right areas into a single mining right (GP30/5/1/2/2(01) MR) (Golden Core Application). The Golden Core Application is currently pending at the DMRE. The table below indicates the mining rights.

Operation	Licence type	Reference no.	Effective date	Expiry date	Area (ha)
Mponeng Mine	Mining Right	GP30/5/1/2/2(01) MR	14-Feb-2000	13-Feb-2036	6 477.35
Tau Tona Mine	Mining Right	GP30/5/1/2/2(248) MR	16-Oct-2012	15-Oct-2022	195.83
Savuka Mine	Mining Right	GP30/5/1/2/2(11) MR	11-Jun-2006	01-Jul-2016	30.93

Mining methods and mine planning

Gold prices applied are R763 000/kg for Ore Reserve and R850 191/kg for Mineral Resource. The Mineral Resource is reported at an average width of 135cm overall of which 156cm applied to VCR and WUDLS and 120cm applied to CLR.

The orebody is extracted by means of mostly breast mining methods with associated waste mining in addition to the reef being extracted. The dilution resulting from these waste sources is captured and incorporated in the tonnage calculation with historic performance being the benchmark. In addition to the in-stope dilution sources being accounted for, allowance is also made for dilution from development waste sources to mill by both schedule results and factors based on history. Widths used are based on the channel width of the orebody being mined and are aligned with the mining method (stoping and ledging) and historical achievements.

Geological models and the sampling data are presented for the mine's evaluation in a Datamine file format.

Cut-off grades are derived by taking into consideration the available resource for the selected project areas, the operating cost as captured for the business plan and the required margin. Modifying factors are also being brought into the equation.

Due to the variability of the VCR with respect to value and the seismic risk associated with deep-level mining, the sequential grid mining method is used at Mponeng. The aim is to create sufficient flexibility to mitigate the risks posed to the production plan by doing sufficient development to have at least 24 months of minable reserves available.

(a) Some design criteria include the following for the VCR orebody:
- Breast mining to strike spans of 180m with 30m-wide dip stabilising pillars orientated on true dip
- Major geological features are bracketed
- Incorporation of 30m strike stability pillars at a maximum dip spacing of 100m (skin to skin) on the side of the raise where the mining is conducted last in order to minimise closure in the stoping areas below 109 level
- Rock engineering requirements are adhered to.

(b) Some design criteria include the following for the CLR orebody:
- Breast mining to strike spans of 180m with 40m-wide dip stabilising pillars orientated on true dip
- Major geological features are bracketed
- Incorporation of 30m strike stability pillars at a maximum dip spacing of 100m (skin to skin) on the side of the raise where the mining is conducted last in order to minimise closure
- Rock engineering requirements are adhered to.

(c) On the VCR horizon above 109 level the access haulages have all been developed in the hanging wall with the exception of 99 level. For the areas below 109 level all the haulages are being developed in the footwall. In the case of the CLR all haulages will be developed in the footwall.
- Middling to reef 85 – 150m for the VCR and 70m for footwall placement in the CLR orebody
- Where possible, the VCR haulages are placed out of the Booysens shale; however, where these shales are traversed allowance is made for reduced rate of advance to account for delays due to additional support requirements.

(d) The overall mining sequence is an inverted Christmas tree; however, within each raise the face configuration is underhand when mining towards the west and overhand (top panels leading) when mining towards the east (the bottom panels leading). This is, however, governed by the presence of large geological structures within the raise line.

Based on the latest geological structure model and the selected mining method (sequential grid) the geotechnical team designed a suitable pillar layout based on modelling results. These include dip stabilising bracket and strike pillars. A detailed mine design and schedule is done based on the pillar design taking cognisance of uneconomical areas which on a macro-scale are excluded. This design and schedule are the basis of the mine plan and the Ore Reserves declared. With the exploitation of ever-deepening Resources and the need for flexibility on a mine of this nature the sequential grid mining method was adopted. This has been proven as the method best suited to the deep-level gold mining with its associated seismicity and therefore flexibility requirements.

Mining rates are based on current and expected performance depending on underground conditions and constraints. Development is done by either mechanised, mechanical or conventional method depending on the most suitable method for the specific requirements. Dilution is included in the production plan mainly from external waste sources from the stoping operations, but allowances are also made for dilution occurred in the ore flow process.

Planning Resource is based on the Resources available at a required mining value where a cut-off value (971cmg/t) is determined and these Resources are excluded from the planning resource on a macro-scale. Geotechnical design is done of the available planning Resource and mine design is done accordingly. All level 1 reserves are accessible via current infrastructure.

Mineral processing

Mponeng and its processing facility have been in operation since 1986, as such the processing method is considered well established for the style of mineralisation processed. The plant therefore makes use of historical trends and data as a basis for their recoveries of VCR and CLR, however, when projects are planned for optimisation, appropriate test work will be performed.

The ore processed at the Mponeng Gold plant is a blend of ore received from the Mponeng Mine and the Kusasalethu Mine. The latest test work performed was in 2019 and analysed these blends to determine optimal conditions for processing.

The ore is initially ground down by means of semi-autogenous milling, after which a conventional gold leach process incorporating liquid oxygen injection is applied. The gold is then recovered by means of carbon in pulp (CIP) technology together with electrowinning and smelting processes.

Infrastructure

Mponeng is an established mine that has been in operation since 1986. All surface and underground infrastructure is in place to support the current reserve declaration and includes processing plant, tailing dam, roads, water and power supply, offices, housing, security, etc.

Mponeng is an operating mine with well-established logistic support. Transport of ore is done on premises as well as processing which is done next to the mine at the Mponeng Mine gold plant.

Mineral Resource estimation

The estimation method used for local measured estimates on the shaft is ordinary kriging (OK) and for local Indicated and Inferred estimates is simple macro-kriging (SMK). The orientations and ranges of each geozone's semi-variogram are used to determine the kriging search parameters, and the estimation parameters are also optimised. Estimates are generally kriged into 30m x 30m blocks for the Measured Resources from the point support data. The Indicated Resources are kriged into 60m x 60m blocks and data is capped at Mponeng Mine.

Gold is the only variable estimated for large block sizes. Channel width is estimated for all block sizes.

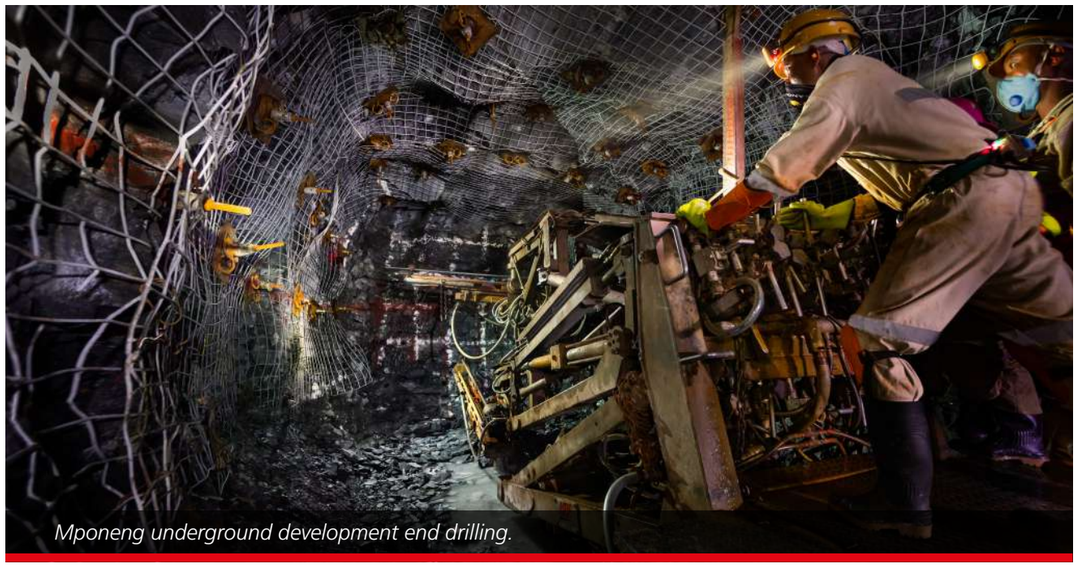
The Ore Reserve classification is based on the Mineral Resource category. The choice of the appropriate category of Mineral Resource depends upon the quantity, distribution and quality of data available and the level of confidence attached to the data. The Mineral Resource is classified per the SAMREC guidelines into the following components: Measured, Indicated and Inferred Resources.

Discounts are applied to the Resource due to the "unknown" complex geological structure ahead of current mining faces and are based on the level of information available. These discounts are regularly checked to confirm that they are still appropriate for the areas being mined in.

For the Ore Reserves, which are modified Indicated and Measured Mineral Resources, consideration was given to the modifying factors affecting extraction. No Measured Mineral Resources have been converted to Probable Ore Reserves instead of Proved Ore Reserves due to uncertainties associated with modifying factors that are considered in the conversion from Mineral Resources to Ore Reserves.

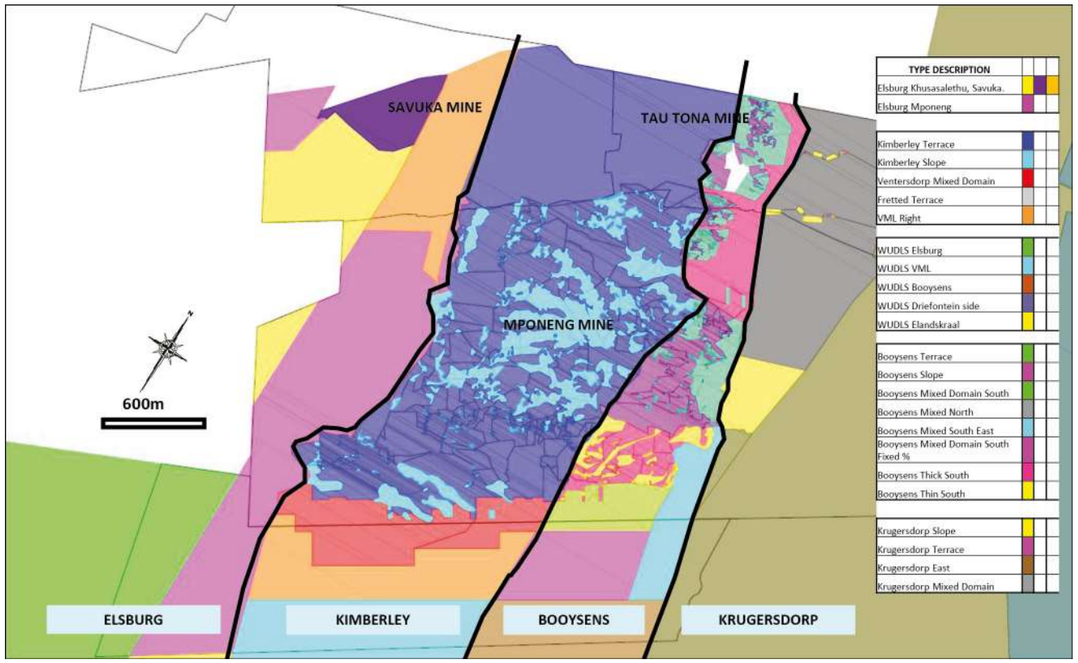
The Datamine mining software system is currently in use on this shaft. A scripting/macro-system has been generated, which is linked to a customised scripting menu. This menu allows for professional and easy managing of the data and building of geostatistical models.

The imported data is associated to the geozones for the geostatistical model generation. It is also assumed that the differing support sizes for chip samples and borehole samples are negligible. Histograms and statistics of the raw data are then calculated for each geozone for comparison purposes.
The various search parameters files are based on the modelled semi-variograms. The defined search ellipse adheres to the direction of the associated semi-variogram, as well as the range distances. The current minimum and maximum is variable for VCR measured estimation per geozone as well as for the Indicated/Inferred estimation VCR.



Mponeng underground development end drilling.

Figure 3: Footwall geozones that form the basis of the geological facies model. Each footwall zone is subdivided



Environmental impact

Mponeng's environmental aspects and impacts are managed according to the Environmental Management Programme (EMPr), as approved by the Department of Mineral Resources and Energy (DMRE), in terms of the 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 MPRDA and ISO 14001:2015.

Annual performance monitoring audits are conducted by various departments, including the DMRE and the Department of Water and Sanitation to verify compliance with the following legislation:

- Mine Health and Safety Act
- National Water Act
- National Environmental Management Act
- MPRDA.

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

As required by relevant regulations, environmental audits or performance assessments to verify compliance with the approved EMPr are conducted every second year by independent environmental consultants and a report is submitted to the DMRE. 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.

Full chemical analyses include:

- Monthly sampling of surface streams
- Quarterly analysis of borehole water to monitor groundwater quality.

Mponeng is ISO 14001:2015 certified and complies with the requirements of ISO 14001:2015 for which it is audited annually by an independent certification body. The operation was initially certified in 2011, and most recently in 2018, under the new ISO 14001 (2015). In line with this accreditation, every effort is made to eliminate or minimise the negative effects of mining activities on the environment and adjacent communities.

The operation has also been accredited in terms of the Cyanide Code by the International Cyanide Management Institute. Independent third-party audits are conducted every three years to check compliance with the Cyanide Code.

South Africa – West Rand Mponeng continued

Material risks

Material risks that may impact Mponeng's Mineral Resource and Reserve statement:

Significant risks	Remedial action
• Seismicity	• Support strategy • Seismic management around mass response • Cycle mining implemented • Preconditioning • Monitor seismic potency.
• Face length flexibility	• Optimise development rates • Critical raise line scrutiny • Maintain affective mining mix.
• Flooding of shaft bottom	• Standby pumps at shaft bottom • 127 level dam

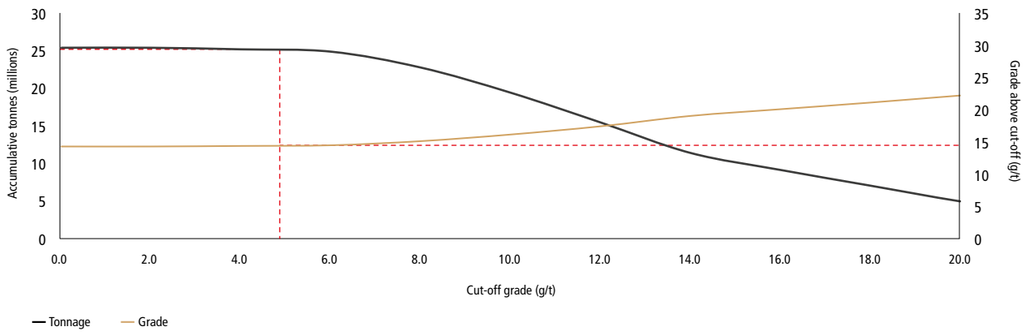
Competent person

Ore Reserve manager

William Herman Olivier
Certificate of Competency for Mine Survey, GDE, South African Geomatics Council (SAGC) 0136
32 years' experience in gold mining.

Mponeng Mine: VCR and CLR Reef

Measured and Indicated Mineral Resource grade-tonnage curve



Mponeng

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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)
Mponeng	4.0	15.65	63	2 037	21.2	14.34	304	9 785	29.1	13.35	389	12 496	54.4	13.91	756	24 319

Modifying factors

Mponeng	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2021	81	152	215	98	971
2022	81	149	214	98	971

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes	Gold			Tonnes	Gold			Tonnes	Gold		
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Mponeng	2.3	8.09	19	597	4.3	9.12	39	1 258	6.6	8.76	58	1 855

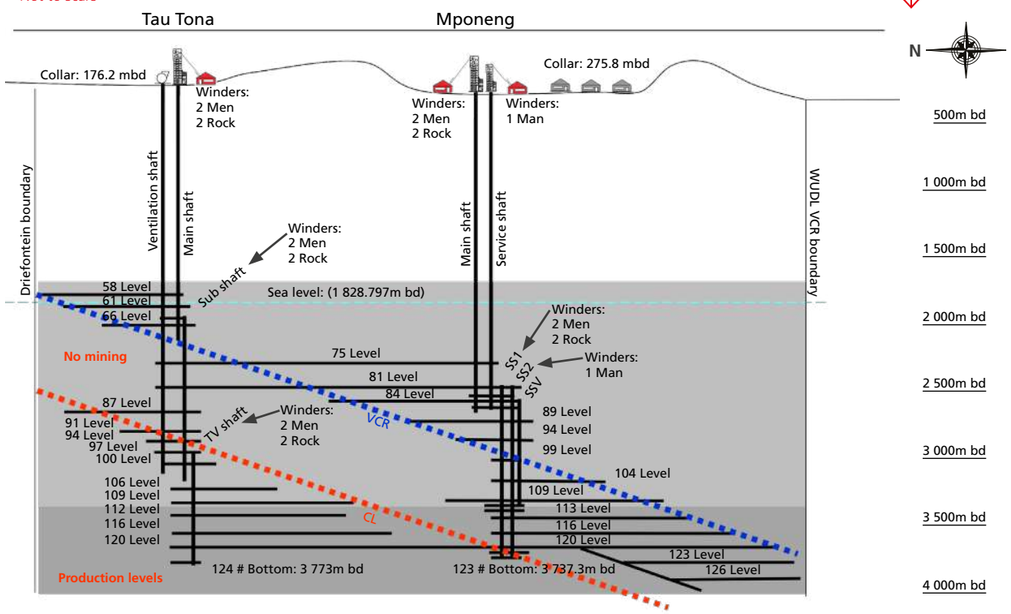
Operational performance

Mponeng: Key operating statistics

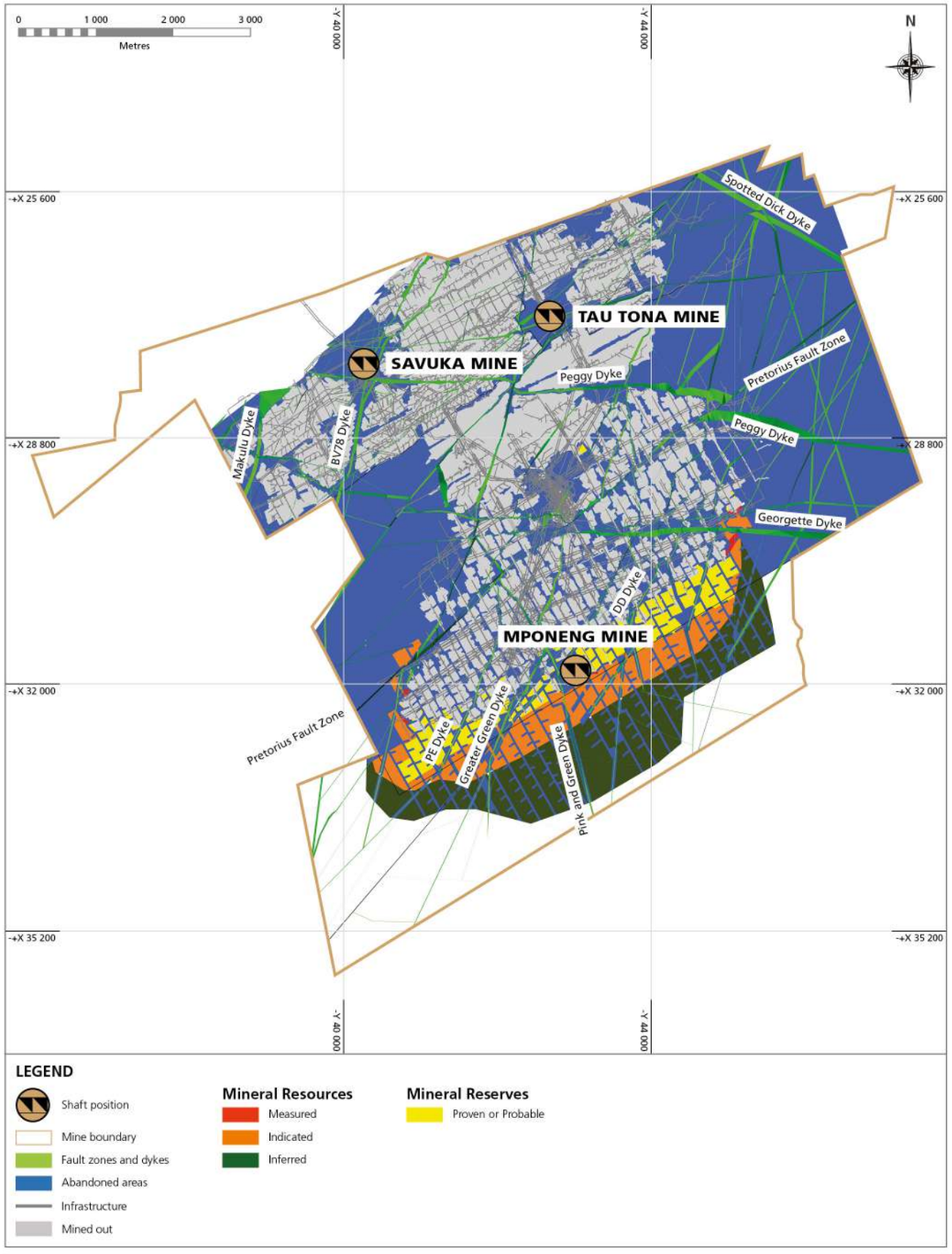
	Unit	FY22	FY21
Operation			
Volumes milled	000t (metric)	**840**	683
	000t (imperial)	**926**	753
Gold produced	kg	**6 086**	5 446
	oz	**195 669**	175 092
Grade	g/t	**7.25**	7.97
	oz/t	**0.211**	0.233
Development			
Total metres (excluding capital metres)		**8 331**	6 299
Reef metres		**1 249**	815
Capital metres		**—**	—
Financial			
Average gold price received	R/kg	**930 257**	896 474
	US$/oz	**1 902**	1 811
Capital expenditure	Rm	**605**	493
	US$m	**40**	32
Cash operating cost	R/kg	**739 026**	532 812
	US$/oz	**1 511**	1 076
All-in sustaining cost	R/kg	**865 976**	659 760
	US$/oz	**1 771**	1 333

Mponeng: Schematic of shaft and mining layout

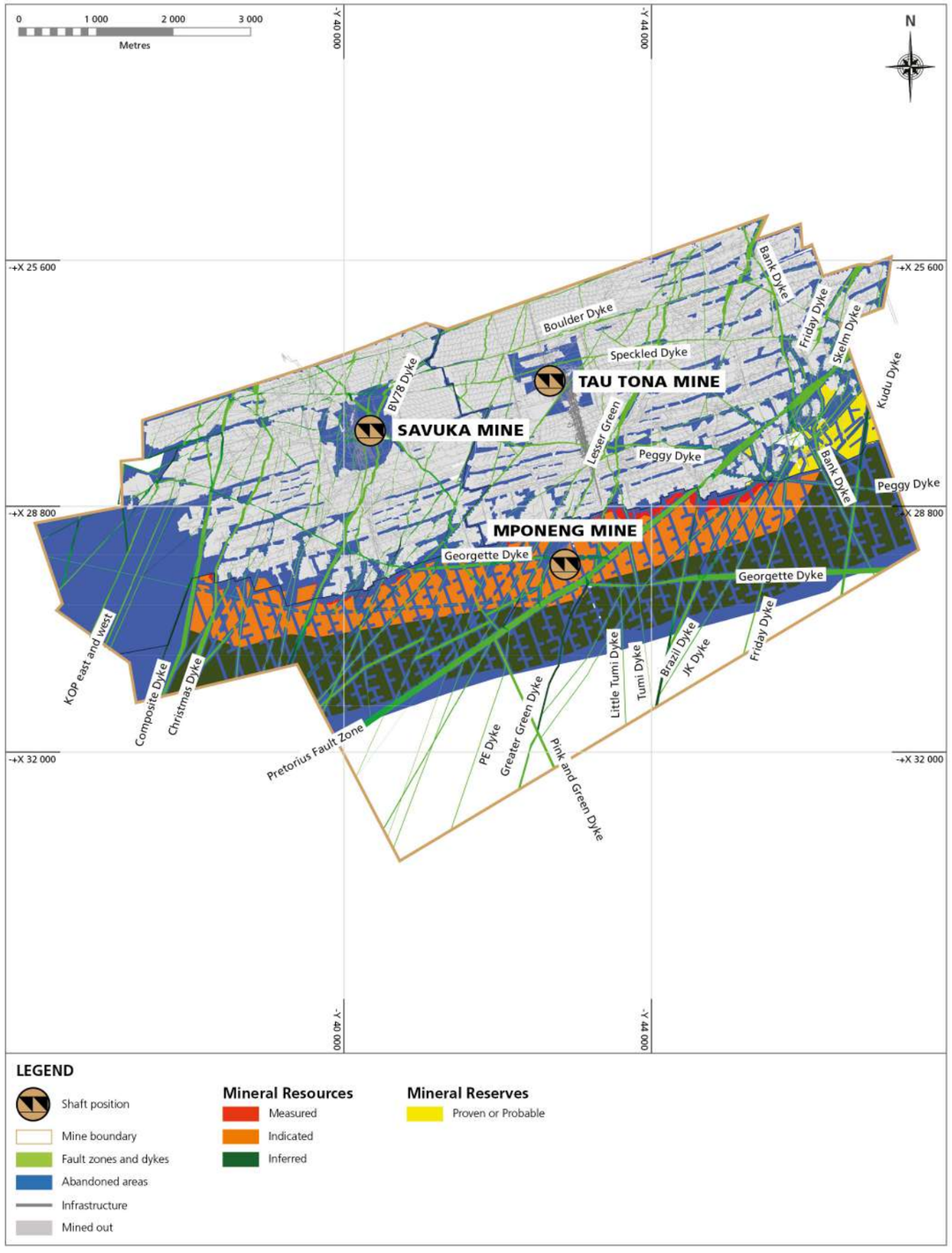
Not to scale



Mponeng Mine – Ventersdorp Contact Reef: Mineral Resources and Mineral Reserves – June 2022



Mponeng Mine – Carbon Leader Reef: Mineral Resources and Mineral Reserves – June 2022



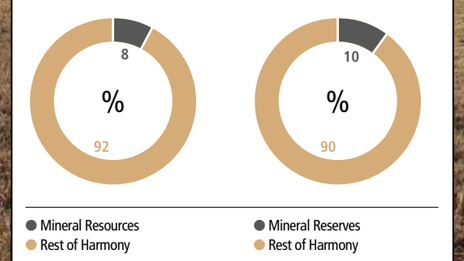
Mineral Resources (inclusive)
10.2Moz

Mineral Reserves
4.0Moz

KLERKSDORP

MINERAL RESOURCES AND MINERAL RESERVES BY OPERATION	
Klerksdorp	**78 – 89**
Moab Khotsong	**82**

Gold and Gold equivalents
Contribution to Harmony



Harmony has one underground mining operation in the Klerksdorp area – Moab Khotsong. As at 30 June 2022, the estimated Mineral Resource (inclusive) was 10.2Moz and the estimated Mineral Reserve, 4.0Moz.

Moab Khotsong shaft.

South Africa – Klerksdorp continued

Location of operation

Moab Khotsong, which includes the mining and surface infrastructure of the adjacent Great Noligwa, is located in the Free State province, 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

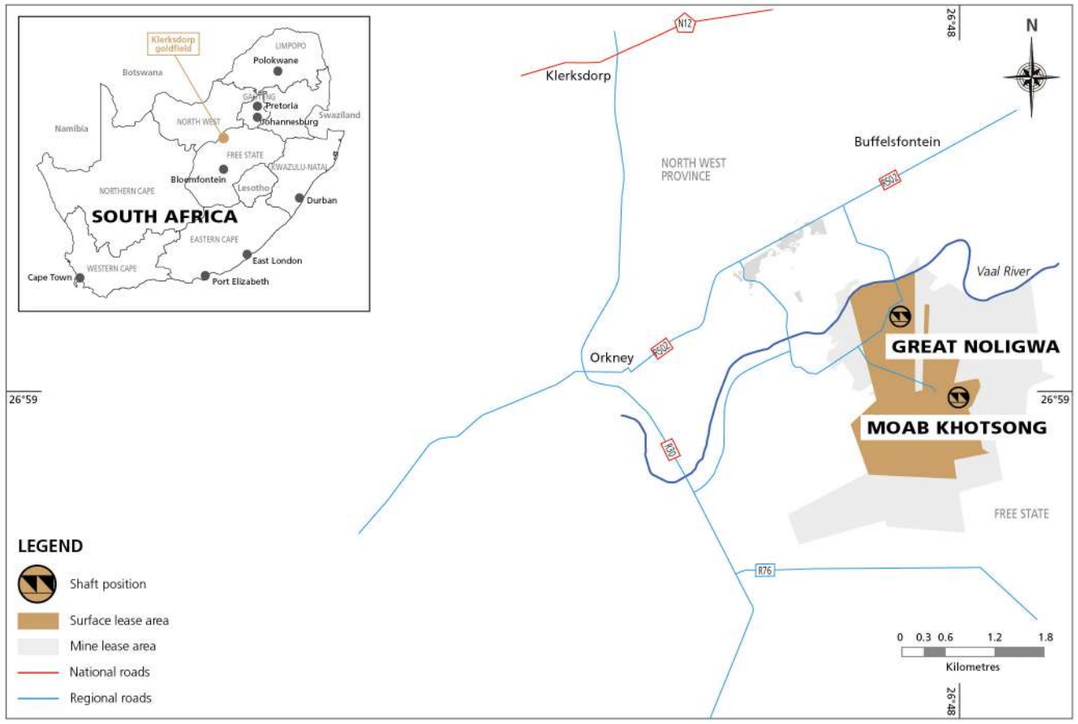
For a description of the geological characteristics of the Klerksdorp area, refer to the Geology section under Moab Khotsong.

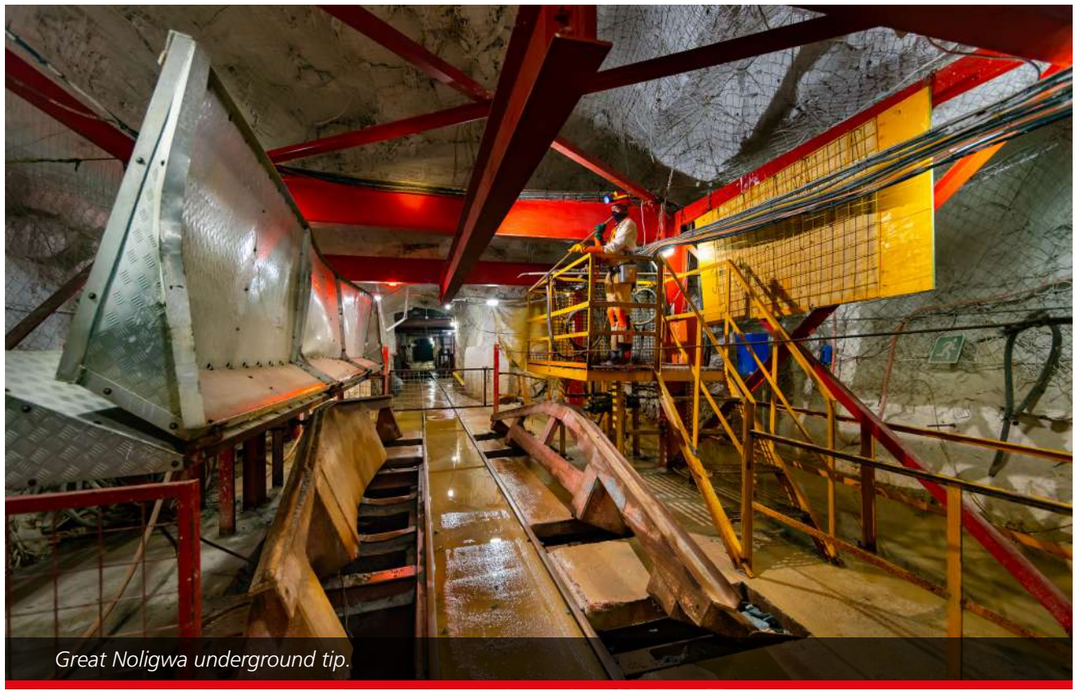
KLERKSDORP STRATIGRAPHIC COLUMN

Group	Sub-group	Formation	Informal unit and reefs	Member
Klipriviersberg		Alberton/ Orkney	Lava beds	
		Venterspost	VCR	VCR
Central Rand Group	Turffontein	Mondeor	Elsburg massives and individuals	Modderfontein Waterpan
		Klerksdorp	Quartzites and conglomerates	Gold Estates Quartzite
				Dennys Reef
		Gold Estate		Kimberley Reefs
	Johannesburg	Crystalkop	C-Reef	C-Reef
		Strathmore	Zandpan Marker Vaal Reef	Bird
		Stilfontein	Quartzite	Quartzites with minor interbedded conglomerates
			Millar Reef	Millar Reef
			Quartzites	
			Livingstone Reef	Livingstone Reef
		Commonage		Quartzite
			Commanage Reef Ada May or Reef	
West Rand Group	Jeppestown	Roodepoort		

Moab decontamination.

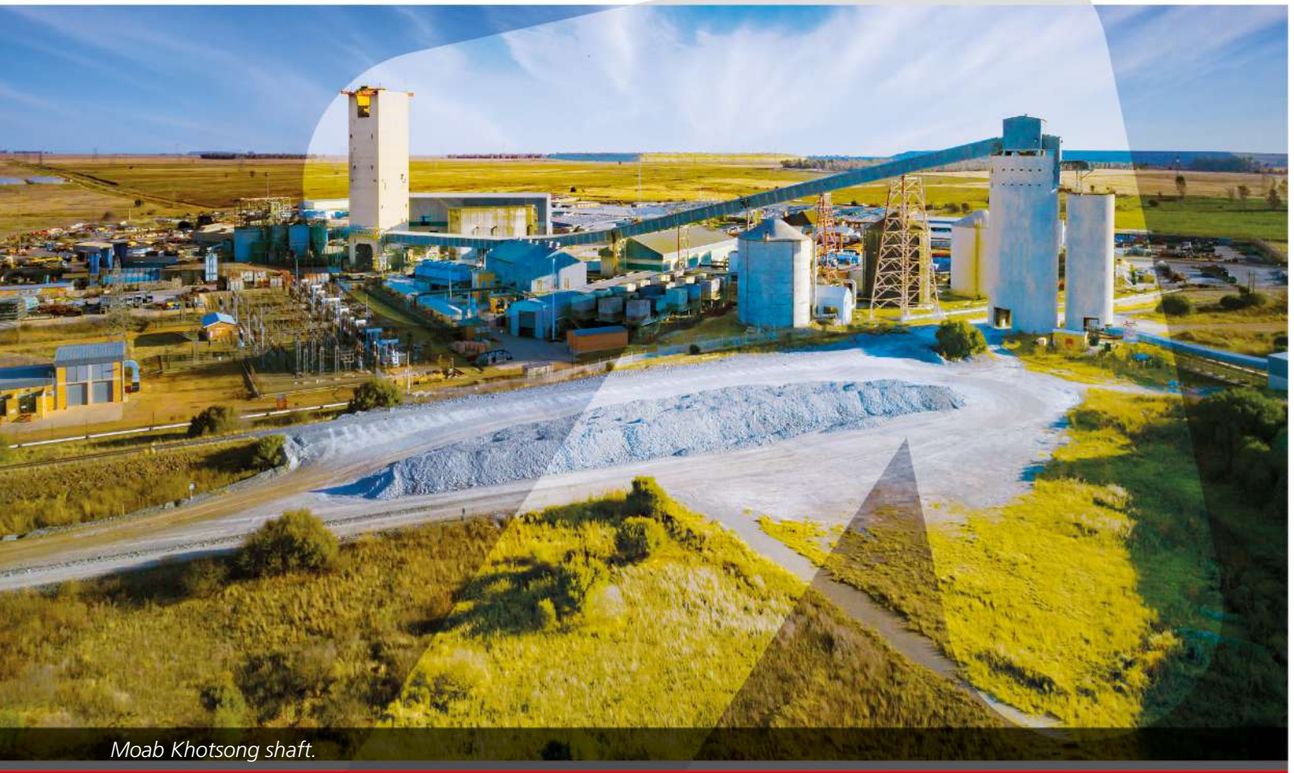
Moab Khotsong – Locality





Great Noligwa underground tip.

MOAB KHOTSONG



Moab Khotsong shaft.

Mineral Resources (inclusive)

10.2Moz

Mineral Reserves

4.0Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

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. Zaaiplaats Reserves were included into the Moab Khotsong Reserves as at June 2021, following the conclusion of the feasibility study and approval of capital by the board.

Nature of the operation

Moab Khotsong is the youngest of the South African deep-level gold mines with three vertical shaft systems maintained to service the mine. The orebody is subdivided by major faults into three distinct geographical mining areas. These are referred to as top mine and middle mine, accessed through Moab Khotsong shaft, and Zaaiplaats, accessed through a decline system off the base of the Moab Khotsong shaft.

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 are structural bounds for the reef blocks of the middle mine to the north-west and south-east respectively. The northern boundary of Moab Khotsong's middle mine is the north-dipping Zuiping fault. Moab Khotsong requires a reduced drill spacing pattern of the order of 50m x 50m, which allows for accurate delineation of the structurally bound mineable blocks so that accurate and efficient mine designs can be implemented to ensure optimal extraction and maximum orebody use.

The mineralisation model 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 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 Vaal Reef and C Reef. The current geological model thus sub-divides these two reefs into homogeneous zones based on geological and grade characteristics.

The Vaal Reef 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 and the presence of carbon. Uranium is an important by-product 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 carbon seam, with a thickness of 5mm to 20mm, 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 of the orebody, along with its depth and structural complexity, dictates the mining method employed at Moab Khotsong. The primary mining method used at Moab Khotsong is conventional breast mining, on a scattered grid. The method, as opposed to sequential grid mining, is necessitated by the complex geology at Moab Khotsong, which prevents the implementation of a strict mining sequence. Moab Khotsong makes extensive use of backfill for the support of stopes. The economic reef horizons of top and middle mine are exploited between depths of 1 698m and 3 054m below surface.

Zaaiplaats is located between the elevations of 3 054m and 3 526m below surface. Zaaiplaats will be accessed by declines from the north-eastern end of the Zaaiplaats ground to take advantage of the existing access development in place.

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 Mineral and Petroleum Resources Titles Office:

- 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.

These rights cover a combined area of 10 991.1 296ha. (15MR = 1 372.4 696ha and 16MR = 9 618.660ha.)

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 which recovers gold and uranium through gold cyanide and acid uranium leaching.

South Africa – Klerksdorp **Moab Khotsong** continued

Infrastructure

Moab Khotsong and Great Noligwa's surface and underground infrastructure, as well as the power and water services, are designed to fully meet planned life-of-mine production and service capacity requirements. The operation has a dedicated ore processing plant in close proximity to Moab Khotsong and tailings are pumped to existing tailings storage facilities. Most of the waste rock is separated from reef ore underground and accounted for separately. All waste and reef are delivered to the metallurgical plant.

Mineral Resource estimation

The geostatistical estimation model is created per reef type and per geological zone.

Measured model: Point data and drill hole data, capped to the 99th percentile, uses the ordinary kriging method with experimental semi-variograms, search/estimation parameters, kriging efficiency and slope of regression. Commonly measured models are done on a 10m x 10m and 30m x 30m estimation block size.

Indicated model: Declustered data uses simple macro-kriging (SMK) with experimental semi-variograms, search/estimation parameters. Commonly Indicated models are done on a 60m x 60m estimation block size.

Inferred model: Declustered data uses SMK with experimental semi-variograms, search/estimation parameters. Commonly, Indicated models are done on a 120m x 120m estimation block size.

Inferred model beyond estimation confidence: Global arithmetic mean of the declustered data for all the areas to the lease boundary.

Environmental impact

Harmony, holder of the tenement, has addressed the requirements of the Department of Mineral Resources and Energy (DMRE). An environmental impact assessment report and environmental management programme (EMPr) report is in place and approved by the DMRE. An environmental performance assessment report was submitted to the DMRE in 2019.

Moab Khotsong Operations has applied for its own water use licence, which entails splitting the current approved licence between Harmony, Village Main Reef and AngloGold Ashanti (sold to Harmony/owned). Moab Khotsong Operations is awaiting the issuing of the licence by the Department of Water and Sanitation. Moab Khotsong also has the following licences/certification in place:

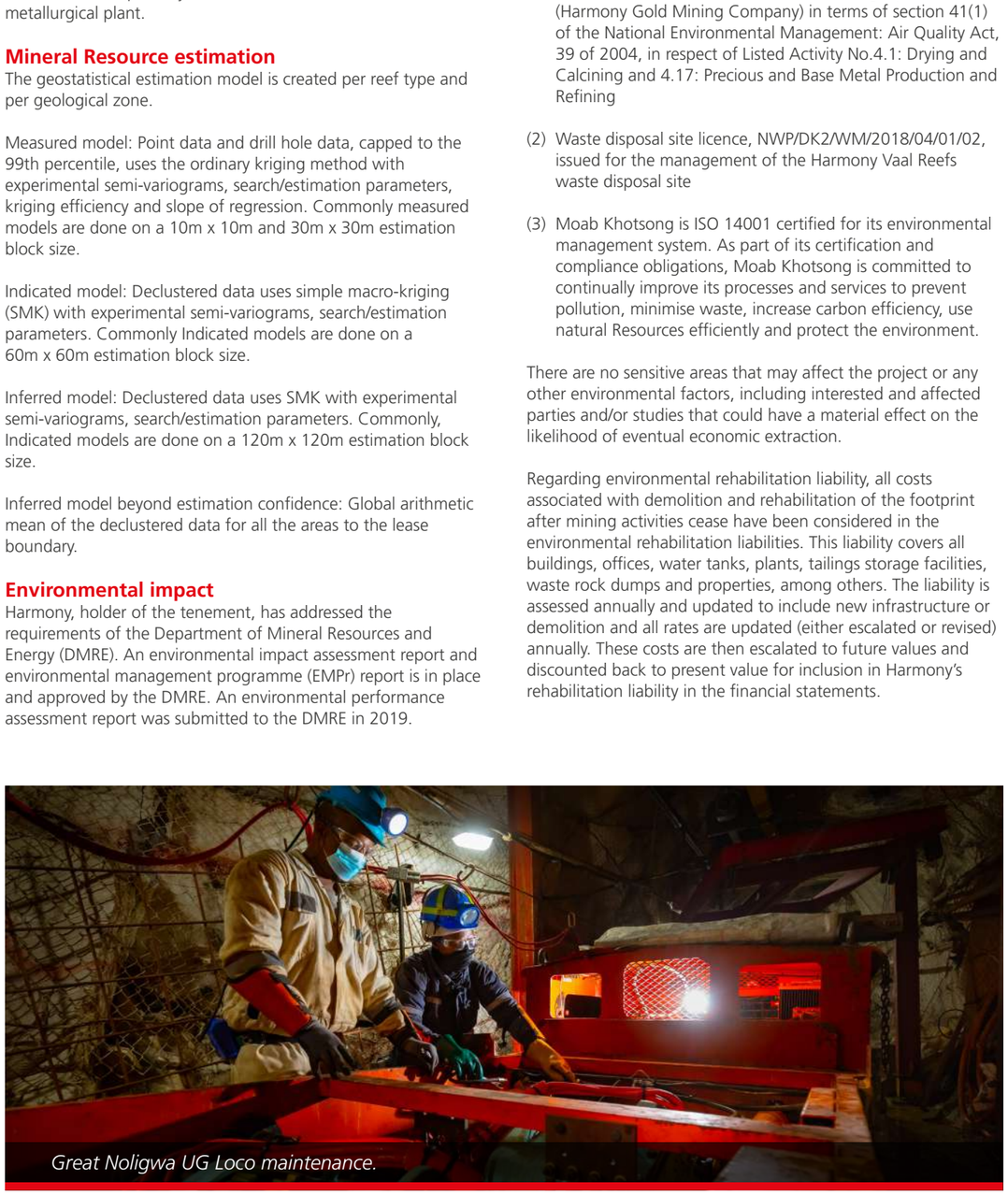
(1) Atmospheric emission licence, AEL/FS/MKO-HGM/14/10/2019 issued to Moab Khotsong Operations (Harmony Gold Mining Company) in terms of section 41(1) of the National Environmental Management: Air Quality Act, 39 of 2004, in respect of Listed Activity No.4.1: Drying and Calcining and 4.17: Precious and Base Metal Production and Refining

(2) Waste disposal site licence, NWP/DK2/WM/2018/04/01/02, issued for the management of the Harmony Vaal Reefs waste disposal site

(3) Moab Khotsong is ISO 14001 certified for its environmental management system. As part of its certification and compliance obligations, Moab Khotsong is committed to continually improve its processes and services to prevent pollution, minimise waste, increase 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.

Regarding environmental rehabilitation liability, all costs associated with demolition and rehabilitation of the footprint after mining activities cease have been considered in the environmental rehabilitation liabilities. This liability covers all buildings, offices, water tanks, plants, tailings storage facilities, waste rock dumps and properties, among others. The liability is assessed annually and updated to include new infrastructure or demolition and all rates are updated (either escalated or revised) annually. These costs are then escalated to future values and discounted back to present value for inclusion in Harmony's rehabilitation liability in the financial statements.


Great Noligwa UG Loco maintenance.

Material risks

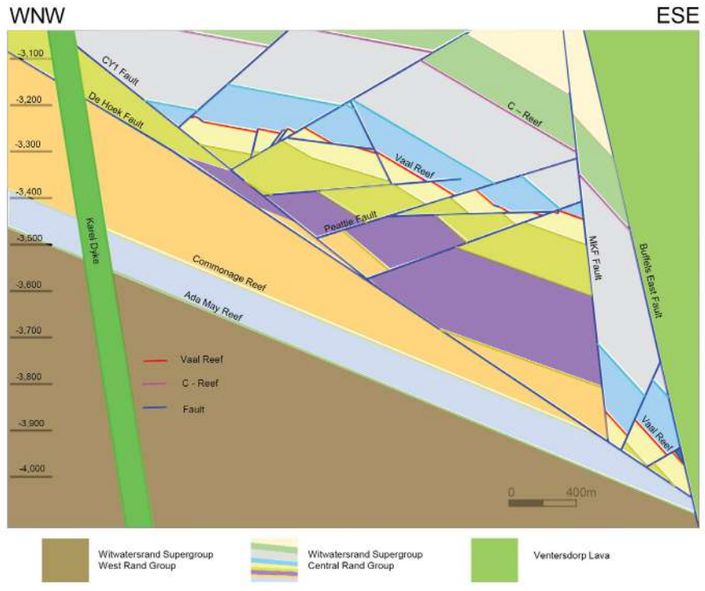
Material risks that may impact Moab Khotsong's Mineral Resource and Mineral Reserve statement:

Significant risks	Remedial action
• Flooding from neighbouring mines • Seismicity • Structural complexity.	• Pumping • Mining industry occupational safety and health programme • Maintaining seismic network system • Comprehensive risk drilling programme.

Competent person

Ore Reserve manager

Leanne Brenda Freese
BSc Geology, BSc (Hons) (Geology), GDE, SACNASP, GSSA
24 years' hard rock, deep-level and ultra-deep-level gold mining experience on the Witwatersrand Supergroup.



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


Great Noligwa underground stope new drills.

South Africa – Klerksdorp **Moab Khotsong** continued

Moab Khotsong

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	4.0	17.62	70	2 259	11.8	16.80	198	6 350	2.6	19.09	49	1 568	18.3	17.30	317	10 177

Modifying factors

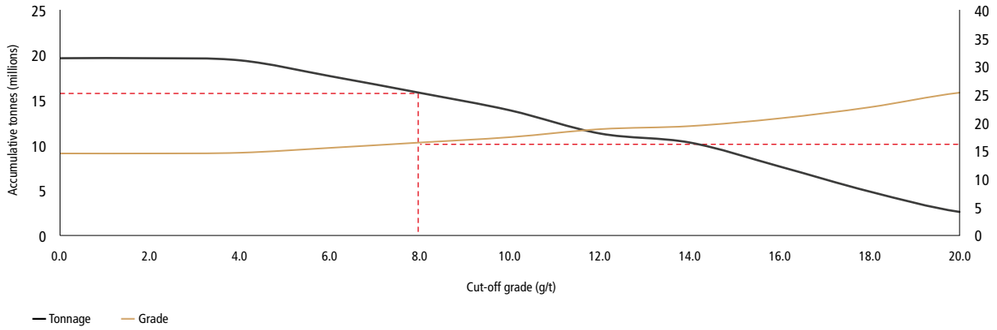
Moab Khotsong	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2021	75	177	223	97	1 801
2022	69	170	207	97	1 800

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes	Gold			Tonnes	Gold			Tonnes	Gold		
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Moab Khotsong	2.7	7.48	20	647	12.0	8.78	105	3 384	14.7	8.54	125	4 031

Moab Mine: Total Mine

Measured and Indicated Mineral Resource grade-tonnage curve



Operational performance

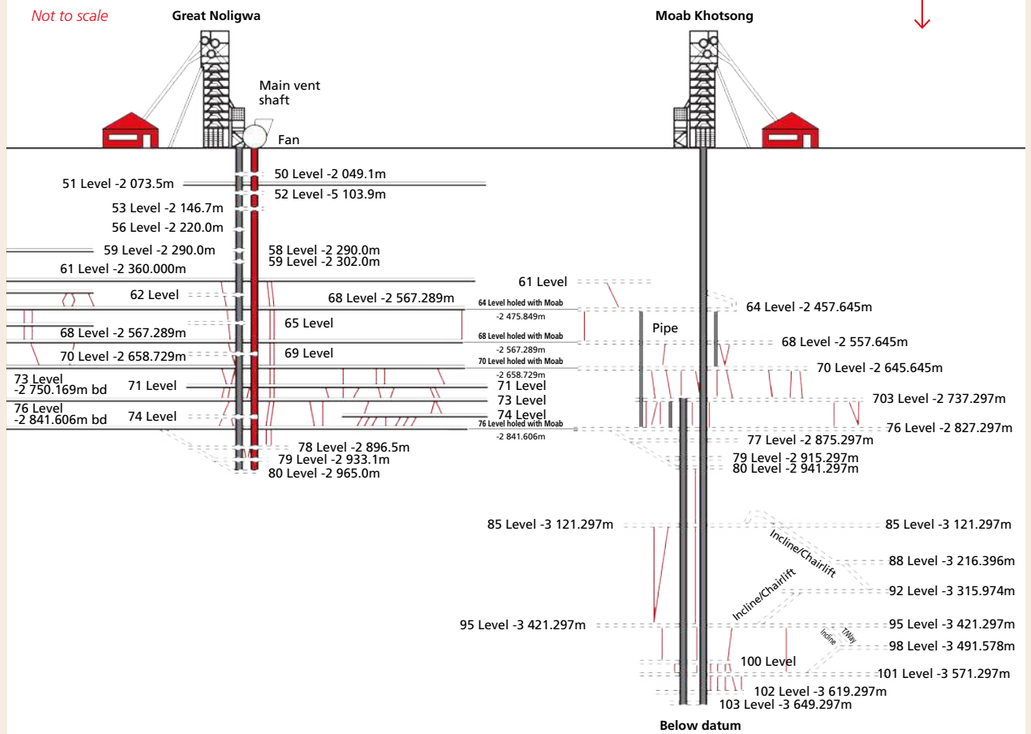
Moab Khotsong: Key operating statistics

	Unit	FY22	FY21	FY20	FY19	FY18*
Operation						
Volumes milled	000t (metric)	**959**	903	746	970	327
	000t (imperial)	**1 059**	995	822	1 069	360
Gold produced	kg	**6 508**	7 166	6 592	7 928	3 296
	oz	**209 237**	230 391	211 938	254 891	105 969
Grade	g/t	**6.79**	7.94	8.84	8.17	10.08
	oz/t	**0.198**	0.232	0.258	0.238	0.294
Development						
Total metres (excluding capital metres)		**7 755**	6 981	8 815	10 472	9 527
Reef metres		**1 424**	1 144	1 173	1 202	1 328
Capital metres		**2 668**	2 070	1 363	1 432	380
Financial						
Average gold price received	R/kg	**903 905**	852 392	736 533	573 522	528 387
	US$/oz	**1 848**	1 722	1 463	1 258	1 279
Capital expenditure	Rm	**894**	633	498	559	173
	US$m	**59**	41	32	39	13
Cash operating cost	R/kg	**635 146**	536 710	497 953	399 414	314 526
	US$/oz	**1 299**	1 084	989	876	761
All-in sustaining cost	R/kg	**739 870**	626 795	566 942	477 581	420 286
	US$/oz	**1 513**	1 266	1 126	1 048	1 017

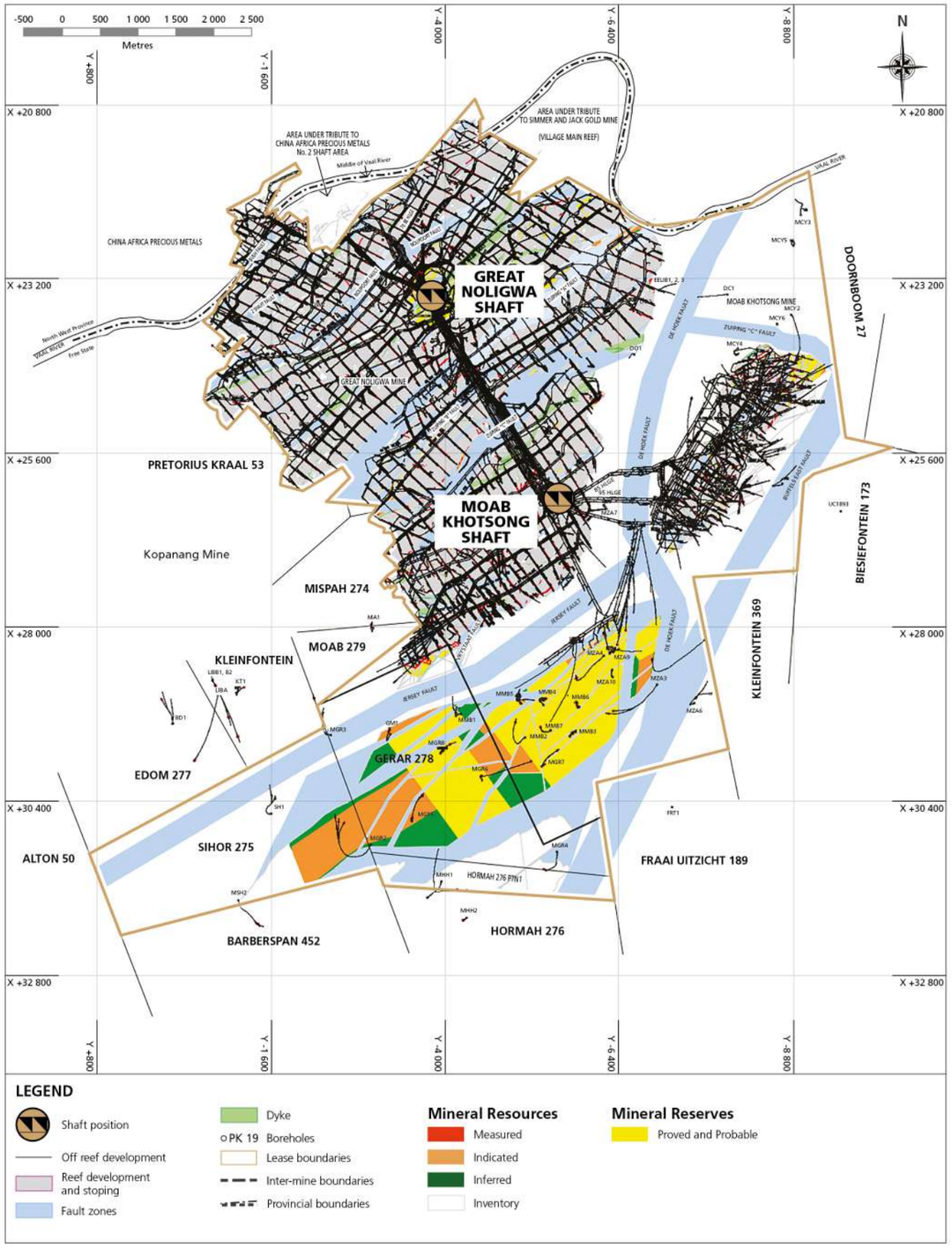
** Moab Khotsong was acquired on 1 March 2018. The FY18 data is for the four months from 1 March 2018 to end June 2018.*

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

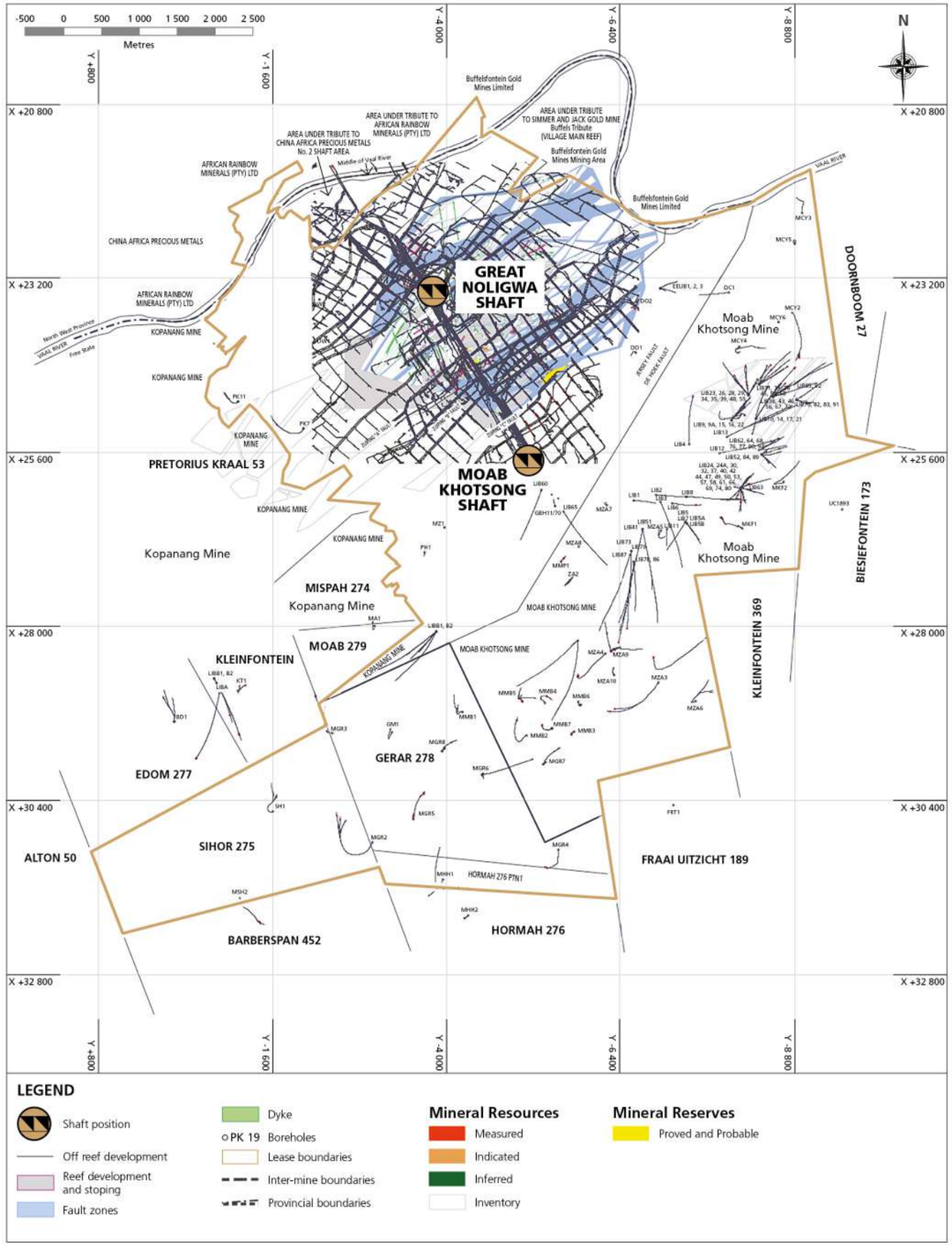
Not to scale



Great Noligwa and Moab Khotsong – Vaal Reef: Mineral Resources and Mineral Reserves – June 2022



Great Noligwa and Moab Khotsong – C Reef: Mineral Resources and Mineral Reserves – June 2022



Mineral Resources (inclusive)

34.4Moz

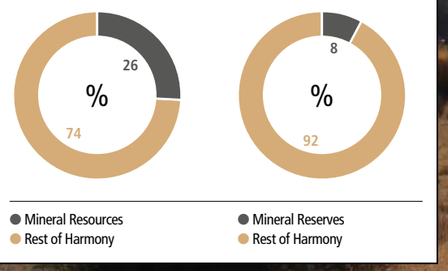
Mineral Reserves

3.0Moz

FREE STATE

MINERAL RESOURCES AND MINERAL RESERVES BY OPERATION	
Free State	**90 – 115**
Tshepong Operations	**95**
Joel	**102**
Masimong	**108**
Target 1	**114**

Gold and Gold equivalents
Contribution to Harmony



Harmony has four underground operations in the Free State. As at 30 June 2022, their combined estimated Mineral Resource (inclusive) was 34.4Moz and the combined estimated Mineral Reserve, 3.0Moz.

Masimong shaft.

Bambanani closure

On Monday, 27 June 2022 Harmony witnessed a historical moment as Bambanani completed its closing blast activity. This mine has reached the end of its economic life, and therefore the leadership of Harmony took the decision to close it on the basis that it is no longer possible to operate the mine in accordance with Harmony's strict safety protocols. Beyond FY22 the mine will officially be closed.

Location of Free State Operations

Harmony has four underground mining operations in the Free State located in the south-western corner of the Witwatersrand Basin, between the towns of Allanridge, Welkom, Theunissen and Virginia. These operations are as follows:

Joel, the most southerly of the gold mines in the Harmony stable, is situated some 40km south of Welkom, 30km south-east of Virginia and 20km north of Theunissen. The mine has a common boundary with Sibanye-Stillwater's Beatrix gold mine to the west.

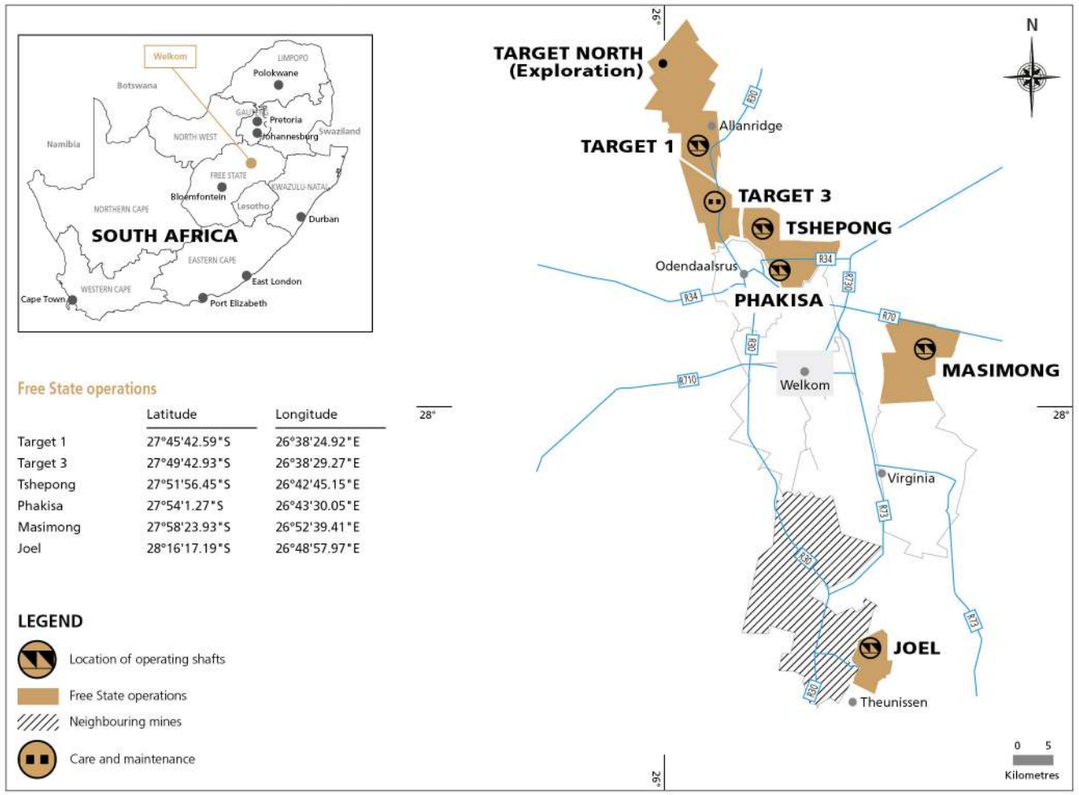
Masimong is located on the north-eastern side of the De Bron fault, approximately 12km east of Welkom and 10km north of Virginia. It is bounded to the south by Masimong 4 shaft and Saaiplaas 3 shaft.

Tshepong Operations comprises:

- Phakisa section, which is located north-west of Masimong 5 shaft, between the town of Odendaalsrus and the city of Welkom. It is some 13km north of Welkom and is bounded to the south by Eland shaft, to the west by Nyala shaft and to the north by Tshepong shaft
- Tshepong section, to the north of Phakisa, is 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 Phakisa shaft, and to the south-west by Nyala shaft.

Target 1, the most northerly of Harmony's mines in the Free State, is situated some 30km north of the town of Welkom. Target 3, to the south of Target 1, is on care and maintenance.

Free State Operations – Locality



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
Joel	28°16'17.19"S	26°48'57.97"E

LEGEND

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

Processing plants in the Free State

Harmony has four gold processing plants in the Free State:

- Harmony One, which processes the ore mined at Tshepong Operations, Masimong and Joel. Harmony One plant is a carbon-in-leach (CIL) plant with a processing capacity of 390t a month
- Target plant, which has a monthly capacity of 105 000t
- Central plant, which has capacity to retreat 300 000t of tailings a month
- Saaiplaas plant, which retreats tailings for the Phoenix (Tswelopele beneficiation) operation, has a monthly capacity of 500 000t.

All of these plants, except Saaiplaas, have received their certification in terms of the International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold (Cyanide Code).

Regional geology of the Free State goldfield

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. Our Free State mining operations exploit the Basal, B, Elsburg, Dreyerskuil and Beatrix reefs.

The Free State goldfield is divided into two sections, cut by the north-south 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. Several 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 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 the Masimong Mine. The reefs occurring here 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 lies 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 minor portion of the Mineral Resource is located on other unconformities. Mining 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, 40km 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 30km north of Welkom. The reefs currently exploited here 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 Reefs dip 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. The Dreyerskuil reefs also consist of stacked reefs dipping shallowly to the east. These reefs tend to be less numerous, but more laterally extensive than the underlying Elsburg reefs.

FREE STATE STRATIGRAPHIC COLUMN

Group	Sub-group	Formation	Informal unit	Member
Central Rand Group	Turffontein	Eldorado	VS1	Uitkyk
			VS2	
			VS3	Van Den Heevers Rust
			VS4	Rosedale
			Eldorado Basal Reef VS5	
		Aandenk	EC1	Earls Court
			A Reef	
			Beatrix Reef / Big Pebble Reef EC 2	
			EC 3/4	Spes Bona
			B Reef	
	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	Lower Footwall
			Commanage Reef / Ada May or Beisa Reef	Ada May/Beisa Reef
West Rand Group	Jeppestown	Roodepoort		Palmietkuil

TSHEPONG OPERATIONS

Tshepong shaft.

Mineral Resources (inclusive)

25.6Moz

Mineral Reserves

1.7Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Following the successful conclusion of the study to investigate their integration, the Tshepong and Phakisa sections were consolidated as a single entity, the Tshepong Operations, in FY17. During June 2022 a decision was taken to restructure Tshepong Operations and separate the complex into two operations, being Tshepong North and Tshepong South (also known as the Phakisa section). From FY23, these operations will be reported on separately.

History

The feasibility study for the initial development of the Tshepong section was concluded in 1984. Work to establish the site started in September 1984 and by 1986 shaft sinking was underway. 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, shaft 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 Limited, 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.

South Africa – Free State continued

Nature of the operation
The Tshepong section is a mature underground operation mining at moderate depths of between 1 600m and 2 400m below surface. The bulk of mining currently takes place in the decline (Sub 66) and north-eastern portions of the lease area.

Geotechnical and geological complexities resulted in face length flexibility challenges that directly negatively affected both the volume mined and gold produced. This necessitated the reduction in geographical footprint of the mine to ensure concentrated mining that will result in improved face time. All mining activities to the West South and West North areas of the mine has been suspended and the Sub 75 capital project has been placed on hold. Thus resulted in a reduction of the life of mine from 19 to seven years.

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 and south of the mine lease area. However, over the next three years the focus will shift solely to the south of the lease area.

Geology
The principal gold-bearing orebody is the stratiform and strata-bound 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 buckshot 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.

Legal aspects and tenure
The current mining right for the Tshepong Operations encompasses an area of 10 798.74ha. The ARMgold/Harmony Freegold joint venture holds several mining rights in the Free State goldfields 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.

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 (ie 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. Extraction of ore from pillars will become more important.

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.

Mineral processing
Stoping ore and development rock from the Tshepong section are hoisted and processed separately above 66 level. As of FY23, stoping and development ore from the decline area of the mine (below 66 level) will be hoisted separately.

At the Phakisa section, stoping ore and development rock are hoisted and processed separately. The reef, or 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 mines 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.

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

Tshepong Operations.

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. Several inter-level sub-vertical transfer systems feed the main silos on 77 level. From 77 level, the rock is hoisted to 55 level where a railveyor 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 Resource estimation

The Datamine valuation model uses 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. The Phakisa and Tshepong sections share 13 geozones in the Tshepong Operations mega-mine. The geozones are capped at an optimal percentile using a system called the quantile process to avoid overestimation 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 Deswik, and applying the kriging method in the valuation browser of Deswik.

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.

Environmental impact

Tshepong Operations strive to prevent pollution, or otherwise minimise, mitigate and remediate harmful effects of our operations on the environment and hence maintain their ISO 14001 certification. We are also committed to ensuring compliance with applicable environmental legislation. A key focus is the development of integrated water and waste management plans. These plans will be pivotal to the overall management of water and will indicate how we can better use and reuse 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 a possible solution to the management and control of chemical spills and housekeeping issues.

Material risks

Material risks that may impact Tshepong Operations' Mineral Resource and Reserve statement:

Tshepong section	
Significant risks	**Remedial action**
• Orebody complexity • Ventilation of decline area.	• Extensive exploration drilling and increased development to improve the execution of the production plan • Installation of booster fans on 75 level.

Phakisa section	
Significant risks	**Remedial action**
• Logistics • Ventilation • Mining flexibility.	• Upgrade of Koepe rock winder and railveyor • Completion of Alimac hole and ice dam on 55 level and holing to the Tshepong section on 75 level • Increased development and more equipping crews in the south area of the mine.

Competent person

Ore Reserve manager – Tshepong section

Andrew Murray Louw
BSc (Hons) (Geohydrology), SACNASP
26 years' relevant experience.

Ore Reserve manager – Phakisa section

Bothepha Phetlhu
BTech (Geology), MEng, SACNASP
19 years' relevant experience.

Tshepong Operations

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	23.4	11.79	277	8 890	11.6	10.94	127	4 097	36.9	10.62	392	12 602	72.0	11.05	796	25 589

Modifying factors

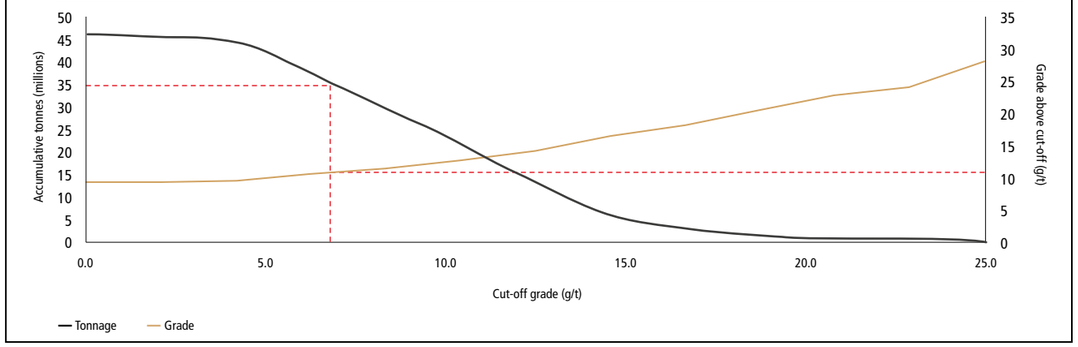
Tshepong Operations	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2021	73	113	137	95	671
2022	76	117	140	95	727

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Tshepong Operations	7.9	6.02	48	1 532	0.5	7.24	4	119	8.4	6.09	51	1 652

Tshepong Operations: Basal Reef

Measured and Indicated Mineral Resource grade-tonnage curve



South Africa – Free State **Tshepong Operations** continued

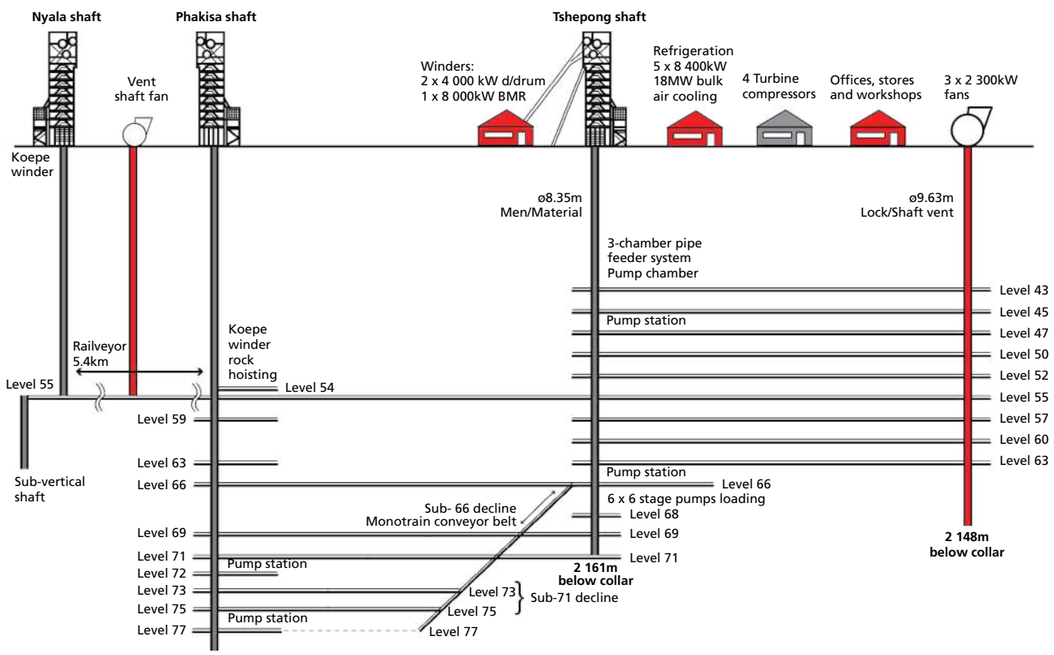
Operational performance

Tshepong Operations: Key operating statistics

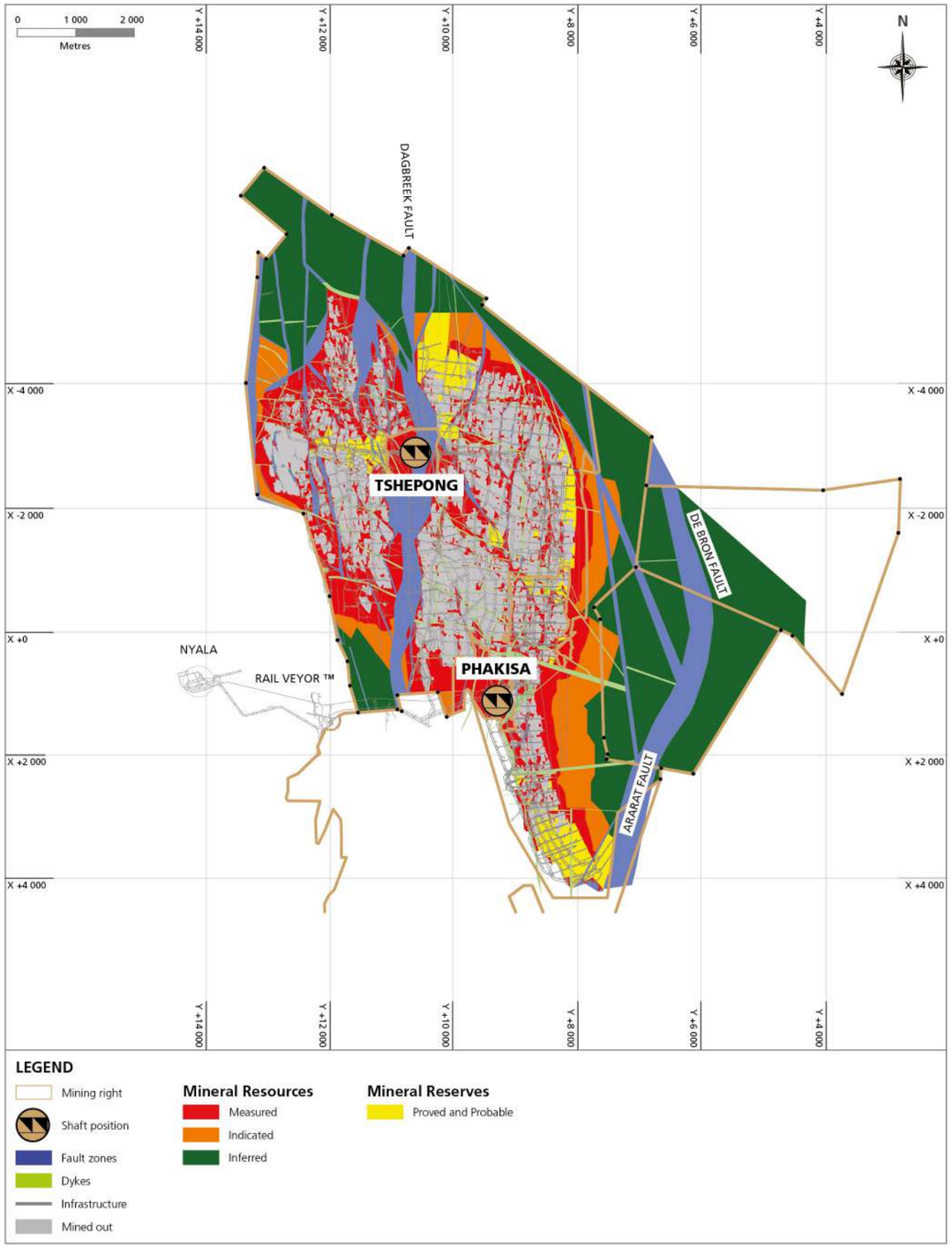
	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**1 561**	1 558	1 417	1 612	1 716
	000t (imperial)	**1 721**	1 718	1 562	1 777	1 893
Gold produced	kg	**7 022**	7 419	7 293	7 967	9 394
	oz	**225 763**	238 526	234 475	256 146	302 026
Grade	g/t	**4.50**	4.76	5.15	4.94	5.47
	oz/t	**0.131**	0.139	0.150	0.144	0.16
Development						
Total metres (excluding capital metres)		**21 705**	20 813	17 551	22 450	23 089
Reef metres		**2 562**	2 385	3 131	3 323	3 159
Capital metres		**1 126**	1 000	140	809	588
Financial						
Average gold price received	R/kg	**903 407**	845 031	736 863	591 331	577 058
	US$/oz	**1 847**	1 707	1 463	1 297	1 397
Capital expenditure	Rm	**1 514**	1 112	930	1 130	1 008
	US$m	**100**	72	59	80	78
Cash operating cost	R/kg	**724 539**	663 030	583 018	503 033	407 575
	US$/oz	**1 482**	1 339	1 411	1 103	987
All-in sustaining cost	R/kg	**925 100**	815 333	713 202	636 281	514 537
	US$/oz	**1 892**	1 647	1 416	1 396	1 245

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

Not to scale



Tshepong Operations – Basal Reef: Mineral Resources and Mineral Reserves – June 2022



JOEL

Joel shaft.

Mineral Resources (inclusive)

3.0Moz

Mineral Reserves

0.6Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

History

Active prospecting in the area began on the farms Leeuwbult 580 and Leeuwfontein 256 in 1981. 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 and material) and 4 shaft (ventilation). 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 assist in extending Joel's life-of-mine by opening up 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 the deteriorating 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 at this level is used to transport men and material down to 121 level and for hopper hoisting of development and some stoping ore. The lift 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 an approximately 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 with the last two connected to the north shaft. Although they share a boundary, there are no holing connections between Joel and Beatrix.

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

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 underway on 137 level.

Geology

The main structures at Joel are associated with the Platberg Extension. These faults are north-south striking, steeply dipping and typically have downthrows to the east of 10m to 100m. These downthrows form a graben against the De Bron fault, which has a 450m upthrow to the east. East of the De Bron fault, the reef has been either truncated or 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 south shaft. This washout feature is wedge-shaped with its apex to the west and widening 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 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.

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 on 6 August 2010 under 73/2010MR. The right was granted on 3 December 2007 for a period of 11 years, ending on 2 December 2018. The right has been successfully renewed in terms of section 24 (1) of the Mineral and Petroleum Resources Development Act for a further 11 years, ending on 14 February 2030.

Mining methods and mine planning

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

Given the variable grades and geological complexity, mining is conducted mainly in terms of a predeveloped 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, stoping panel stability 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 between neighbouring mining panels. The major rock-related risk is the occurrence of 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 four or five raise lines.

In addition, 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.

South Africa – Free State **Joel** continued

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 used to highlight potential problem areas. The seismic network is maintained, and its operational and health status are kept well above the 80% mark.

Mineral processing

Mined ore is transported by road for processing at the Harmony One carbon-in-pulp plant, which is situated some 40km from the shaft.

Infrastructure

Joel's upper mining levels are in a mature phase of operation. The decline project development, from 129 to 137 levels, which started in 2011, is completed. Decline project engineering construction was completed and started stoping. The 137 level E5 raise is holed and production is ongoing.

Mineral Resource estimation

The method used to estimate local measurements on the shaft is ordinary kriging with simple macro-kriging used for local Indicated and Inferred estimates. Estimates are generally kriged into 30m x 30m blocks for Measured Resources from the point support data. Indicated Mineral Resources are kriged into 60m x 60m blocks, 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 conducted for each area.

Environmental impact

Environmental aspects and impacts at Joel are managed in terms of an environmental management programme (EMPr), as approved by the Department of Mineral Resources and Energy (DMRE), and in line with the Mineral and Petroleum Resources the Development Act (MPRDA). All environmental aspects and impacts emanating from mining activities are documented in the associated EMPr report and the environmental aspect register as required by the MPRDA and ISO 14001:2004.

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

- Mine Health and Safety Act
- National Water Act
- National Environmental Management Act
- MPRDA.

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

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

Biomonitoring 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 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 ISO 14001:2004, for which it is audited annually. Joel is also accredited in line with the International Cyanide Management Code for the Manufacture, Transport and Use of Cyanide in the Production of Gold (Cyanide Code), 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.

Material risks

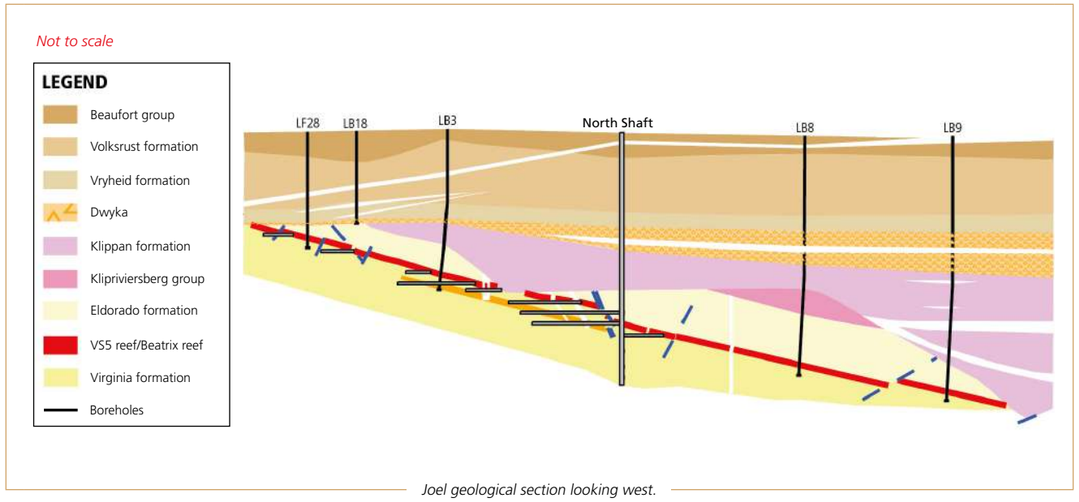
Material risks that may impact Joel's Mineral Resource and Mineral Reserve statement:

Significant risks	Remedial action
• Flooding of 145 level (shaft bottom) • Lack of mining flexibility.	• Installation of second submersible pump as a standby • Clean-up of dam on 145 level • Prioritising development to open raise lines.

Competent person

Ore Reserve manager

Fhulufhelo Olga Muthelo
BSc (Hons) Geology, Postgraduate Diploma in Engineering, SACNASP
15 years' relevant experience in Witwatersrand gold mine.



Joel geological section looking west.

Joel

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

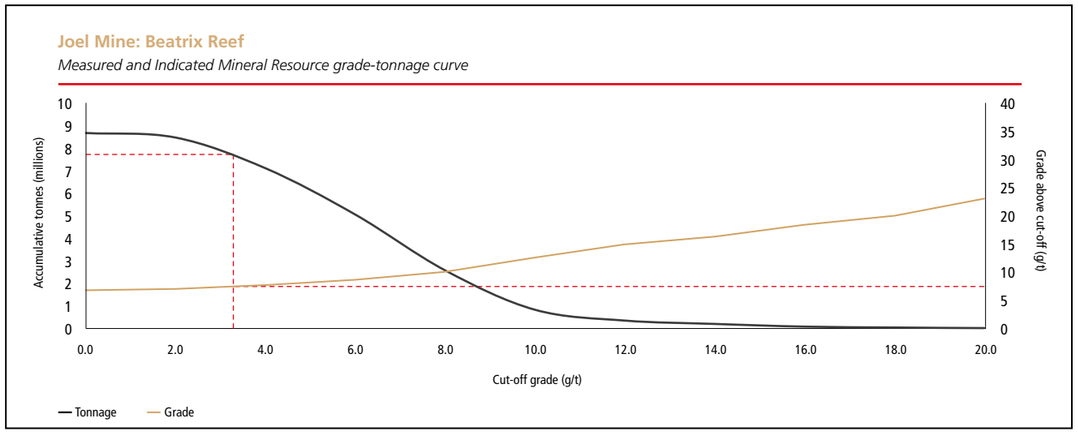
	Measured				Indicated				Inferred				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Joel	4.2	7.64	32	1 028	3.7	6.80	25	801	7.0	5.11	36	1 156	14.9	6.24	93	2 985

Modifying factors

Joel	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2021	83	174	190	95	915
2022	84	156	174	94	915

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Joel	2.8	5.01	14	448	1.0	4.85	5	149	3.7	4.97	19	597

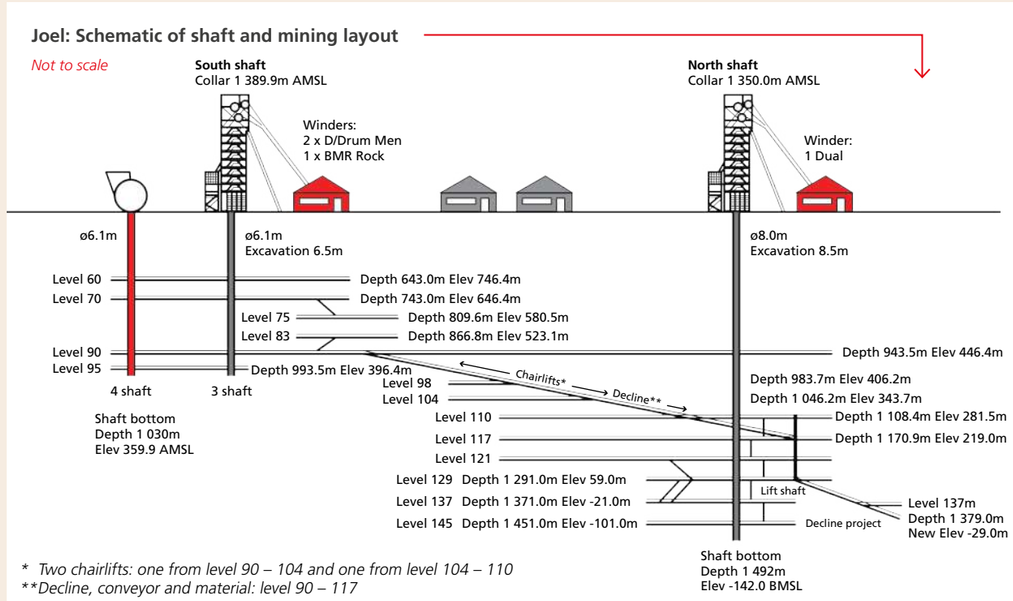


Operational performance

Joel: Key operating statistics

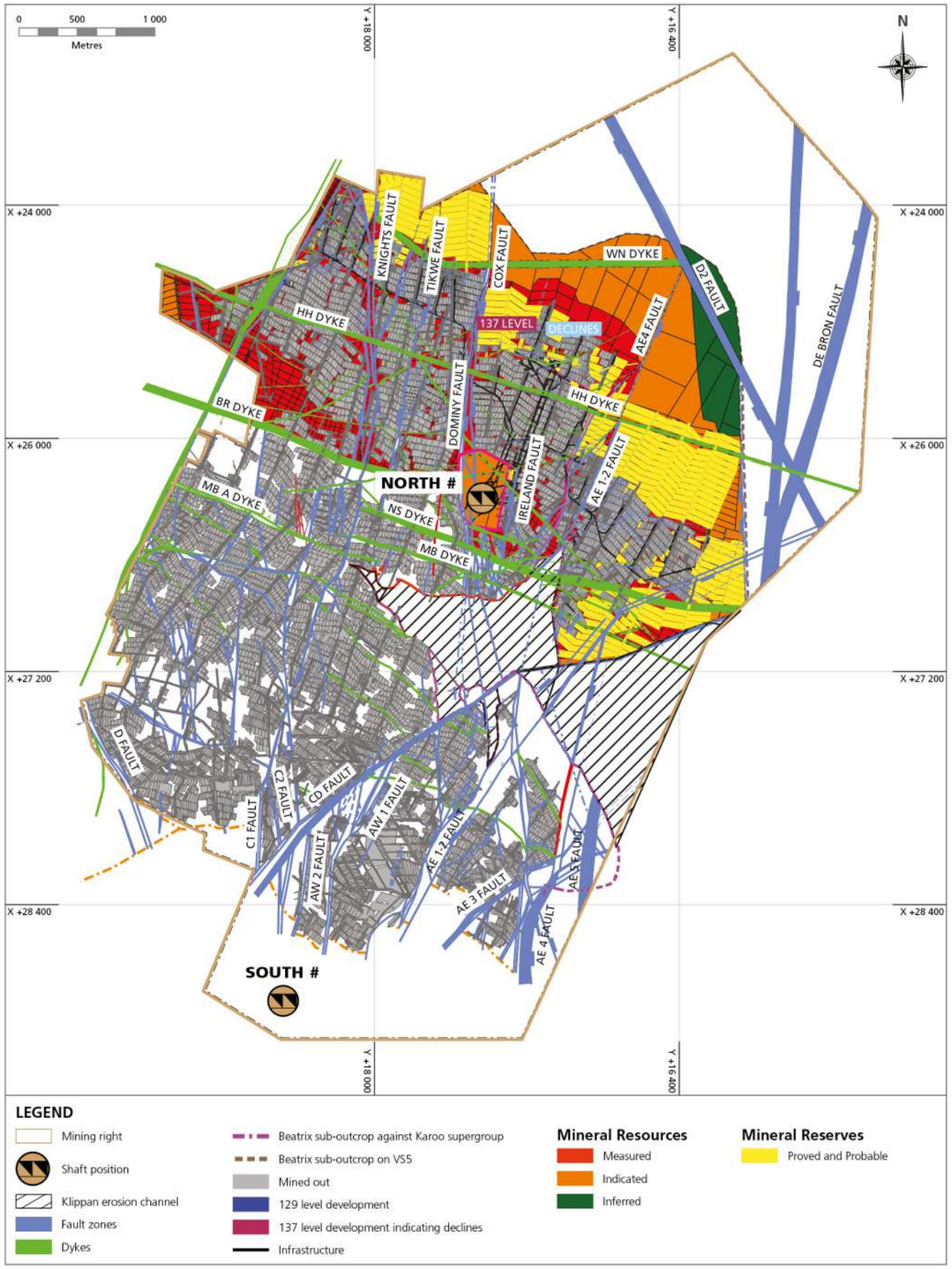
	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**434**	359	349	429	454
	000t (imperial)	**478**	396	384	473	501
Gold produced	kg	**1 556**	1 424	1 391	1 567	1 635
	oz	**50 026**	45 783	44 722	50 379	52 566
Grade	g/t	**3.59**	3.97	3.99	3.65	3.60
	oz/t	**0.105**	0.116	0.116	0.107	0.105
Development						
Total metres (excluding capital metres)		**3 364**	3 397	2 734	3 378	3 331
Reef metres		**1 104**	1 806	832	1 288	431
Capital metres		**—**	—	—	—	620
Financial						
Average gold price received	R/kg	**907 660**	848 131	734 620	593 531	576 023
	US$/oz	**1 856**	1 713	1 459	1 302	1 394
Capital expenditure	Rm	**225**	172	151	187	250
	US$m	**15**	11	10	13	19
Cash operating cost	R/kg	**845 931**	796 982	718 024	617 116	556 468
	US$/oz	**1 730**	1 610	1 426	1 354	1 347
All-in sustaining cost	R/kg	**983 593**	936 296	826 970	701 644	661 921
	US$/oz	**2 011**	1 891	1 642	1 539	1 602

Joel: Schematic of shaft and mining layout



** Two chairlifts: one from level 90 – 104 and one from level 104 – 110*
***Decline, conveyor and material: level 90 – 117*

Joel Mine – Beatrix Reef: Mineral Resources and Mineral Reserves – June 2022



MASIMONG

Masimong shaft.

Mineral Resources (inclusive)

0.8Moz

Mineral Reserves

0.1Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

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 in March 1997 and 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 ore was transported via a twin haulage system to Masimong 4 (Saaiplaas 4) until September 2001, when equipping of the reef and waste-hoisting infrastructure was completed at 5 shaft. Mining operations at Masimong 4 and Saaiplaas 3, which had been sunk in 1981 and 1976 respectively, subsequently ceased as they were no longer economically viable. When hoisting operations began 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 was once again economically viable. Additional personnel were redeployed to develop and access new areas of Masimong 4 to facilitate future production. Extraction of the Saaiplaas 3 shaft pillar was terminated due to technical difficulties. Subsequently, in June 2004, operations at Masimong 4 were also rationalised. The shaft is currently used solely for pumping.

During FY12, a bulkhead water plug was installed to seal off Saaiplaas 3 from the rest of the Masimong complex. The shaft was then abandoned due to flooding. Operations at Masimong 5 remain 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.

Nature of the operation

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

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 to the western side of the lease, to less than two degrees in parts of the southern area.

Production is hosted within two quartz pebble conglomerate bodies, developed above unconformity surfaces, 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 Basal B Reef horizon.

Mineral rights, legal aspects and tenure

The current mining right, encompassing an area of 22 582.99ha, was successfully converted, executed and registered as a new order mining right at the Mineral and Petroleum Resources Titles Office on 11 December 2007 (Reference FS30/5/1/2/2/82MR valid from 11 December 2007 to 10 December 2029).

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 Basal Reef, which accounts for approximately 80% of the on-reef production profile, is mined by the open and undercut method, depending on whether the reef is overlain by shale. The B Reef, making up the remaining 20% of the on-reef production profile, is located approximately 120m stratigraphically above the Basal Reef, which necessitates separate infrastructure (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 for holing on all boxholes. In addition, all on-reef development must be conducted by means of wide raising. Despite the marginality of the orebody and the current economic environment, current mine reserves give a life expectancy of two years, mainly due to the successful opening of known value trend extensions.

Mineral processing

The ore mined is transported by rail for processing at the Harmony One carbon-in-pulp plant, situated some 12km from the shaft.

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 transport the ore hoisted to the Harmony One 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, 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 Mineral 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 each area. For details of the estimation process followed, see page 156.

Environmental impact

Masimong's environmental aspects and impacts are managed according to the environmental management programme (EMPr) approved by the Department of Mineral Resources and Energy (DMRE) in terms of the Mineral and Petroleum Resources Development Act (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.

South Africa – Free State Masimong continued

Annual performance monitoring and audits are conducted by the DMRE to verify compliance with the following legislation:
- Mine Health and Safety Act
- National Water Act
- National Environmental Management Act
- MPRDA.

EMPr and ISO 14001:2004 requirements

Environmental audits or performance assessments are conducted annually by independent environmental consultants to verify compliance with the approved EMPr, as required by Regulation 55 of the MPRDA, and the report is submitted to the DMRE. In addition, an internal environmental legal compliance audit is conducted to verify compliance. An online-based Masimong environmental legal register (at www.dreyer-legal.co.za) is used to monitor compliance, and to provide applicable and relevant environmental legal updates.

Biomonitoring surveys are also conducted on surface water streams close to the operation, in compliance with the draft water use licence conditions and the National Water Act, in order to:
- Determine the condition of the biological communities in rivers through indices such as SASS5, IHAS (Version 2.2) and IHIA, and to determine the chemical water quality in streams during the wet seasons
- Provide baseline reference conditions for future studies in order to assist Masimong management in identifying environmental liabilities resulting from current mining activities in respect of the potential contamination of surface streams.

The operation is ISO 14001-accredited and conforms with the requirements of ISO 14001:2004. It is audited annually as per ISO 14001 requirements. The operation was initially accredited in 2012 and remains committed to eliminating or minimising the effects of mining activities on the environment and adjacent communities.

Material risks

Material risks that may impact Masimong's Mineral Resource and Reserve statement:

Significant risks	Remedial action
• Adverse changes in the gold price • Unexpected geological features • Unexpected decline in value/grade.	• Open up 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

Evans Malaola
MSCC, NHD Mineral Resource Management, Plato PMS 0196
37 years' experience.

Ore Reserve manager

Lana Cousin-Forster
BSc (Hons) Geology
20 years' relevant experience.

B Reef.

Masimong

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	2.6	9.25	24	785	0.2	7.12	2	53	0.02	6.91	0.2	5	2.9	9.06	26	843

Modifying factors

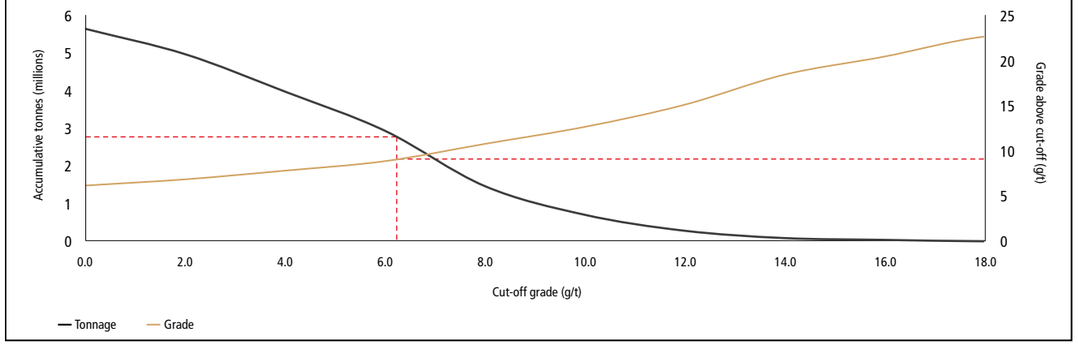
Masimong	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (cmg/t)
2021	57	142	156	95	1 014
2022	58	140	156	95	1 014

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes	Gold			Tonnes	Gold			Tonnes	Gold		
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Masimong	0.7	4.95	4	117	0.3	3.47	1	30	1.0	4.55	5	147

Masimong Mine: Basal and B Reef

Measured and Indicated Mineral Resource grade-tonnage curve

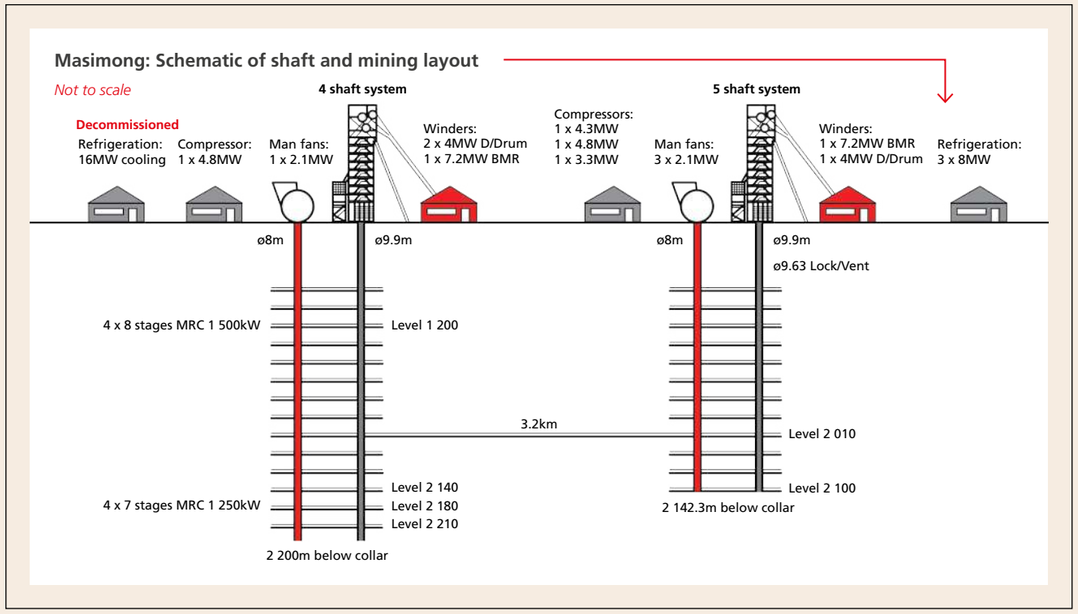


Basal Reef.

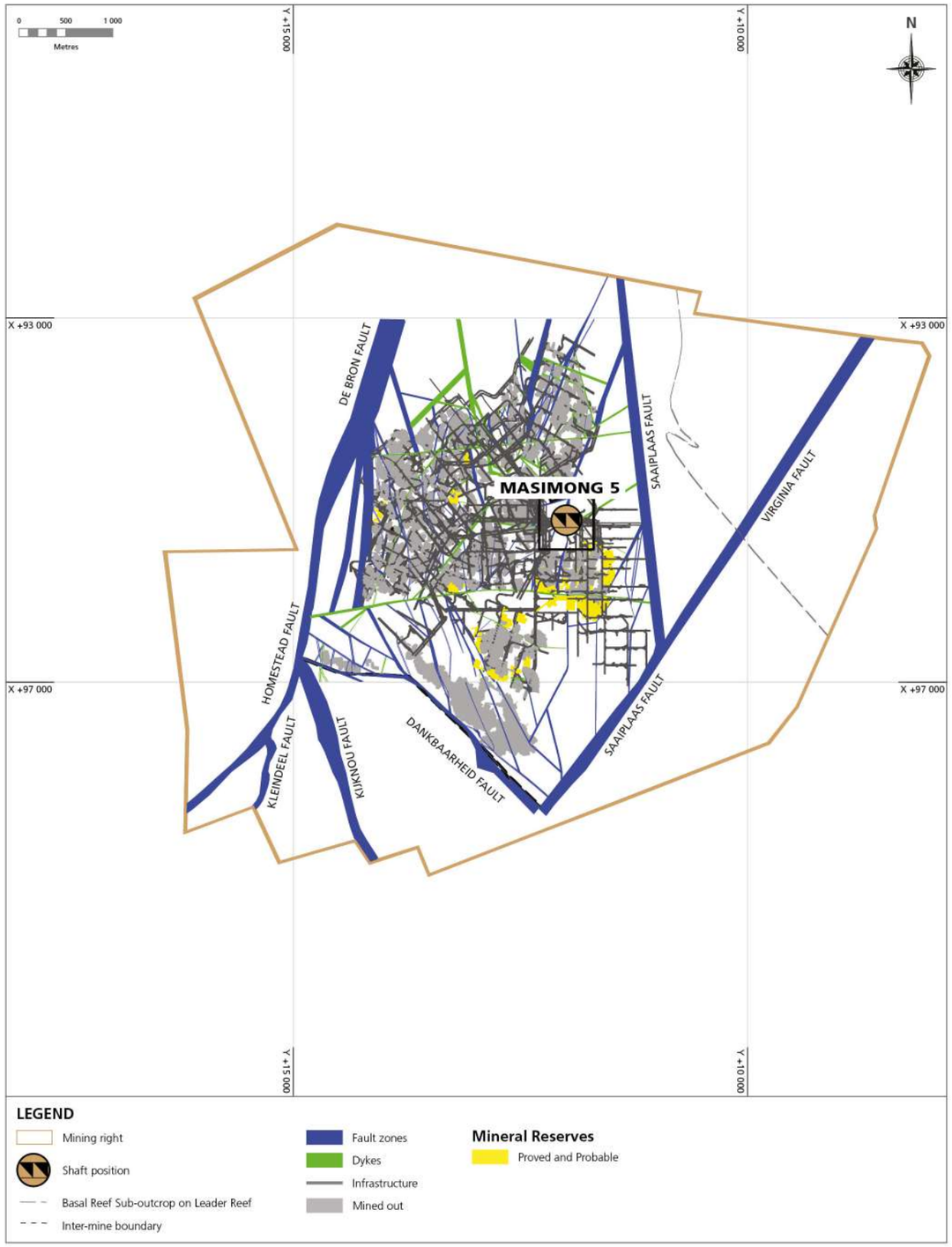
Operational performance

Masimong: Key operating statistics

	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**486**	510	489	602	647
	000t (imperial)	**536**	563	539	664	714
Gold produced	kg	**1 910**	2 012	1 999	2 309	2 623
	oz	**61 407**	64 687	64 269	74 237	84 332
Grade	g/t	**3.93**	3.95	4.09	3.84	4.05
	oz/t	**0.115**	0.115	0.119	0.112	0.118
Development						
Total metres (excluding capital metres)		**3 321**	2 833	2 246	3 167	5 287
Reef metres		**723**	1 044	759	765	2 067
Capital metres		**—**	—	—	—	—
Financial						
Average gold price received	R/kg	**906 822**	820 780	691 282	593 003	576 729
	US$/oz	**1 854**	1 658	1 373	1 301	1 396
Capital expenditure	Rm	**49**	29	24	109	129
	US$m	**3**	2	2	8	10
Cash operating cost	R/kg	**789 912**	715 835	620 804	525 703	442 586
	US$/oz	**1 615**	1 446	1 233	1 153	1 071
All-in sustaining cost	R/kg	**845 299**	764 577	655 888	593 408	513 197
	US$/oz	**1 729**	1 544	1 302	1 302	1 242



Masimong 5 Mine – Basal Reef: Mineral Reserves – June 2022



TARGET 1

Target 1 shaft.

Mineral Resources (inclusive)

3.5Moz

Mineral Reserves

0.6Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

History

Outcropping on the Target 1 property (originally Loraine) is an inlier of the Ventersdorp conglomerates (the Bothaville formation). The similarity of these conglomerates to those of the Witwatersrand Sequence focused interest in this area and led to the discovery of the Free State goldfields. Prospecting on these conglomerates was first undertaken around 1890 via a vertical and incline shaft. Mining has been conducted in the Free State goldfields for well over 60 years.

The initial model for exploration north of the Loraine gold mine, which at the time was managed by Anglovaal Limited, was proposed by DW Boshoff (chief geologist) in 1978. The Loraine gold mine held the mineral rights immediately to the north of the mine. The Target Exploration Company Limited, 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 Proprietary Limited. Feasibly studies centred on Sun Concept Mine South (CMS). The formation of Avgold Limited in 1996 was intended to further the gold mining and exploration interests of Anglovaal. Harmony acquired Target in 2002.

Nature of the operation

The Target 1 operation includes a single underground mine constructed as an extension to the Loraine gold mine and uses 1 shaft as access. Target 3 shaft is currently on care and maintenance and serves as a second escape way for Target 1, while Target 5 serves as a ventilation shaft for Target 1 and is situated on the outskirts of Nyakallong township.

The mine has decline systems off the Target 1 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 orebody is located some 5km to the north of the original Loraine 1 shaft and is accessed via a 6km-long 12-degree decline developed from level 203 of the vertical shaft system. Initially, the decline was developed to provide a drilling platform for the exploration and evaluation of the orebody but it 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 in the Uitkyk (Elsburg) and Van der Heeversrust (Dreyerskuil) 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 are operated remotely.

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

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

A new sub-level open stope method was adopted in BLK12, which will do away with the NRM de-stressing and the use of backfill. Mining will commence from top to bottom in the western margin of EA1, EA3 and EA3 reefs. The top massive stopes will create a de-stressed window which retreats ahead of the lower massive stopes below.

Geology

Target is located on the western margin of the Achaean Witwatersrand Gold Basin, which is on the Kaapvaal Craton. 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 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, which is some 10km wide and 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 goldfields.

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 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 Loraine gold mine. The Elsburg 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.

Mineral rights, legal aspects and tenure

The current mining rights encompasses an area of 7 952.78ha. Harmony holds several mining rights for the Target Mine in the Free State goldfields which have been successfully converted and executed as new order mining rights. Certain of these rights are still to be registered at the Mineral and Petroleum Resources Titles Office (MPRTO).

Those mining rights that have been registered as new order mining rights are FS30/5/1/2/2/14MR, which is valid from 30 November 2007 to 29 December 2025 and covers 4 237.00ha, and FS30/5/1/2/2/225MR, which is valid from 12 December 2013 to 11 December 2026, covering 3 715.78ha.

Mining methods and mine planning

The stoping methods employed at Target are as follows:

Long-hole stoping methods	
Massive open	Narrow-reef conventional
Wide open	sub-level open stope

Development methods	
Drift and fill	Cut and fill
Drift and pillar	Narrow-reef

Massive open stoping

Massive open stoping is based on the mining of a large volume of ore at a low working cost. The proximity of the reefs in the sub-outcrop area allows for several reefs to be mined simultaneously 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 are to be mined. This stoping method involves an extraction process that can be applied to any block of similar dimensions (that is with reef widths in excess of 10m and a dip in excess of 200m). The mining method has been designed to use the benefits of long-hole stoping methods and backfill.

Sub-level open stope

After analysis and consideration of improved geological and geotechnical information available, an alternative mining method was considered and subsequently adopted for Block 12 – a modified top-down sub-level cave mining method. This does away with the NRM de-stressing and the use of backfill. With this method, the top massive stopes will create a de-stressed window that retreats ahead of the lower massive stopes below. It should be noted that the drill rings only "fan out" to an angle of 50° to keep the drill holes roughly aligned with the direction of the primary in situ stresses, and to create the drawbell loading points to assist with mucking the ore. The life of mine tonnage profile indicates that mining in sub-level open stope is going to contribute 28% of life of mine tonnes over a period of six years. Mining is to take place from EA1, EA3 and EA7 reefs.

Narrow-reef mining

The schedule indicates 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 de-stressed environment for mechanised stoping. There is no practical and safer alternative to this method. The rate of over stoping must liberate sufficient levels of de-stressed reserves to enable the planned 62 000tpm production rate.

South Africa – Free State Target 1 continued

Mineral processing
At Target, ore and development rock are hoisted together, and milled and processed at the Target plant adjacent to the mine. Target shares its plant with a Harmony waste rock dump that 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.

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. Access to all three Target shafts (1, 2 and 5) is via a well-maintained paved road. The area also has well-established rail links and an airfield.

The Target 1 shaft is used to transport men, material and rock from surface to 203 level. A single decline, equipped with a conveyor belt, connects 203 level 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 which is 2 300m below surface.

Mineral Resource estimation
Geological modelling, via wireframes 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 without data from adjacent reefs. Estimates are generally kriged into "parent cells" and then assigned to sub-cells, using associated variograms and estimation parameters.

Distinctions between the Mineral Resource categories, based on data density and spatial relationships of gold grades, are defined through variography. Where block grades are estimated by data and separated by distances greater than the maximum grade continuity ranges, they have been classified as an Inferred Mineral Resource. Blocks are therefore not informed by the first kriging run (where the search ellipse was matched to grade continuity ranges) and entirely Inferred. Each reef model is then restored to its original wireframe position and combined into a single 3D model. Geozones are based on the 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 that allows for professional and easy management of the data and the building of geostatistical models. For details of the estimation process followed, see page 156.

Environmental impact
Harmony has implemented a water management standard, which applies during the entire mining lifecycle and covers prospecting, project design and commissioning, operation and closure. This standard has led to several positive outcomes and long-term targets include reducing the volume of water used for primary activities by 4.5% annually.

Target strives to prevent pollution or to otherwise minimise, mitigate and/or remediate the harmful effects of our operation on the environment and hence maintain its ISO 14001 certification.

A detailed environmental impact register has been developed to identify all potential environmental impacts of the operations. The main impacts are rated and mitigation measures proposed to minimise the environmental impact.

Target is situated in the Free State goldfields, a semi-arid region with an annual rainfall of between 400mm and 600mm. Local thunderstorms and showers are responsible for most of the precipitation during summer – from October to March with a peak in January. Hail is sometimes associated with thunderstorms and occurs mainly in 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 1 320m. 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.

No significant topographical disturbances are expected. The topography has the potential to be affected 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 Mineral Resource and Mineral Reserve statement:

Significant risks	Remedial action
• Grade dilution from waste/backfill in the massive stopes • Trackless development production • Solo reserve drilling • Ventilation constraints. • Grade dilution expected to increase as sub-level open stope mining progresses deeper.	• Reduce pillar mining between mined-out areas • Weekly monitoring and tracking • Optimise and schedule planned maintenance on solo machines • Optimise ventilation and cooling capability. • Ring holes will be measured to ensure compliance to the minimum fan out inclination of 50°.

Competent person (Mineral Resources and Mineral Reserves)
Ore Reserve manager

Seabata Motlatla
BSc (Hons) (Geology), SACNASP, Graduate Diploma in Engineering, Project Management Certificate NQF Level 5
18 years' relevant experience.

Target 1 and 3
Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

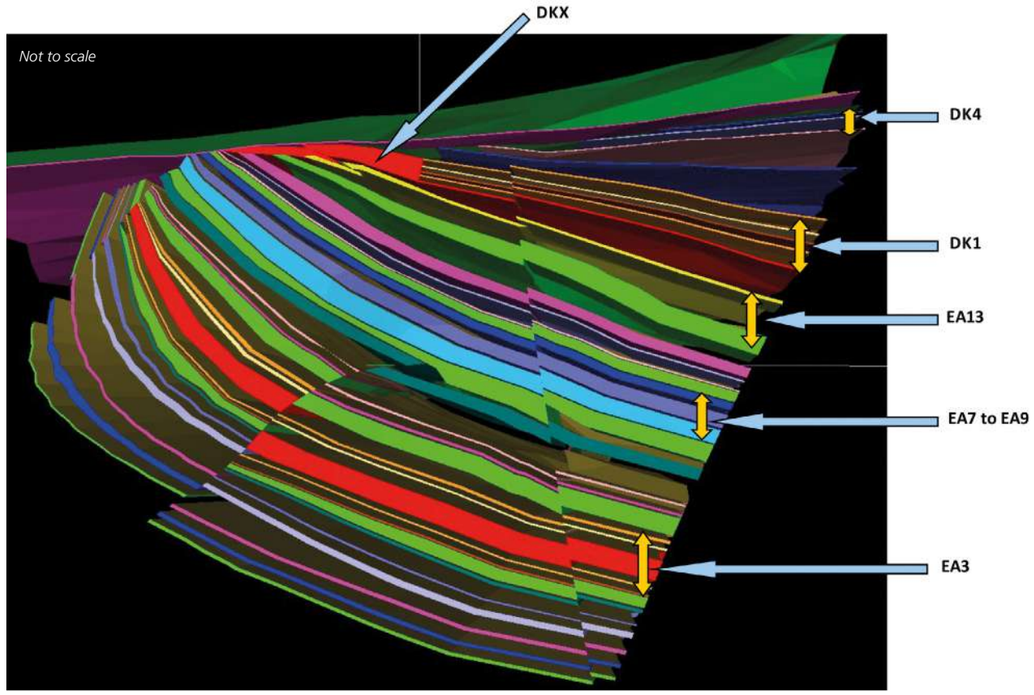
	Measured				Indicated				Inferred				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Target 1	7.2	7.16	51	1 647	5.0	6.42	32	1 037	4.0	5.96	24	772	16.2	6.63	107	3 456
Target 3	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	MCF (%)	SW (cm)	MW (cm)	PRF (%)	Cut-off (g/t)
2021	95	0	0	95	3.49
2022	95	0	0	94	3.40

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Target 1	2.7	4.32	12	378	1.7	4.11	7	228	4.4	4.24	19	606



Target – orebody looking north.

South Africa – Free State **Target 1** continued

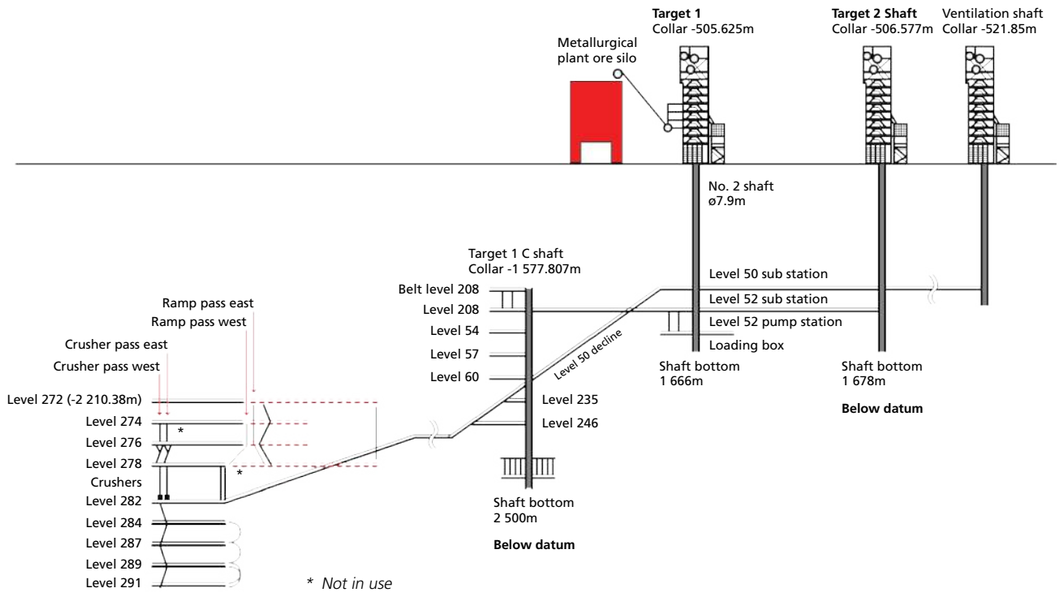
Operational performance

Target 1: Key operating statistics

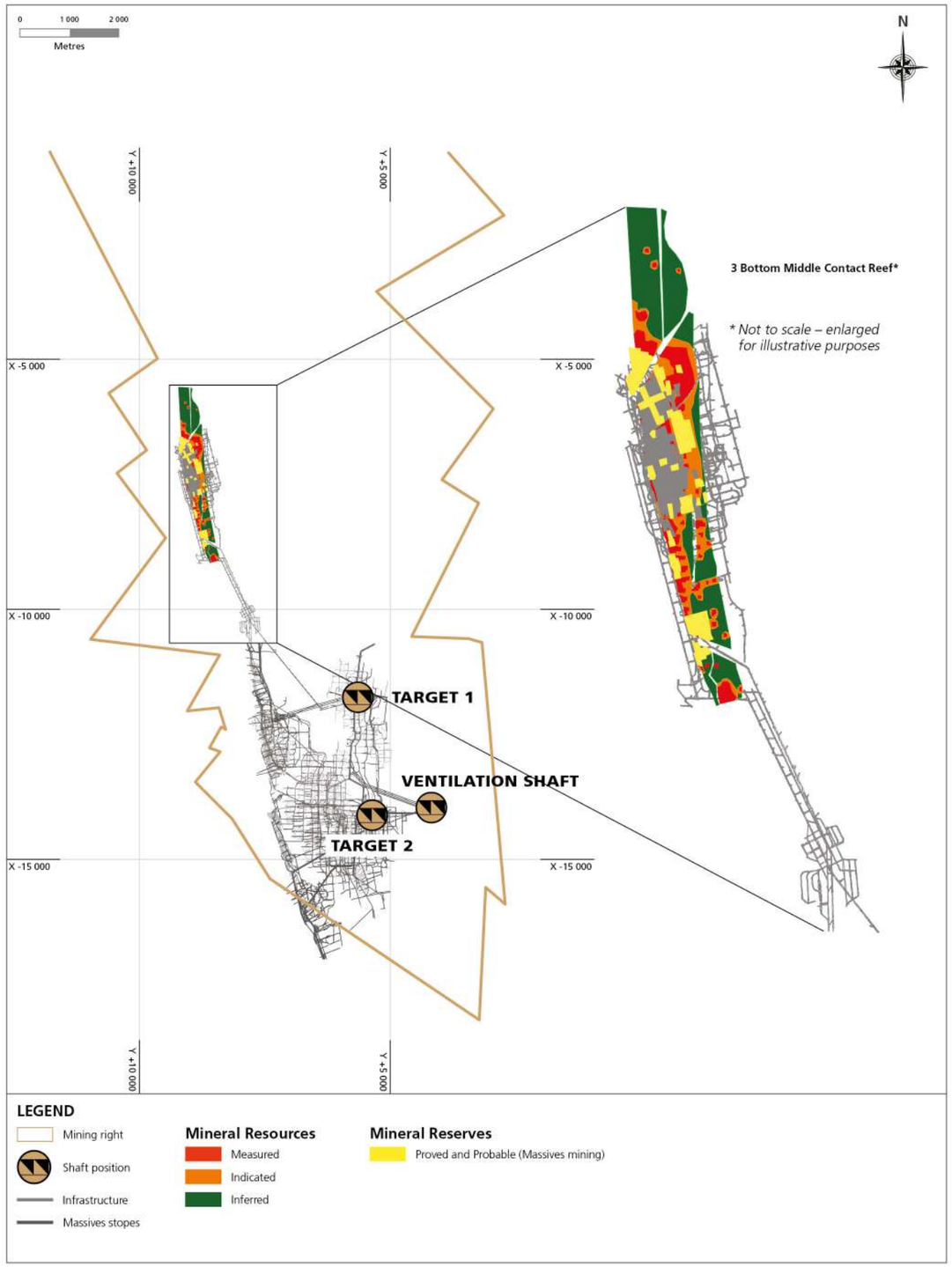
	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**455**	488	543	588	680
	000t (imperial)	**501**	537	598	650	749
Gold produced	kg	**1 800**	1 603	2 244	2 653	2 854
	oz	**57 872**	51 536	72 146	85 296	91 758
Grade	g/t	**3.96**	3.28	4.13	4.51	4.20
	oz/t	**0.116**	0.096	0.121	0.131	0.123
Development						
Total metres (excluding capital metres)		**1 544**	2 211	2 152	3 378	3 883
Reef metres		**55**	368	96	118	431
Capital metres		**194**	96	191	179	620
Financial						
Average gold price received	R/kg	**904 992**	870 640	681 388	590 298	570 316
	US$/oz	**1 851**	1 758	1 353	1 295	1 395
Capital expenditure	Rm	**384**	368	347	297	309
	US$m	**25**	24	22	21	24
Cash operating cost	R/kg	**996 938**	1 037 115	670 647	557 264	467 271
	US$/oz	**2 039**	2 095	1 332	1 222	1 131
All-in sustaining cost	R/kg	**1 210 404**	1 232 098	817 066	662 816	582 200
	US$/oz	**2 475**	2 488	1 623	1 454	1 491

Target 1: Schematic of Target shafts and mining layout

Not to scale



Target 1 – 3 Bottom Middle Contact Reef: Mineral Resources and Mineral Reserves – June 2022



Mineral Resources (inclusive)

14.5Moz

Mineral Reserves

10.4Moz

SURFACE SOURCES

MINERAL RESOURCES AND MINERAL RESERVES BY OPERATION	
Surface sources	**120 – 137**
Kalgold	**123**
Tailings retreatment facilities – Free State	**129**
Surface sources – West Rand/Klerksdorp	**133**

Gold and Gold equivalents
Contribution to Harmony

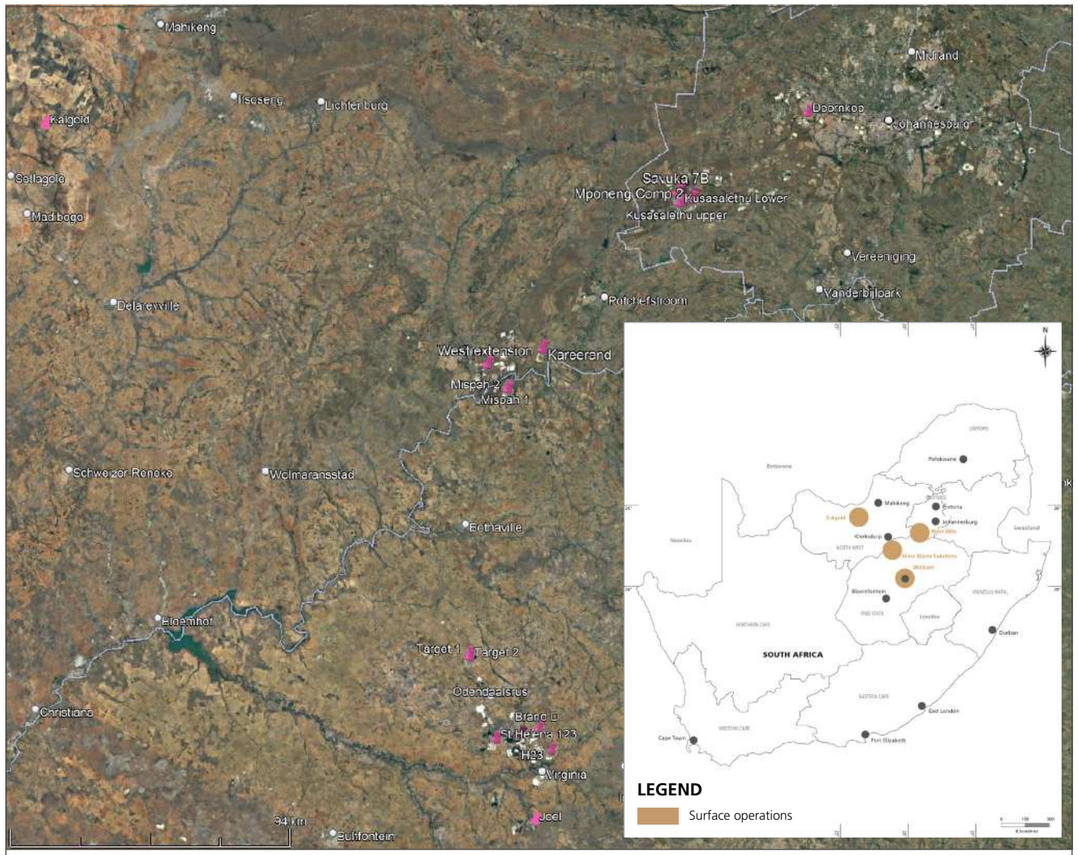
Dam FSS 5 pumping station.

Harmony has one open-pit mine and several surface retreatment facilities in South Africa. As at 30 June 2022, their combined estimated Mineral Resource (inclusive) was 14.5Moz and their combined estimated Mineral Reserve, 10.4Moz.

Harmony's surface sources in South Africa include:

- Kalgold, an open-pit mine located in North West province on the Kraaipan Greenstone Belt
- Various surface sources in the Free State including several tailings retreatment operations and waste rock dumps, located largely in the vicinity of Welkom
- Marginal ore rock dumps and tailings (Mispah and the Kop paydam) associated with Moab Khotsong that are available for retreatment
- Mine Waste Solutions, located approximately 160km from Johannesburg, near Klerksdorp in the North West province of South Africa. Savuka gold plant is situated near Carletonville in the province of Gauteng, approximately 70km, south-west of Johannesburg
- West Wits, located at Mponeng.

Location of Harmony's surface sources in South Africa



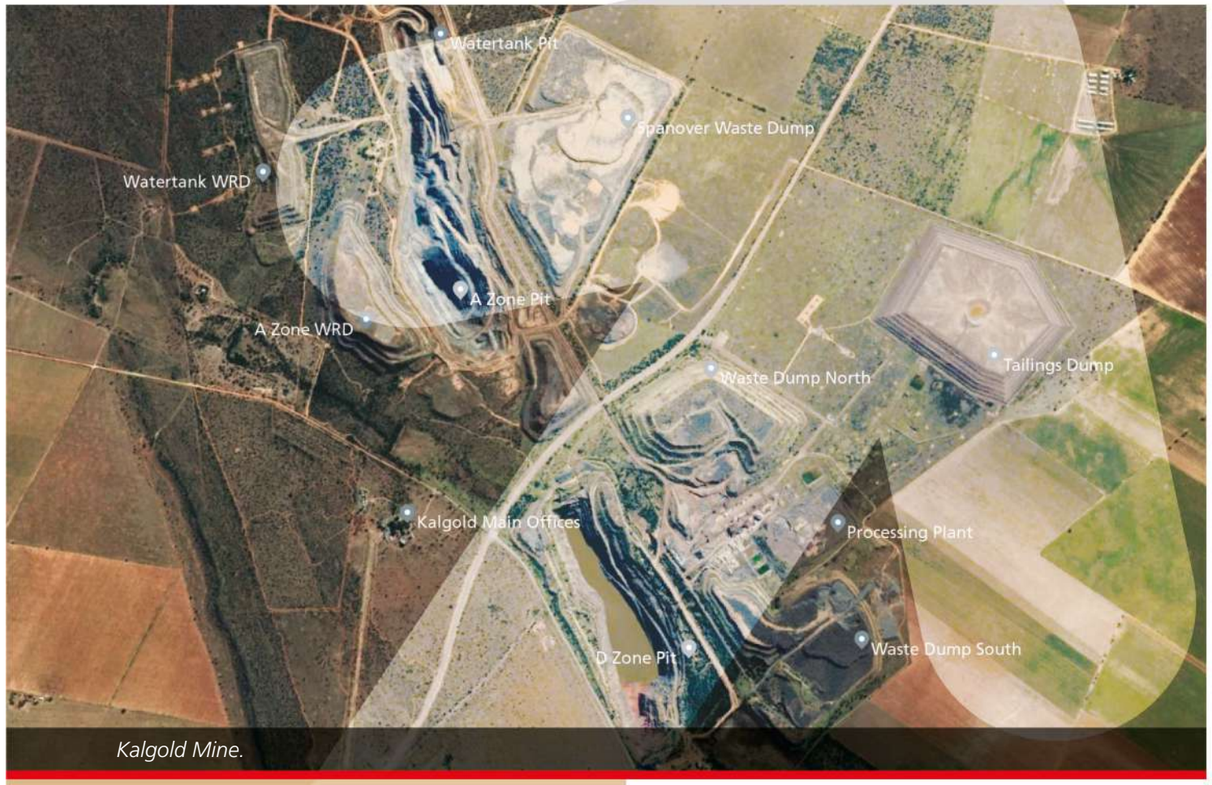
LEGEND

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
Mponeng	26°26'15.60"S	27°25'41.24"E

0 150 300
Kilometres

KALGOLD



Kalgold Mine.

Mineral Resources (inclusive)

2.2Moz

Mineral Reserves

0.8Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Location

Kalgold is located on the Kraaipan Greenstone Belt, 55km south-west 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 the 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.

South Africa – surface sources Kalgold continued

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).

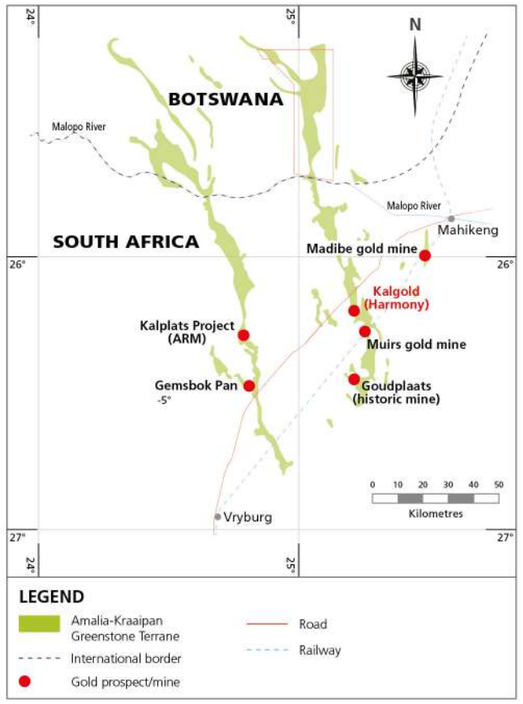
The geological model is constructed in the form of a wireframe from exploration borehole intersections, blast hole information and geological mapping within the pit.

Mining methods and mine planning

Kalgold is an open-pit mining operation, applying 10m benches mining strategy.

The A-Zone and the Watertank pits have merged to form one active pit situated to the north of the D-Zone at a similar stratigraphic position. The A-Zone-Watertank pit has an overall strike of ~2 300m and comprises two zones of mineralisation, which dip steeply towards the east. Reef widths range between 15m to 120m.

Kraaipan Greenstone Belt – Locality



The latest pit optimisation and design has resulted in the addition of Henry's and Windmill pits to the current A-Zone-Watertank pit mining operations. Windmill pit is separate towards the north of the mining right area, while Henry's pit forms the southern extension of A-Zone pit.

The variable nature of the grade distribution in the orebody results in mining of multiple categories of rock, from waste to high grade, that occur in one mining pass. The mining operation is performed by mining contractors and is managed by Harmony. Current mining capacity is limited to approximately 950 000 tonnes per month. The low-grade and waste rock are transported to dedicated locations north of the N18 road, while the high-grade ore is transported to the processing plant which is south of the N18 road.

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 DMRE 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 precondition prior addition of the cyanide. The preconditioning 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.

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 86% 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.

Mineral Resource estimation

Estimates are run using ordinary kriging. While the statistical analysis indicates that the estimate would benefit from a more local method such as macro-indicated kriging, a lack of data prevents this. The grade distribution indicates that more advanced forms of estimation such as uniform conditioning or lognormal uniform conditioning would not be recommended for this deposit, leaving ordinary kriging as the only robust option. The statistical analysis does, however, indicate that the deposit is amenable to ordinary kriging and as this is the method that has been used in the past it is believed the same process should continue to be used until significantly more data has been obtained. For more details on the estimation process followed, see page 156.

South Africa – surface sources **Kalgold** continued

Environmental impact

Kalgold's environmental aspects and impacts are managed in line with the amended 2014 environmental management programme (EMPr) approved by the Department of Mineral Resources and Energy (DMRE) in terms of the Mineral and Petroleum Resources by the Development Act (MPRDA) and by the Department of Rural Environment and Agricultural Development in terms of the National Environmental Management Act (NEMA). 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 14001:2015.

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

- Mine Health and Safety Act
- National Water Act
- National Environmental Management Act
- MPRDA
- National Heritage Resources Act
- National Forests Act
- National Environmental Management: Air Quality Act.

Environmental performance assessments are conducted annually as per the commitments stipulated in the approved EMPr amended in 2014 and environmental authorisations in terms of Regulation 55 of the MPRDA regulations and by an independent environmental consultant and the report is submitted to the DMRE. 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.dreyer-legal.co.za) is updated to include changes in applicable and relevant environmental legislation and associated regulations.

Biomonitoring surveys are conducted on an annual 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 licence conditions and in terms of the National Water Act.

In addition to the biomonitoring 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 has been recertified to conform to the requirements of ISO 14001:2015. 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.

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 DMRE.

Material risks

Material risks that may impact Kalgold's Resource and Reserve statement:

Significant risks	Remedial action
• Slope failure.	• Pre-split blasting to protect high walls.

Competent person

Ore Reserve manager

Rebaone Francis Gaelejwe
BSc (Hons) (Geology), EMBA, SACNASP
21 years' experience in gold mining.

Kalgold

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	5.8	1.07	6	201	47.7	1.14	54	1 744	1.6	1.40	2	74	55.1	1.14	63	2 018
Tailings dam	—	—	—	—	—	—	—	—	23.8	0.26	6	201	23.8	0.26	6	201
Total	5.8	1.07	6	201	47.7	1.14	54	1 744	25.4	0.34	9	275	78.9	0.87	69	2 220

Modifying factors

Open-pit	MCF (%)	Dilution (%)	PRF (%)	Cut-off (g/t)
2021	100	8	84	0.58
2022	100	9	86	0.60

Gold – Mineral Reserve estimates at 30 June 2022

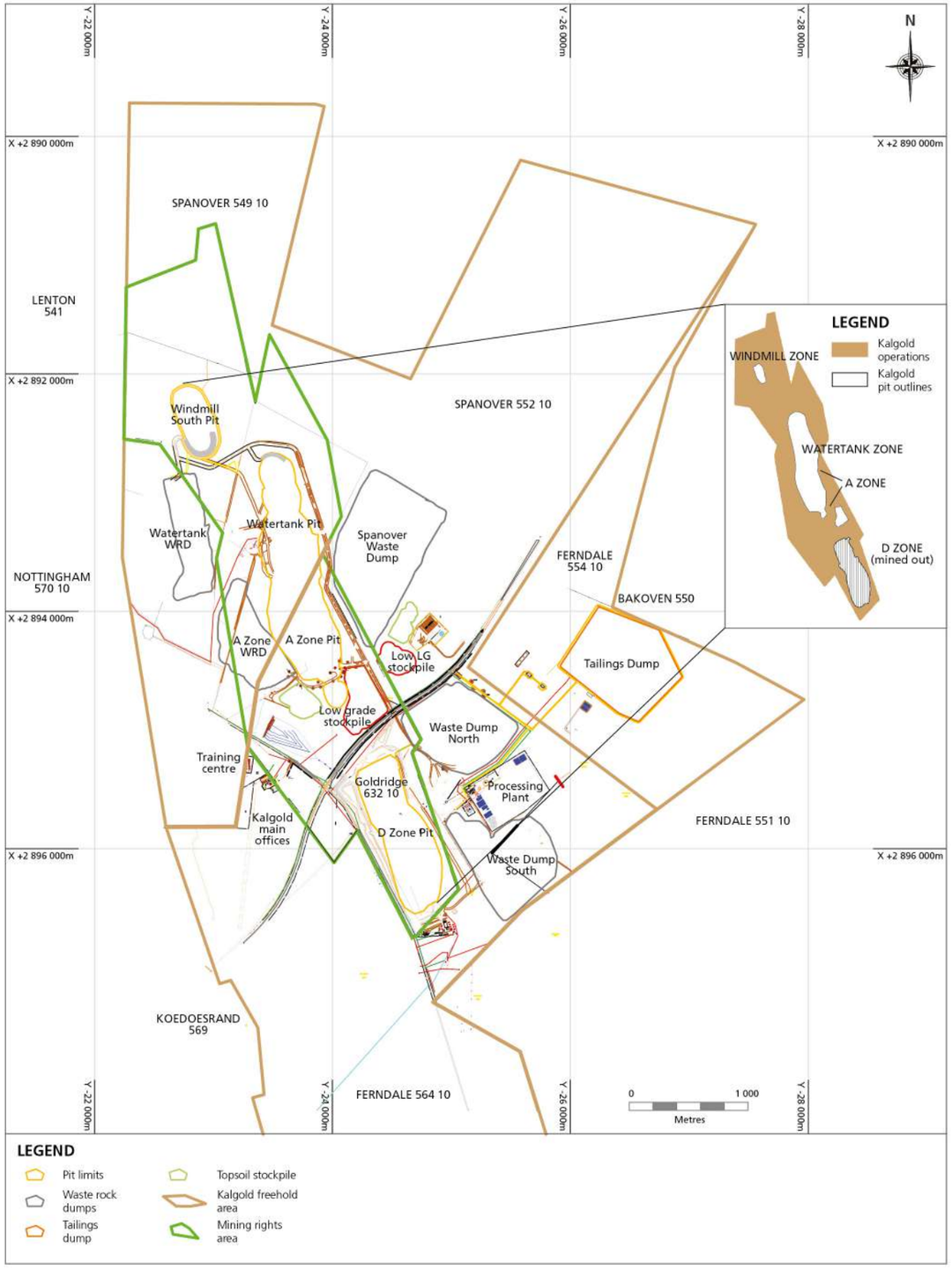
	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Open-pit	5.6	0.94	5	170	15.8	1.16	18	587	21.4	1.10	24	758

OPERATIONAL PERFORMANCE

Kalgold: Key operating statistics

	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**1 432**	1 507	1 541	1 619	1 550
	000t (imperial)	**1 579**	1 662	1 700	1 785	1 709
Gold produced	kg	**1 137**	1 109	1 153	1 249	1 250
	oz	**36 555**	35 655	37 070	40 156	40 189
Grade	g/t	**0.79**	0.74	0.75	0.77	0.81
	oz/t	**0.023**	0.021	0.022	0.022	0.024
Financial						
Average gold price received	R/kg	**900 713**	859 070	742 533	593 482	576 630
	US$/oz	**1 842**	1 735	1 474	1 302	1 396
Capital expenditure	Rm	**203**	208	99	61	108
	US$m	**13**	14	6	4	8
Cash operating cost	R/kg	**762 547**	699 546	584 218	556 284	452 365
	US$/oz	**1 559**	1 413	1 160	1 220	1 095
All-in sustaining cost	R/kg	**964 678**	905 253	690 239	642 147	552 032
	US$/oz	**1 973**	1 828	1 371	1 369	1 336

Kalgold – Kraaipan Greenstone Belt Magisterial district of Vryburg – June 2022



TAILINGS RETREATMENT FACILITIES

FS 55 dam.

Mineral Resources (inclusive)

6.9Moz

Mineral Reserves

5.7Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Free State

The Free State surface source operations comprise the following:

- **The Phoenix (Tswelopele beneficiation) operation** – located adjacent to Harmony's current and historical operations in the Free State, re-treats tailings from tailings storage facilities (TSFs) 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 operating in 2007
- **St Helena** – This project does not exist anymore. Three of the TSFs that were planned under this project last year have been planned under Free State Tailings and 1TSF and FSS6, has been allocated to Phoenix
- **Central plant retreatment project** – tailings reclaimed from the FSS5 TSF are 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
- **Free State tailings** – some of the TSFs that were planned under St Helena project together with some that were planned under other tailings last year have been now planned together under Free State tailings. These will be processed at any plant where a replacement source is needed

South Africa – surface sources Tailings retreatment facilities continued

- **Rock dumps** – around 1.16Mt of Indicated and 18.68Mt of Inferred Resources 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 material** – 561.6Mt of tailings material contained in TSFs in the Free State is estimated to contain around 4Moz of gold
- **Moab Khotsong surface sources** – includes the Mispah TSFs, the Kop paydam and the Moab MOD.

Phoenix

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

Phoenix uses Harmony's Saaiplaas gold plant, which was built in 1954. Most of the original structures and equipment were broken down around 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 run-of-mine (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, with a design capacity of 330 000tpm, initially formed part of Anglo American's Free State gold mining operations.

The Saaiplaas plant originally processed ore from Saaiplaas 1, 2 and 3 shafts. Saaiplaas 1 closed around 1980, Saaiplaas 2 around 1996, and Saaiplaas 3 around 2000. The Saaiplaas plant once 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, crushing or milling is not required. The ore-receiving silos were demolished in July 2007 when milling ceased.

The original design life of the Phoenix slimes retreatment project was five years (to end 2011). The short operating life was due to the restricted deposition capacity for the residues generated at the planned processing rate of 500 000tpm. Given the stability concerns of the TSFs being deposited at the time, this rate was reduced further to 424 000tpm from September 2011.

A major capital project was undertaken to build a replacement cyclone-deposition TSF at St Helena 1, 2 and 3 that would allow the deposition of 500 000tpm, again extending the operating life.

Nature of operations

Hydro-mining on two TSFs, Brand A and Dam 21, for the Phoenix operation and one TSF, FSS5 for the Central plant retreatment project, is conducted under contract. Material is reclaimed using high-pressure water on the TSF, from where the material is pumped to the Saaiplaas plant in separate rubber-lined pipelines from Brand A and Dam 21, and to Central plant from FSS5.

Two additional carbon-in-leach (CIL) tanks have been installed in the Saaiplaas plant to increase leach residence time to improve 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 28°02'00"S and longitude 26°52'18"E.

Description of hydro-mining and mineral processing operations

Production plans

The current planned processing rate for the Phoenix operation is 507 000t a month with residue disposal at the St Helena 1, 2 and 3 cyclone TSF. The current life of the Phoenix operation has been extended to 2028.

Two surface sources are currently being mined:

- The Brand A TSF has had some 65% of its material removed already. It has a grade of 0.28g/t Au at 40% to 45% recovery
- The Dam 21 TSF (which replaced the Harmony One TSF as a source from end-2011) has a grade of 0.27g/t Au at 40% to 45% recovery
- All the material from the Harmony One TSF has been reprocessed with only the clean-up remaining.

Residue deposition onto the FSS6, FSS4 and FSS1 TSFs replaced the old Saaiplaas deposition TSFs at the end of 2011. Deposition onto these TSFs and the Brand D TSF stopped with the commissioning of the St Helena 1, 2 and 3 cyclone TSF which can accept the full monthly production of 500 000t from the Saaiplaas plant.

Saaiplaas plant began depositing material on the St Helena 1, 2 and 3 TSF in February/March 2013. This TSF is now the sole deposition site for the Saaiplaas plant. Commissioning of the St Helena 1, 2 and 3 TSF allowed the planned increase in plant throughput to the required 500 000t a month until 2029.

As the St Helena 1, 2 and 3 cyclone TSF was constructed on an existing deposition site, it did not require the environmental permitting that a new site would have needed.

Hydro-mining from Brand A and Dam 21

TSFs currently reclaim slimes at an average in situ grade of 0.25g/t. The Saaiplaas plant recovers between 40% and 45% of the contained grade in the recovered pulped material received, yielding 65kg of gold a month (planned).

The Central plant retreatment operation reclaims slimes at an average in situ grade of 0.255g/t with a recovery rate of around 55%, yielding 50kg a month. This represents around 1.5% of Harmony's total gold production.

The operating unit cost of the Phoenix operation is R80.17/t at 507 000t a month and for the Central plant retreatment operation it is R81.09/t at 300 000t a month. These reclamation projects are positioned as safe, low-risk, low-cost, profitable, low-grade tailings reprocessing operations.

Hydro-mining

The hydro-mining (monitoring) process uses 100mm and 150mm diameter high-pressure water monitors (cannons) to re-pulp the consolidated slimes to a relative density of around 1.4. The re-pulped slime flows under gravity to an in-dam finger screen where large trash is removed and then to the sump from where a transfer pump delivers it to one of two vibrating screens for secondary screening to remove oversize and smaller trash material. The screen underflow falls into the transfer sump. A separate pump station at each reclamation TSF pumps the reclaimed screened pulp via rubber-lined pipelines to the plant.

The transfer pumping of slimes to Saaiplaas and Central plants is done by Envirotech D-frame with three to five pumps in series (depending upon the distance to be pumped).

Oxygen is injected into the transfer pipeline at the reclamation site to neutralise cyanide-consuming components which improves gold dissolution and reduces cyanide consumption in the plant.

The reclaimed tailings pulp is delivered to the thickener distribution tower at both the Saaiplaas and Central plants where hydrated lime is added to raise the pH to 10.5. The pulp is distributed to the thickeners where the relative density is increased to 1.45 prior to the addition of cyanide for the leaching process.

The thickened pulp is pumped to linear screens with 800µm apertures where any residual trash is removed prior to the addition of cyanide for the leach and adsorption stages in both plants.

Central plant uses six mechanically agitated leach tanks and eight mechanically agitated carbon-in-pulp tanks with cascade flow between the tanks, while the Saaiplaas plant has two parallel circuits with six air agitated pachuca tanks operated in carousel mode. Two tanks in each circuit are used for leaching and four for the carbon-in-leach process.

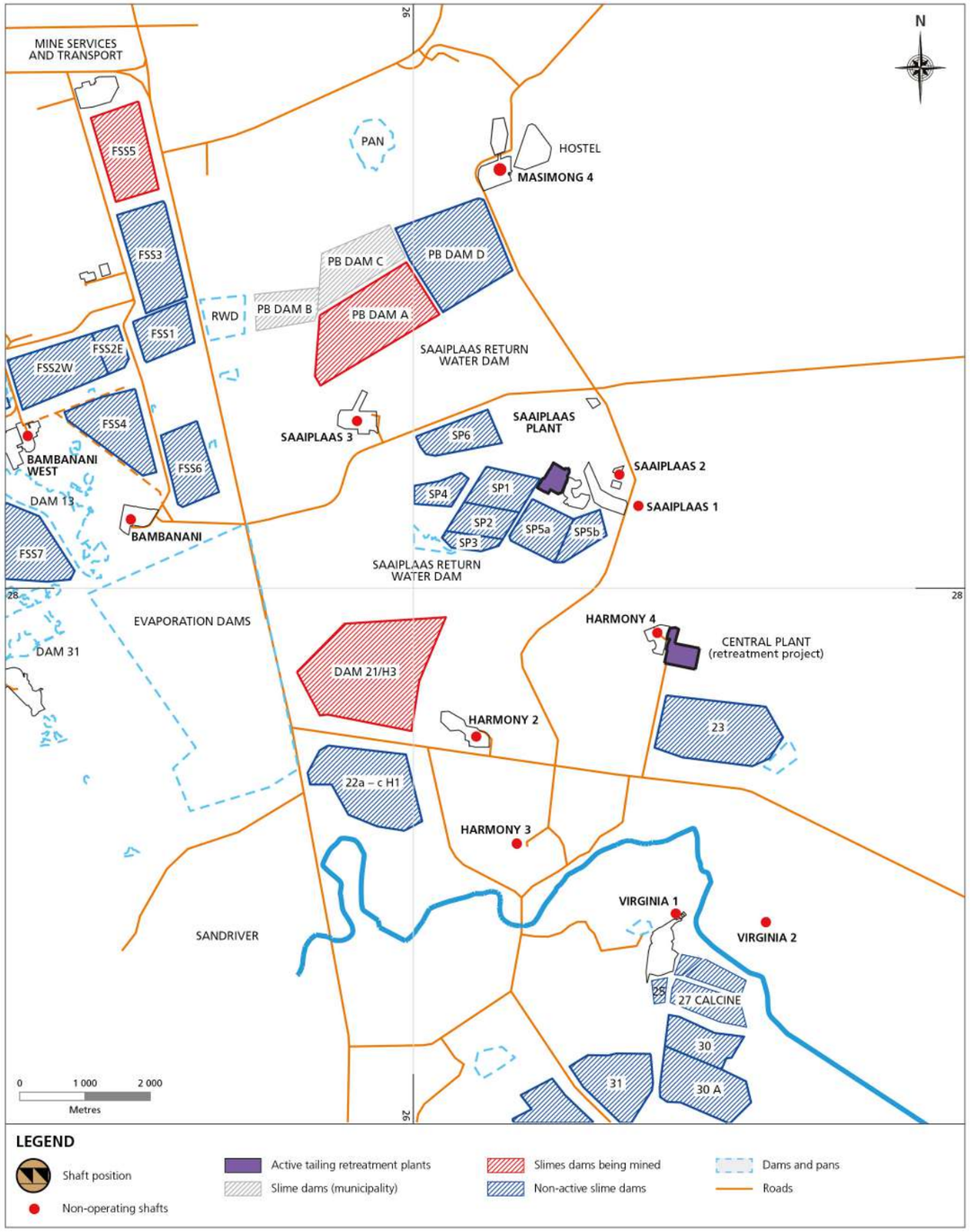
The final product of both the Saaiplaas and Central plants is loaded carbon.

Carbon elution for the recovery of gold is carried out at Central plant for both the Central plant retreatment and the Phoenix operations.

Hydro-jet on FSS 5 Dam.

South Africa – surface sources Tailings retreatment facilities continued

Location of Harmony's Free State Surface Operations – June 2022



South Africa – surface sources continued

Mine Waste Solutions plant.

Mineral Resources (inclusive)

5.4Moz

Mineral Reserves

4.0Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

West Rand/Klerksdorp

History

Harmony Gold acquired the remaining AngloGold Ashanti South African assets, Mponeng and surface operations, in October 2020. The acquisition of surface operations in the Vaal River region in Klerksdorp includes the Mine Waste Solutions (MWS) and Kopanang plant operations. The West Wits operation near Carletonville includes the Savuka plant.

The MWS operation uses the Chemwes plant, which commenced production in 1952 for the Stilfontein Gold Mine. Following the rise in the uranium price in the 1970s, the operation investigated the uranium recovery from the Stilfontein gold tailings dams and later commissioned the uranium plant in mid-1979. The plant operated until 1989 processing 29.4Mt of tailings and recovery of 4.560t of U3O8. In 2003, the plant was later converted into a gold tailings treatment operation and no uranium was produced. In 2007, First Uranium Proprietary Limited (South Africa) acquired MWS with the purpose of treating the tailings dams for both gold and uranium. The operation commissioned the second and third plant between 2007 and 2012 treating tailings. Changes were made in the configuration of the flotation and uranium processes after which the float plant was recommissioned in July 2016 and the uranium plant in October 2016. As part of the optimisation, the uranium and flotation plants were discontinued in 2017 resulting in MWS producing gold only.

South Africa – surface sources West Rand/Klerksdorp continued

Savuka gold plant was commissioned in 1961 and originally designed to treat ore material from Savuka and Tau Tona shafts. Upon closure of the aforementioned shafts, the plant was then subjected to treating tailings material, Savuka and Mponeng waste rock dumps in 2015.

Kopanang plant is a twin stream process that exploits waste rock dumps and environmental clean-ups in the Vaal river area. Originally the plant was commissioned in 1984 to process reef ore from Kopanang shaft. Harmony Gold acquired the plant together with the rest of AGA South African assets in October 2020. The plant has, however, been placed on care and maintenance from August/September 2021.

Nature of the operation

Surface operations are reprocessing low-grade material from tailing storage facilities (TSFs) and waste rock dump scattered across the Vaal River, Stilfontein and West Wits area into one area, in efforts to reduce the tailings and waste rock dumps footprint. In the Klerksdorp region, the company utilises the Kareerand dam to redeposit retreated residues and the West Compartment 4 and West Extension for waste rock dumps residue. In the Carletonville area, the company utilises the Savuka TSF for both the retreated residue material and waste rock dumps residue.

The MWS operation consists of three plants namely Stream 1, Stream 2 and Stream 3 processing five sources. The plants' capacities were considered when the plan was done and planned accordingly.

Mineral Resource

The material contained in the TSF and waste rock dumps originates from the historic ore-bearing reefs mined by the Vaal River, Buffelsfontein, Hartebeestfontein, Stilfontein and Carletonville gold mines. These gold mines are deep-level gold mines, which predominantly extract the tabular, oligomictic pebbly conglomerate. In the Vaal River the predominant reef is the Vaal Reef (VR) ore situated within the Krugersdorp formation of the Central Rand Group, in the upper unit of the Witwatersrand Supergroup. The VR has been predominantly mined for gold in the past, although the reef also contains uranium oxide. The dominant reef residue deposited on the Carletonville TSF is from the oligomictic conglomerate from the Ventersdorp Contact Reef (VCR) found at the bottom of the Ventersdorp Supergroup and Carbon Leader Reef (CLR) of the lower Johannesburg Sub-group of the Central Rand Group.

The marginal ore dumps consist of waste rock mined from underground workings, hoisted, transported to surface and deposited via conveyor belts. The gold contained within these dumps was sourced from minor reef intersected while accessing the primary reef, gold-bearing reef contained within small fault blocks that were exposed by off-reef development, and from cross-tramming of gold-bearing reef material to the waste tips.

The TSFs consist of fine-grained residue material that originates from the processing of the underground ore from the various operations.

Mineral rights, legal aspects and tenure

After the sales of the AngloGold Ashanti Vaal River mining operations, MWS is no longer under the VR mining right (16MR).

The application for amendment of the MWS environmental authorisation was submitted to the Department of Environmental Affairs (DEA) in 2018. The DEA declined the application because the DEA is of the opinion that the DMRE is the competent authority. Awaiting feedback following consultation with senior officials from the DEA and the DMRE to obtain clarification to confirm the competent authority.

The current mining rights for the South African operations cover multiple horizons, ie both underground and surface for West Wits (West Mining Right (01MR) and Magnum Farm (248MR). The TSFs falling outside the mining right are accommodated in the approved EMPr and financial provision for rehabilitation for the West Wits Mining Rights, as well as under historic surface rights permits for West Wits, which are still valid.

Mining methods and mine planning

The tailings are reclaimed using several hydraulic (high-pressure water) monitoring guns to deliver water at pressure, typically 27-30 bar, to the face. The tailings material is reclaimed by blasting the TSF face with the high-pressure water, resulting in the slurry gravitating towards pumping stations. These monitoring guns can be positioned to selectively reclaim required areas from the TSFs. Bench heights are constrained by the force delivered from the monitoring gun nozzle and safety constraints. With enough pressure, face advance of up to 25m can be reclaimed per cut. Typical bench heights are between 10 and 15 metres. The pump stations are located at the lowest point of the dams to ensure that the slurry from the dams will gravitate towards the pump station from where the slurry will be pumped to the processing plants.

For marginal ore dumps, bulldozers are used to create safe loading faces. The material is then loaded from the face onto trucks by means of front-end loaders and transported to the relevant gold plants for processing. Some of the material is transported from the face to stockpile pads next to the rail and from the pads onto hoppers and railed to the Kopanang plant.

Mineral processing

The MWS gold plant processes hydraulically re-mined slurry from several TSFs. The ore is reclaimed by means of high-pressure monitor guns into a pump station that feeds the plant. In the plant, the ore gets processed through a carbon-in-leach (CIL) circuit for the dissolution of gold and adsorption of the aurocyanide complex onto the activated carbon using cyanide, oxygen and lime as the principal reagents for the dissolution reaction and activated carbon as the adsorbent. Once loaded with gold, the carbon proceeds to the elution circuit to strip the adsorbed gold into a more concentrated solution that proceeds to the electrowinning step for electrolytic gold recovery and smelting.

The Savuka plant is a hydrometallurgical plant. The mineral process is dependent on the source material: tailings material is pumped directly from the re-mining site to the leach circuit, then dewatering process to improve the density required for the leach circuit. At leach, lime is added for pH adjustment and sodium cyanide for the gold dissolution. The leach product goes to the carbon-in-pulp (CIP) section for dissolved gold recovery by use of activated granular carbon.

Infrastructure

All tailings material in the Vaal River and MWS areas is processed through the three metallurgical streams at the MWS metallurgical operations, with the fourth stream planned to be added in 2024. In the Carletonville area, the tailings material is currently processed through the Savuka plant. Savuka plant is solely dedicated to tailings reclamation and Kusasalethu plant used for waste rock dumps.

Adequate deposition capacity for the surface operations exists in all areas. Operational infrastructure such as road, rail, offices, security service, water and power supply is adequate, and is shared with the operations in the relevant areas.

Mineral Resource estimation

Prior to 2011 for the Vaal River operations, the grade estimations for the TSFs were based on the residue grades obtained from the different process plants, as well as various ad hoc sampling projects in selected areas. Post-2011, the majority of the Vaal River and MWS TSFs have since been re-sampled by means of an extensive drilling exercise which commenced in 2011. The auger drilling typically took place on a 150m x 150m grid (Mineral Resource model) as well as a minimum of 50m x 50m grid (grade control model). The vertical sampling interval of 1.5m was implemented and where possible all holes were drilled into the underlying strata to allow the estimation of the base of the TSF.

The drill hole sampling information was then utilised to generate 3D grade models (block model) using the ordinary kriging estimation method. The variograms used for the grade estimation consist of both horizontal and downhole variograms. The methodology used for the construction of the grade model constitutes well-defined 3D wireframes that are constructed using the drill holes and the results from monthly surveys on currently reclaimed TSFs and aerial surveys carried out on an annual basis for TSFs that are planned to be reclaimed. These models are regularly updated during the grade control process. A stringent QA/QC process was applied to the sampling and assay processes to ensure a high level of confidence in the results.

Environmental impact

MWS manages its environmental impacts through an accredited ISO 14001:2014 Environmental Management System. The operation first obtained its environmental certification in 2015 under ISO 14001:2004. In 2018 it got recertified under ISO 14001:2015. In conformance to the standard requirements MWS has identified and risk ranked the significant aspects and impacts of its activities and determined measures to minimise its aspects and associated impacts. This is documented in the relevant ISO 14001:2015 documents and managed accordingly. The operations are audited by an external certification body on an annual basis, and the operation has managed to maintain its certification since it got recertified in 2018.

The following environmental authorisations have been issued to MWS by the relevant regulators:

- Atmospheric emissions licence – issued 29/10/2020
- Water use licence – issued 30/11/2018
- Environmental authorisation for expansion of Kareerand – issued 11/11/ 2021.

The local authorities have also issued the operations with a permit to store hazardous and flammable material as required by the local by-laws.

Internal audits are conducted as part of the ISO 14001:2015 management standard and depending on the conditions of the authorisations. Periodically, depending on the frequency stipulated in the authorisations, external audits are conducted by independent auditors. The regulators also do periodic assessments on the operations based on their jurisdiction.

Legal environmental audits are also conducted on a regular basis to determine the level of compliance to South African environmental legislation applicable to the operations.

Material risks – Kareerand Project has been approved so this is not a risk anymore

Material risks that may impact Mineral Resource and Reserve statement:

Significant risks

- No significant risk.

Competent person

Ore Reserve manager

Bareng Joseph Selebogo
Plato: MS 0151
MSCC: 1900
Years of experience:

- In industry – 36 years
- Reporting of reserves – 12 years.

Operational performance

Surface operations: Key operating statistics

	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**9 043**	10 107	4 476	4 307	2 821
	000t (imperial)	**9 972**	11 145	4 936	4 749	3 110
Gold produced	kg	**2 814**	3 580	1 753	1 515	1 081
	oz	**90 471**	115 099	56 630	48 708	34 755
Grade	g/t	**0.311**	0.354	0.392	0.352	0.383
	oz/t	**0.009**	0.010	0.011	0.010	0.011
Financial						
Average gold price received	R/kg	**908 626**	872 960	779 835	587 483	576 737
	US$/oz	**1 858**	1 763	1 549	1 289	1 374
Capital expenditure	Rm	**34**	39	2	8	3
	US$m	**2**	3	0	1	0
Cash operating cost	R/kg	**682 694**	594 033	486 792	456 473	415 993
	US$/oz	**1 421**	1 200	967	1 001	1 007
All-in sustaining cost	R/kg	**689 630**	619 692	484 507	462 178	417 462
	US$/oz	**1 410**	1 252	962	1 014	1 010

Surface sources

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	58.4	0.28	16	523	—	—	—	—	—	—	—	—	58.4	0.28	16	523
Central plant	—	—	—	—	47.9	0.27	13	413	—	—	—	—	47.9	0.27	13	413
Other:																
– Waste rock dumps	—	—	—	—	1.1	0.39	0.4	13	17.0	0.43	7	234	18.0	0.43	8	248
– Tailings	169.3	0.27	46	1 476	578.7	0.22	129	4 156	15.5	0.19	3	94	763.5	0.23	178	5 726
Mispah	—	—	—	—	75.6	0.30	23	730	—	—	—	—	75.6	0.30	23	730
Kop Paydam	—	—	—	—	11.0	0.20	2	72	—	—	—	—	11.0	0.20	2	72
Moab MOD	—	—	—	—	2.5	0.30	1	24	—	—	—	—	2.5	0.30	1	24
Vaal River tailings	—	—	—	—	280.3	0.25	69	2 209	—	—	—	—	280.3	0.25	69	2 209
Mine Waste Solutions	75.2	0.22	17	533	165.4	0.25	41	1 317	—	—	—	—	240.6	0.24	58	1 849
West Wits tailings	—	—	—	—	42.2	0.34	15	468	—	—	—	—	42.2	0.34	15	468
Vaal River WRD	—	—	—	—	—	—	—	—	2.5	0.28	1	22	2.5	0.28	1	22
West Wits WRD	—	—	—	—	1.1	0.47	1	16	—	—	—	—	1.1	0.47	1	16
Grand total	302.9	0.26	79	2 532	1 205.7	0.24	293	9 417	34.9	0.31	11	351	1 543.5	0.25	383	12 300

Modifying factors

Surface sources		MCF (%)	PRF (%)	Cut-off (g/t)
Phoenix	2 021	100	45	0.28
	2 022	100	45	0.16
Central plant	2 021	100	50	0.27
	2 022	100	49	0.16
Other tailings	2 021	100	51	0.22
	2 022	100	50	0.16
Vaal River tailings	2 021	100	47	0.20
	2 022	100	46	0.20
Mine Waste Solutions	2 021	100	47	0.25
	2 022	100	46	0.23
West Wits tailings	2 021	100	47	0.27
	2 022	100	41	0.28

Gold – Mineral Reserve estimates at 30 June 2022

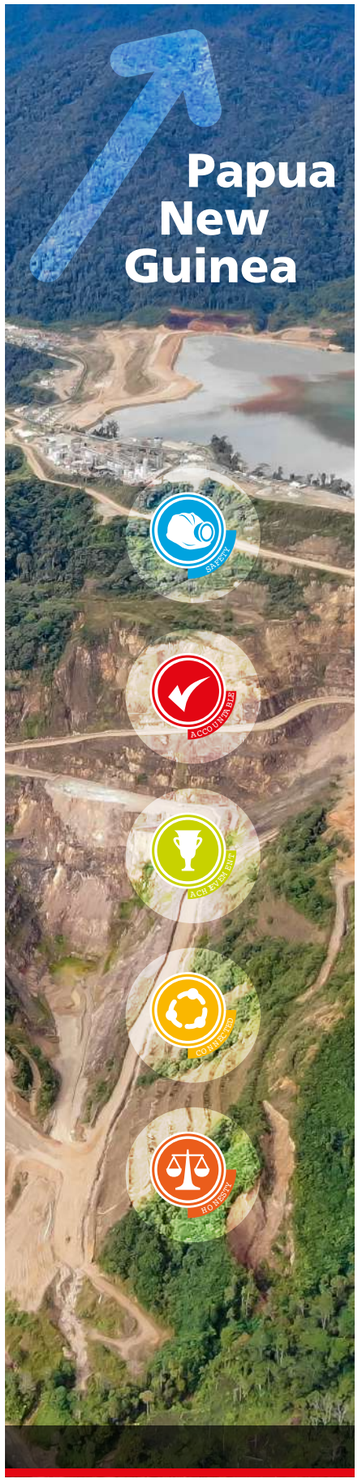
	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Phoenix	36.5	0.29	10	335	—	—	—	—	36.5	0.29	10	335
Central plant	—	—	—	—	47.9	0.27	13	413	47.9	0.27	13	413
Mispah	—	—	—	—	75.2	0.30	23	728	75.2	0.30	23	728
Vaal River tailings	—	—	—	—	177.3	0.28	50	1 604	177.3	0.28	50	1 604
Mine Waste Solutions	21.1	0.26	6	179	166.8	0.24	41	1 307	187.8	0.25	46	1 485
West Wits tailings	—	—	—	—	19.3	0.33	6	202	19.3	0.33	6	202
Other:												
– Tailings	86.5	0.27	23	753	578.7	0.22	129	4 156	665.3	0.23	153	4 909
Total	**144.1**	**0.27**	**39**	**1 266**	**1 065.2**	**0.25**	**262**	**8 410**	**1 209.3**	**0.25**	**301**	**9 676**

Papua New Guinea

PNG ASSETS

Our focus on zero harm is an investment in our business and in our people.

Harmony's Papua New Guinea assets include an open-pit gold-silver mine, a 50% interest in the Wafi-Golpu project and several exploration prospects. Combined, these account for gold and gold equivalent Mineral Resources of 37.9Moz and Mineral Reserves of 18.2Moz. These are equivalent to 29% and 46% respectively of total group gold and gold equivalent Mineral Resources and Mineral Reserves.



Gold and Gold equivalent

Mineral Resources (inclusive)

37.9Moz

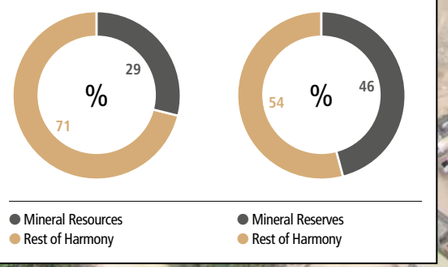
Mineral Reserves

18.2Moz

PAPUA NEW GUINEA

MINERAL RESOURCES AND MINERAL RESERVES BY OPERATION	
Papua New Guinea	**137 – 155**
Hidden Valley	**141**
Wafi-Golpu project	**146**
Kerimenge	**153**

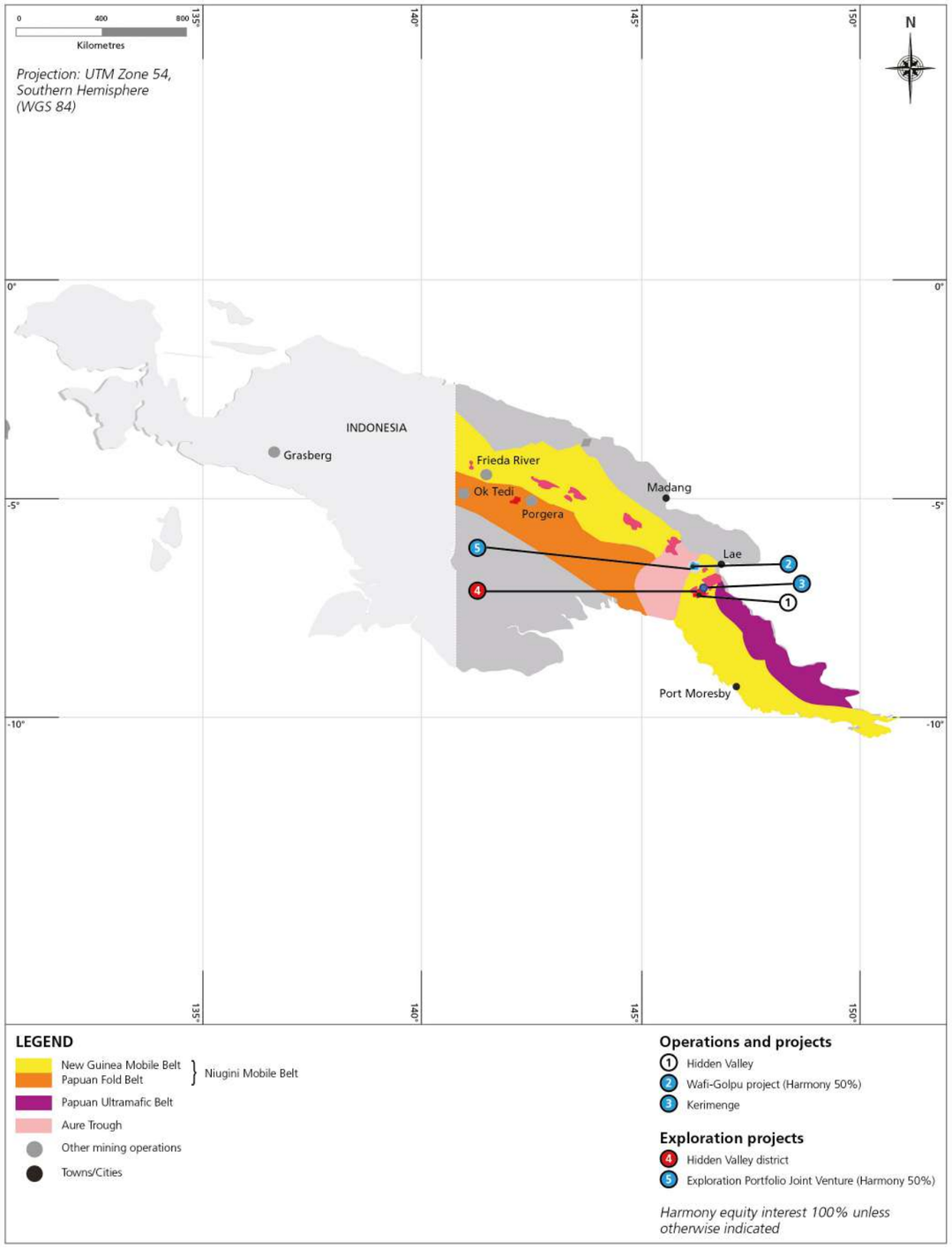
Gold and Gold equivalents
Contribution to Harmony



In Papua New Guinea, Harmony has one wholly-owned open-pit, gold and silver mine – Hidden Valley – and a 50% interest in the Wafi-Golpu project, which encompasses the Golpu, Wafi and Nambonga deposits. Both the Hidden Valley Mine and the Wafi-Golpu project are located in the Morobe Province. Harmony's Kili Teke Cu-Au project was held for sale during the year, and has therefore been removed from the resource statement. The Kerimenge project close to the township of Wau had been added as a Resource. As at 30 June 2022, our combined estimated gold and gold equivalent Mineral Resource (inclusive) in Papua New Guinea was 37.9Moz and the combined estimated Mineral Reserve, 18.2Moz.

Hidden Valley tailings dam.

Harmony – Papua New Guinea



HIDDEN VALLEY

Hidden Valley.

Gold and Gold equivalent

Mineral Resources (inclusive)

3.1Moz

Mineral Reserves

1.2Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Description and location

The Hidden Valley Mine is located at latitude 7°22″S and longitude 146°39″E, approximately 15km south-south-east of the township of Wau and approximately 90km south-south-west 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 two-lane main road.

The mine is located at elevations between 1 700m and 2 800m 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 the 1980s. Ownership of the deposits was held by various exploration companies before being acquired by Harmony.

Mine construction commenced in 2007 with the 40km road access from Bulolo to the mine site. First gold was poured in May 2009 with the mine being officially opened in September 2010.

Nature of operations

The Hidden Valley Mine 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. An extension to the mine life has been approved taking the end of mine out to 2027, with further opportunities for extension.

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 to moderately dipping sheeted vein swarms associated with an underlying shallow thrust.

Mineral rights/legal aspects and tenure
The tenements comprising the Hidden Valley Mine, namely mining lease ML 151, lease for mining purposes LMP 80 and mining easement ME 82 are held by Morobe Consolidated Goldfields Limited, being a wholly owned PNG-registered subsidiary of Harmony Gold Mining Company Limited.

The deposits lie on mining lease ML151 which was granted in 2005 for an initial period of 20 years. On 21 May 2021, the Minister for Mining subsequently approved a five-year extension to ML151, to March 2030. The extension has allowed for an increase in the Mineral Reserve.

Morobe Consolidated Goldfields Limited is also the holder of environment permit EP L3(578). A minor amendment to the environment permit was approved in March 2021 to allow the Hamata open-pit to be converted into a second tailings storage facility and to accommodate the development of the Kaveroi waste rock dump to facilitate the extension.

The mine is 100% owned and managed by Harmony through Morobe Consolidated Goldfields.

Mining methods and mine planning
Mining operations occur in two open-pits 6km apart, Hidden Valley-Kaveroi and Hamata, of which Hidden Valley-Kaveroi 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 generally consists of 18m inter-berm heights, blasted in 2 x 9m benches with 3m mining flitches.

Waste is disposed of in engineered valley fill waste dumps, with toes keyed in and buttressed using competent non-acid forming rock. Waste from the Hidden Valley-Kaveroi open-pit is currently placed in the valley fill Western Sector, Niekywe and Kaveroi Creek waste dumps. These dumps provide enough capacity for life-of-mine.

Mineral processing
A crushing facility is located near the Hidden Valley pit with the crushed ore conveyed 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 treats 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. The facility is designed, built and operated to the Australian National Committee on Large Dams (ANCOLD) guidelines. 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 and nearby quarry. The processing inventory in this Mineral Reserve estimate is constrained by the remaining storage capacity in TSF1 and TSF2.

Infrastructure
Hidden Valley is a well-established mine serviced from the port of Lae by a partially 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 Morobe Province and are bussed to and from their towns and villages. The mining camp on-site houses all employees and provides messing, health and recreation facilities. Power is provided by the state-owned PNG Power which is generated in part by renewable (predominantly hydro-power). 100% contingency is provided by a bank of diesel generators.

Mineral Resource estimation
Both the Hidden Valley and the Hamata models have been estimated using a localised multiple indicator kriged method using 12m x 12m x 3m standard mining units (SMU) 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. The model was updated in 2021 using additional high-grade constraints in the form of restrictions on informing distances and harsher top cuts applied. Australian Mining Consultants (AMC) and Derisk reviewed the 2018 model and this new model does not deviate significantly from the 2018 procedure. Checks against historical production indicate that both these models are robust when appropriate modifying factors are applied.

Pit optimisations that inform designs are run on Measured and Indicated Resource categories only. All Mineral Resource classifications are maintained and converted to Mineral Reserve classifications inside pit designs. There is no measured material classified in either pit. The Measured Resources reported comprise stockpile material only.

Environmental impact
In accordance with the Environment Act 2000, an environmental impact statement (EIS) was submitted to the Department of Environment and Conservation (DEC) (now the Conservation and Environment Protection Authority – CEPA) in February 2004. Waste discharge and water extraction permits were subsequently issued to Hidden Valley Services Limited which were amalgamated as Environment Permit EP-L3(578) in October 2017. The mine presently operates under EP-L3(578) which was amended in April 2021 to reflect changes to the mine configuration associated with the extension.

Consistent with Conditions 4 and 5 of EP-L3(578), an environmental management plan (EMP) has been developed which identifies potential environmental impacts associated with the operation of the mine and management strategies to reduce these impacts. The EMP is updated every three years, with the current version (2021 – 2024) submitted to CEPA on 31 March 2021. Approval of this document is pending. 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 environmental monitoring regime presented in the EMP includes surface water, groundwater, sediment and air quality monitoring, hydrological studies, land clearance assessment and aquatic biota studies. Water quality monitoring within the Watut River and its major tributaries forms a critical component of the programme in order to monitor the potential for impacts on the downstream environment as a result of the mining operation.

Material risks
Material risks that may impact Hidden Valley's Mineral Resource and Mineral Reserve statement:

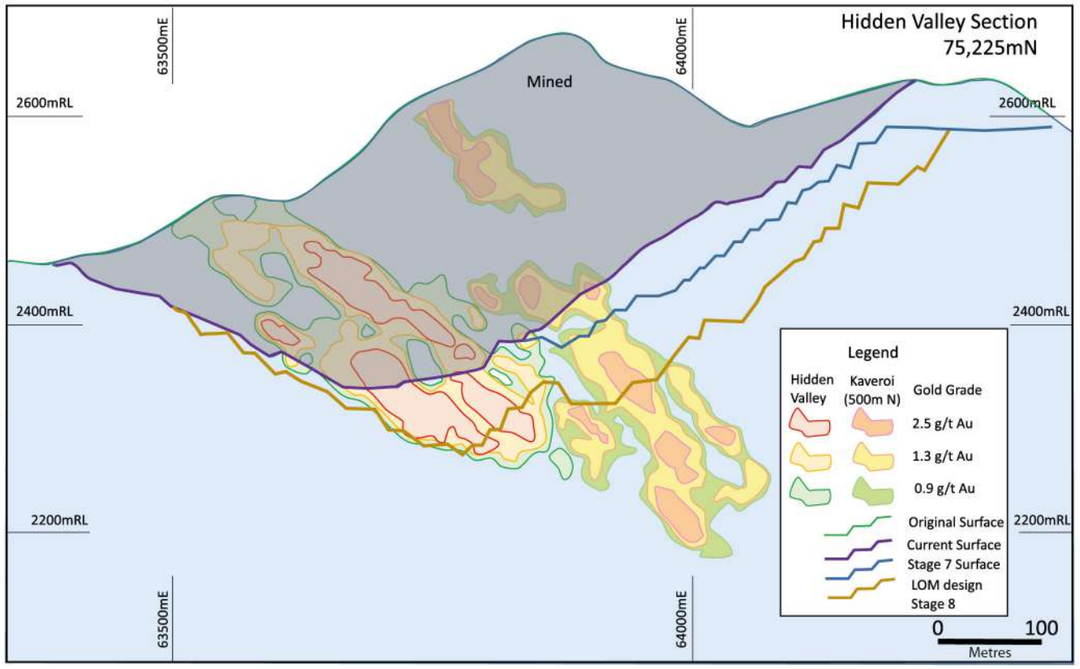
Significant risks	Remedial action
• Overestimation of gold grade due to the nature of the orebody • Pit wall stability • Availability of critical fixed plant in the crusher, conveyor and process plant • Covid-19 outbreak on-site or in surrounding communities.	• Application of 7.5% gold grade modifying factor • Advanced drilling programme • Softening of wall angles • Proactive geotechnical monitoring programme • Maintaining stocks on hand of critical spares • Planned maintenance schedule • Strict Covid-19 protocols in place include screening and PCR testing before personnel arrive on-site.

Competent person
Mineral Resources – Group resource geologist, Harmony South-east Asia

Ronald Reid
Australian Institute of Geoscientists (AIG)
More than 25 years' experience.

Mineral Reserves – Executive general manager: New business and technical services Harmony South-east Asia

Greg Job
AusIMM
More than 30 years' experience.



Papua New Guinea **Hidden Valley** continued

Hidden Valley and Hamata

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	2.5	0.86	2	70	49.3	1.48	73	2 347	1.2	1.21	1	48	53.1	1.45	77	2 466
Hamata	—	—	—	—	1.9	1.90	4	115	0.2	1.50	0.3	9	2.1	1.86	4	124
Total	**2.5**	**0.86**	**2**	**70**	**51.2**	**1.50**	**77**	**2 462**	**1.4**	**1.25**	**2**	**57**	**55.1**	**1.46**	**81**	**2 589**

Modifying factors

	MCF (%)	Dilution (%)	PRF (%)	Cut-off (g/t)
Hidden Valley				
2021	95	—	88	0.65
2022	95	—	93	0.65
Hamata				
2021	100	5	88	0.65
2022	100	5	90	0.65

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Hidden Valley	2.5	0.86	2	70	16.3	1.78	29	930	18.8	1.65	31	1 001
Hamata	—	—	—	—	0.3	1.48	0.4	13	0.3	1.48	0.4	13
Grand total	**2.5**	**0.80**	**2**	**70**	**16.6**	**1.75**	**29**	**943**	**19.1**	**1.65**	**31.4**	**1 014**

Silver – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	2.5	18.32	47	1 501	49.3	22.13	1 090	35 058	1.2	23.12	29	917	53.1	21.97	1 166	37 475

Silver – Mineral Resources as gold equivalent estimates at 30 June 2022 (inclusive)

	Measured	Indicated	Inferred	Total
	(000oz)	(000oz)	(000oz)	(000oz)
Hidden Valley	22	507	13	541

Modifying factors

Hidden Valley	MCF (%)	Dilution (%)	PRF (%)	Cut-off (g/t)
2021	100	—	61	0.85
2022	100	—	70	0.65

Silver – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes		Ag		Tonnes		Ag		Tonnes		Ag	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Hidden Valley	2.5	18.32	47	1 501	16.3	22.45	366	11 758	18.8	21.89	412	13 259

Silver – Mineral Reserves as gold equivalents estimates at 30 June 2022

	Proved	Probable	Total
	(000oz)	(000oz)	(000oz)
Hidden Valley	22	170	192

Operational performance

Hidden Valley: Key operating statistics

	Unit	FY22	FY21	FY20	FY19	FY18
Operation						
Volumes milled	000t (metric)	**3 229**	3 420	3 906	3 866	2 499
	000t (imperial)	**3 561**	3 772	4 307	4 285	2 757
Gold produced	kg	**3 707**	4 689	4 872	6 222	2 862
	oz	**119 182**	150 755	156 639	200 042	92 015
Grade	g/t	**1.15**	1.37	1.25	1.60	1.36
	oz/t	**0.033**	0.040	0.036	0.047	0.039
Financial						
Average gold price received	R/kg	**862 505**	847 027	757 348	579 902	550 956
	US$/oz	**1 764**	1 711	1 504	1 272	1 283
Capital expenditure	Rm	**1 249**	1 260	959	1 591	1 563
	US$m	**82**	82	61	112	122
Cash operating cost	R/kg	**591 551**	356 233	348 054	220 323	287 028
	US$/oz	**1 210**	719	691	483	669
All-in sustaining cost	R/kg	**1 007 986**	677 659	562 648	497 399	466 256
	US$/oz	**2 067**	1 383	1 120	1 090	1 094

GOLPU, WAFI AND NAMBONGA

Wafi-Golpu.

Gold and Gold equivalent

Attributable
Mineral Resources (inclusive)

34.2Moz

Attributable
Mineral Reserves

17.0Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Property description and location

The Golpu, Wafi and Nambonga deposits are located in eastern Papua New Guinea (PNG), approximately 60km south-west of Lae in Morobe Province. Access to the Wafi-Golpu project site from Lae is via a combination of tarred and untarred roads with a travel time of four hours.

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 Wafi-Golpu project has completed a feasibility study and is in the permitting phase, with mining tenement and environment permit applications submitted to the respective regulatory authorities commencing in 2016.

The Conservation and Environment Protection Agency has concluded its assessment of the environment permit application, and an environment permit was granted to the project in December 2020.

The Wafi-Golpu project's proposal for development underpins its application for Special Mining Lease 10 and associated tenements. The assessment of the proposal for development by the Minerals Resources Authority is ongoing and negotiations with the State Negotiating Team regarding the terms and conditions of the grant of project tenements have commenced and are ongoing. No mining has occurred in the project area.

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 surface mapping and the deposit remains open for future expansion.

Mineral rights/legal aspects and tenure

The Wafi-Golpu project is a 50:50 unincorporated joint venture between wholly owned PNG-registered subsidiaries of Harmony Gold Mining Company Limited (namely, Wafi Mining Limited) and Newcrest Mining Limited (namely, Newcrest PNG2 Limited).

The Wafi-Golpu joint venture participants are the holders in equal shares of exploration licences EL 440 and EL 1105. The Golpu, Wafi and Nambonga deposits are located on exploration licence EL440.

GOLPU

Geology

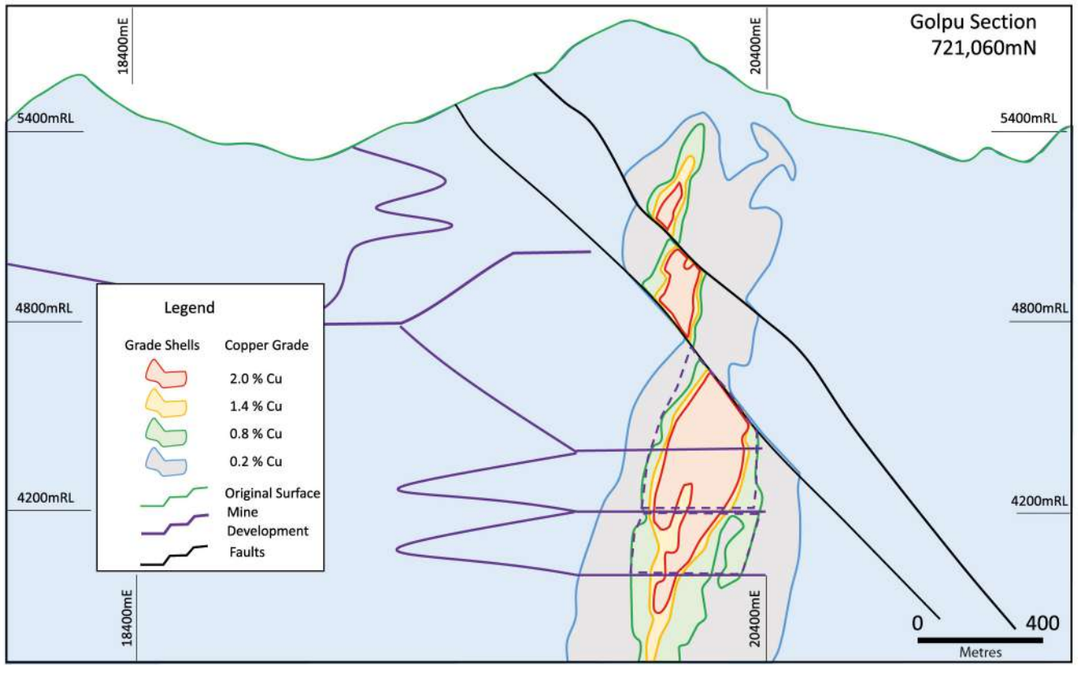
The Golpu deposit is the largest of the deposits and found in a block of deformed Upper Mesozoic to Middle Miocene metasedimentary rocks cut by Miocene-Pliocene calc-alkaline dioritic intrusives. Copper and gold mineralisation results from a porphyry system with the upper portion overprinted by high-sulphidation epithermal alteration. The deposit is also 60km north-north-west of the porphyry-related gold-silver-base metal Hidden Valley-Kaveroi mines and other related deposits in the Bulolo Graben (eg 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 and select drilling progressed in 2015 through to 2020 associated with decline access, site geotechnical investigations and near-term geotechnical interpretation. The underlying geology and the grade model remain essentially 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.



Papua New Guinea **Wafi-Golpu project** continued

INCLUDING THE GOLPU, WAFI AND NAMBONGA DEPOSITS

Golpu feasibility study update

The Golpu Mineral Reserve was updated following the release of the feasibility study update in March 2018. The feasibility study update informed the finalisation of the environment impact statement submitted to the Conservation and Environment Protection Agency in July 2018. The feasibility study update also informed the proposal for development in support of a Special Mining Lease application submitted to the Mineral Resource Authority in March 2018.

Mining methods and mine planning

In March 2018 the feasibility study update proposed the following mining approach:

- Secondary/initial underground access via the Nambonga decline to provide earlier and quicker access to underground drill platforms, a 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 4 870mRL 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).

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 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 south-west 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 is the 2019 estimate using an ordinary kriging method. 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 0.9g/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 Mineral 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 x 400m x 1 000m vertically.

The Nambonga Mineral Resource is an ordinary kriged estimate based on a domained geological model and is reported within a 0.5g/t grade shell to provide a broad consistent mineralised zone.

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 Mineral Reserve is declared and no mining has been undertaken in the project area to date.

Permitting

The Wafi-Golpu project is in the permitting phase. The proposal for development underpinning the Special Mining Lease 10 (SML 10) application was submitted to the Papua New Guinea Mineral Resources Authority in August 2016 and was updated in March 2018, when the feasibility study update was completed.

This update identified deep-sea tailings placement as the tailings management solution for the project. Informed by the feasibility study update, the environment impact statement (EIS) was submitted to CEPA in June 2018. Negotiations with the State Negotiating Team regarding the terms and conditions of the grant of SML 10 and its associated tenements, including the terms and conditions of participation in the project by the State and its nominees, commenced in April 2018. In December 2018, the Wafi-Golpu joint venture participants entered into a memorandum of understanding (MoU) with the State of PNG, establishing a framework for the parties to progress the permitting of the Wafi-Golpu project.

In May 2019, the permitting process was injuncted pursuant to a stay order given in an action for judicial review of the MoU brought by the Governor of the Morobe Province, which injunction remained in place until February 2020 when the State withdrew from the MoU and the judicial review was dismissed on that basis.

In December 2020, CEPA concluded its assessment of the Wafi-Golpu project's environment permit application and granted an environment permit approving deep-sea tailings placement as the project's tailings management method. In March 2021, the Governor of Morobe Province and the Morobe Provincial Government commenced legal proceedings seeking judicial review of the grant of the environment permit, and for interim orders to stay the environment permit and restrain the State of PNG from granting a special mining lease for the Wafi-Golpu project.

The legal proceedings are continuing, but do not prevent the conduct of the SML 10 negotiations, which resumed in early 2022 and are ongoing.

The Wafi-Golpu project will progress to execution only once:

- SML 10 and all other associated tenements and necessary permits required for project development have been granted. This will only occur after all required agreements with the State have been negotiated and executed, including a Mining Development Contract, a Fiscal Stability Agreement and a State Equity Agreement
- All required agreements with the State and landowners have been negotiated and executed, including a memorandum of agreement and individual compensation agreements
- The judicial review of the environment permit has been dismissed, and/or the validity of the environment permit for the life of the project has been confirmed
- All necessary approvals have been received from the boards of directors of the ultimate holding companies of the Wafi-Golpu joint venture participants, namely Harmony and Newcrest Mining Limited.

Since 2009, the mining regime in PNG has been the subject of a comprehensive review involving various PNG government agencies. Legislation on 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. In July 2020, a proposed Organic Law on Ownership and Development of Hydrocarbons and Organic Law on Minerals and the Commercialisation of State Businesses was tabled for comment. The Organic Law (if adopted) will materially alter the legislative and regulatory regime governing mining in Papua New Guinea, including the ownership of minerals by the government and the transformation of the methodology of its participation in mining operations from a concessionary to a production-sharing regime.

The Papua New Guinea Chamber of Mines and Petroleum, as the representative mining industry body, has engaged with the State in response to these proposed legislative changes, some of which are considered by industry to be materially adverse. However, there has been only limited engagement with the State.

The Wafi-Golpu project will potentially be adversely affected by the legislative, fiscal and regulatory changes presently being considered. If introduced and applied to the project, the changes could have a material adverse effect on Harmony's business, operating results and financial condition.

Environmental impact

During the permitting phase, the Golpu, Wafi and Nambonga deposits are in various stages of exploration and feasibility study, and as such have only minor environmental impacts. Environmental aspects are regulated by CEPA and the Wafi-Golpu joint venture participants report regularly to this authority.

Papua New Guinea **Wafi-Golpu project** continued

INCLUDING THE GOLPU, WAFI AND NAMBONGA DEPOSITS

Material risks

Material risks that may impact the Wafi, Golpu and Nambonga Mineral Resource and Mineral Reserves statement:

Significant risks	Remedial action
• Permitting delays which could impact the project's capital, operational cost and economic assumptions • Changes to legislation, in particular the Mining Act, and the introduction of the Organic Law on Minerals • Geotechnical conditions impact production and/or total amount of ore recoverable • Objection to the proposed tailings management solution (deep-sea tailing placement).	• Negotiating team in place • Secure agreement with the State for the project to be permitted and grandfathered under the current mining and fiscal regime • Demonstrate to various stakeholders the economic benefits of the project per current proposal for development. Detailed geotechnical studies and monitoring systems to be implemented including further drilling from underground drill platforms • Ongoing data collection on deep-sea tailings placement and related modelling, demonstrating quality of scientific work and confidence in modelled outcomes, and communication and engagement with relevant stakeholders.

Competent person

Golpu – Mineral Resource

Senior resource geologist exploration targeting, Harmony South-east Asia

Ronald Reid
Australian Institute of Geoscientists (AIG)
More than 25 years' experience.

Golpu – Mineral Reserve

Director, Caveman Consulting

Geoff Dunstan
AusIMM
More than 30 years' experience.

Wafi and Nambonga – Mineral Resource

Executive general manager: Growth and resource development, Harmony South-east Asia

Greg Job
AusIMM
More than 30 years' experience.

WAFI (Harmony 50% portion)

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	—	—	—	—	54.0	1.66	89	2 800	20.0	1.37	26	800	74.0	1.58	114	3 600

GOLPU (Harmony 50% portion)

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	—	—	—	—	345.0	0.72	249	8 000	70.0	0.62	44	1 400	415.0	0.70	292	9 400

Modifying factors

Golpu	MCF (%)	Dilution (%)	PRF (%)	Cut-off (% Cu)
2021	100	—	61	0.30
2022	100	—	61	0.30

Gold – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes		Gold		Tonnes		Gold		Tonnes		Gold	
	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)	(Mt)	(g/t)	(000kg)	(000oz)
Golpu	—	—	—	—	200.0	0.86	171	5 500	200.0	0.86	171	5 500

Silver – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	—	—	—	—	345.0	1.30	435	14 000	70.0	1.10	72	2 300	415.0	1.30	507	17 000

Copper – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Golpu	—	—	—	—	345.0	1.10	3 800	8 300	70.0	0.86	600	1 300	415.0	1.10	4 300	9 600

Copper – Mineral Resources as gold equivalents estimates at 30 June 2022 (inclusive)

	Measured	Indicated	Inferred	Total
	(000oz)	(000oz)	(000oz)	(000oz)
Golpu	—	17 666	2 827	20 493

Modifying factors

Golpu	MCF (%)	Dilution (%)	PRF (%)	Cut-off (% Cu)
2021	100	—	92	0.30
2022	100	—	92	0.30

Copper – Mineral Reserve estimates at 30 June 2022

	Proved				Probable				Total			
	Tonnes		Cu		Tonnes		Cu		Tonnes		Cu	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Golpu	—	—	—	—	200.0	1.20	2 450	5 400	200.0	1.20	2 450	5 400

Copper – Mineral Reserves as gold equivalents estimates at 30 June 2022

	Proved	Probable	Total
	Au (000oz)	Au (000oz)	Au (000oz)
Golpu	—	11 542	11 542

Molybdenum – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	—	—	—	—	345.0	94	32	71	70.0	72.00	5	11	415.0	90	37	82

NAMBONGA (Harmony 50% portion)

Gold – Mineral Resource estimates at 30 June 2022 (inclusive)

	Measured				Indicated				Inferred				Total			
	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	—	—	—	—	—	—	—	—	24.0	0.69	16	500	24.0	0.69	16	500

Copper – Mineral Resource estimates at 30 June 2022 (inclusive)

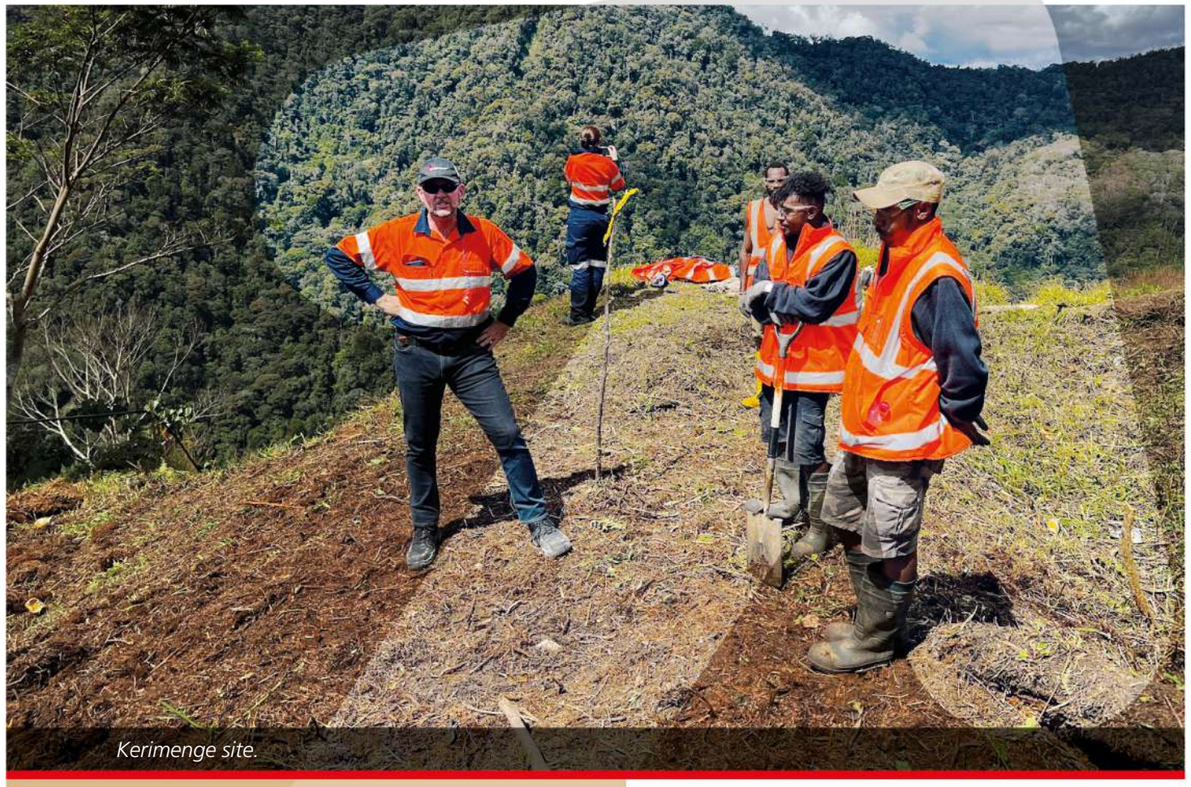
	Measured				Indicated				Inferred				Total			
	Tonnes		Copper		Tonnes		Copper		Tonnes		Copper		Tonnes		Copper	
	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)	(Mt)	(%)	(Mkg)	(Mlb)
Nambonga	—	—	—	—	—	—	—	—	24.0	0.20	47	104	24.0	0.20	47	104

Copper – Mineral Resources as gold equivalents estimates at 30 June 2022 (inclusive)

	Measured	Indicated	Inferred	Total
	(000oz)	(000oz)	(000oz)	(000oz)
Nambonga	—	—	221	221

Rounding of figures may cause some slight computational discrepancies in totals.

KERIMENGE



Kerimenge site.

Gold and Gold equivalent

Mineral Resources (inclusive)

0.6Moz

Mineral Reserves

0.0Moz

Detailed Mineral Resource and Mineral Reserve estimates are presented in this section.

Description and location

Kerimenge is located at latitude 7°25″S and longitude 146°43″E, approximately 8km 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 prospect are Wau and Bulolo. Lae, the nearest maritime port in the region, is connected to Bulolo by a two-lane main road.

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

History

Gold was first discovered at Kerimenge by RGC personnel during regional reconnaissance exploration in 1983. In 1984, a diamond drill hole testing an anomalous zone defined by geologic mapping, trenching, rock chip and soil sampling returned favourable results of 24m at 1.92 g/t Au. The deposit was then investigated as a possible ore source for the RGC's Upper Ridges mine in Wau but was not pursued as RGC's interests were diverted to the much larger Porgera Operation.

Nature of operations

Kerimenge has a historic resource and sufficient drilling to construct an updated resource that can inform further study; additional drilling is required to progress the model to the feasibility level of confidence. The Kerimenge project is subject to ongoing studies and is currently going through prefeasibility.

Papua New Guinea **Kerimenge** continued

Geology
The Kerimenge deposit is a structurally controlled vein-stockwork gold deposit located in the Morobe Granodiorite of the Wau Graben. A porphyry sill hosts the deposit, a tabular body approximately 300m thick, that intrudes into intercalated pelitic schists, phyllites and marble of the Kaindi Metamorphics. The mineralisation comprises a series of crackle breccias and silicified fractures within the porphyry.

Mineral rights/legal aspects and tenure
Kerimenge lies on Exploration Licence ELA2751. The tenement expires on 25/08/2022 and the renewal application has been accepted and expected as per normal process in late 2022.

Mining methods and mine planning
Kerimenge is a Resource only. However, the study is contemplating an open pit mining operation using conventional excavator and trucks with ore treatment via heap leach methods.

Mineral Resource estimation
The Kerimenge Resource model was modelled using ordinary kriging, using a 20m x 20m x 10m Block size with 10m x 10m x 5m sub-blocks and constrained within broad three-dimensional wireframe domains based on gold, alteration and structure. Given the early stage of the modelling and the global nature of the model, this methodology is acceptable. The estimate used locally varying anisotropy in order to accommodate the change in strike and dip of the mineralisation. Brett Gossage of EGRM Pty Ltd reviewed the 2022 model and found the estimate to be robust.

Environmental impact
Kerimenge is an exploration and study site only with minimal environmental impact. However, artisanal miners are active on site and causing erosion of the steep hillsides and increased sedimentation of the local creeks.

Material risks

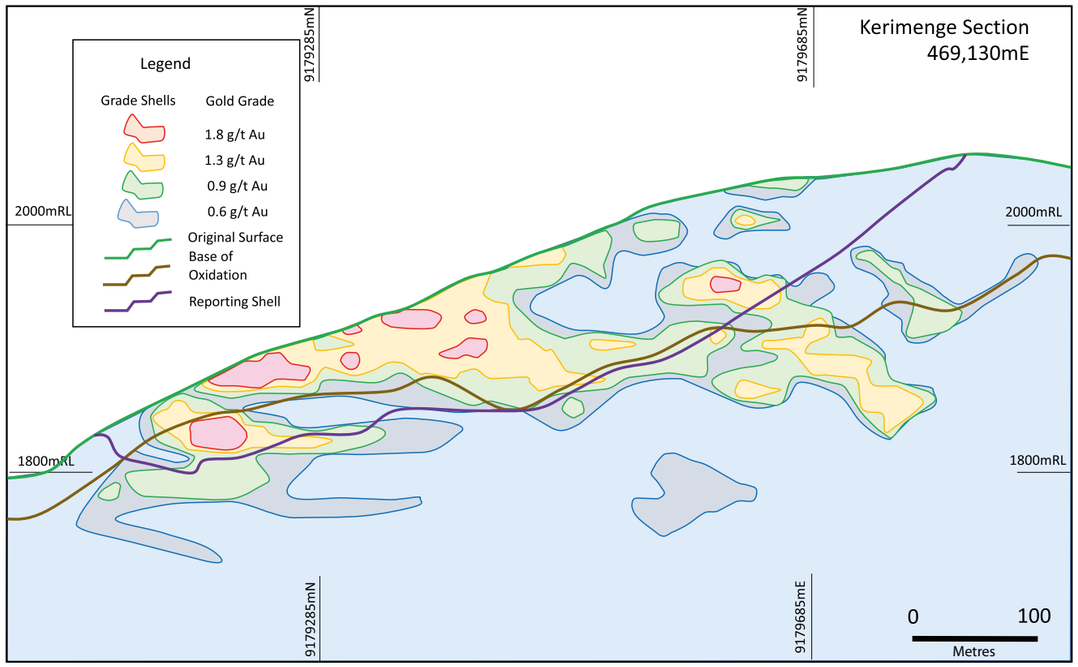
Material risks that may impact Hidden Valley's Mineral Resource and Mineral Reserve statement:

Significant risks	Remedial action
• Metallurgical recoveries of the transitional ores are lower than expected • Infrastructure cost to develop the Resource to Reserve become economically prohibitive. • Surrounding communities object to the mine development.	• Detail drilling campaign with geomet sampling and testwork • Early phase engineering works to provide options for Infrastructure • Community engagement and consultation.

Competent person

Mineral Resources – Group resource geologist, Harmony South-east Asia

Ronald Reid
Australian Institute of Geoscientists (AIG)
More than 25 years' experience.



Harmony standards

FOR SAMREC COMPLIANCE REPORTING

Definitions as per the SAMREC Code 2016
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 based on 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 an Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource 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 or an Inferred Mineral Resource. It may be converted to either a Proved Mineral Reserve or 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.

Mineral Resource 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 R850 191/kg to derive a cut-off grade to determine the Mineral Resources at each of its South African underground operations.

The estimation of Mineral Resources is based on geoscientific knowledge and borehole and sampling data (obtained by means of chip sampling on the reef horizon in a shaft-specific grid), with input from the company's Ore Reserve managers, geologists and geostatistical staff. All sampling done is subject to quality assurance and quality control, as prescribed by SAMREC, to ensure data quality and accuracy. Each mine's Mineral Resource is categorised – based on similarities in geology, facies, grade and structure, the orebody is divided into geozones. It is then blocked-out and ascribed an estimated value. A computerised geostatistical estimation process is used at all our mines.

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 R763 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.

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

Mineral Reserves represent that portion of the Measured and Indicated Mineral Resources above the cut-off grade in the life-of-mine plan and are estimated after consideration of the factors affecting extraction, including mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors.

At our underground mines, the reported Mineral Reserves are accessible from existing infrastructure and/or infrastructure that is in the process of being developed.

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

The modifying factors related to the ore flow that are used to convert 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 Mineral Reserves.

For further detail on the sampling procedures used by Harmony, see pages 157 and 158.

Appendix

Harmony sampling standard

FOR SAMREC COMPLIANCE REPORTING

The following standards, processes and procedures are followed and adhered to at all **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 drill-hole 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 Material, one uranium Standard Reference Material, 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 samples have 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 Material 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, eg 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 as is bacteriological testing.

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 progresses 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, while 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.

We ensure that a high standard of preparation is maintained at each step of the process, which includes adherence to safety standards and is checked by a supervisor.

The following standards, processes and procedures are followed and adhered to at the **Kalgold opencast operation** and **Hidden Valley Mine**.

Sampling standard

A standard procedure for open-pits drill sampling is used to ensure quality of sampling information and safety in its collection. Drill sampling adheres to the Harmony logging and sampling procedures developed and amended over time to ensure consistency across the group. The sampling practice varies from drill type to drill type; however, the practice conforms to best practice at all times. All geologists and sampling assistants are trained to observe the standard sampling procedures. The standard specifies all the steps and rules involved in the collection and preparation of the samples for the reversed circulation percussion drilling and diamond drilling as well as the safety aspect 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 duplicates are added with the actual drill samples sent to the laboratory. For analysis of the drill samples, the total number of Standard Reference Materials, blank samples and duplicate samples to be added equals 10% of the total samples sent for analysis. If the Standard Reference Materials or blank sample have been deemed to have failed, the range of the samples with the failed QAQC sample is identified and a repeat analysis is done of that range of samples. A second Standard Reference Material or blank sample is provided to the laboratory to be included with that batch of samples. Should the re-assayed batch of samples fail the QAQC standards again, these samples are not used in the resource estimate.

Assay laboratory (Kalgold)

Fire assay is the oldest and, in most circumstances, still the best method for determining the concentrations 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 promotes the separation of the precious metals from the gangue, with simultaneous collection, normally as lead alloy. Subsequently, the lead is removed by oxidising fusion (cupellation) and the precious metals, thus isolated, are available for measurement.

Assaying of all drill samples for the recent drilling programme at Kalgold (2017/2019) was completed at SGS Randfontein laboratory. This laboratory is accredited by the South African National Accreditation System (SANAS) and conforms to the requirements of ISO/IEC 17025 for specific tests. The facility accreditation number is T0265. The method used for gold assay is FAA303 (Au by lead fusion followed by AAS finish). It is an accredited method and conforms to ISO/IEC 17025. 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.

Assay laboratory (Hidden Valley)

Assaying of all drill samples for the recent drilling programme at Hidden Valley (2017/2020) was completed at the ITS Hidden Valley/ITS Lae laboratories. This laboratory is accredited by the PNG National Institute of Standards and Industrial Technology and conforms to the requirements of ISO/IEC 17025 (2005) for specific tests. The facility accreditation number is 46. The method used for gold assay is FA25_ AAS (Au by lead fusion followed by AAS finish) and the method used for silver assay is AR_AAS (Ag by Aqua Regia digest followed by AAS finish). These are accredited methods and conform to ISO/IEC 17025 (2005). 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.

Sampling in Assay laboratory.

Glossary of terms

Term Definition
Acidic Descriptor for silica-rich igneous rocks (containing greater than 65% silica) such as rhyolite or granite.
AHIA Association of Healthcare Internal Auditors.
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 cross-cuts 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 cross-cuts. 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.

Term Definition
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.
Country rocks The surrounding "host" rocks into which an igneous intrusion or orebody is emplaced.
Craton A part of the Earth's crust that has attained stability and has been little deformed for a long period of geological time.
Cross-cut 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.
Cut-off grade The lowest grade of copper or gold ore that is considered economic to mine.
Datamine™ 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 uses 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.
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.

Glossary of terms continued

Term Definition
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.
GN Great Noligwa shaft
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 x gold price per ounce) + (copper pounds x 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 elongated, 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.
IHAS Integrated Hazard Awareness System.

Term Definition
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.
LOM or LoM or Life of Mine or Life-of-mine Life of Mine or "LOM" means the time in which, through the employment of the available capital, the ore reserves, or such reasonable extension of the ore reserves as conservative geological analysis may justify, will be extracted.
Mafic An igneous rock composed chiefly of dark, ferromagnesium minerals and enriched in heavier elements such as iron.
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.
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.
Metallurgy The study of extracting metals from their ores.
Mine call factor (MCF) 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.
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.
MW Milling width is a calculated width expressing the relationship between the total reef area excavated and the total tonnes milled from underground sources.
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.
Ore Reserves Ore Reserve means, according to the JORC Code, the economically mineable part of a Measured and/or Indicated Mineral Resource.
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.

Glossary of terms continued

Term Definition
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, eg 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.
SASS5 South African Scoring System Version 5.
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.
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.

Term Definition
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.
SW Stoping width is the width of the excavation made during stoping operations.
Tailings Material rejected from the milling process from which much of the economic material has been removed.
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.
VCR The Ventersdorp Contact Reef (VCR) is an Archaean conglomeratic gold placer, mined in the Carletonville, West Rand, and Klerksdorp area of the Republic of South Africa.
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 to this report, are necessarily estimates reflecting the best judgement 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. All statements, other than statements of historical fact included in this report may be forward-looking statements. Forward-looking statements also often use words such as "will", "forecast", "potential", "estimate", "expect" and words of similar meaning. By their nature, forward-looking statements involve risk and uncertainty because they relate to future events and circumstances and should be considered in light of various important factors, including those set forth in this disclaimer. Readers are cautioned not to place undue reliance on such statements.

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
- The impact from, and measures taken to address, Covid-19 and other contagious diseases, such as HIV and tuberculosis
- Rising inflation, supply chain issues, volatile commodity costs and other inflationary pressures exacerbated by the Russian invasion of Ukraine and subsequent sanctions
- 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 gold and other metals prices
- Estimates of provision for silicosis settlement
- Increasing regulation of environmental and sustainability matters such as greenhouse gas emission and climate change, and the impact of climate change on our operations
- Estimates of future tax liabilities under the Carbon Tax Act (South Africa)
- Statements regarding future debt repayments
- Estimates of future capital expenditures
- The success of our business strategy, exploration and 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 and other metals
- The occurrence of hazards associated with underground and surface gold mining
- The occurrence of labour disruptions related to industrial action or health and safety incidents
- 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
- Our ability to hire and retain senior management, sufficiently technically skilled employees, as well as our ability to achieve sufficient representation of historically disadvantaged persons in management positions or sufficient gender diversity in management positions or at board level
- Our ability to comply with requirements that we operate in a sustainable manner and provide benefits to affected communities
- Potential liabilities related to occupational health diseases
- Changes in government regulation and the political environment, particularly tax and royalties, mining rights, health, safety, environmental regulation and business ownership including any interpretation thereof
- Court decisions affecting the mining industry, including the interpretation of mining rights
- Our ability to protect our information technology and communication systems and the personal data we retain
- Risks related to the failure of internal controls
- The outcome of pending or future litigation or regulatory proceedings
- Fluctuations in exchange rates and currency devaluations and other macro-economic monetary policies
- The adequacy of the group's insurance coverage
- Any further downgrade of South Africa's credit rating
- Socio-economic or political instability in South Africa, Papua New Guinea and other countries in which we operate.

For a more detailed discussion of such risks and other factors, see **Our risks and opportunities** in the **Integrated annual report** and the company's 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 the company or any person acting on its behalf are qualified by the statements above. The foregoing factors and others described under "Risk Factors" should not be construed as exhaustive. The forward-looking financial information has not been reviewed and reported on by the company's auditors.

Administrative and contact details

Harmony Gold Mining Company Limited
Harmony was incorporated and registered as a public company in South Africa on 25 August 1950
Registration number: 1950/038232/06

Corporate office
Randfontein Office Park
PO Box 2, Randfontein 1760, South Africa
Corner Main Reef Road and Ward Avenue,
Randfontein, 1759, South Africa

Telephone: +27 11 411 2000

Website: **www.harmony.co.za**

Directors

Dr PT Motsepe* (chairman)
KT Nondumo*^ (deputy chairman)
Dr M Msimang*^ (lead independent director)
PW Steenkamp** (chief executive officer)
BP Lekubo** (financial director)
HE Mashego** (executive director)
JA Chissano*#^
B Nqwababa*^
VP Pillay*^
M Prinsloo*^
GR Sibiya*^
PL Turner *^
JL Wetton*^
AJ Wilkens*

* *Non-executive*
** *Executive*
^ *Independent*
\# *Mozambican*

Investor relations
Email: **HarmonyIR@harmony.co.za**

Telephone: +27 11 411 6073 or +27 82 746 4120
Website: **www.harmony.co.za**

Company Secretariat
Email: companysecretariat@harmony.co.za

Telephone: +27 11 411 2359

Transfer secretaries
JSE Investor Services South Africa (Proprietary) Limited
(Registration number 2000/007239/07)
13th Floor, Rennie House, Ameshoff Street, Braamfontein
Johannesburg, South Africa

PO Box 4844, Johannesburg, 2000, South Africa

Email: info@jseinvestorservices.co.za

Telephone: +27 861 546 572 (South Africa)
Fax: +27 86 674 2450

American Depositary Receipts (ADRs)
Deutsche Bank Trust Company Americas
c/o American Stock Transfer and Trust Company
Operations Centre, 6201 15th Avenue, Brooklyn,
NY11219, United States

Email queries: db@astfinancial.com

Toll free (within US): +1 886 249 2593
Int: +1 718 921 8137
Fax: +1 718 921 8334

Sponsor
JP Morgan Equities South Africa (Proprietary) Limited
1 Fricker Road, corner Hurlingham Road, Illovo,
Johannesburg, 2196, South Africa
Private Bag X9936, Sandton, 2146, South Africa

Telephone: +27 11 507 0300
Fax: +27 11 507 0503

Trading symbols

JSE: HAR
NYSE: HMY
ISIN: ZAE 000015228

Competent person's statement

The information in this report that relates to Mineral Resources and Mineral Reserves has been extracted from our Reserves and Resources statement published on 30 August 2022. Harmony confirms that it is not aware of any new information or data that materially affects the information included in the statement, in the case of Mineral Resources or Mineral Reserves, that all material assumptions and technical parameters underpinning the estimates in the original release continue to apply and have not materially changed. Harmony confirms that the form and context in which the competent person's findings are presented have not been materially modified from the original release.

THE OAK TREE GROUP