

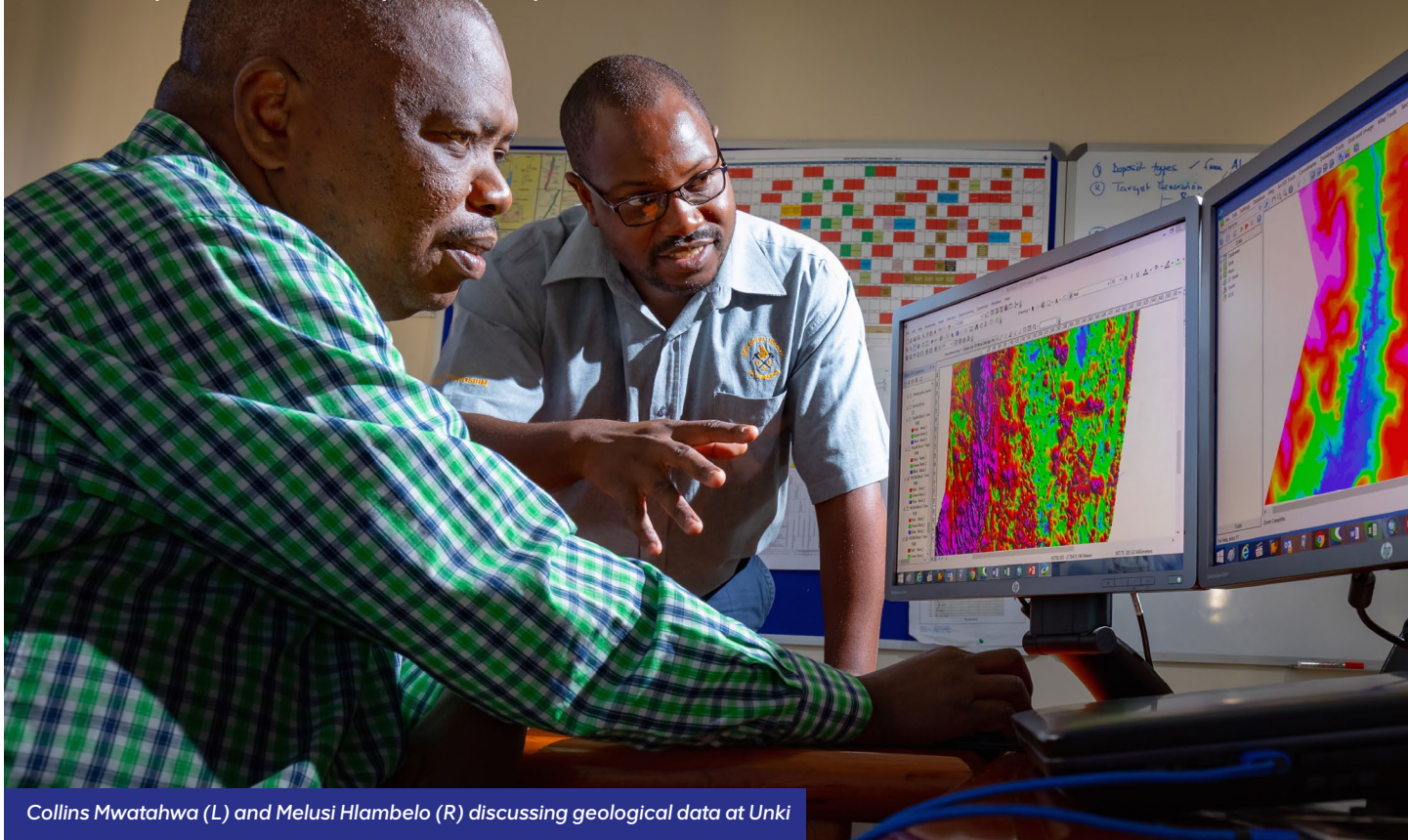


Ore Reserves and Mineral Resources report 2022

PLATINUM



Re-imagining mining to improve people's lives



Collins Mwatahwa (L) and Melusi Hlambelo (R) discussing geological data at Unki

Our reporting suite

Integrated report



Targets stakeholders assessing enterprise value (investors, lenders and creditors)

Balanced view of our progress against strategic priorities and prospects, considering risks, opportunities and trade-offs, as well as ESG matters material to creating enterprise value.

Focused on material issues — those with the greatest real or potential impact (positive and negative, internal and external) on achieving our business objectives.

Sustainability report



Targets all stakeholders wanting to understand our sustainability impacts

Disclosure on material sustainability topics reflecting our most significant impacts (positive or negative) on society, the environment and the economy (people, planet and prosperity).

Covers all entities in our consolidated financial statements but excludes comprehensive non-financial data on our joint operations.

Governance report



Targets stakeholders that are interested in our governance practices (investors, ESG rating agencies, employees, regulators, suppliers and members of society)

Disclosure of governance-related aspects. The information disclosed demonstrates how Anglo American Platinum does conducts itself according to sound governance practices and the highest standards of ethics, integrity, transparency and accountability. It contains our King IV application and disclosure.

Annual financial statements



Targets primarily investors and capital markets

Audited financial statements reflecting effects on enterprise value that have already taken place at the reporting date, or are included in future cash-flow projections.

Ore Reserves and Mineral Resources report



Targets stakeholders, shareholders and potential investors of our mineral assets

Updated estimates and reconciliation of Ore Reserve and Mineral Resource statements for all assets in line with the SAMREC Code (2016) and section 12.13 of the JSE Listing Requirements and signed by the Competent Persons.

Our approach to reporting

Assurance

In compliance with the three-year external review and audit schedule, the following detailed audit of data gathering, data transformation and reporting of Mineral Resources was carried out in 2022:

- Mogalakwena Mine: Sandsloot underground scoping study project – The MSA Group.

Reporting framework

- International <IR> Framework of the International Integrated Reporting Council
- South African Companies Act 2008, as amended (Companies Act)
- JSE Listings Requirements
- King Report on Corporate Governance for South Africa 2016 (King IV™*)
- GRI Standards 2016 guidelines
- Anglo American plc group safety and sustainable development (S&SD) indicators, definitions and guidance notes for non-financial indicators. These are available on request
- SAMREC Code 2016 edition
- Anglo American plc group Ore Reserves and Mineral Resources reporting policy. This is available on request.

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Forward-looking statements disclaimer

Certain elements in this report constitute forward-looking statements. These are typically identified by terminology such as 'believes', 'expects', 'may', 'will', 'could', 'should', 'intends', 'estimates', 'plans', 'assumes' and 'anticipates', or negative variations. Such forward-looking statements are subject to a number of risks and uncertainties, many beyond the company's control and all based on the company's current beliefs and expectations about future events.

Such statements could cause actual results and performance to differ materially from expected results or performance, expressed or implied. No assurance can be given that such future results will be achieved; actual events or results may differ materially as a result of risks and uncertainties facing the company and its subsidiaries.

Cover: Exploration drilling site at Tumela Mine, Amandelbult.



Refers to other pages in this report



For more information, visit:
[www.angloamericanplatinum.com/
investors/annual-reporting](http://www.angloamericanplatinum.com/investors/annual-reporting)

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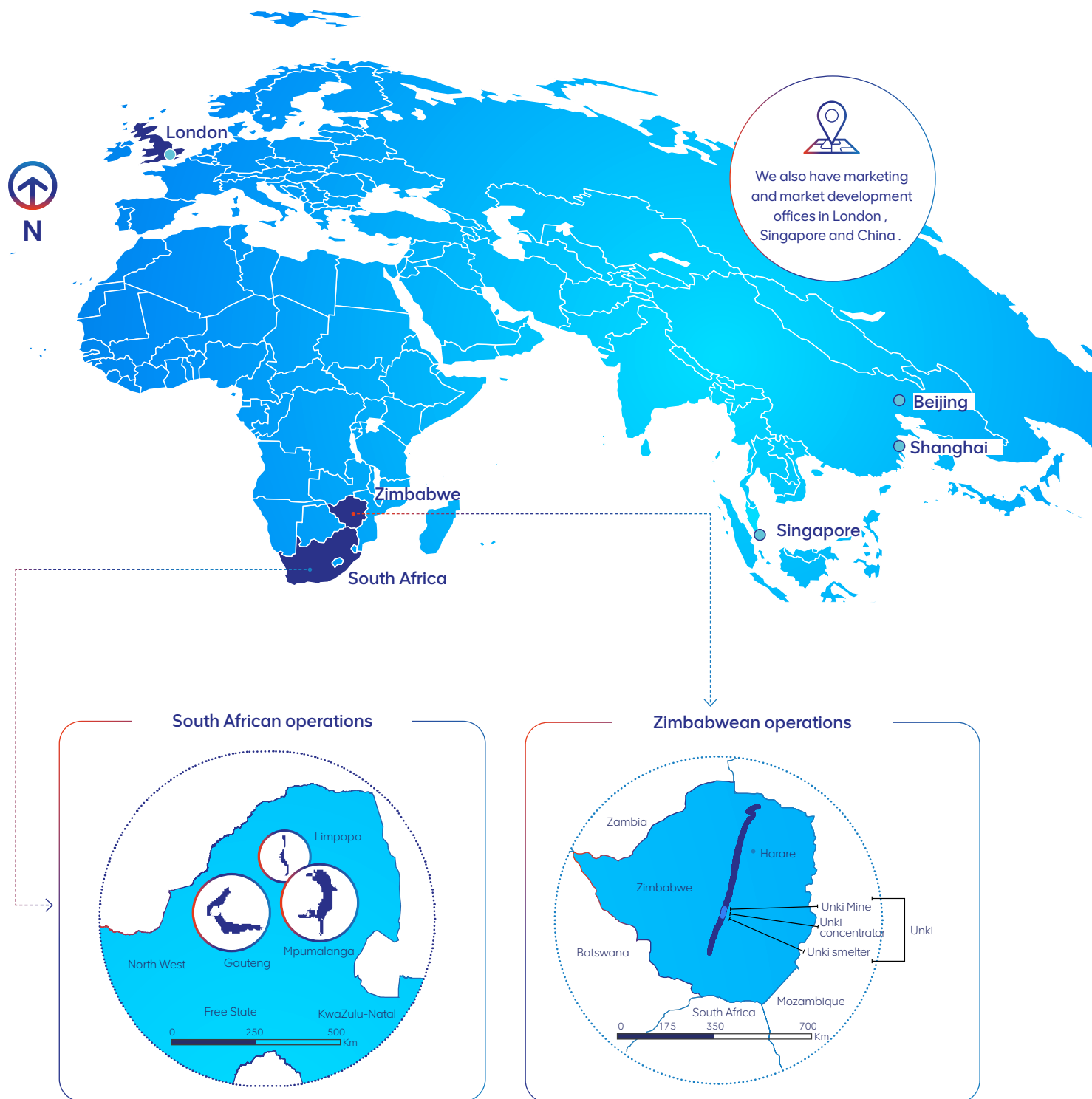
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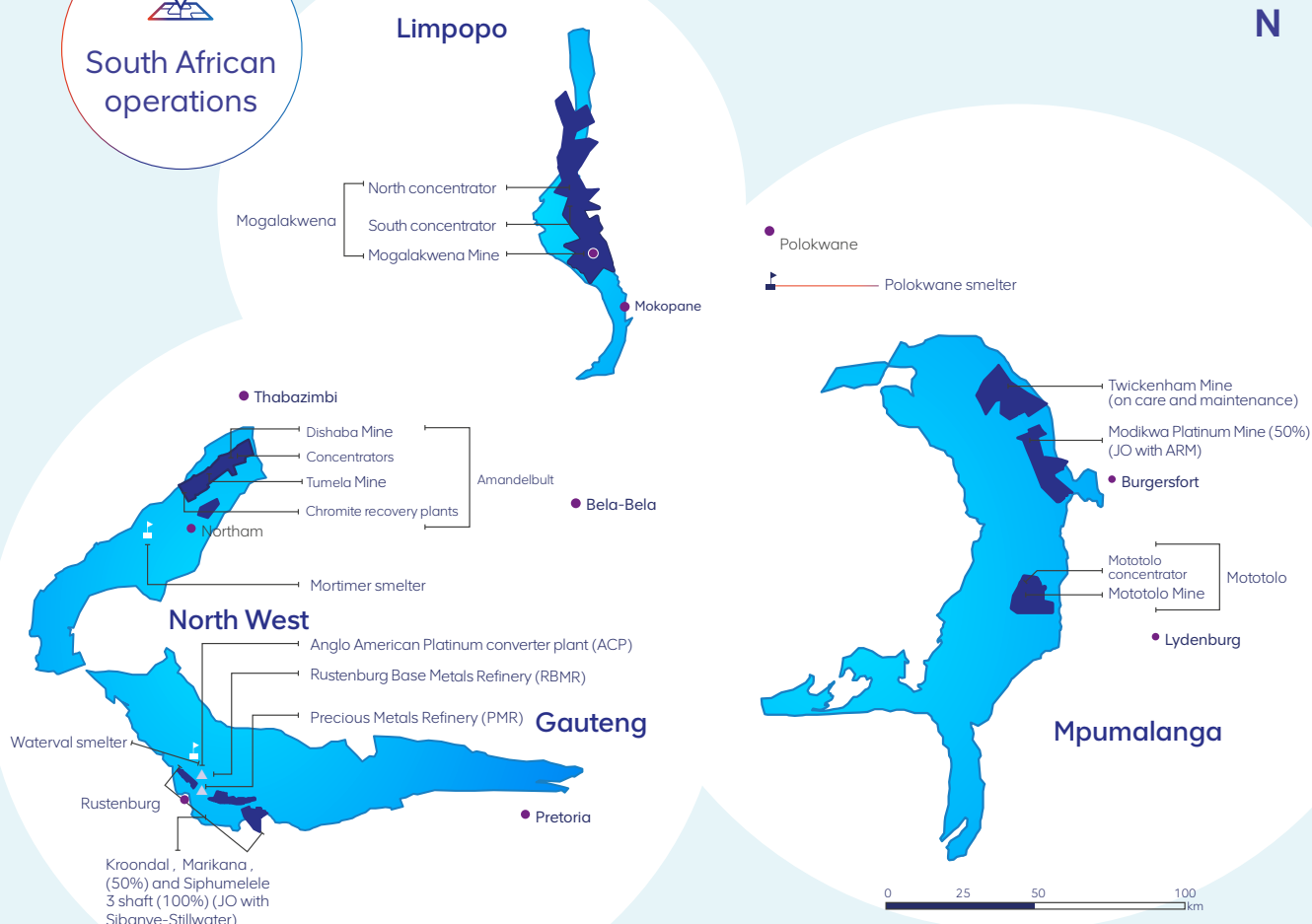
Where we operate

Our operations are in the PGM-rich Bushveld Igneous Complex in South Africa and Great Dyke region of Zimbabwe. Our industry-leading asset portfolio extracts the largest mineral asset base of long-life, high-quality precious metals globally.





South African operations



Mogalakwena (100%)

Located 30km north-west of the town of Mokopane in Limpopo province, this mine is wholly owned and managed by Anglo American Platinum. It is at steady-state production and positioned for optimised organic growth and expansion to deliver maximum value. Mogalakwena is focused on exceeding industry benchmarks through technology and innovation.

Amandelbult (100%)

The mine is in Limpopo, between the towns of Northam and Thabazimbi. It is wholly owned and managed by Anglo American Platinum, with two mines: Tumela and Dishaba. It is at steady-state, with specific focus on further modernisation and mechanisation. The mine also seeks to increase its chrome mining and processing opportunities.

Mototolo (100%)

Located in Limpopo province, this mine is 30km west of the town of Burgersfort. Supported by the R3 billion expansion of Der Brochen mine, the mine is focused on extending the life-of-asset and remaining in the first half of the cost curve.

Unki (100%)

Unki is located on the Great Dyke in Zimbabwe, 60km south-east of the town of Gweru. The mine is at steady state production, with long-dated strategic growth potential. The mine's strategy is focused on implementing new technology and controlling costs to remain competitive against peers.

Our approach to Ore Reserves and Mineral Resources reporting

The Ore Reserves and Mineral Resources report is issued annually to inform stakeholders, shareholders and potential investors of the mineral assets held by Anglo American Platinum Limited. An abridged version of this report is included in the Anglo American Platinum Integrated report which together with this report, is published annually and available on the company website at www.angloamericanplatinum.com.



Our method of reporting Ore Reserves and Mineral Resources is in accordance with the principles and guidelines for public reporting of the South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves (the SAMREC Code, 2016), the South African Code for Reporting of Mineral Asset Valuation (SAMVAL Code, 2016) and section 12.13 of the Listings Requirements of the JSE Limited.

Ore Reserves and Mineral Resources terminology appearing in this report follows the definitions of the SAMREC Code. Ore Reserves in the context of this report has the same meaning as Mineral Reserves as defined by the Code. Estimates (tonnes and content) for individual operations and summaries quoted in this

report are on a 100% basis and the attributable interest is referenced in tables and where relevant.

This report is a summary of the Competent Persons' reports and technical reports on Ore Reserves and Mineral Resources for Anglo American Platinum managed operations and projects as well as non-managed joint operations. The report should be read in conjunction with the Integrated report 2022, Sustainability report 2022 and Annual financial statements 2022.

Ore Reserve and Mineral Resource estimates are quoted in this report as at 31 December 2022.

Key reporting principles

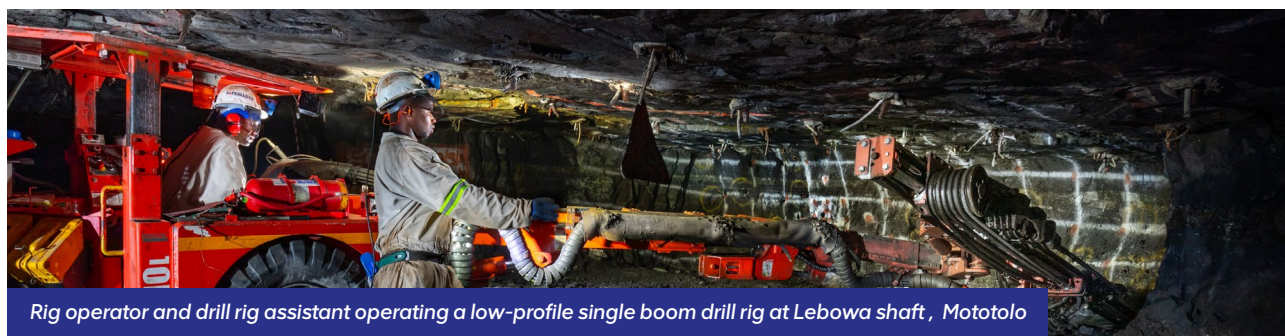
The following key reporting principles and criteria apply.

General

- 4E grade is the sum of platinum, palladium, rhodium and gold grades in grams per tonne (g/t)
- PGM: platinum group metals
- Mt: million dry metric tonnes
- Moz: Contained metal in 4E million troy ounces with a 31.10348 gram per ounce factor applied. Contained metal is also reported in metric tonnes
- ROM: Ore Reserves are reported as run-of-mine (ROM) ore after all Modifying Factors have been applied. The reported Ore Reserves grades are as delivered to the concentrator for processing
- The figures in the tables and charts have been rounded, and if used to derive totals and averages, minor differences may result
- The summary tabulations and reconciliations in this section of the report should be read in conjunction with the Ore Reserve and Mineral Resource statements in the subsequent sections
- Estimates of 0.0 represent numbers less than 0.05
- Definitions of reconciliation categories are on [page 91](#) of this report



- The terms Ore Reserves and Mineral Reserves are used interchangeably
- Ore Reserves and Mineral Resources are reported on a 100% basis and the attributable interest is noted in the individual entity tables and where applicable
- There are no material legal proceedings or conditions that will impact the Ore Reserves and Mineral Resources reported for 2022, or Anglo American Platinum's ability to continue with mining activities as per life-of-asset plans
- Ore Reserves and Mineral Resources are reported for properties over which Mineral Rights has been granted and are valid, or where applications have been submitted or will be submitted at the appropriate time and there is a reasonable expectation that the rights will be granted in due course (any associated comments appear in the individual operations' sections)
- Reporting is carried out by professionals with adequate experience in the estimation, evaluation and reporting of Ore Reserves and Mineral Resources relevant to the style of mineralisation
- Information for non-managed operations is provided by the joint operation partners. For additional details, please refer to the applicable annual reports.



Rig operator and drill rig assistant operating a low-profile single boom drill rig at Lebowa shaft, Mototolo



Mineral Resources

- Mineral Resources are quoted after the appropriate geological losses are discounted
- Due to the uncertainty that may be attached to some Inferred Mineral Resources, it cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated or Measured Mineral Resource after continued exploration
- Only Mineralisation that satisfy the reasonable prospects of eventual economic extraction (RPEEE) requirements are reported. Mineral Resources are only quoted down to potential future surface and underground mining depth. A virgin rock temperature of 75°C is currently considered to be the limit to mining given current technology, metal prices and energy costs amongst other factors
- Underground Mineral Resources are estimated over a practical minimum width suitable for the mineralisation known as the 'resource cut'. The resource cut width takes cognisance of the mining method, potential economic viability and geotechnical aspects in the hanging wall or footwall of the reef. The conversion of the resource cut to an appropriate reserve width would include additional dilution incurred as the result of appropriate additional geotechnical and mining considerations (SAMREC Code, clause 24 guidelines)
- Merensky Reef is estimated over an optimised resource cut width
- UG2 Reef is estimated over an optimised Resource cut width, which may include unavoidable dilution. The UG2 Reef, particularly in the eastern limb, may contain lenses of internal waste that are included as dilution when estimating Mineral Resources.
- The Main Sulphide Zone (MSZ) estimation is based on a multi-layered approach and reported at an optimal minimum resource cut width
- The 4E metal split percentage (%) distribution (platinum, palladium, rhodium and gold), base metal grades (copper and nickel) and chromite grade are based on modelled and evaluated information, quoted over the resource cut width and based on Mineral Resources inclusive of Ore Reserves
- Only Tumela, Dishaba, Mototolo, Twickenham and Sibanye-Stillwater joint operations have evaluated the chromite content in the UG2 Reef resource cut
- Underground Platreef Mineral Resources are confined to an underground target area identified through scoping technical studies
- The scoping study referred to in this report is based on preliminary technical and economic assumptions. It is preliminary in nature and includes Inferred Mineral Resources which are insufficient to provide certainty that the conclusions of the scoping study will be realised
- Open pit Platreef estimates are confined to a factored revenue pit shell, which is based on stable, long-term economic parameter assumptions, metal prices and exchange rates. Only the Platreef Mineralisation that is within this factored shell is deemed to fulfil reasonable prospects of eventual economic extraction requirements and reported as Mineral Resources.

Ore Reserves

- Anglo American Platinum uses value-based planning for the creation of the life-of-asset plans. The plans take cognisance of all technical, financial, environmental, social and governance (ESG) considerations which underpin the reasonable prospects for eventual economic extraction over a period equal to the life-of-assets
- Stockpile is mined ore stored on surface for future processing. Run-of-mine (ROM) stockpiles are reported as Proved and long-term stockpiles as Probable Ore Reserves
- The published Ore Reserve stockpile reported at Mogalakwena does not include oxidised and calc-silicate material; this material is, however, included in the Mineral Resource statement
- Inferred Mineral Resources are considered in technical studies and life-of-asset plans, but are excluded from Ore Reserves declaration in accordance with the SAMREC Code (2016) guidelines - modified Inferred Mineral Resources. Assessments have indicated that the exclusion of these Inferred Mineral Resources will have no impact on Reserve life and life-of-asset at affected mines
- Reserve life is the scheduled extraction period in years for the total Ore Reserves in the approved life-of-asset plan, considering the combined reefs' production (as applicable) within the current Mining Right. Where applicable, an application to extend the Mining Right will be submitted at the appropriate time and there is reasonable expectation that such an extension will not be withheld
- The production/depletion figures for managed operations in this report represent actual measured production data typically up until 30 September 2022. Data from October to December are projections based on anticipated mining rates and these are aggregated with the actual production, to give the annualised production.

Economic assumptions

- The Ore Reserves are derived from value-based planning across all Anglo American Platinum managed operations and are directly linked to the latest approved life-of-asset plan taking cognisance of various Modifying Factors including depth of the orebody, geological complexity, mining method, infrastructure and economic parameters
- The economic parameters takes into account revenues from platinum group metals, base metals, chromite and other credits as well as 'cost 4' which consists of direct cash cost (on and off-mine), other indirect costs and stay-in-business capital (on and off-mine). The consideration of these factors ensures that the most value accretive ore is sent to the processing plants to underpin the Ore Reserve declarations
- The macro-economic and planning parameters (global assumptions) applied to the valuation of Ore Reserves and Mineral Resources will impact decisions on overall viability and selection of the primary extraction horizon. Global assumptions are a set of forward-looking economic and planning parameters, which are applied in economic assessments, valuation of projects, investment decisions, strategic planning and business planning. The global assumptions applied have been smoothed and stabilised to avoid overly pessimistic or optimistic long-term views. This approach should ensure that valid long-term investment decisions are not delayed or curtailed because of short-term market movements.

Our approach to Ore Reserves and Mineral Resources reporting continued

These parameters comprise:

- Economic parameters, i.e. ZAR – US\$ exchange rates; inflation rates (USA and SA); cost escalation rates and corporate tax rates
- Metal prices: PGM (Pt, Pd, Rh, Ir, Ru), base metals (Ni, Cu, Co), gold and chromite concentrate.

The table below summarises the Anglo American Platinum long-term basket price and exchange rates assumptions used for the December 2022 Ore Reserves and Mineral Resources valuation, estimation and reporting:

Basket price, real 2022	ZAR/4E oz	27,862
Basket price, real 2022	US\$/4E oz	1,718
Long-term exchange rate, real 2022	ZAR – US\$	16.22

The basket price represents the revenue from all metals produced, expressed on a 4E ounce basis. Long-term basket metal price varies per operation, in accordance with individual operations metal ratios. Prices of individual metals represent reasonable forward-looking prices based on long-term forecasts in a balanced supply/demand scenario.



For the basket price of the individual operations see the operations review section on [pages 104-117](#) in the Integrated report.



Hydrogen mine haul truck at Mogalakwena

Group highlights

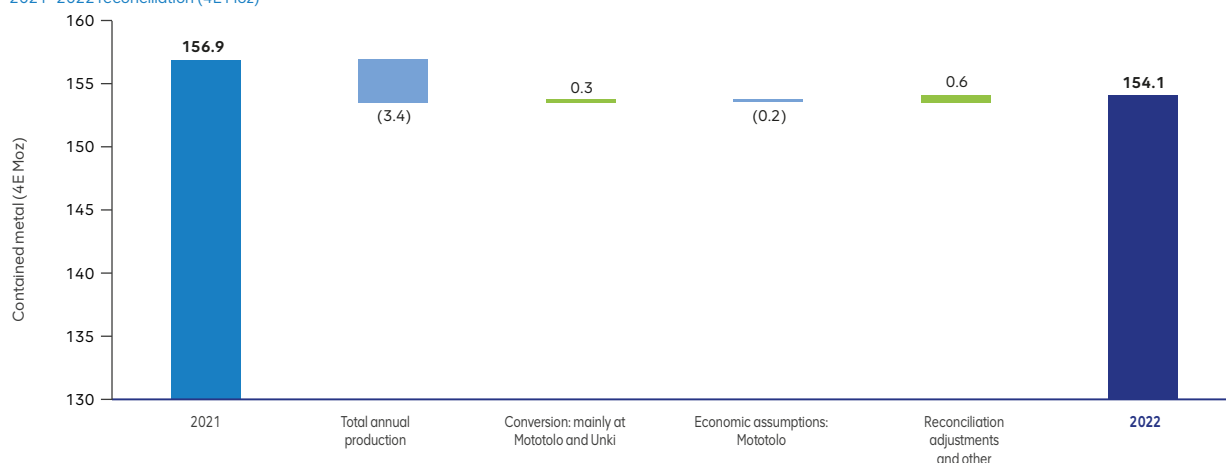
Ore Reserves

Salient features: year-on-year changes

The combined South African and Zimbabwean Ore Reserves decreased in metal content by 1.8% from 156.9 4E Moz to 154.1 4E Moz in the 12-month period. This was primarily due to combined annual production. There was a minor decrease related to economic tail cuts at Mototolo which was partially offset by conversion of Mineral Resources to Ore Reserves at Mototolo.

Anglo American Platinum Merensky, UG2, Platreef and Main Sulphide Zone (MSZ) total Ore Reserves – South Africa and Zimbabwe

2021–2022 reconciliation (4E Moz)



Ore Reserves reflect the total Proved and Probable Ore Reserves.

Mototolo

At Mototolo, the UG2 Reef Ore Reserves 4E ounces increased marginally following the conversion of Mineral Resources to Ore Reserves in the upper area of Der Brochen south (+0.2 4E Moz) and the adjustment of the 2021 actual production estimates (+0.2 4E Moz). The extent of the increase was partially offset by annual production (-0.2 4E Moz) and economic tail cuts at year 2074 of the life-of-asset (-0.2 4E Moz).

Mogalakwena

The Platreef open pit Ore Reserve 4E ounces decreased slightly (-1.3 4E Moz) primarily due to annual production.

Amandelbult

At Amandelbult's Dishaba and Tumela, the UG2 Reef Ore Reserve 4E ounces decreased due to annual production (-0.3 4E Moz and -0.4 4E Moz respectively). There was no mining of Tumela Merensky Reef with minimal production from Dishaba Merensky Reef.

Unki

The MSZ Ore Reserves 4E ounces decreased due to annual production (-0.3 4E Moz).

Modikwa

The UG2 Reef Ore Reserve 4E ounces decreased due to annual production (-0.3 4E Moz).

Sibanye-Stillwater JOs

Ore Reserves at Kroondal and Siphumelele 3 joint operations decreased primarily due to annual production (-0.4 4E Moz combined).

Group highlights continued

Mineral Resources

Salient features: year-on-year changes

The combined South African and Zimbabwean Mineral Resources, exclusive of Ore Reserves, decreased by 24.0% from 640.5 4E Moz to 487.0 4E Moz in the 12-month period.

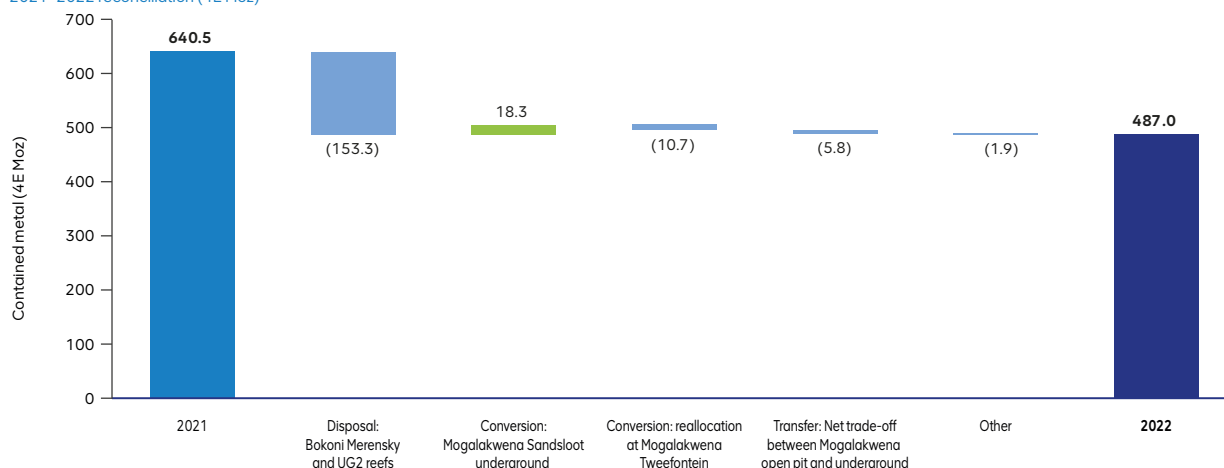
This was primarily due to:

- The disposal of Bokoni mine : Merensky Reef (-55.1 4E Moz) and UG2 Reef (-98.2 4E Moz)
- The reallocation of the deeper portions of Tweefontein North and Tweefontein Hill at Mogalakwena to Mineralisation following reasonable prospects of eventual economic extraction assessments (-10.7 4E Moz).

The extent of the overall decrease was partially offset by the declaration of underground Mineral Resources (+18.3 4E Moz) in the Sandsloot area at Mogalakwena following the completion and approval of a scoping study.

Anglo American Platinum Merensky, UG2, Platreef and Main Sulphide Zone (MSZ) total exclusive Mineral Resources – South Africa and Zimbabwe

2021–2022 reconciliation (4E Moz)



Mineral Resources reflect the total Measured, Indicated and Inferred Mineral Resources.

Recent developments

Conclusion of the sale of Bokoni

Anglo American Platinum (49%) and Atlatsa Resources Corporation (51%) concluded the sale-and-purchase agreement (SPA) to dispose of Bokoni Mine to African Rainbow Minerals (ARM) on 1 September 2022. In conjunction with entering into the SPA, Anglo American Platinum has signed a purchase of concentrate agreement with ARM where we will purchase concentrate on commercially agreed terms from the Bokoni Mine for 23 years from delivery of first concentrate, aligned with the current agreed life-of-asset plan.

Mogalakwena declaration of Platreef underground Mineral Resources

A scoping study was concluded in 2022 and targets an area of Platreef Mineral Resources suitable for underground mining in the Sandsloot area. Hybrid open-stope mine design targeting the high-grade portions of the Platreef proved potentially viable during the scoping study and provided support for reporting Platreef underground Mineral Resources. This study met the reporting requirements of the Anglo American Platinum RPEEE reporting guidelines and the SAMREC Code. Indicated and Inferred Mineral Resources were declared.

The status of the sale agreement of Sibanye-Stillwater joint operations

In January 2022, Anglo American Platinum entered into transaction agreements for the sale of its 50% interests in the Kroondal and Marikana pool-and-share agreements (the 'PSAs'), including Siphumelele 3 shaft to Sibanye-Stillwater. The transaction is subject to regulatory approvals, including section 11 consent for the transfer of the Mining Right and approvals by the competition authorities, as well as the delivery of 1.35 4E Moz of metal-in-concentrate by the Kroondal and Marikana PSA (100% basis). The sale transaction is not reflected in this report and is expected to be concluded in 2023.



High-level summary of changes in Ore Reserves and Mineral Resources for 2022

The summary estimates are reported on a 100% basis. Details of the individual operations' estimates that contributed to this summary as well as reconciliations are stated per reef and mine in the various sections throughout the report (on a 100% basis).

Classification	2022			2021		
	Tonnes Mt	Grade 4E g/t	Contained metal 4E Moz	Tonnes Mt	Grade 4E g/t	Contained metal 4E Moz
Ore Reserves ¹ – South Africa	1,489.8	3.10	148.7	1,505.8	3.13	151.3
Ore Reserves ¹ – Zimbabwe (Unki)	51.2	3.29	5.4	53.1	3.30	5.6
Ore Reserves¹ – South Africa and Zimbabwe	1,540.9	3.11	154.1	1,559.0	3.13	156.9
Mineral Resources exclusive of Ore Reserves ^{2,3} – South Africa	4,001.8	3.63	466.1	4,895.2	3.94	619.5
Mineral Resources exclusive of Ore Reserves ^{2,3} – Zimbabwe (Unki)	152.5	4.26	20.9	152.8	4.26	20.9
Mineral Resources exclusive of Ore Reserves^{2,3} – South Africa and Zimbabwe	4,154.3	3.65	487.0	5,048.0	3.95	640.5
Mineral Resources inclusive of Ore Reserves ^{2,4} – South Africa	5,528.5	3.58	635.7	6,445.1	3.83	792.2
Mineral Resources inclusive of Ore Reserves ^{2,4} – Zimbabwe (Unki)	205.6	4.14	27.4	209.6	4.15	27.9
Mineral Resources inclusive of Ore Reserves^{2,4} – South Africa and Zimbabwe	5,734.1	3.60	663.1	6,654.8	3.84	820.1

Note:

- The combined Ore Reserves and Mineral Resources summaries represent Platreef, UG2, Merensky Reefs (South Africa) and Main Sulphide Zone – MSZ (Zimbabwe).
- Tonnage is reported as dry metric tonnes and Ore Reserves reported as run-of-mine (ROM) tonnes. Mineral Resources are quoted after appropriate geological losses are applied.
- 'Mineral Resources exclusive of Ore Reserves' and 'Mineral Resources modified and converted to Ore Reserves' are not additive because of Modifying Factors being applied in the conversion from Mineral Resources to Ore Reserves.
- Due to the uncertainty that may be attached to some Inferred Mineral Resources, it cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated or Measured Resource after continued exploration.
- Rounding of figures may result in computational discrepancies.

¹ Ore Reserves reflect the total Proved and Probable Ore Reserves. Detailed individual operations' estimates are stated on [pages 32-33](#) of this report.

² Mineral Resources reflect the total Measured, Indicated and Inferred Mineral Resources. Detailed individual operations' estimates are stated on [pages 25-28](#) of this report.

³ Exclusive Resources: Mineral Resources exclusive of the portion converted to Ore Reserves.

⁴ Inclusive Resources: Mineral Resources inclusive of the portion converted to Ore Reserves.

Corporate governance

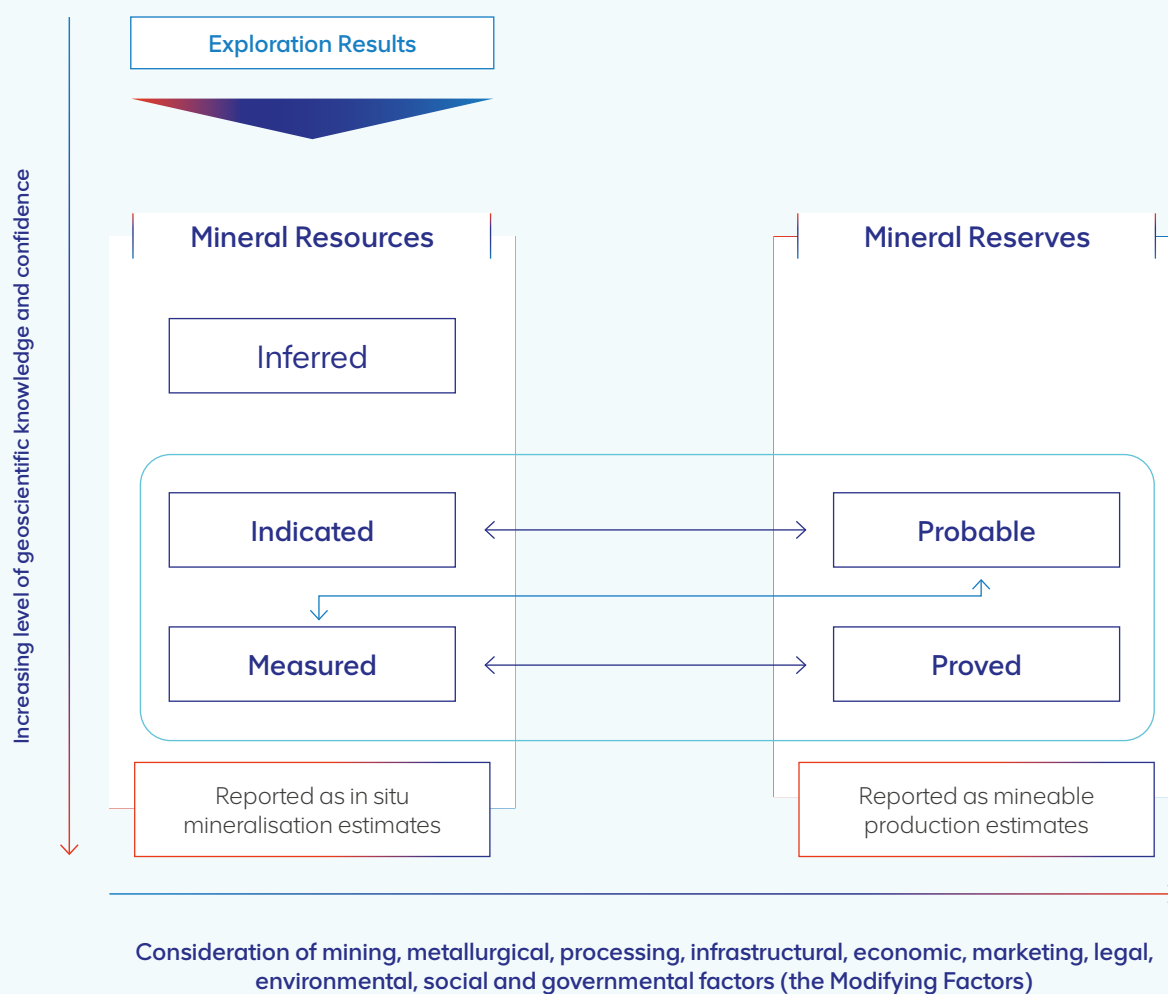
Reporting code and controls

Ore Reserves and Mineral Resources are reported in accordance with guidelines and principles of the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC Code, 2016), including Table 1 and section 12.13 of the Listings Requirements of the JSE Limited. The relationships between Ore Reserves and Mineral Resources are depicted in the SAMREC classification diagram below and the definitions are on [pages 89-90](#) of this report.

Our reporting is guided and informed by the following:



Relationships between Exploration Results, Mineral Resources and Mineral Reserves



Competence and responsibility

In line with the SAMREC Code and the Listings Requirements of the JSE, Competent Persons have been appointed to work on, and assume responsibility for the Ore Reserve and Mineral Resource statements for all operations and projects. The lead Competent Persons with overall responsibility for the Anglo American Platinum 2022 Ore Reserves and Mineral Resource report are Andrew Smith and Kavita Mohanlal, respectively.

They have provided written confirmation that information disclosed in terms of this report is compliant with the SAMREC Code (2016) including Table 1 and, where applicable, the relevant JSE section 12 Listings Requirements (section 12.13). They can confirm that the information may be published in the form, format and context in which it was intended. They are permanent employees of the Technical and Sustainability group function (T&S) in Anglo American plc.

Competent Persons for the individual operations are listed in the relevant operations' sections of this report. All Competent Persons have sufficient relevant experience in the type of deposit and activity for which they have taken responsibility. They have also provided written confirmation that the information disclosed in this report complies with the SAMREC Code (2016), including Table 1, and where applicable, the relevant JSE section 12 Listings Requirements (section 12.13) and that it may be published in the form, format and context in which it was intended.

Details of the Competent Persons are also available on written request through the company secretary.

	Competent Persons	Role	RPO	Membership number	Relevant experience
Mineral Resources	Kavita Mohanlal	Principal: Mineral Resource estimation	SACNASP, PrNatSci	400003/05	19 years
Ore Reserves	Andrew Smith	Lead: Ore Reserves	SAIMM, fellow	702955	33 years

Kavita Mohanlal has BSc (hons) and MSc Mineral Resources management qualifications from the University of the Witwatersrand and has 19 years' relevant mineral industry experience – precious metals operations. During this period, she has held various technical positions within Anglo American Platinum and Anglo American plc. She is a professional natural scientist member of The South African Council of Natural Scientific Professions (SACNASP). SACNASP is based at The Innovation Hub, Enterprise Building Suite L4, 1 Mark Shuttleworth Street, Lynwood, Pretoria, 0087, Gauteng, South Africa.



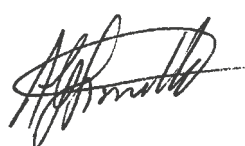
Kavita Mohanlal

Principal: Mineral Resources estimation
SACNASP – PrNatSci: 400003/05

Anglo American plc
144 Oxford Road, Rosebank, Melrose
South Africa

16 February 2023

Andrew Smith has a BEng (mining engineering) qualification from the University of Nottingham (UK) and has 33 years' relevant mineral industry experience across precious metals operations. During this period, he has held technical, managerial, and executive positions at Anglo American Platinum and Anglo American plc. He is a fellow with the Southern Africa Institute of Mining and Metallurgy (SAIMM). SAIMM is based at 7th floor, Rosebank Towers, 19 Biermann Avenue, Rosebank 2196, Gauteng, South Africa.



Andrew Smith

Lead: Ore Reserves
SAIMM – fellow: 702955, ECSA (20070176)

Anglo American plc
17 Oxford Charterhouse Street, London, EC1N6SA
United Kingdom

16 February 2023



Corporate governance continued

Internal controls

Well-established processes and protocols ensure reliable Ore Reserves and Mineral Resources reporting, as stipulated in the Anglo American plc group Ore Reserves and Mineral Resources reporting policy adopted by Anglo American Platinum. In line with internal review and audit schedules, as well as improvement initiatives, existing processes and reviews encompass:

Methodology

- Formal sign-off of the geological models and geological discount factors; drill hole and underground sampling databases; and the Mineral Resource estimation and classification processes
- A Mineral Resource classification scorecard for consistent and robust classification statements
- Further refinement of the basic resource equation (BRE), an internal reconciliation of Mineral Resources for the various business plans and investment centres
- Various single and multiple disciplinary reviews in the framework of the business-planning process
- Fully updated LOAPs to define Ore Reserves on a two-to-three year cycle. Trigger-action-response plans (TARP) are in place to determine if an out-of-cycle LOAP is required, following various financial and technical assessments.
- In the years when Ore Reserves are declared by depletion (which considers annual production and a forecast adjustment for the previous year's mining), a validation assessment is done to verify that the budget has not significantly deviated from the last LOAP, from either a production, revenue or cost perspective. Where deviations are deemed significant, an update to the LOAP is requested
- The annual multi-stage internal reviews and sign-off of Ore Reserves and Mineral Resources statements
- Internal controls for financial reporting audits that review internal control measures in place for reporting Ore Reserves and Mineral Resources which forms part of a broader attestation process in terms of the JSE Listings Requirements
- External/independent audits, that are synchronised with the life-of-assets planning schedules and Mineral Resources models updates.

Information communicated

- Ore Reserve and Mineral Resource estimates
- Ore Reserve and Mineral Resource reconciliation waterfall charts indicating year-on-year changes
- 4E metal split, base-metal grades, and chromite grades (as applicable) distribution of the Mineral Resources inclusive of Ore Reserves
- Confirmation of Mineral Rights tenure
- Five years' ROM production history
- Spatial distribution of the Ore Reserve and Mineral Resource classifications
- Life-of-asset ROM production profiles that support the Ore Reserves declarations.

Ore Reserves and Mineral Resources management database

- Anglo American Platinum makes use of a web-based data capture and reporting database called the Anglo Ore Reserves and Mineral Resources reporting system (ARR) for the compilation, review and approval of Ore Reserves and Mineral Resources reporting. The system is completely secure and is fully auditable
- The ARR system allows the Competent Persons to capture the Ore Reserves and Mineral Resources estimates, year-on-year reconciliations and other supplementary information thus supporting this Ore Reserves and Mineral Resources publication
- Internal database audit, approvals and formal sign-off.

Assurance – external reviews

Anglo American Platinum operations are subject to a comprehensive three-year programme of external/third-party reviews aimed at providing assurance in respect of Ore Reserve and Mineral Resource estimates and reconciliations. The independent reviews are executed to ensure that our standards and procedures are aligned with world best practice and include both process and numerical estimate reviews. The reviews are conducted by suitably qualified Competent Persons.

To comply with the Anglo American Platinum external review and audit schedule, the following detailed audit of data gathering, data transformation and reporting of Mineral Resources processes were carried out in 2022:

- Mogalakwena Mine: Sandsloot underground scoping study project – The MSA Group.

External audits summary

It is MSA's opinion that the Mineral Resources have been estimated using reasonable assumptions and techniques for the style of mineralisation and perceived mining methods at Sandsloot underground project. The Mineral Resources have been prepared by suitably qualified and experienced Competent Persons who were assisted by various experts. The Mineral Resource has considered knowledge gained from Anglo American Platinum experience in open pit mining of the Platreef over several decades, while considering underground mining factors. No material items were identified during the course of the audit, although recommendations were made by MSA on reporting of the Mineral Resource that should be considered as the Mineral Resource develops from further drilling and as the underground mining study progresses.

MSA has also verified the quantum of Mineral Resources reported for Sandsloot UG and considers that the Mineral Resources have been prepared in accordance with 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) and are suitable for public disclosure in the Ore Reserves and Mineral Resources report.

Continuous improvement of items identified and detailed in the full audit report will be addressed in the following Ore Reserves and Mineral Resources estimation and reporting cycle(s). Assurance letter for the auditors' summary of findings is on [page 88](#) of this report.

Risk

The effective management of risk is fundamental to living up to our purpose and delivering our strategy. By understanding, prioritising, and managing risk, Anglo American Platinum safeguards our people, our assets, our values and reputation, and the environment, and identifies opportunities to best serve the long-term interest of all our stakeholders.

Anglo American Platinum's integrated risk management framework ensures the effective governance of operational and strategic risks. The risk management process is aligned with ISO 31000 international risk management standards and King IV requirements. Risks are defined as situations or actions with the potential to threaten our ability to deliver on our strategic priorities and, ultimately, to create value. The approach to risk

management is guided by risk appetite, enables the platinum management committee (PMC) and the board to establish a baseline level of risk the company is willing to accept and evaluates the likelihood and impact of certain threats. Risk appetite is assessed from the context of severity of consequences should the risk materialise, any relevant internal or external factors influencing the risk, and the status of management actions to mitigate the risk. We also consider opportunities as part of our risk management process, aligned with King IV requirements. Anglo American Platinum's principal risks are outlined on [pages 69-79](#) of the Integrated report.

It is generally recognised that Ore Reserve and Mineral Resource estimations are based on projections that may vary as new information becomes available. In addition to geological uncertainty, such changes can be impacted specifically if economic assumptions, Modifying Factors and market conditions change materially. Since the parameters associated with these considerations vary with time, the conversion of Mineral Resources to Ore Reserves may also change over time. For example, mining costs (capital and operating), exchange rates and metal prices may have significant impacts on converting Mineral Resources to Ore Reserves and reallocating Ore Reserves to Mineral Resources in cases where there is a reversal in the economics of a project or area. The assumptions, Modifying Factors and market conditions therefore represent areas of potential risk. In addition, security of Mineral Right tenure or social licence to operate could have a material impact on the future mineral asset inventory.

The relevant geoscience and life-of-asset planning departments have multi-disciplinary teams comprising the technical, financial and ESG specialists involved in the estimation and planning process to assess the risks and creates an integrated schedule of the actions required to mitigate and subsequently reduce risks relevant to the Ore Reserves and Mineral Resources.



For more detail on our approach to risk and opportunity management and principal risks see the relevant sections in the [Integrated report](#)

Environmental, social and governance (ESG)

Environmental, social and governance aspects associated with the full mining value chain present both risks and opportunities for the business and are central to the Anglo American Platinum strategy. ESG considerations are important inputs in determining reasonable prospects of eventual economic extraction (RPEEE) and Modifying Factors for estimating and reporting Ore Reserves and Mineral Resources. Items related to environmental, social and governance aspects outlined in table 1 of the SAMREC Code (2016) are incorporated into our Ore Reserves and Mineral Resources estimation processes, to ensure compliance and a sustainable future for all our stakeholders.

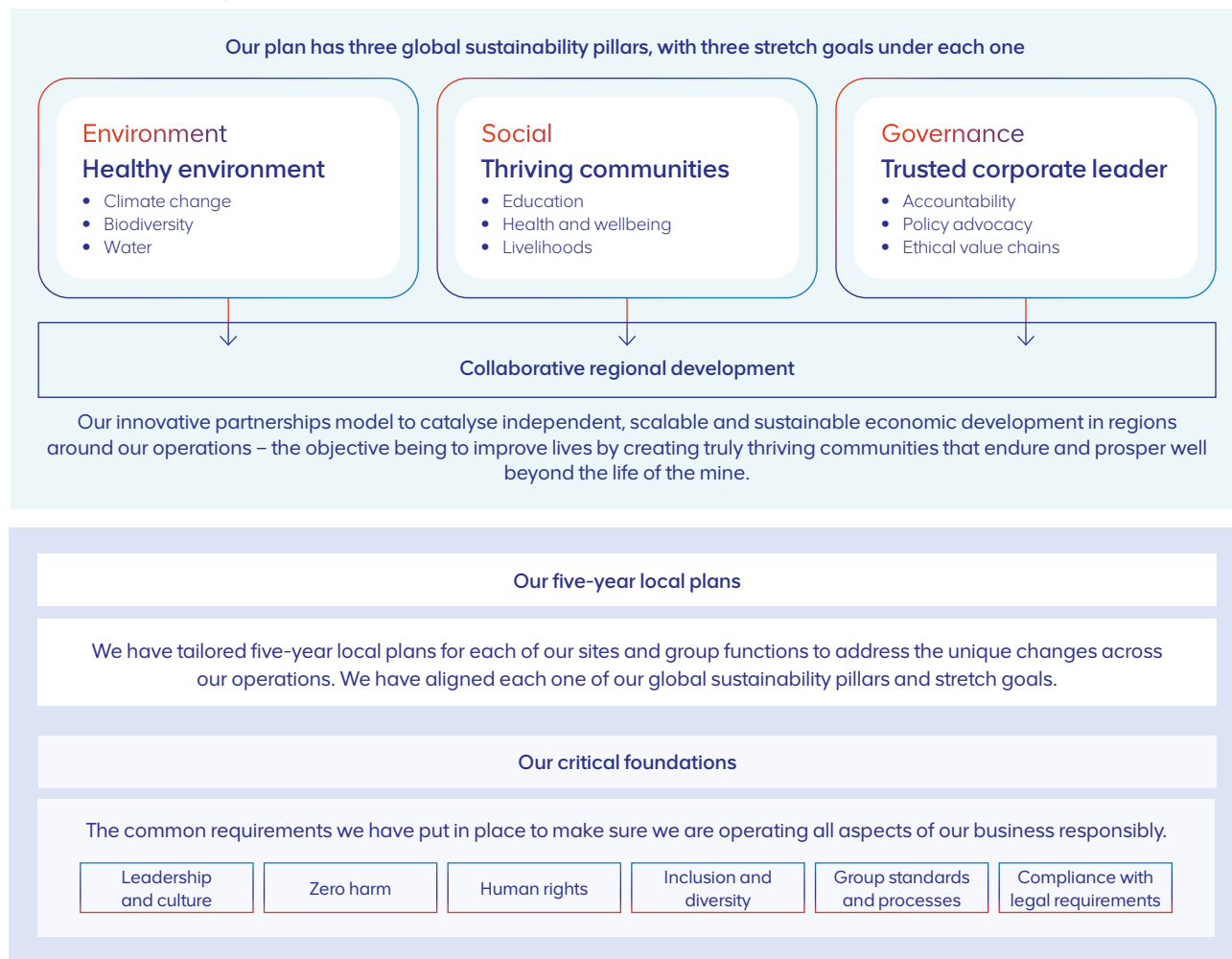
ESG strategic focus

Anglo American Platinum has embedded ESG into the company strategy. One of the company's four strategic priorities, is to be 'A leader in ESG.' We want to become a leader in ESG by undertaking work to protect and sustain a healthy environment, working collaboratively and listening openly to ensure the community groups around us are thriving, and taking action to become a trusted corporate leader for all stakeholders. We measure the success of our business through the lens of ESG.

We take a holistic approach to ESG, transforming how stakeholders experience Anglo American Platinum and this is done through embedding all aspects of the sustainable mining plan (SMP) framework.

Corporate governance continued

Sustainable mining plan



Launched in 2018, the sustainable mining plan (“SMP”) is a crucial and integral component of FutureSmart Mining™. Driven into implementation, it embeds our sustainability commitments across the business’s full value chain, including operating sites – charting a course towards the company’s strategic priority to be a leader in ESG. The SMP is delivered through a five-year plan which is tailored for each operating site, updated annually to ensure it remains relevant and on track to deliver against the global stretch goals under the sustainability pillars underpinned by the critical foundations.

The SMP framework comprises three sustainability pillars and six critical foundations, which are all aligned to the United Nations Sustainable Development Goals (SDGs).

Environmental management

Anglo American Platinum is committed to strong environmental stewardship, using innovation as a lever to improve performance. Our vision is to maintain a healthy environment, where we not only minimise impact, but we deliver positive and lasting environmental outcomes in the areas in which we operate. We are innovating to transform the environmental footprint of our business as we work towards achieving the environmental stretch

goals of our sustainable mining plan. To be a leader in ESG also requires compliance with legislation and alignment to best practice in order to support long-term sustainability of the business through effective management of resources and to reduce impacts on the environment and communities.

Environmental compliance permits, authorisations, penalties

The company needs to be legally compliant through the obtaining of permits from relevant authorities for various activities at our operations during mining and processing from exploration to closure. These permits incorporate binding commitments that require implementation, monitoring, auditing and reporting to ensure we are compliant. Systems have been developed to ensure compliance and proactive action programme report management associated with all these conditions. This system is audited periodically by the company’s internal audit function. Compliance monitoring and verification on critical and high-risk permits is ongoing.

No operation received a fine or legal non-compliance directive in 2022.

Water management

We are responsible water stewards, embracing technology to drive our water aspirations. We are working towards goals to reduce our freshwater, outlined in the SMP, by implementing site-specific water management action plans, supported by improved water accounting. Anglo American Platinum works in close collaboration with our stakeholders to manage our water resources responsibly.

The water management strategy focuses on the strategic pillars of water stewardship, regional and operational water security and operational excellence. Site-specific water balances were established the last few years, with all sites generating a water reporting data set using International Council on Mining and Metals (ICMM) metrics and Water Accounting Framework (WAF+). Most of our freshwater withdrawal reduction is due to good on-site management of water, including increases in re-use and substituting freshwater with non-freshwater through implementing hierarchy of use rules. Specific targets are set annually for each site. Our operations report on water withdrawal, consumption, discharge and water efficiency, tracking performance against targets monthly.

Biodiversity

Anglo American Platinum aims to understand our potential biodiversity impacts and to avoid, minimise and, where necessary, offset any material biodiversity impacts, as part of our commitment to achieving net positive impact (NPI) by mine closure. Some of our operations are in areas of higher biodiversity value, increasing our responsibility to contribute to its conservation. Aligned with the ICMM's position statement on mining and protected areas, we uphold our 2003 commitment to neither explore nor develop new mines in world heritage sites.

The Anglo American biodiversity technical standard and SMP seek to ensure that, by 2030, all our sites demonstrate that they are on track to deliver NPI at closure. Each operation has established a biodiversity management programme to ensure that there is a clear path and process to guide the operations on meeting their NPI requirements.

Climate change and energy management

We are committed to decarbonising our operations and playing a part in the transition to a low-carbon economy. Anglo American Platinum has committed to achieving carbon-neutrality (scope 1 and 2) across its operations by 2040, supported by clear intermediate targets. Our carbon-neutral model, which projects our energy intensity and carbon emissions over time, is based on reducing energy consumption through FutureSmart Mining methods and technology adoption, as well as transitioning to low-carbon energy sourcing, by increasing the proportion of renewables in our energy mix. We implement site-specific business improvement projects as part of our energy and carbon management programme.

In 2022, we published our first Climate Change Report and we verified and reported on our Scope 3 emissions. This has enabled us to establish detailed abatement plans for our most material value chain emissions, alongside our broader investigations into strategic and impactful decarbonisation options.

Anglo American conducted a group-wide scenario analysis, incorporating a 1.5°C scenario, to assess the resilience of our portfolio to climate change. Our current focus is to fuel hydrogen-powered mine haul trucks, using green hydrogen to create an energy mix that moves us closer to carbon neutrality. The development of Mogalakwena's solar photovoltaic plant is progressing well and planned to become operational by 2024.

Social context and social performance

The social licence to operate is vital to ensuring the longevity of our operations. To build thriving communities, we are resetting our relationships with community stakeholders, collaborating on regional development, ensuring land access through resettlement, sharing the economic benefits of mining, building local capacity in health and education, and growing economic opportunity through inclusive procurement, and enterprise and supplier development. The targets outlined under the thriving communities pillar of the SMP guide our social aspirations. Social performance management is guided by the Anglo social way 3.0 sets out social performance requirements and guidelines for the company.

Social performance is part of the company's core planning and business management processes and we develop long-term strategies through life-of-asset planning in order to meet the goals of our SMP. Educational programmes, community health and wellbeing is an important stretch goal of the SMP and aims to enhance levels of care in our communities. Our community development programmes are implemented in partnership with NGOs, communities and government.

Rehabilitation and closure (including funding)

The purpose of mine-closure planning in Anglo American is to deliver value through integrated, risk and opportunities-based closure planning and execution. This will establish safe, stable and non-polluting post-mining landscapes that leave a sustainable legacy for all stakeholders.

Our 'cradle-to-cradle' approach begins with closure planning in the exploration phase and continues until a sustainable post-mining legacy has been achieved. The mine-closure and rehabilitation at Anglo American Platinum is governed by key workstreams: the mine-closure toolbox (MCT) and mine-closure standard compliance (MCS), rehabilitation strategy, closure liabilities and closure execution. The rehabilitation programme is designed to be integrated into key business planning processes – Mineral Resource development plans, life-of-asset planning and the sustainable mining plan to reduce our disturbance footprint and generate value both for us and our stakeholders. Five-year rehabilitation plans need to be developed and implemented for all open pit operations. All operations have stand-alone (outside the closure liability assessment reports) mine-closure plans. Detailed closure plans are developed within five to ten years of operational closure.

The closure liabilities of all Anglo American Platinum operations are assessed annually through a rigorous process. Financial provisions are made annually, reviewed and audited in line with internal and external requirements. Anglo American Platinum has approximately R5 billion in financial guarantees and rehabilitation trust funds with the DMRE to cover the premature closure liability of all its South African mining operations.

Closure liability estimates, closure and rehabilitation risks and rehabilitation performance can be found on [page 75-76](#) of the Sustainability report and the ESG data table.



For more detail see the full [Sustainability report](#)

The geological setting, exploration and technical studies

The geological setting

Anglo American Platinum's Mineral Resources of platinum group metals occur exclusively in southern Africa and are hosted by two layered intrusions: the Bushveld Complex in South Africa and the Great Dyke in Zimbabwe.

PGM Mineral Resources present in these two geological entities currently account for approximately 85% of the world's known platinum and 55% of the world's known palladium.

The Bushveld Complex

Formed over two billion years ago as a result of multiple injections of magma into the earth's crust many kilometres below the surface, the Bushveld Complex is geologically unique due to its size, uniformity of its layering and extent of known mineral content. This saucer-shaped intrusion is over 350km wide, 250km long and up to 12km thick. Over time, the rim of the intrusion has been exposed by erosion, revealing three separate main segments known as the western, eastern and northern limbs. The western limb is split into two lobes (north-western and south-western) by the Pilanesberg Complex, a remnant of an alkaline volcanic plug intruded into the Bushveld Complex about 1.2 billion years ago. The eastern limb is split into two lobes (north-eastern and south-eastern) by the north/east trending Steelpoort fault. The exposed segments exhibit layering of pyroxenites, norites, gabbros, anorthosites and chromitites: and this layering occurs across the entire extent of the complex.

The Bushveld Complex comprises three main suites, namely the Rooiberg Group, Lebowa Granite Suite and Rustenburg Layered Suite. The Rustenburg Layered Suite comprises four major subdivisions: the Upper Zone, Main Zone, Critical Zone and Lower Zone. Economic concentrations of PGMs occur mainly in three distinct units within the Critical Zone: Merensky Reef; Upper Group 2 (UG2) chromitite; and Platreef. The Merensky Reef and UG2 Reef occur around the eastern and western limbs of the complex, while the Platreef is found only along the eastern edge of the northern limb.

The Merensky and UG2 reefs are narrow tabular orebodies that extend laterally over hundreds of square kilometres, resulting in extensive Mineralisation. Their continuity, established over decades of exploration and mining, allows for the long-range extrapolation of data.

The Merensky Reef

The Merensky Reef has been the principal source of PGMs since it was first mined in 1925. The reef contains economically important PGM and base metal sulphide mineralisation. However, with the depletion of shallow Merensky Resources, the UG2 Reef, which occurs between 12m to 400m below the Merensky Reef, depending on location, has grown steadily in importance to the point where it now accounts for most of the PGM-bearing ore processed in South Africa.

The Merensky Reef is extensively developed in both the eastern (EL) and western limbs (WL) of the Bushveld Complex. The reef typically consists of a pegmatoidal feldspathic pyroxenite layer, bounded on the top and bottom by thin chromitite layers (stringers) that range from 5mm to 20mm in thickness.

Mineralisation of the reef generally occurs within the pegmatoidal feldspathic pyroxenite and, to a limited extent, in the hanging wall and footwall, with the highest PGM concentration peaking at the chromitite stringers.

The UG2 Reef

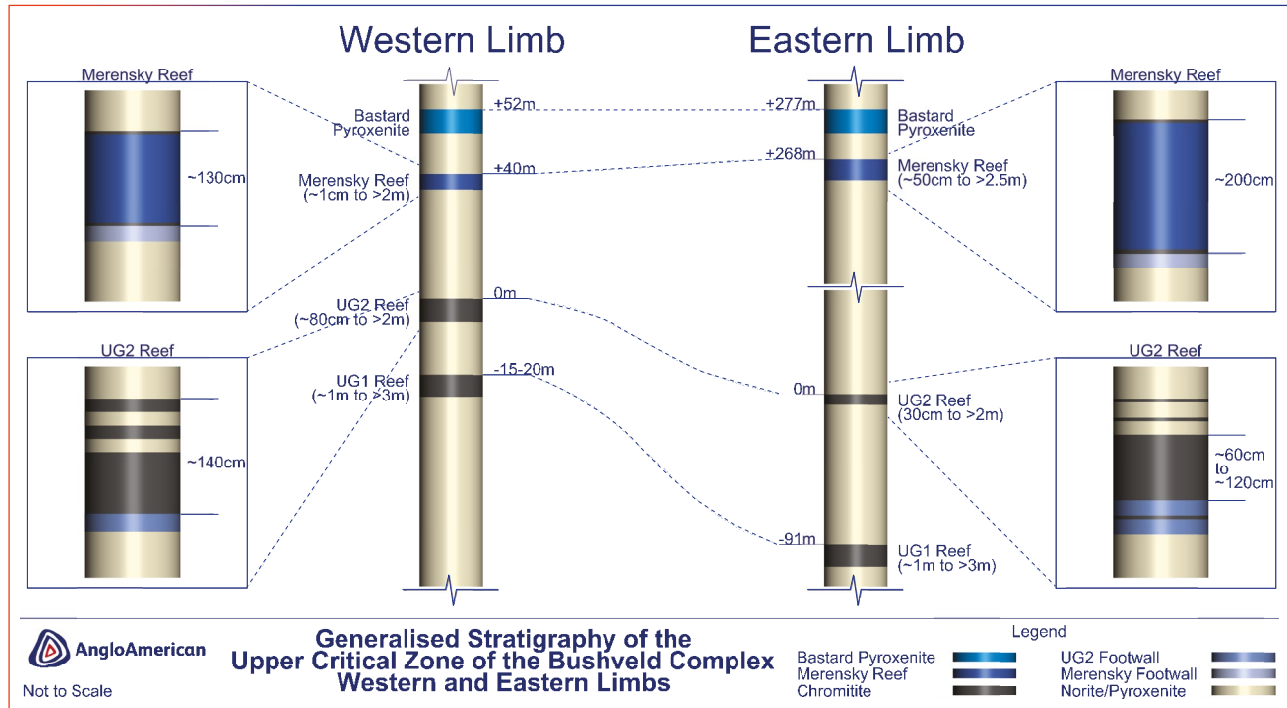
The UG2 Reef, which is consistently developed throughout the EL and WL, is rich in chromitite, with lower gold and base metal, but slightly higher rhodium grades compared to the Merensky Reef.

The UG2 Reef occurs vertically below the Merensky Reef and the separation distance varies between 12m to 150m in the WL and averages at 350m to 400m in the EL. The UG2 Reef normally comprises a 0.6m to 1.0m main chromitite layer overlain by three to five chromitite layers (UG2 leaders) varying in thickness from 5cm to 30cm, separated by feldspathic pyroxenite. The immediate footwall of the UG2 is usually a pegmatoidal feldspathic pyroxenite, which varies in thickness from a few centimetres to over 1m. The separation distances between these UG2 leader chromitite layers and the UG2 main layer has important implications for geotechnical considerations for mining across the Bushveld Complex.

The structural setting

The structural setting is characterised by dykes, faults and fractures. Most dykes are dolerites of Karoo and post-Karoo age and can be correlated to the Karoo tectonic extension period. They are generally vertical or steeply dipping and the widths range from several centimetres to more than 30m. The Merensky Reef and UG2 Reef horizons are affected by these structural and other geological features, such as potholes and typically iron-rich replacement pegmatites, which result in geological losses and have an impact on Mineral Resource estimations and life-of-asset planning.

The Merensky Reef and UG2 Reef generalised stratigraphy in the eastern and the western limbs



The Platereef

The Platereef is developed in the northern limb of the Bushveld Complex and, for most of the current mining area, comprises a thick heterogeneous unit of mafic rock, dominated by pyroxenite and norite. It averages 150m in thickness, with a prominently top-loaded grade profile. The highest-grade mineralisation is typically located in the upper 30m to 40m of the package which strikes approximately north/south dipping at an average of 40° to 50° to the west.

In comparison to the Merensky and UG2 reefs, the Platereef is a far thicker and more variable orebody, typified by extensive contact with metasedimentary and granitic floor rocks and assimilation of footwall fragments. The variability of lithology and thickness along strike is attributed to underlying structures and assimilation of local country rocks. This assimilation ranges from shales and banded ironstones in the south, through to dolomites in the centre of the mining area, to granites in the northern portion of the property.

Carbonate floor rocks incorporated into the basal Platereef have been altered to mineralised parapyroxenites and calc-silicates formed during extensive syn-magmatic interaction with high-magnesium silicate melts. Towards the north, where the Platereef footwall rock is Archaean basement granite, partial melting of this protolith has resulted in the formation of a metamorphic rock

referred to as granofels. The granofels is present in a prominent interaction zone developed between the base of the Platereef and the underlying basement granite. As a result, the mineralised horizon defined for the Platereef orebody often incorporates significant portions of the immediate footwall.

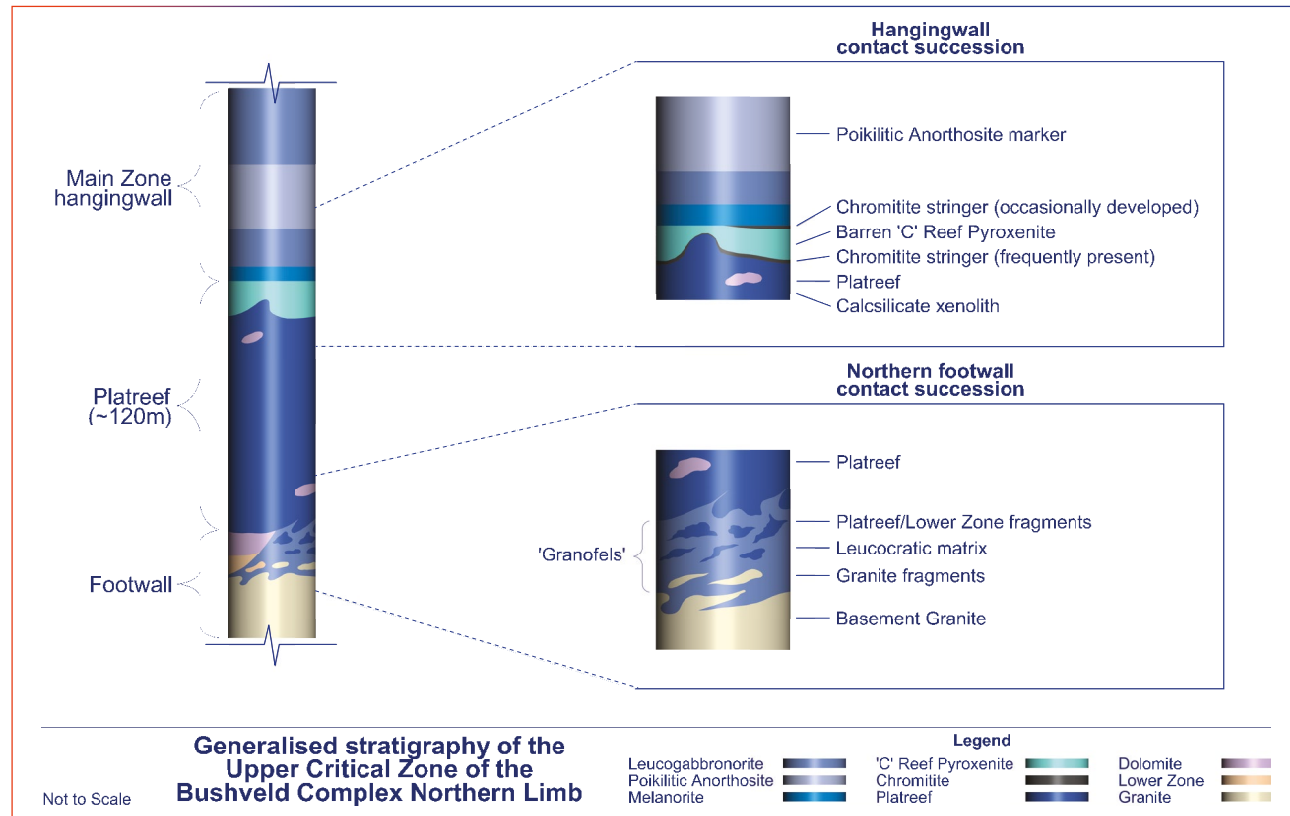
At Mogalakwena, the Platereef is structurally affected by dolerite dykes and several lateral fault systems orientated in a north-east/south-west direction. Zones adjacent to major fault systems are discounted as geological losses. The fault systems display normal to reverse fault displacements ranging between 50m and 600m, with up-thrown blocks proving favourable to mine design. The Platereef hosts significant dolomite inclusions in the southern region of the mining area and these also constitute geological loss zones.

Base metal mineralisation in the Bushveld Complex

The Merensky Reef and Platereef in particular yield meaningful quantities of nickel, copper and cobalt as by-products. While the UG2 Reef has relatively low concentrations of these metals, beneficiation for the by-product chromium contributed considerable economic value more recently. Copper, nickel, cobalt and chromium are accounted for in the relevant economic evaluations.

The geological setting, exploration and technical studies continued

The Platreef generalised stratigraphy at Mogalakwena (northern limb)



The Great Dyke

The Great Dyke in Zimbabwe occurs as a 2.5 billion-year-old mafic to predominantly ultramafic layered intrusion, is about 550km long and between 3km and 11km wide. The Great Dyke is trending in a north north-easterly direction cutting across the Archaean rocks of the Zimbabwe Craton, which are largely granite and greenstone belt rocks. Unki Mine is located in the Selukwe (Shurugwi) subchamber of the Great Dyke. The subchamber is 90km long, and up to about 7km wide. The shape of the Selukwe (Shurugwi) subchamber has to some extent been controlled by the proximity of the Selukwe greenstone belt, in that it has been deflected and constricted in places.

The Great Dyke has been preserved within a narrow graben structure and is synclinal in shape, with essentially the same mafic and ultramafic lithological successions being exposed on both sides of the longitudinal axis. The dyke comprises an upper mafic unit of alternating sequences of pyroxenite and dunite-harzburgites successions and a lower ultramafic zone of dunite. The layers are dipping and flattening towards the axis of the intrusion and the dip decreases from outcrops to the central near-axis area varying from 14° to 0°. The PGMs and associated base metal mineralisation are developed within the uppermost pyroxenite horizon, the Main Sulphide Zone (MSZ).

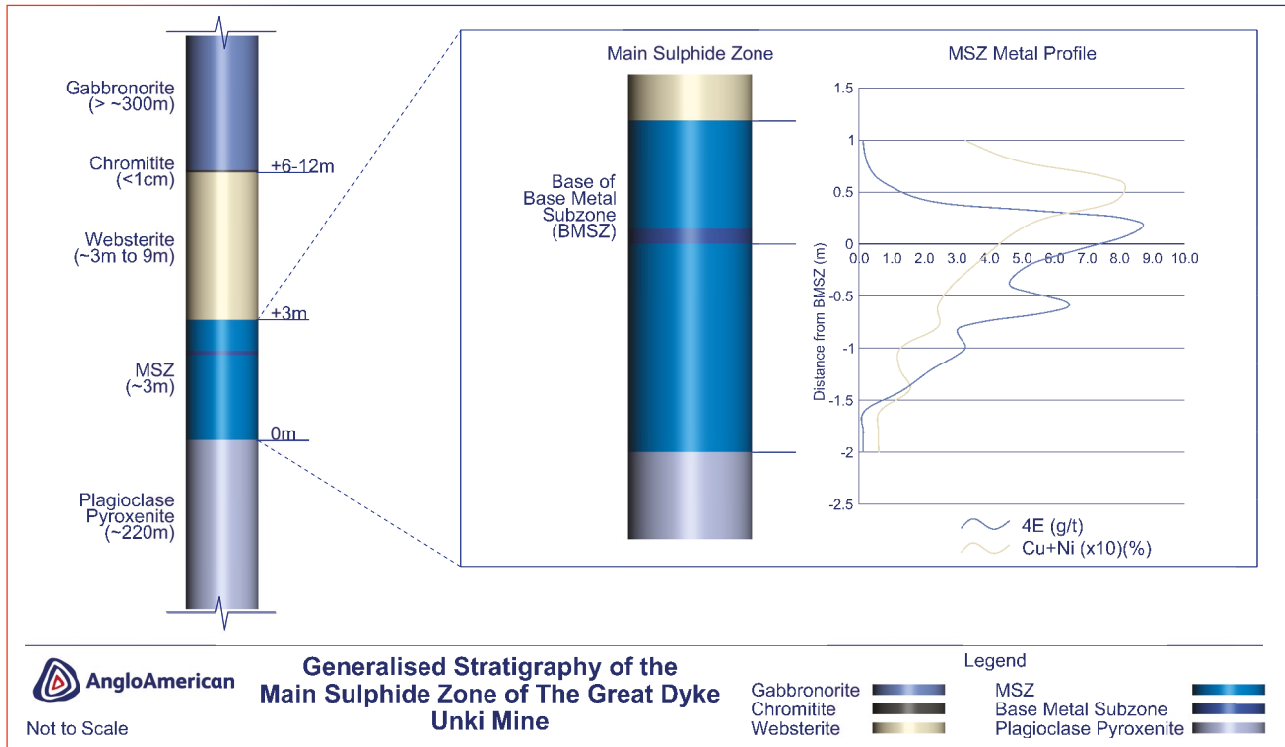
The Main Sulphide Zone (MSZ)

The mineralisation occurs at the same stratigraphic horizon throughout the Great Dyke within the uppermost pyroxenite layer, P1 unit, and follows the igneous layering. The MSZ occurs some 10m below the mafic-ultramafic contact and is hosted in the P1 unit of the ultramafic sequence. The P1 unit consists of a thin upper unit of websterite and a lower thick unit of plagioclase pyroxenite where the MSZ occurs near the base of the websterite unit. Based on geochemistry, the MSZ has two distinguishable subzones – the base metal subzone, which is dominated by nickel and copper, as well as the PGM subzone. The transition from the upper zone to lower zone is marked by a reduction in iron-nickel-copper sulphides disseminated in the pyroxenite.

The base of the upper zone is an important stratigraphic horizon, referred to as the base of the Base Metals SubZone (BMSZ). The base metals occur as disseminated inter-cumulus Fe-Ni-Cu sulphides. Although the mineralised zone is characterised by the absence of identifiable markers, this risk has been successfully negated by using handheld X-ray fluorescence (XRF) technology, as well as regular underground sampling of the mineralised horizon, enabling optimal extraction.

The MSZ is structurally affected by faults, xenoliths and replacement pegmatites. The most prominent is the Footwall fault, which occurs at an average stratigraphic distance of 1.6m below the BMSZ, with this distance ranging from ~1m to 2.5m. This fault is localised over a small section of the eastern section of the mine.

The Main Sulphide Zone generalised stratigraphy at Unki (Selukwe subchamber)



Exploration and technical studies

Exploration activities progressed on all Anglo American Platinum-owned and managed operations, with continued focus on brownfields and on-mine exploration. Exploration activities are aimed at supplying a wide variety of geochemical (including metals contents), geological, geotechnical, geometallurgical and geophysical information. This, together with associated value-driven initiatives and technology projects aligned with the company's FutureSmart Mining concept and underpinned by the company's vision, assists in mitigating risk and supports business plans, sustainability goals and prospecting works programme compliance. Well-defined systems of quality assurance and quality control processes and protocols are in place to validate sampling and analytical data generated from the various exploration and Mineral Resources conversion programmes.

Mogalakwena

Most of the Anglo American Platinum exploration budget for 2022 was spent on Mogalakwena. This included activities near current mining operations within the Mogalakwena Mining Right. Mineral Resource conversion activities for on-mine orebody replacement or extensions, open pit and underground, will continue, aligned with the company's Mineral Resources development plans and northern limb extraction strategies. All associated drilling results to date are in alignment with expected grades, tonnes and ounces. Geometallurgical data acquisition to date has resulted in the first geometallurgical models in 2022 and will continue to be a key focus area for all projects and programmes. Major Mineral Resources conversion and exploration programmes will continue in 2023, with expected costs of R655 million.

In line with the Future of Mogalakwena work on Mineral Resource development planning, the prefeasibility study is currently progressing towards further delineation of current and additional potential underground Mineral Resources, down dip of the current Sandsloot pit, in particular. The development plan is supported by an adequate drilling programme, which has thus far confirmed the expected mineralisation styles and concentrations.

Underground Mineral Resources have been considered for public reporting in 2022 since the project has advanced to a satisfactory level of confidence and reasonable prospects of eventual economic extraction were verified.

The geological setting, exploration and technical studies continued

Amandelbult

Various projects ranging from scoping to prefeasibility stages, underpinned by adequately sized diamond drilling programmes, are in progress at Amandelbult within the Mineral Right boundary, targeting mainly UG2 Reef with Merensky Reef as secondary horizon, as and where appropriate.

Two major projects, the Tumela 1 subshaft and Middellaagte Graben project, are currently in prefeasibility study stage. This, in conjunction with the modernisation strategy, will minimise risks through Mineral Resource conversion drilling combined with the resolution of structural complexities. Details of the projects are in the operations review section on [page 97](#) of the Integrated report.

Mototolo

The Der Brochen feasibility study was concluded in 2021, with the conversion of the Der Brochen south area to Ore Reserves reported for Mototolo. Further feasibility studies are underway to expand this project and are expected to be completed by the end of 2023.

Additional exploration drilling for Mototolo focused on de-risking business plans and structural complexities. Further work will continue into 2023 with focus on value-driven optimisation of extraction strategies and further Mineral Resource to Ore Reserve conversion. While the UG2 is the primary reef target, exploration programmes also acquire information on Merensky reef and other potentially economic chromitite layers in the Critical Zone. All information and models (where completed) are considered in strategic and life-of-asset planning.

Unki

Exploration continues on the Great Dyke in Zimbabwe to obtain more information in support of the mine extraction strategy for the Unki Mine Special Mining Lease (SML). This includes diamond drilling for Mineral Resource conversion and development as well as geotechnical components focused on major infrastructure placement and associated risk management.

There are currently no major technical studies underway at Unki. However, workstreams including drilling programmes will commence in 2023 to explore the economic potential of open-cast mining areas.

Twickenham

Twickenham has been under care and maintenance since 2016. The completion of pre-feasibility studies show that the Mineral Resource can be economically extracted (RPEEE), supported by improved commodity prices. Since a concentrator and related infrastructure would still need to be constructed to process ore mined, consideration needs to be given to how to reduce the extent of the investment required to enable the sustainable operation through commodity cycles (being cognisant of lower prices experienced in prior years which led to the mine being placed on care and maintenance and the global economic headwinds we currently see). As such, Anglo American Platinum is exploring options that could lead to the resumption of mining activities in a sustainable way.

Since Twickenham was placed on care and maintenance, no exploration activities have occurred. Once strategic options for the mine have been sufficiently studied, limited further exploration work will be planned.

Modikwa joint operation

No significant surface exploration currently occurs due to continued challenging engagements with the local communities in the area surrounding the mine. This is currently mitigated through underground drilling and sampling as well as geophysical programmes to further Mineral Resource confidence for deeper parts within the current Mining Right. A total of 243 underground holes were drilled, intersecting the UG2 Reef, dykes, faults and reef potholes providing valuable information for updating the structural information and short-term plans.

Sibanye-Stillwater joint operation

No active exploration programme is planned. Underground drilling and sampling supports further Mineral Resources and Ore Reserves estimation and mining activities for most areas.

Prospecting Rights

Exploration on Prospecting Right areas are in line with the work programme schedules and the environmental management programmes submitted to the government's Department of Mineral Resources and Energy. A further reduction of the remaining Prospecting Right holdings is envisaged, in alignment with Anglo American Platinum's portfolio focus on long-term, high-quality assets.

Prospecting Right of Groningen 779LS was granted by the DMRE during 2022. This area represents the down-dip extension of Boikgantsho, north of the Drenthe Fault, north of Mogalakwena's North pit, aligned with the northern limb strategy.

Exploration expenditure - managed operations

Total Anglo American Platinum exploration expenditure for 2022 was R623 million. The projected exploration expenditure for 2023 is expected to increase significantly to R875 million.

Excluding the non-managed joint operations, 448 surface diamond cored drill holes were drilled in 2022, totalling 208,511 metres and 77,334 assay samples. In addition, 200 underground exploration diamond cored drill-holes totalling 15,629 metres, associated with 5,754 assay samples, were completed. A total of 75,501 metres of reverse circulation (RC) drilling equating to 5,033 in-pit RC drill-holes were completed at the Mogalakwena operation for value-based ore control. On average, a fleet of 46 drill rigs for surface and 20 drill rigs for underground exploration were employed, while two RC rigs were operational for in-pit drilling at Mogalakwena.

Exploration expenditure

Mine/project	Mineral Resource conversion and near-mine			Underground exploration and in-pit ore control drilling		
	Number of drill-holes	Length (m)	Expenditure (Rm)	Number of drill-holes	Length (m)	Expenditure (Rm)
Mogalakwena	92	53,172	141.48	5,033	75,501	70.6
Northern limb exploration and near mine	151	100,765	323.67	—	—	—
Dishaba	10	9,050	27.44	94	6,116	8.54
Tumela	62	29,087	92.43	39	2,526	3.75
Mototolo	22	4,025	13.90	11	995	0.75
Unki	111	12,412	23.68	56	5,992	7.38
Prospecting Rights	—	—	—	—	—	—
Total 2022 exploration expenditure	448	208,511	622.6	5,233	91,130	91.02
Total 2023 exploration budget northern limb			528.0			
Total 2023 exploration budget other			346.6			



Sandsloot underground project decline tunnel excavated using mobile tunnel borer (MTB)

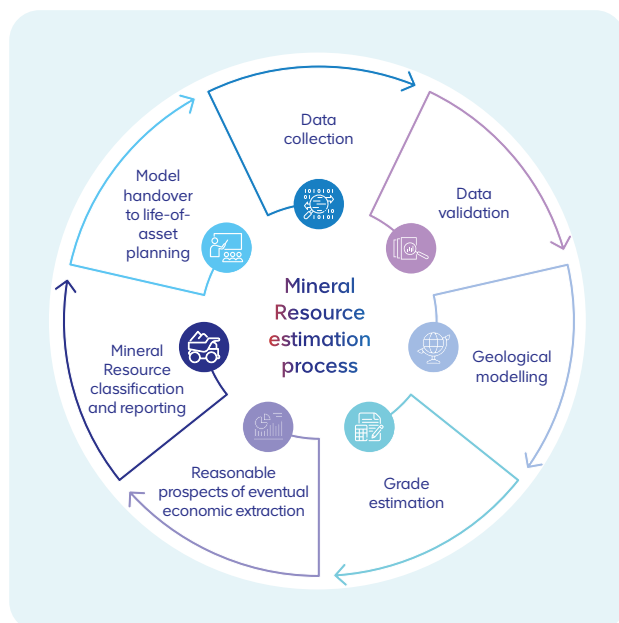
Mineral Resources process summary

Managed operations

as at 31 December 2022

Mineral Resource estimation

We construct Mineral Resource models as a multi-skilled team, led by suitably qualified and experienced Competent Persons who assume overall responsibility for the Mineral Resource estimates.



Estimates of grade/quality and tonnage are classified based on the confidence in the Mineral Resource model. This includes considering the spacing and quality of the underlying sample data, various geological features that influence the continuity of mineralisation, the uncertainty and variability of grade and density estimates. We are transforming our Mineral Resource estimation process through a new integrated approach called Rapid Resource Modelling, which offers a significant time reduction from drilling to model when compared to the traditional process.

Mineral Resources are constructed in the form of block models, which are digital data structures describing the geometry and properties of the sub-surface rock mass hosting mineralisation and the surrounding waste. The modelled properties enable estimation of recoverable value after mineral processing, including the grades/quality of the targeted metals/mineral, the grades of deleterious components, the in situ bulk density of the rock, the contained quantity of specific minerals required to understand the extractive process efficiency and the comminution characteristics of the rock.

Data collection and validation

-  Data sources that feed the Mineral Resource models are grouped into:
- Data derived from analysis of physical samples of drill holes, underground reef sampling and other sampling techniques.
 - Data collected using non-destructive remote-sensing activities such as geophysical surveys, scanning sensors, and surface and sub-surface mapping by geologists.

A range of quality assurance/quality control (QA/QC) processes are employed to ensure that the data used in the estimation of Mineral Resources is valid, correct and fit-for-purpose. This includes, but is not limited to, monitoring the material mass recovery from reverse circulation drilling, twinning reverse circulation and diamond drill holes to compare sampling techniques, checks on the sample granulometry at various stages in the sampling and subsampling steps, inclusion of blank samples, submission of Certified Reference Samples and blind resubmission of duplicate samples to monitor analytical accuracy and precision.

There may be routine replication of a subset of drill hole surveys to test the reproducibility of the sample locations in space and the drill hole collar coordinates may also be subject to re-survey. Drill hole logging data is compared between peers to ensure data consistency; and database validations are conducted to ensure that data capture practices are accurate and reliable.

Geological modelling

The collective data set available over a mineral deposit supports the creation and subsequent maintenance of two-dimensional (2D) and three-dimensional (3D) digital geological interpretation. The block model that is generated is built on the geological interpretation and forms the basis of the Mineral Resource estimates for the deposit. This model relies upon a basic understanding of the relevant mineralisation processes within the deposit, as well as extraction methods, particularly for key geological features that exert control on the mineralisation.

The geoscience teams at operations assess and quantify geological losses from various sources, including historical mining, surface exposure and geophysical and geological exploration data. The precise location and size of some features such as fault losses, potholes and iron-rich pegmatoids are not always known ahead of mining as the drill hole spacing is typically too wide to precisely delineate the size, shape and extent of these features. The total known and unknown geological losses are reported per domain as defined by similar geological attributes related to structural characteristics, complexity, geological loss feature frequency, size or distribution.

These geological loss estimates are reconciled with current production data and are signed off by a team of Competent Persons, to ensure the best possible input into Mineral Resource models and life-of-asset plan processes.

Mineralisation

Implicit modelling is frequently used to generate the complex 3D shapes representing key rock unit volumes within the geological block model. Manual wireframing 2D geological block modelling is also used for this task at underground operations, where it is more appropriate for mine planning.

The mineralisation may be hosted exclusively within a specific rock unit (i.e. UG2 Reef) or may be subject to more complex controls (i.e. Platreef). The mineralisation envelope is based on

data generated from all possible sources, including surface and underground diamond drilling, open pit RC drilling, underground reef sampling and geological mapping.

The mineralised envelope for the Platreef is delineated on an incremental cut-off grade. Mineral Resources for the Merensky, UG2 and MSZ reefs report 4E PGM grades that are all above marginal grade cut-off and therefore not applicable to cut-off grade reporting.

The tabular PGM orebodies lend themselves to a three-component subdivision, comprising the mineralised envelope, hanging wall and footwall intervals. Separate estimation models are prepared for each of these components. The mineralised interval represents the most consistently mineralised unit and dominates the defined Mineral Resource. The margins of the mineralised interval may be defined exclusively by grade cut-offs (ie Platreef), by a combination of geological features and grade cut-offs (ie Merensky Reef and MSZ) or by geology (ie UG2 Reef).

The hanging wall and footwall components, which are lower grade relative to the mineralised interval, contribute to the total mining width that may be planned to extract the mineralised interval. These marginal units can be prepared as 'layered estimation models', allowing for different extraction options to be investigated, and the appropriate marginal dilution aggregated.



Grade estimation

Grade data are derived by analysis of subsamples of the drill hole core, underground sampling, or reverse-circulation drill cuttings. Exploratory data analysis is performed on this data to understand the relationships between different grade variables and their spatial variability. These analyses are typically performed for each variable in each geological domain that is identified within the deposit.

The Mineral Resource models are prepared as 2D block models for the active underground operations and 3D block models for the active open pit operations, created within applicable modelling software. Ordinary kriging is the estimation method applied, together with semi-variogram analysis, to quantify the spatial continuity and data variance. The estimation parameters are defined using a kriging neighbourhood analysis (KNA) and the variogram models defined by the Merensky, UG2, MSZ and Platreef geozones respectively. KNA tests the impact of different parameters on the estimate by interpreting changes mainly in the kriging efficiency and kriging variance parameters.

Within sparse to moderately informed areas of the Merensky, UG2 and MSZ, the kriging efficiency and kriging variance reaches stability at block sizes between 300m and 500m. In well-informed areas (underground sample sections and drill-holes), the kriging efficiency and kriging variance reach stability at block sizes between 50m to 250m. For the Platreef, however, block sizes range from 50m x 50m x 5m to 20m x 20m x 5m. The smaller block sizes are supported by closely spaced data density from exploration drilling and in-pit RC drilling data.

Search distances for grade and width estimation were based on variogram ranges for each variable. A minimum of five to seven and a maximum of 25 samples were used for estimation as determined from the KNA study. Multiple nested search passes were used to estimate blocks not populated by the first search pass. The minimum and maximum number of samples used remained constant for the second pass, but are increased for the third pass to between 20 and 40, depending on data density.

The traditional resource modelling workflow is a mature and stable industry standard which is typically executed annually (or following the completion of a drilling campaign) and follows a linear series of sequential steps usually using different software packages that are not cloud deployable and are reaching their limits for handling large models. Redefinition of the workflows (which are tailored for each deposit style and mining context) involving re-assessment of all existing processes, understanding the constraints, and running processes in parallel are currently underway for all Anglo American Platinum assets. All processes previous run manually, or partially scripted are now being tested for automation within a Rapid Resource Modelling framework offering enhancement and agility as well as significant time reduction compared to the traditional estimation processes.



Reasonable prospects of eventual economic extraction

The declared Mineral Resource estimates are not an inventory of all mineral occurrences identified, but an estimate of those, which under assumed and justifiable technical, financial, environmental, legal and social conditions (the Modifying Factors) have reasonable prospects for its eventual economic extraction (RPEEE).

The Competent Persons and their supporting teams undertake an assessment of the RPEEE criteria. These include, but are not limited to, mining method, depth, geological complexity, geotechnical, environmental, social and governance constraints, legal, processing, infrastructure and economic factors. The factors are appropriate to the definition of Mineral Resources in terms of precision, accuracy, degree of confidence and variability.

For open pit mining activities, pit optimisation studies are completed using approved long-term economic assumptions and approved geotechnical input parameters to derive Mineral Resources RPEEE shells. The RPEEE pit shell may be derived via pit-optimisation methods, that is based on an agreed multiple of the forecasted economic assumptions. This shell attempts to define a limit beyond which it is considered unlikely that reasonable prospects exist for extraction of the Mineral Resources under the current state of knowledge of the deposit and the technologies available for potential extraction.

For underground mining activities, factors such as the distance to the shaft, the depth below surface, the virgin rock temperatures, ventilation capacity limitations all influence the definition of the RPEEE boundary. A virgin rock temperature of 75°C is still considered to be the practical limit to mining (given current technology constraints, economic assumptions and energy costs), and continues to form the perimeter of declared Inferred Mineral Resources within the Mining Rights areas. Anglo American Platinum will continue to review deposits down-dip of this limit based on changing geological information, mining technology and metal prices.

Anglo American Platinum has maintained the basic resource equation (BRE) to establish a consistent and auditable process for tracking and reconciling movements in Mineral Resources and Mineralisation. This is underpinned by the reasonable prospects for eventual economic extraction (RPEEE) criteria specified in the SAMREC Code as well as Anglo American Platinum's RPEEE criteria for Mineral Resources guidelines document.

Mineral Resources process summary continued

Mineral Resource classification and reporting

Classification of a Mineral Resource is the assignment of confidence categories to the model. Classification considers the possible sources of uncertainty within the model, including the reliability of the base data, the spatial distribution of data, the accuracy and precision of the assayed sample databases, the nature of the geological environment including the presence of post-mineralisation features like faults and dykes that disrupt the continuity of the mineralisation. The confidence associated with the estimates are gauged through analysis of various estimation quality metrics such as swath plots that compare the estimates to the supporting data and regression analyses between data values and the values of enclosing block estimates, or derived more directly if conditional simulation techniques are employed.

The Mineral Resource classification is reviewed and signed off by a team of Competent Persons. The consideration of multiple sources of uncertainty is addressed using a weighted scorecard approach evaluating both geological (non-statistical) and geostatistical criteria. Under this framework the Competent Persons and team consider the risks associated with data quality; orebody knowledge; mineralisation geometry and continuity as well as statistical outputs. The geostatistical and geological considerations for the classification procedure are shown below.

Non-statistical parameters	Statistical parameters
Aeromagnetic survey	Search volume
Seismic survey (where applicable)	Number of samples
Structural model	Kriging efficiency
Facies interpretation	Kriging variance
Historical data/mining history	Slope of regression
Geological loss	
Quality assurance and quality control	

These factors are sequentially considered and aggregated to yield a weighted score value that is used to assign a classification to each block in the model. Mineral Resources are reported on an exclusive basis, ie in addition to that part of the Mineral Resource converted to Ore Reserves.

The Mineral Resource model is reviewed and signed off by the Competent Persons and supporting teams before hand over to the LOAP teams for the application of the appropriate extraction methods and Modifying Factors suitable to the orebody. After applying these assumptions and sustainability constraints, a detailed mine design and schedule is generated. This schedule, once economically evaluated, provides the basis for the Ore Reserve declaration.

Endowment

Further understanding and quantification of the company's full mineral endowment potential on and around our current holdings is underway, including the endowment specified in the Central Block and Kwanda North into the greater Mogalakwena Mining Right.



Mogalakwena Mine bulk ore sorter

Summary exclusive Mineral Resource estimates

The estimates below are reported on a 100% basis and the attributable interests are noted in the tables. Tonnes or contained metal values reported as 0.0 represent numbers less than 0.05.

		Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
Mine	Classification	2022	2021	2022	2021	2022	2021	2022	2021
Mogalakwena (100%)									
Platreef open pit*	Measured	186.3	207.8	2.17	2.19	404	455	13.0	14.6
	Indicated	1,447.9	1,517.4	2.27	2.29	3,287	3,475	105.7	111.7
	Measured and Indicated	1,634.2	1,725.3	2.26	2.28	3,691	3,930	118.7	126.4
	Inferred	288.5	425.3	1.63	1.75	471	745	15.1	23.9
	Total	1,922.7	2,150.6	2.17	2.18	4,162	4,675	133.8	150.3
Platreef underground*	Measured	—	—	—	—	—	—	—	—
	Indicated	28.5	—	4.02	—	114	—	3.7	—
	Measured and Indicated	28.5	—	4.02	—	114	—	3.7	—
	Inferred	135.3	—	3.35	—	453	—	14.6	—
	Total	163.8	—	3.47	—	567	—	18.3	—
Platreef stockpile	Measured	2.8	2.8	3.28	3.96	9	11	0.3	0.4
	Indicated	—	—	—	—	—	—	—	—
	Measured and Indicated	2.8	2.8	3.28	3.96	9	11	0.3	0.4
	Inferred	—	—	—	—	—	—	—	—
	Total	2.8	2.8	3.28	3.96	9	11	0.3	0.4
Total Mogalakwena									
	Measured	189.1	210.6	2.19	2.21	413	466	13.3	15.0
	Indicated	1,476.30	1,517.40	2.30	2.29	3,401	3,475	109.3	111.7
	Measured and Indicated	1,665.40	1,728.00	2.29	2.28	3,814	3,941	122.6	126.7
	Inferred	423.8	425.3	2.18	1.75	924	745	29.7	23.9
	Total	2,089.20	2,153.40	2.27	2.18	4,738	4,686	152.3	150.6
Tumela (100%)									
Merensky Reef	Measured	23.4	23.4	6.68	6.68	156	156	5.0	5.0
	Indicated	46.7	46.7	7.05	7.05	329	329	10.6	10.6
	Measured and Indicated	70.1	70.1	6.93	6.93	485	485	15.6	15.6
	Inferred	44.9	44.9	7.01	7.01	315	315	10.1	10.1
	Total	115.0	115.0	6.96	6.96	800	800	25.7	25.7
UG2 Reef	Measured	77.7	78.3	5.35	5.35	416	419	13.4	13.5
	Indicated	70.2	70.2	5.51	5.51	387	387	12.4	12.4
	Measured and Indicated	148.0	148.5	5.43	5.43	803	806	25.8	25.9
	Inferred	47.5	47.4	5.76	5.76	273	273	8.8	8.8
	Total	195.4	195.9	5.51	5.51	1,076	1,079	34.6	34.7
Dishaba (100%)									
Merensky Reef	Measured	9.4	9.4	7.00	7.00	66	66	2.1	2.1
	Indicated	11.6	11.6	6.64	6.64	77	77	2.5	2.5
	Measured and Indicated	21.0	21.0	6.80	6.80	143	143	4.6	4.6
	Inferred	12.6	12.6	6.03	6.03	76	76	2.4	2.4
	Total	33.6	33.6	6.51	6.51	219	219	7.0	7.0
UG2 Reef	Measured	21.1	21.2	5.25	5.25	111	111	3.6	3.6
	Indicated	25.6	25.5	5.72	5.72	146	146	4.7	4.7
	Measured and Indicated	46.7	46.7	5.51	5.51	257	257	8.3	8.3
	Inferred	9.0	9.2	5.50	5.50	49	50	1.6	1.6
	Total	55.7	55.9	5.51	5.51	306	307	9.9	9.9
Total Amandelbult									
	Measured	131.6	132.3	5.69	5.69	749	752	24.1	24.2
	Indicated	154.1	154.1	6.10	6.10	939	939	30.2	30.2
	Measured and Indicated	285.8	286.4	5.91	5.91	1,688	1,691	54.3	54.4
	Inferred	113.9	114.0	6.26	6.26	713	714	22.9	23.0
	Total	399.6	400.4	6.01	6.01	2,401	2,405	77.2	77.3

Mineral Resources process summary continued

Summary exclusive Mineral Resource estimates continued

		Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
Mine	Classification	2022	2021	2022	2021	2022	2021	2022	2021
Mototolo (100%)									
Merensky Reef	Measured	41.3	41.3	4.75	4.75	196	196	6.3	6.3
	Indicated	57.4	57.4	4.55	4.55	261	261	8.4	8.4
	Measured and Indicated	98.7	98.7	4.63	4.64	457	457	14.7	14.7
	Inferred	73.7	73.7	4.51	4.51	332	332	10.7	10.7
	Total	172.4	172.4	4.58	4.58	789	789	25.4	25.4
UG2 Reef	Measured	38.1	40.8	3.85	3.85	147	157	4.7	5.1
	Indicated	70.9	68.3	3.97	3.97	281	271	9.0	8.7
	Measured and Indicated	109.0	109.1	3.93	3.92	428	428	13.8	13.8
	Inferred	124.0	124.0	4.02	4.02	499	499	16.0	16.0
	Total	233.0	233.1	3.98	3.98	927	927	29.8	29.8
Unki (100%)									
MSZ	Measured	6.1	6.7	4.12	4.11	25	27	0.8	0.9
	Indicated	114.6	114.5	4.33	4.33	496	496	16.0	15.9
	Measured and Indicated	120.8	121.2	4.32	4.32	521	523	16.8	16.8
	Inferred	31.8	31.7	4.04	4.04	128	128	4.1	4.1
	Total	152.5	152.8	4.26	4.26	649	651	20.9	20.9
Twickenham (100%)									
Merensky Reef	Measured	48.4	48.4	4.75	4.75	230	230	7.4	7.4
	Indicated	87.3	87.3	4.97	4.97	434	434	14.0	14.0
	Measured and Indicated	135.7	135.7	4.89	4.89	664	664	21.3	21.3
	Inferred	165.7	165.7	5.26	5.26	872	872	28.0	28.0
	Total	301.4	301.4	5.09	5.09	1,536	1,536	49.4	49.4
UG2 Reef	Measured	54.6	54.6	6.29	6.29	344	344	11.1	11.1
	Indicated	145.4	145.4	6.05	6.05	879	879	28.3	28.3
	Measured and Indicated	200.0	200.0	6.12	6.12	1,223	1,223	39.3	39.3
	Inferred	148.2	148.2	5.88	5.88	871	871	28.0	28.0
	Total	348.2	348.2	6.02	6.02	2,094	2,094	67.3	67.3
Siphumelele 3 (100%)									
UG2 Reef	Measured	4.8	5.0	3.17	3.18	15	16	0.5	0.5
	Indicated	—	—	—	—	—	—	—	—
	Measured and Indicated	4.8	5.0	3.17	3.18	15	16	0.5	0.5
	Inferred	—	—	—	—	—	—	—	—
	Total	4.8	5.0	3.17	3.18	15	16	0.5	0.5

Summary exclusive Mineral Resource estimates continued

		Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
Mine	Classification	2022	2021	2022	2021	2022	2021	2022	2021
Modikwa (50%)									
Merensky Reef	Measured	18.3	20.7	3.15	3.16	58	65	1.9	2.1
	Indicated	51.2	53.8	2.86	2.90	146	156	4.7	5.0
	Measured and Indicated	69.5	74.6	2.94	2.97	204	221	6.6	7.1
	Inferred	128.5	139.3	2.82	2.84	362	396	11.6	12.7
	Total	197.9	213.9	2.86	2.89	566	617	18.2	19.8
UG2 Reef									
	Measured	47.0	47.0	5.88	5.88	276	276	8.9	8.9
	Indicated	89.5	89.5	5.90	5.90	528	528	17.0	17.0
	Measured and Indicated	136.6	136.6	5.89	5.89	804	804	25.9	25.9
	Inferred	78.1	78.1	6.21	6.21	485	485	15.6	15.6
	Total	214.6	214.6	6.01	6.01	1,289	1,289	41.5	41.5
Kroondal (50%)									
UG2 Reef	Measured	1.1	1.1	2.99	3.01	3	3	0.1	0.1
	Indicated	—	—	—	—	—	—	—	—
	Measured and Indicated	1.1	1.1	2.99	3.01	3	3	0.1	0.1
	Inferred	—	—	—	—	—	—	—	—
	Total	1.1	1.1	2.99	3.01	3	3	0.1	0.1
Marikana (50%)									
UG2 Reef	Measured	25.1	25.4	3.45	3.44	87	87	2.8	2.8
	Indicated	9.4	9.5	3.84	3.84	36	36	1.2	1.2
	Measured and Indicated	34.5	34.8	3.56	3.55	123	123	3.9	4.0
	Inferred	4.9	4.9	2.95	2.95	15	15	0.5	0.5
	Total	39.5	39.8	3.48	3.48	138	138	4.4	4.4
South Africa									
Merensky Reef	Measured	140.7	235.9	5.01	4.92	706	1,160	22.7	37.3
	Indicated	254.2	304.7	4.91	4.89	1,247	1,489	40.1	47.9
	Measured and Indicated	394.9	540.6	4.95	4.90	1,953	2,649	62.8	85.2
	Inferred	425.3	642.0	4.60	4.71	1,957	3,024	62.9	97.2
	Total	820.2	1,182.6	4.77	4.80	3,910	5,673	125.7	182.4
UG2 Reef	Measured	269.6	472.1	5.19	5.70	1,399	2,690	45.0	86.5
	Indicated	411.0	500.7	5.50	5.70	2,257	2,853	72.6	91.8
	Measured and Indicated	680.6	972.8	5.38	5.70	3,656	5,543	117.6	178.3
	Inferred	411.7	586.4	5.33	5.74	2,192	3,365	70.5	108.2
	Total	1,092.3	1,559.2	5.36	5.72	5,848	8,908	188.1	286.5

Mineral Resources process summary continued

Summary exclusive Mineral Resource estimates continued

Reef	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
Platreef*	Measured	189.1	210.6	2.19	2.21	413	466	13.3	15.0
	Indicated	1,476.3	1,517.4	2.30	2.29	3,401	3,475	109.3	111.7
	Measured and Indicated	1,665.4	1,728.0	2.29	2.28	3,814	3,941	122.6	126.7
	Inferred	423.8	425.3	2.18	1.75	924	745	29.7	23.9
	Total	2,089.2	2,153.4	2.27	2.18	4,738	4,686	152.3	150.6
South Africa									
Merensky, UG2, Platreef	Measured	599.4	918.6	4.20	4.70	2,518	4,316	80.9	138.8
	Indicated	2,141.5	2,322.8	3.23	3.37	6,905	7,817	222.1	251.4
	Measured and Indicated	2,741.0	3,241.5	3.44	3.75	9,423	12,133	303.0	390.2
	Inferred	1,260.8	1,653.8	4.02	4.31	5,073	7,134	163.1	229.3
	Total	4,001.8	4,895.2	3.63	3.94	14,496	19,267	466.1	619.5
Zimbabwe									
Main Sulphide Zone (MSZ)	Measured	6.1	6.7	4.12	4.11	25	27	0.8	0.9
	Indicated	114.6	114.5	4.33	4.33	496	496	16.0	15.9
	Measured and Indicated	120.8	121.2	4.32	4.32	521	523	16.8	16.8
	Inferred	31.8	31.7	4.04	4.04	128	128	4.1	4.1
	Total	152.5	152.8	4.26	4.26	649	651	20.9	20.9
South Africa and Zimbabwe									
All reefs: Merensky, UG2, Platreef, MSZ	Measured	605.6	925.3	4.20	4.70	2,543	4,343	81.8	139.7
	Indicated	2,256.2	2,437.3	3.28	3.41	7,401	8,313	238.0	267.3
	Measured and Indicated	2,861.7	3,362.6	3.48	3.77	9,944	12,656	319.8	407.0
	Inferred	1,292.5	1,685.4	4.02	4.31	5,201	7,262	167.2	233.4
	Total**	4,154.3	5,048.0	3.65	3.95	15,145	19,918	487.0	640.5

* For Platreef open pit Mineral Resources a cut-off grade of 1.00 4E g/t is applied and for Platreef underground Mineral Resources a cut-off grade of 1.30 4E g/t is applied except for calc-silicate and oxidised material where a cut-off grade of 3.00 4E g/t is applied.

** The significant decrease in exclusive Mineral Resources is primarily due to the sale of Bokoni mine.
Due to the uncertainty that may be attached to some Inferred Mineral Resources, it cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated or Measured Mineral Resource after continued exploration.

Ore Reserves process summary

Managed operations

as at 31 December 2022

Life-of-asset planning

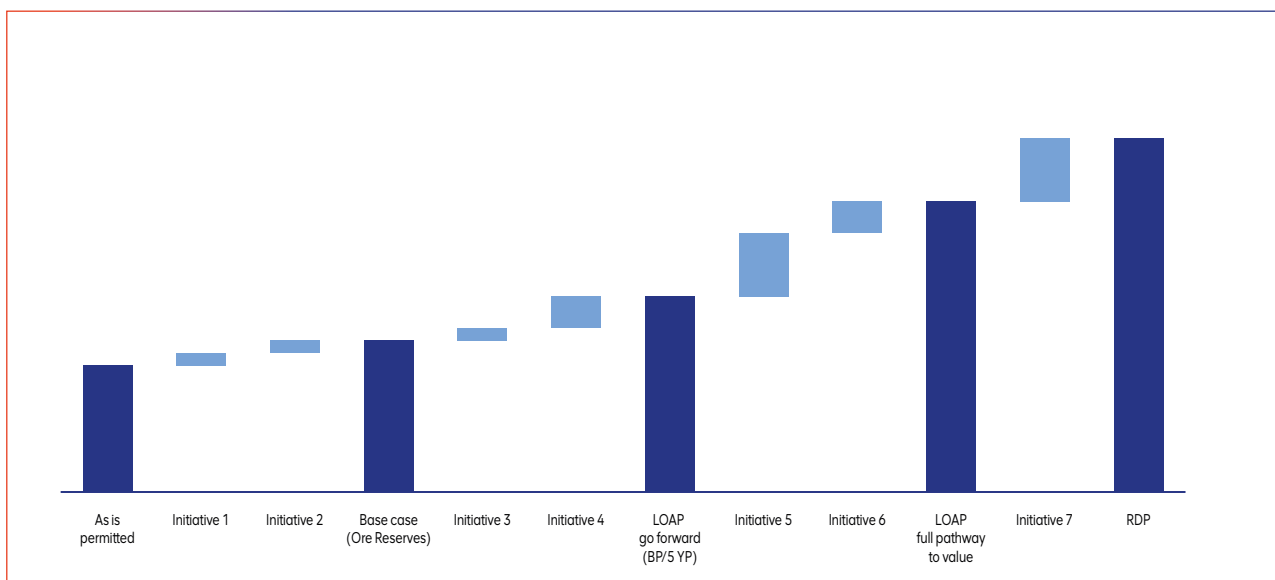
We optimise the responsible extraction of Mineral Resources within the portfolio for the benefit of all our stakeholders by embracing the principles of sustainable mining plan, incorporating FutureSmart Mining and applying value-based approaches. Integrated planning covers the process from resource development plans (RDPs) through to the life-of-asset plans (LOAPs) culminating in the budget plan and the declared Ore Reserves.

While the RDP sets the strategic direction for the mine, the LOAP defines the implementation pathway for the various initiatives included in the planning process. An array of plans are built from the ‘as is permitted’ plan which considers only the approved permits. The ‘base case’ is the declared Ore Reserves including production from current mining areas and initiatives such as projects in execution and projects which have advanced to a feasibility study within the year of declaration. There is a reasonable expectation of approvals for any legislative requirements in the ‘base case’.

The ‘LOAP go-forward’ and ‘full pathway to value’ cases build on the ‘base case’ and indicate the pathway to value by introducing new technologies, projects in prefeasibility or scoping study phases and other initiatives where the inputs do not yet have the required confidence and require more technical studies to increase the confidence before inclusion into the Ore Reserves. These plans provide guidance to the budget plan created on an annual basis for each mine.

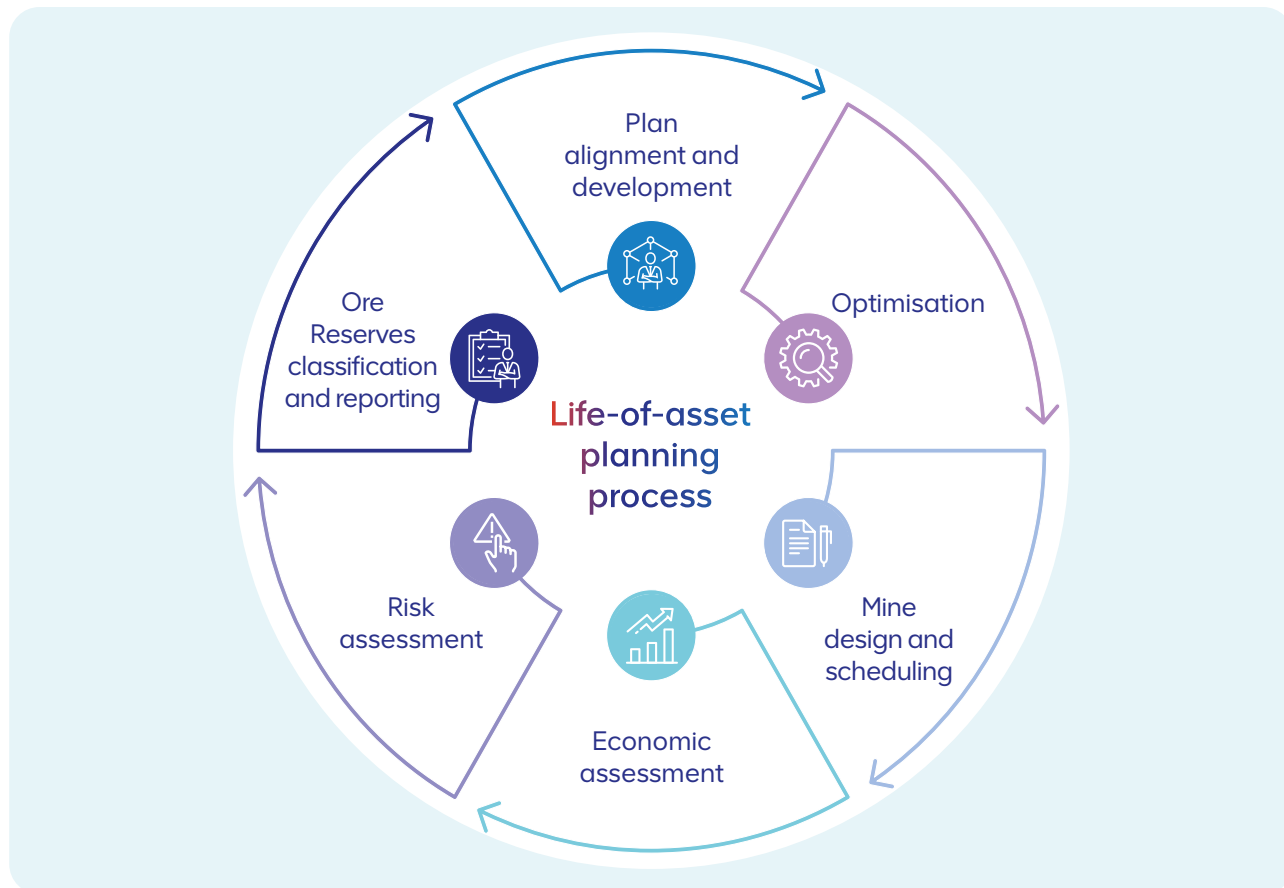
The declared Ore Reserves for the year includes the ‘base case’ updated with the current year’s production and the initiatives which meet the reporting requirements. This profile updates the ‘base case’ from the last reporting cycle. The declared Ore Reserves reflect the anticipated tonnage and grades delivered to the processing plant.

Illustrated life-of-asset planning pathway



Ore Reserves process summary continued

Life-of-asset planning process



Plan alignment and development

The planning process starts by defining the terms of reference and collating the input parameters for consideration in the development of the plan. The Modifying Factors that are included in the preparation of the mine plan include mining, geotechnical, processing and recovery, financial, legal, marketing, infrastructure; and environmental, social and governance (ESG) considerations. These inputs are collated from, and reconciled with, the recent performance and benchmarked against improvement potential. Once agreed upon they are signed off and accepted for application in the mine plan.



Optimisation

Based on inputs collated and discussions by the technical specialists, mine optimisation studies are undertaken to define the economically extractable areas, seeking to optimise net present value (NPV) while incorporating the ESG targets and commitments, and addressing any previously highlighted risks.

The principles of value-based planning are utilised to delineate the highest value-accretive ore. This process takes account of revenue streams for all the metals/minerals and products, throughput and bottleneck constraints, as well as the costs over time. A destination for each block within the mine plan is defined to either crushing/milling, stockpile for later treatment or waste, enabling mining to deliver the most value-accretive ore for processing at any point in time of the LOAP.

Optimisation for open pit operations delivers the most value-accretive sequence of mining and processing from the ultimate pit shell. The optimisation delivers the best product mix to comply with the marketing requirements for the commodity being mined. Optimisation for underground operations delivers the most value-accretive sequence of mining and processing from each area associated with the defined boundaries installed infrastructure or project.



Mine design and scheduling

The mine design considers the agreed inputs for the mining method to create a layout which can be scheduled to produce a mining plan. These inputs include, but not limited to, geological losses, geotechnical parameters, access methodologies, ventilation, equipment type, processing facilities, environmental restrictions and permits.

The schedule incorporates the Modifying Factors for discounting factors (known and unknown), mining losses, processing parameters such as throughput capacity, recoveries, mass pull and blending strategies, as well as losses and dilutions that result in a mining sequence. This sequence is tested for operability to ensure the plan can be delivered as scheduled.



Economic assessment

The resultant schedule is assessed for economic viability – first by applying the global economic assumptions for price, exchange rates and inflation to define the revenue from all of the product streams and second, by applying the costs to the schedule to determine expenditure. Costs include mining, processing, indirect costs, overheads and stay-in-business capital.

Once the cash flow has been analysed, material that is uneconomic at the end of life of the asset is removed from the production profile. This material, known as the ‘uneconomic tail’, reverts to Mineral Resources to be considered in subsequent planning processes.



Risk assessment

The effective management of risk is fundamental to living up to our purpose and delivering our strategy. By understanding, prioritising and managing risk, we safeguard our people, our assets, our values and reputation, the environment, and identify opportunities to best serve the long-term interest of all our stakeholders.

Once the plan has been completed, a multi-disciplinary team comprising the technical, financial and ESG specialists involved in the planning process assess the risk of delivery of the plan and create an integrated schedule of the actions required to deliver the plan. These actions cover the entire value chain from permitting to mine closure. The action plan is subsequently included in the budget and monitored for ongoing delivery of the LOAP.



Ore Reserves classification and reporting

Material in the mine plan defined as Ore Reserves is above the economic cut-off value, depending on technical, financial and ESG considerations, and includes in situ and stockpiled material. On completion of a viable mine plan, having applied the Modifying Factors and economics as mentioned, the classification of Ore Reserves is guided by:

- Measured Mineral Resources contained in the economically viable plan are converted to Proved or Probable Ore Reserves; Indicated Mineral Resources are converted to Probable Ore Reserves
- Inferred Mineral Resources in the LOAP are not converted to Ore Reserves and should not represent more than 10% of the material considered in the first 15 years of the life-of-asset period
- For a capital project to be included in the Ore Reserves, the project must have passed a pre-feasibility level of study, meet the economic criteria as set by the company and have board approval and funding to proceed to a feasibility study
- The scheduled Ore Reserves are peer reviewed and signed off by the Competent Person for public reporting.

The LOAP used to define the Ore Reserves is updated on a two-to-three-year cycle depending on the mine. In the intervening years, the Ore Reserves are declared by depletion which takes annual production and a forecast adjustment for the previous year's mining into account. In the years when Ore Reserves are reported by depletion a validation assessment is done to verify that the budget has not significantly deviated from the last LOAP, from either a production, revenue or cost perspective. An update to the LOAP is requested where deviations have occurred and are deemed to be significant.

We continue to use a three-stage reconciliation of year-on-year changes as well as a consistent and auditable process for tracking and reconciling year-on-year movements in Ore Reserves. The first stage is a spatial reconciliation that defines the impact of boundary changes, face-position adjustments, mine-design changes, as well as areas that are no longer economically viable for current price forecasts. The second stage of the reconciliation defines changes due to updated Mineral Resource models which incorporated new drilling and sampling data. The final stage defines changes in the Modifying Factors being applied to mine design to produce the production profile.

Ore Reserves process summary continued

Summary Ore Reserve estimates

The estimates below are reported on a 100% basis and the attributable interest is noted in the tables. Tonnes or contained metal values reported as 0.0 represent estimates less than 0.05.

Mine	Life-of-asset*	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
Mogalakwena (100%)	75									
Platreef open pit		Proved	820.5	833.2	2.91	2.90	2,388	2,416	76.7	77.8
		Probable	332.4	334.8	3.34	3.34	1,110	1,118	35.7	35.9
		Total	1,152.9	1,168.0	3.03	3.03	3,498	3,534	112.4	113.7
Platreef primary stockpile		Proved	22.3	19.5	1.41	1.70	31	33	1.0	1.1
		Probable	40.9	40.9	1.47	1.47	60	60	1.9	1.9
		Total	63.2	60.3	1.45	1.54	91	93	2.9	3.0
Tumela (100%)	12									
Merensky Reef		Proved	0.1	0.1	5.74	5.74	0	0	0.0	0.0
		Probable	0.2	0.2	3.33	3.33	1	1	0.0	0.0
		Total	0.3	0.3	3.95	3.95	1	1	0.0	0.0
UG2 Reef		Proved	29.7	32.1	4.64	4.62	138	148	4.4	4.8
		Probable	0.2	0.3	3.39	3.39	1	1	0.0	0.0
		Total	29.9	32.3	4.63	4.61	139	149	4.5	4.8
Dishaba (100%)	26									
Merensky Reef		Proved	1.9	2.0	4.25	4.23	8	9	0.3	0.3
		Probable	4.1	4.1	5.82	5.83	24	24	0.8	0.8
		Total	6.0	6.2	5.33	5.30	32	33	1.0	1.1
UG2 Reef		Proved	47.2	49.7	4.37	4.37	206	217	6.6	7.0
		Probable	6.0	5.4	4.59	4.51	28	25	0.9	0.8
		Total	53.2	55.1	4.40	4.38	234	242	7.5	7.8
Total Amandelbult		Proved	78.9	83.9	4.47	4.46	352	374	11.3	12.0
		Probable	10.6	10.0	5.02	5.00	54	51	1.7	1.6
		Total	89.5	93.9	4.53	4.52	406	425	13.1	13.6
Mototolo (100%)	52									
UG2 Reef		Proved	73.3	68.6	3.38	3.56	248	244	8.0	7.9
		Probable	55.7	53.1	3.13	3.32	174	176	5.6	5.7
		Total	129.0	121.7	3.27	3.45	422	420	13.6	13.5
Unki (100%)	20									
MSZ		Proved	28.2	30.3	3.24	3.27	91	99	2.9	3.2
		Probable	23.0	22.8	3.35	3.33	77	76	2.5	2.4
		Total	51.2	53.1	3.29	3.29	168	175	5.4	5.6
Siphumelele 3 (100%)	15									
UG2 Reef		Proved	10.3	12.1	2.57	2.60	27	32	0.9	1.0
		Probable	—	—	—	—	—	—	—	—
		Total	10.3	12.1	2.57	2.60	27	32	0.9	1.0
Modikwa (50%)	26									
UG2 Reef		Proved	10.8	11.3	4.47	4.48	48	51	1.6	1.6
		Probable	28.5	29.9	4.15	4.16	118	124	3.8	4.0
		Total	39.3	41.1	4.24	4.25	166	175	5.4	5.6
Kroondal (50%)	5									
UG2 Reef		Proved	5.6	8.7	2.54	2.60	14	23	0.5	0.7
		Probable	—	—	—	—	—	—	—	—
		Total	5.6	8.7	2.54	2.60	14	23	0.5	0.7

* Anglo American Platinum uses value-based planning for the creation of the life-of-asset plans. The plans take cognisance of all technical, financial, environmental, social and governance (ESG) considerations which underpin the reasonable prospects for eventual economic extraction over a period equal to the life-of-assets.

Summary Ore Reserve estimates continued

		Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
Reef	Classification	2022	2021	2022	2021	2022	2021	2022	2021
South Africa									
Merensky Reef	Proved	2.0	2.1	4.31	4.29	8	9	0.3	0.3
	Probable	4.3	4.3	5.70	5.70	25	25	0.8	0.8
	Total	6.3	6.4	5.27	5.24	33	34	1.1	1.1
UG2 Reef	Proved	176.9	182.5	3.85	3.91	681	715	21.9	23.0
	Probable	90.6	88.6	3.55	3.68	321	326	10.3	10.5
	Total	267.5	271.1	3.75	3.84	1,002	1,041	32.2	33.4
Platreef	Proved	842.8	852.7	2.87	2.87	2,419	2,449	77.7	78.9
	Probable	373.2	375.6	3.14	3.14	1,170	1,178	37.7	37.9
	Total	1,216.0	1,228.3	2.95	2.96	3,589	3,627	115.4	116.7
South Africa									
Merensky, UG2, Platreef	Proved	1,021.7	1,037.2	3.04	3.06	3,108	3,173	99.9	102.1
	Probable	468.1	468.6	3.24	3.26	1,516	1,529	48.8	49.2
	Total	1,489.8	1,505.8	3.10	3.13	4,624	4,702	148.7	151.3
Zimbabwe									
Main Sulphide Zone (MSZ)	Proved	28.2	30.3	3.24	3.27	91	99	2.9	3.2
	Probable	23.0	22.8	3.35	3.33	77	76	2.5	2.4
	Total	51.2	53.1	3.29	3.30	168	175	5.4	5.6
South Africa and Zimbabwe									
All reefs: Merensky, UG2, Platreef, MSZ	Proved	1,049.9	1,067.5	3.05	3.06	3,199	3,272	102.8	105.3
	Probable	491.1	491.5	3.24	3.27	1,593	1,605	51.3	51.6
	Total	1,540.9	1,559.0	3.11	3.13	4,792	4,877	154.1	156.9

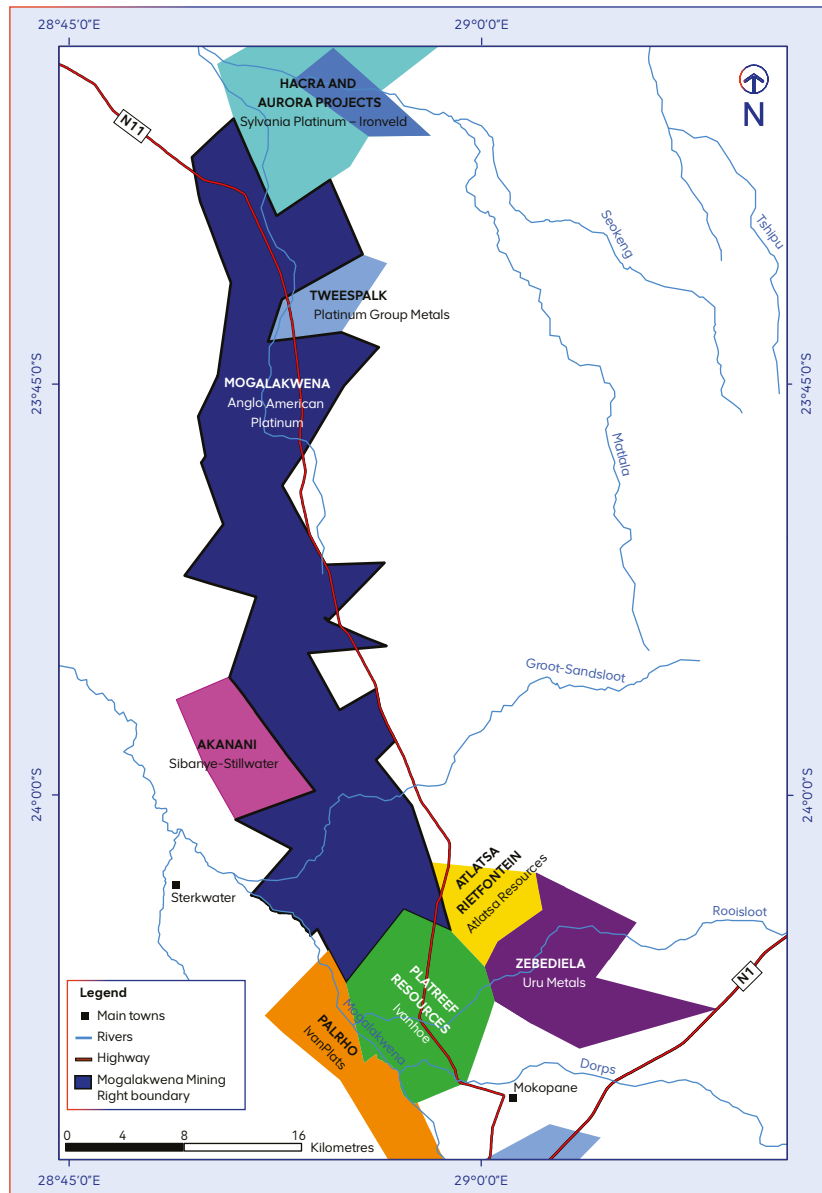
Estimates and reconciliation – managed operations

as at 31 December 2022

Mogalakwena

Anglo American Platinum
Limited interest: **100%**

Management structure:
managed



South Africa



Location

Mogalakwena Mine is located 30km north-west of the town of Mokopane in Limpopo province, South Africa. It is wholly owned and managed by Anglo American Platinum, with a consolidated Mining Right that stretches along multiple farms extending over 50 kilometres.



Property description

The mine is at steady-state production, and is positioned for optimised organic growth and to deliver maximum value. The mine is also focusing on exceeding industry benchmarks through technology and innovation. Mogalakwena Mine extracts the Platreef, the primary PGM-bearing horizon developed in the northern limb of the Bushveld Complex.

Competence

Phuthela Myeni

Competent Person:

Mineral Resources

Role:

Resource estimation specialist

Relevant qualifications:

BSc (hons) (geology)

Professional organisation:

SACNASP, PrSciNat (400012/15)

Relevant experience:

14 years

Marlon van Heerden

Competent Person:

Ore Reserves

Role:

Principal Ore Reserves - platinum

Relevant qualifications:

BTech (mining engineering)

Professional organisation:

SAIMM, member (704211)

Relevant experience:

15 years

Brief history

The earliest recorded prospecting activity commenced on the farms Tweefontein and Sandsloot in 1926. Trenching, drilling and bulk sampling preceded the start of mining activities on the Zwartfontein, Sandsloot and Vaalkop farms. This was accompanied by construction and commissioning of the beneficiation plant.

Mining and production halted following the Great Depression of 1929, with activity on the tenement only resuming in 1968, by Johannesburg Consolidated Investments (JCI), the predecessor entity of Anglo American Platinum. Between 1968 and 1989, building on a comprehensive field mapping and sampling programme, significant volumes of exploration drilling was completed along the strike extent on the northern limb. The results of this exploration allowed for effective target assessment, and vectored focus on the originally identified properties of Sandsloot, Tweefontein, Vaalkop, along with Overysel immediately to the north.

In the late 1980s and early 1990s, evaluation activities which included bulk sampling and underground trial mining were undertaken. The outcome of these activities became key drivers in adopting a high-tonnage, low-grade extractive method of the extraordinarily thick and variable Platreef orebody. Bulk open pit was selected as the preferred mining method, with primary production beginning at Sandsloot in 1992. This was followed by extensive exploration programmes and development of the Zwartfontein pit in the early 2000s. This expansion continued with exploitation of Central and North pits in 2006 and 2008 respectively, now the primary mining areas of Mogalakwena.

In 2019, Anglo American Platinum and Atlatsa Resources completed the acquisition and inclusion of the mineral endowment specified in the Central Block and Kwanda North Prospecting Rights into Mogalakwena Mining Right. The Central Block and Kwanda North areas have not been classified as Mineral Resources while further exploration and evaluation work is underway and therefore are not part of the 2022 Mogalakwena reported Mineral Resource estimate.

Further exploration and the completion of a scoping study in the Sandsloot area has resulted in the maiden declaration of underground Mineral Resources in 2022.

Mineral Rights

The Mogalakwena Mining Right covers an area of 37,211 ha. (including the Central Block and Kwanda North Mineral Rights). Anglo American Platinum holds a converted Mining Right under the Department of Mineral Resources and Energy (DMRE) reference LP 50 MR, valid from July 2010 to July 2040.

There are no known impediments to the Mining Right.

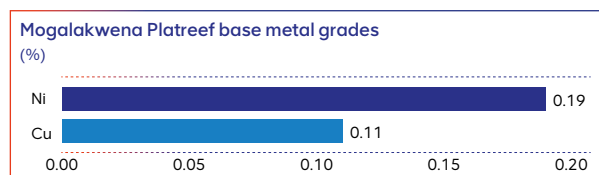
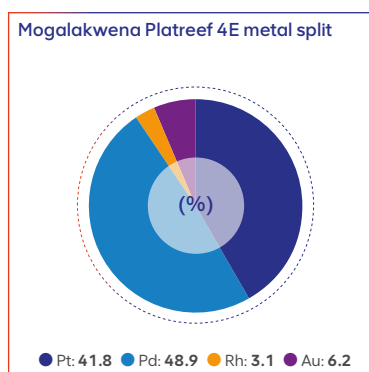
Brief geological description

The Platreef orebody occurs in the northern limb of the Bushveld Complex. In broad terms, the orebody can be described as a multiple-pulse mafic magmatic horizon, dominated by pyroxene-rich rock type, overlain by Main Zone gabbronorites. It is underlain by a succession of sedimentary units of the Transvaal Supergroup ranging from shales and banded ironstones in the south, to dolomites in the centre onlapping onto Archaean basement granites and gneisses in the northern parts. The interaction between the Platreef and the footwall lithologies has resulted in an array of hybrid lithologies observed throughout the northern limb and is locally typified by extensive assimilation of Transvaal Supergroup sedimentary footwall fragments, known as xenoliths and the generation of the granofelsic interaction horizon along the bottom contact in the north.

The Platreef strikes north north-west/south south-east across the length of the Mogalakwena Mineral Right area, dipping at an average angle of 40° to 50° to the west with local flattening occurring. Within the mining complex, the Platreef is structurally affected by dolerite dykes ranging between 5m and 40m in width and several predominantly lateral fault systems such as the Drenthe, Mohlosane, NM and Pit fault systems, orientated in a north-east/south-west direction, dipping between 60° and 85° towards the south-east.

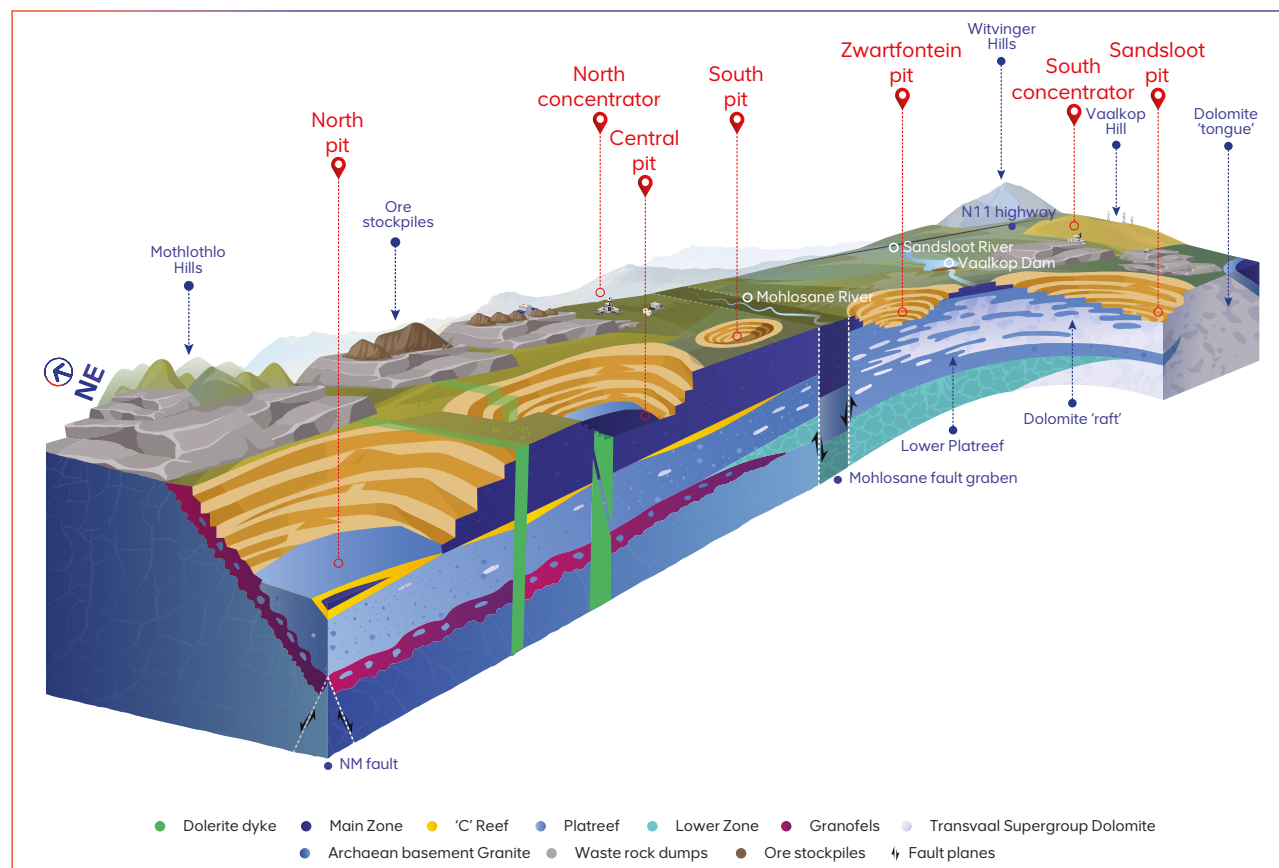
The fault systems display normal to reverse fault displacements ranging between 50m and 600m, with the up-thrown blocks proving favourable to mine design. The dykes and Platreef adjacent to major fault systems constitute areas of no mineralisation and are discounted as geological loss zones. The Platreef hosts significant dolomite inclusions in the southern region of the mining area and these also constitute geological loss zones.

 For a description of the Mineral Resources estimation and classification process see [pages 22-24](#) of this report.



Mogalakwena (100%) continued

Schematic diagram of the Bushveld Complex at Mogalakwena (northern limb)



Schematic drawing compiled by James Winch (Mogalakwena geology team), not to scale

Reasonable prospects of eventual economic extraction

The following factors are considered when determining reasonable prospects of eventual economic extraction of the declared Mineral Resources:

- Legal: Mogalakwena adheres to regulatory requirements and has requisite permits and licences to explore and mine.
- Environmental, social and governance: The sustainable mining plan framework considers the local communities, the environment and land use as well as current legislation as inputs when determining RPEEE.
- Geology: The latest updated geological and Mineral Resource models underpin the RPEEE considerations applied in the context of Mineral Resources declaration.
- Mining method: The RPEEE considerations for the open pit Mineral Resources are based on the current open pit mining method which has been used for an extended period to economically exploit the orebody. Underground Mineral Resources are based on hybrid open-stope mine designs supported by the scoping study showing long-term economic viability.
- Metallurgical: Sufficient geometallurgical and mineralogical test work has been carried out for the Platereef and recovery potentials are considered. The mine has sufficient metallurgical data to predict recovery potential. Material is currently processed on- and off-mine.

- Economics: Open pit Mineral Resources are reported at 1.00 4E g/t grade cut-off. The Mineral Resources reporting is confined within a factored revenue pit-shell, using the latest pit optimisation revenue factor shells based on the calculated corresponding 1.5 revenue factor basket metal prices. Underground Mineral Resources are reported at a 1.30 4E g/t grade cut-off based on long-term economic and metal price assumptions and confined to the scoping study target area.

The parameter inputs are based on stable, long-term economic assumptions, metal prices and exchange rates catering for historical, actual and forecast metal prices, as well as current future forecast metal prices. The parameter inputs are typically assessed once every three years and only Platereef Mineralisation within the factored shell and underground scoping study mining limits is deemed to fulfil reasonable prospects of eventual economic extraction requirements to be reported as Mineral Resource estimates.

- Other factors such as market assessments and infrastructure requirements are adequately assessed in various levels of technical studies and within the mine plan.

	Units	Platreef open pit	Platreef underground
Mineral Resource assumptions			
Grade cut-off 4E	4E g/t	1.0	1.3
Average density	g/cm ³	3.1	3.2
Ore Reserve Modifying Factors			
Mining dilution	%	6.2	–
Stripping ratio		6.6	–
4E concentrator	%	77 – 82	–
Mine call factor	%	100	–

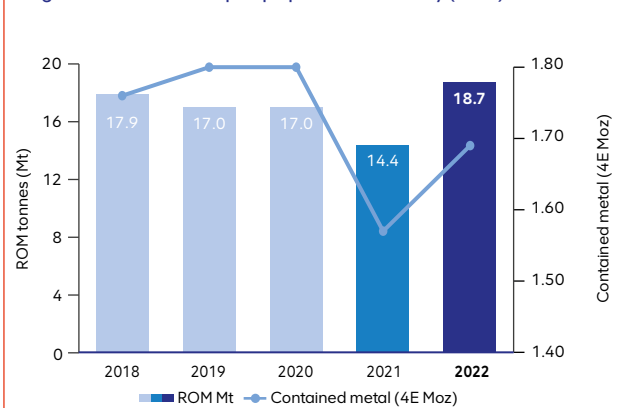
Mining method and operational infrastructure

The current mining of the orebody is by open pit methods whereby material is extracted in vertical benches to create a large open excavation. Benches are mined from top to bottom and are accessed by means of haul roads in the hanging and footwall to connect multiple benches to surface entry and exit points. Open pit mining is the most widely used surface mining method used to extract minerals relatively close to surface by means of drilling, blasting, loading-and-hauling. Material is moved by means of truck-and-shovel to the processing plants, stockpiles, and waste rock dumps along a network of constructed surface roadways. The walls of the open pit excavation are mined at the maximum allowable slope angle achievable within the specified geotechnical constraints, and berm-offsets are created between benches to reduce the potential risk of rock falls along the overall slope. The final shape of the excavation is determined by the overall economics of the extraction process and is generally subdivided into three-dimensional phases expanding the open pit to maximise the potential net present value of the mine within specified constraints.

Current mining areas comprise five open pits: Sandsloot, Zwartfontein, Mogalakwena South, North and Central. Pit depths vary from 30m to 280m. Ore is milled on-mine at the North and South concentrators as well as at Baobab concentrator which is located approximately 90km offsite.

For a description of the Ore Reserves estimation and classification process see **pages 29–31** of this report.

Mogalakwena Platreef open pit production history (ROM)

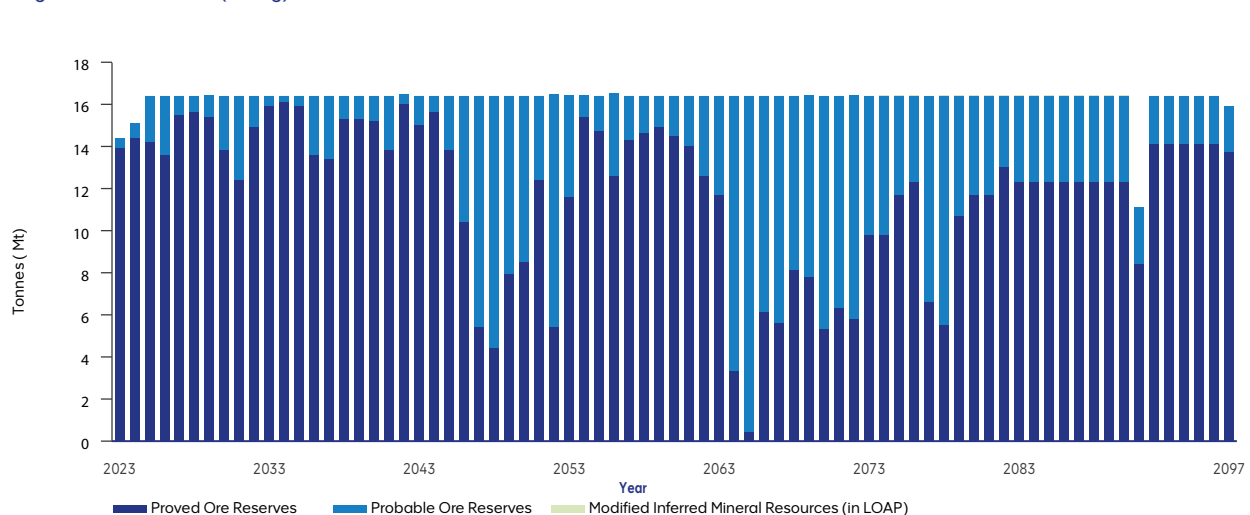


For additional details on the 2022 production information see the operations review section, **pages 104–106** of the *Integrated report*

Mogalakwena life-of-asset profile

The life-of-asset schedule for Mogalakwena indicates the current Platreef open pit production planned in the approved life-of-asset plan and includes the projects that have passed the necessary approvals that underpin the Ore Reserve declaration. The anticipated mining is for 75 years and exceeds the current Mining Right expiry date of 2040 (Reserve life of 18 years). An application to extend the Mining Right will be submitted at the appropriate time and there is reasonable expectation that such an extension will not be withheld.

Mogalakwena total ROM (milling) tonnes in LOAP



Mogalakwena (100%) continued

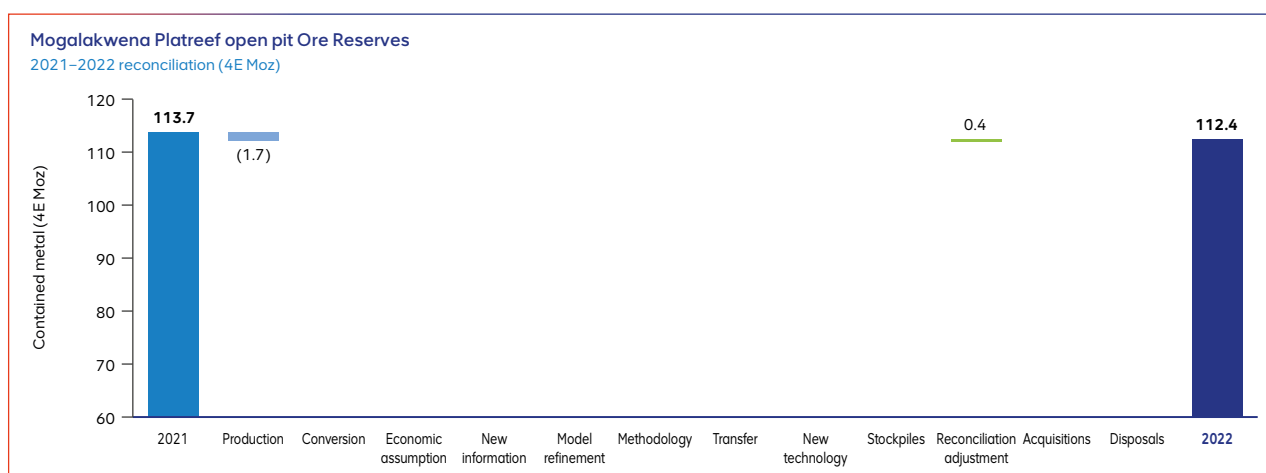
Ore Reserve estimates

Mogalakwena (100%)	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
Platreef open pit	>18	Proved	820.5	833.2	2.91	2.90	2,388	2,416	76.7	77.8
		Probable	332.4	334.8	3.34	3.34	1,110	1,118	35.7	35.9
		Total	1,152.9	1,168.0	3.03	3.03	3,498	3,534	112.4	113.7
Platreef primary stockpile*		Proved	22.3	19.5	1.41	1.70	31	33	1.0	1.1
		Probable	40.9	40.9	1.47	1.47	60	60	1.9	1.9
		Total	63.2	60.3	1.45	1.54	91	93	2.9	3.0

* The primary stockpiles are scheduled for future treatment. ROM stockpiles are reported as Proved Ore Reserves and longer-term stockpiles as Probable Ore Reserves.

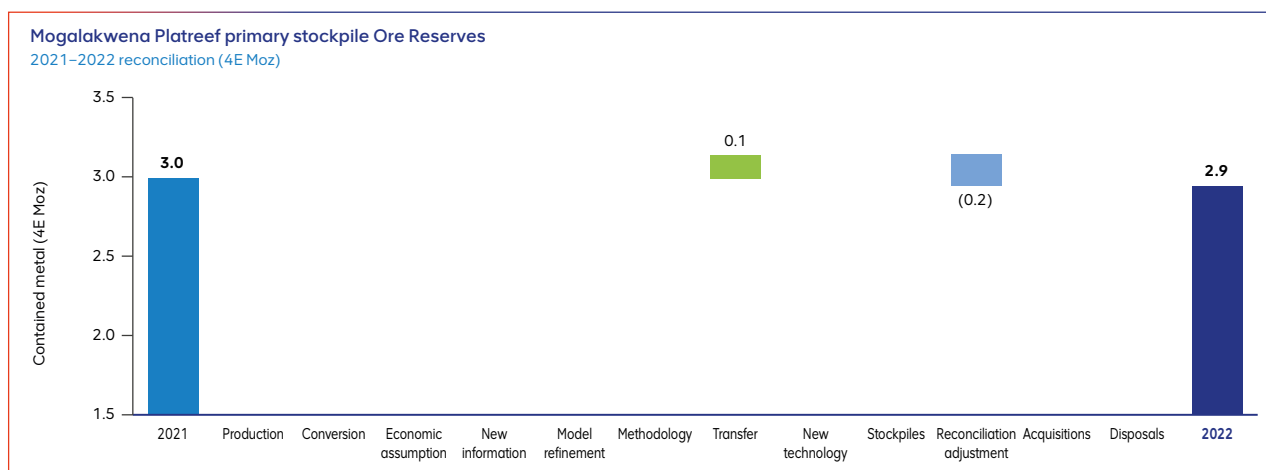
Platreef open pit Ore Reserve reconciliation

The Platreef open pit Ore Reserve 4E ounces decreased slightly due to annual production. The extent of the decrease was slightly offset by the 2021 production forecast adjustment.



Platreef primary stockpile Ore Reserve reconciliation

The Platreef primary stockpile Ore Reserve 4E ounces decreased slightly due to the 2021 production forecast adjustment and stockpile movement.



Exclusive Mineral Resource estimates

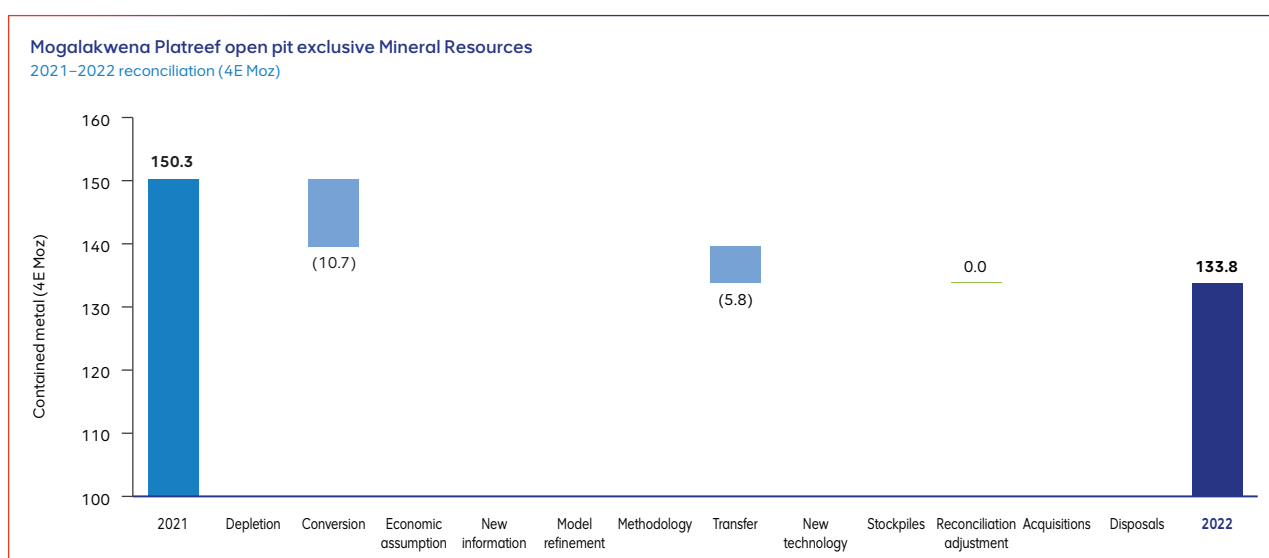
Mogalakwena* (100%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
Platreef open pit	Measured	186.3	207.8	2.17	2.19	404	455	13.0	14.6
	Indicated	1,447.9	1,517.4	2.27	2.29	3,287	3,475	105.7	111.7
	Measured and Indicated	1,634.2	1,725.3	2.26	2.28	3,691	3,930	118.7	126.4
	Inferred	288.5	425.3	1.63	1.75	471	745	15.1	23.9
	Total	1,922.7	2,150.6	2.17	2.18	4,162	4,675	133.8	150.3
Platreef underground**	Measured	—	—	—	—	—	—	—	—
	Indicated	28.5	—	4.02	—	114	—	3.7	—
	Measured and Indicated	28.5	—	4.02	—	114	—	3.7	—
	Inferred	135.3	—	3.35	—	453	—	14.6	—
	Total	163.8	—	3.47	—	567	—	18.3	—
Platreef stockpile	Measured	2.8	2.8	3.28	3.96	9	11	0.3	0.4
	Indicated	—	—	—	—	—	—	—	—
	Measured and Indicated	2.8	2.8	3.28	3.96	9	11	0.3	0.4
	Inferred	—	—	—	—	—	—	—	—
	Total	2.8	2.8	3.28	3.96	9	11	0.3	0.4

* A 1.00 4E g/t cut-off grade is used to define Platreef open pit Mineral Resources and A 1.30 4E g/t cut-off grade is used to define Platreef underground Mineral Resources (excluding oxidised and calc-silicate stockpile material for which a 3.00 4E g/t cut-off grade is applied).

** The Platreef underground Mineral Resources are declared based on a scoping study, which in turn is based on preliminary technical and economic assumptions. They include Inferred Mineral Resources which are insufficient to provide certainty that the conclusions of the scoping study will be realised.

Platreef open pit exclusive Mineral Resource reconciliation

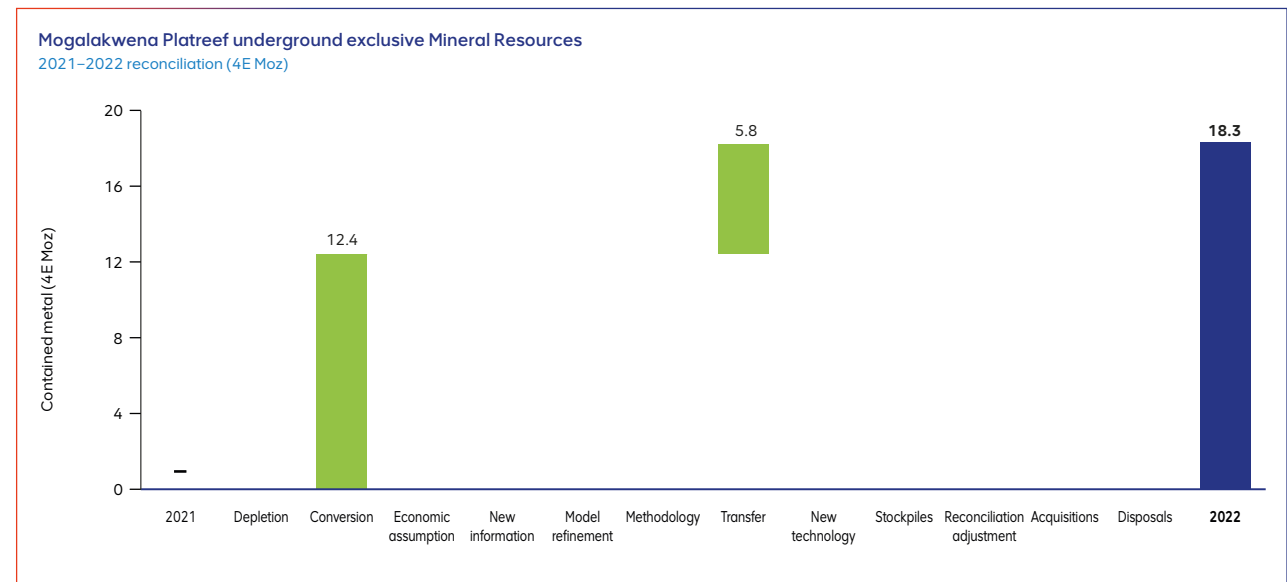
The Platreef open pit exclusive Mineral Resources 4E ounces decreased due to the reallocation of the deeper portions of Tweefontein North and Tweefontein Hill to Mineralisation following reasonable prospects of eventual economic extraction assessments. The transfer of the deeper portions of Sandsloot from open pit to underground Mineral Resources also contributed to the decrease.



Mogalakwena (100%) continued

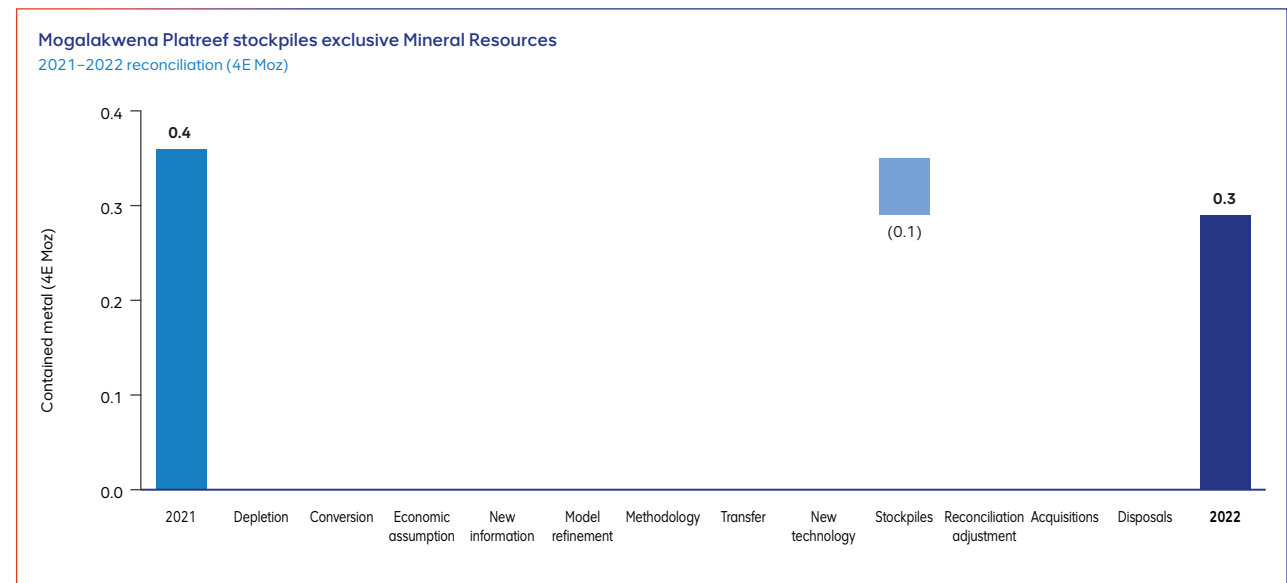
Platreef underground exclusive Mineral Resource reconciliation

The completion and approval of a scoping study in the Sandsloot area has resulted in the declaration of underground Mineral Resources. The Mineral Resource further increased due to the transfer of the deeper portions of Sandsloot from open pit to underground Mineral Resources.

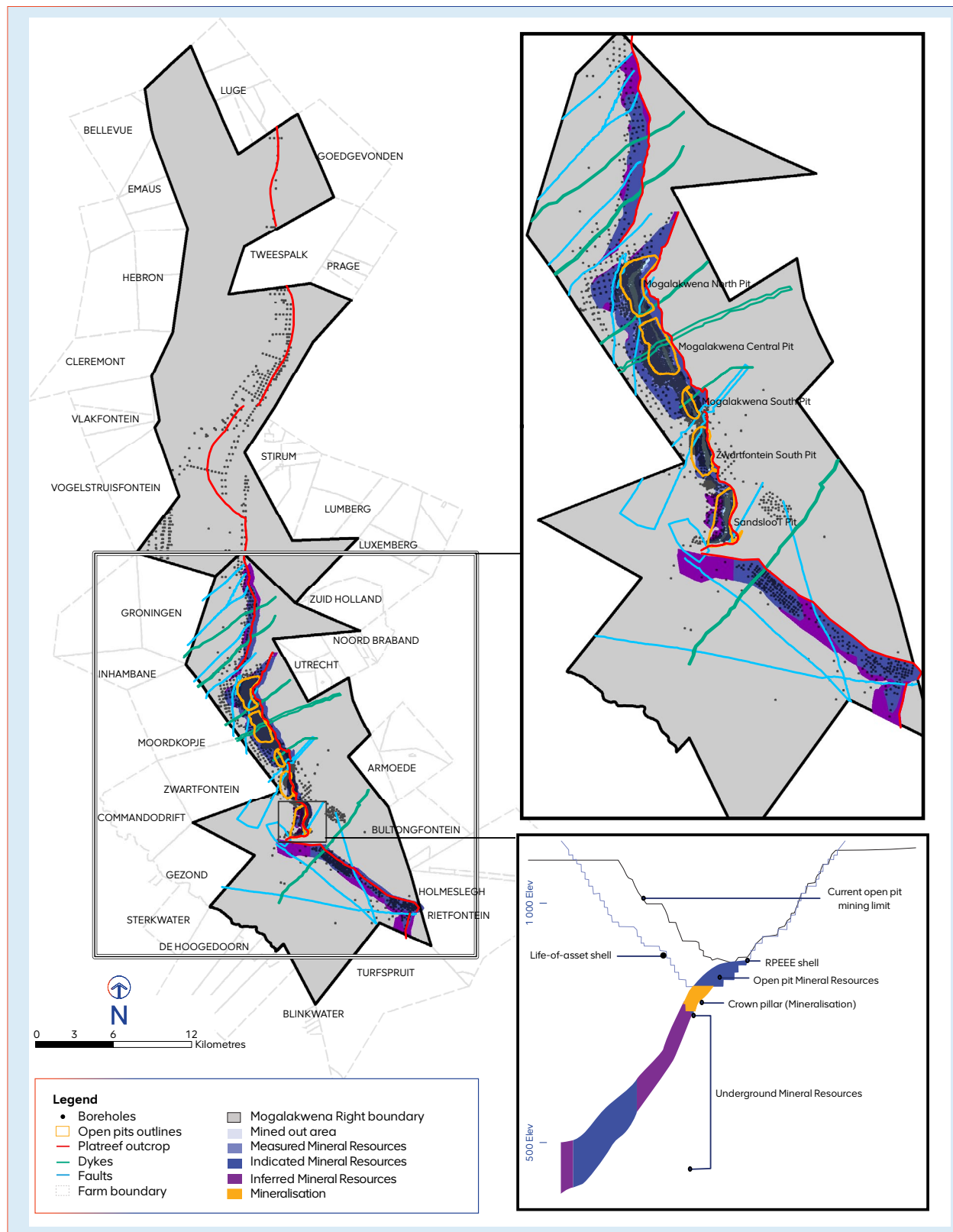


Platreef stockpile exclusive Mineral Resource reconciliation

The Platreef stockpile exclusive Mineral Resources 4E ounces decreased slightly due to minor stockpile grade adjustments.



Mogalakwena Platreef Mineral Resources classification map



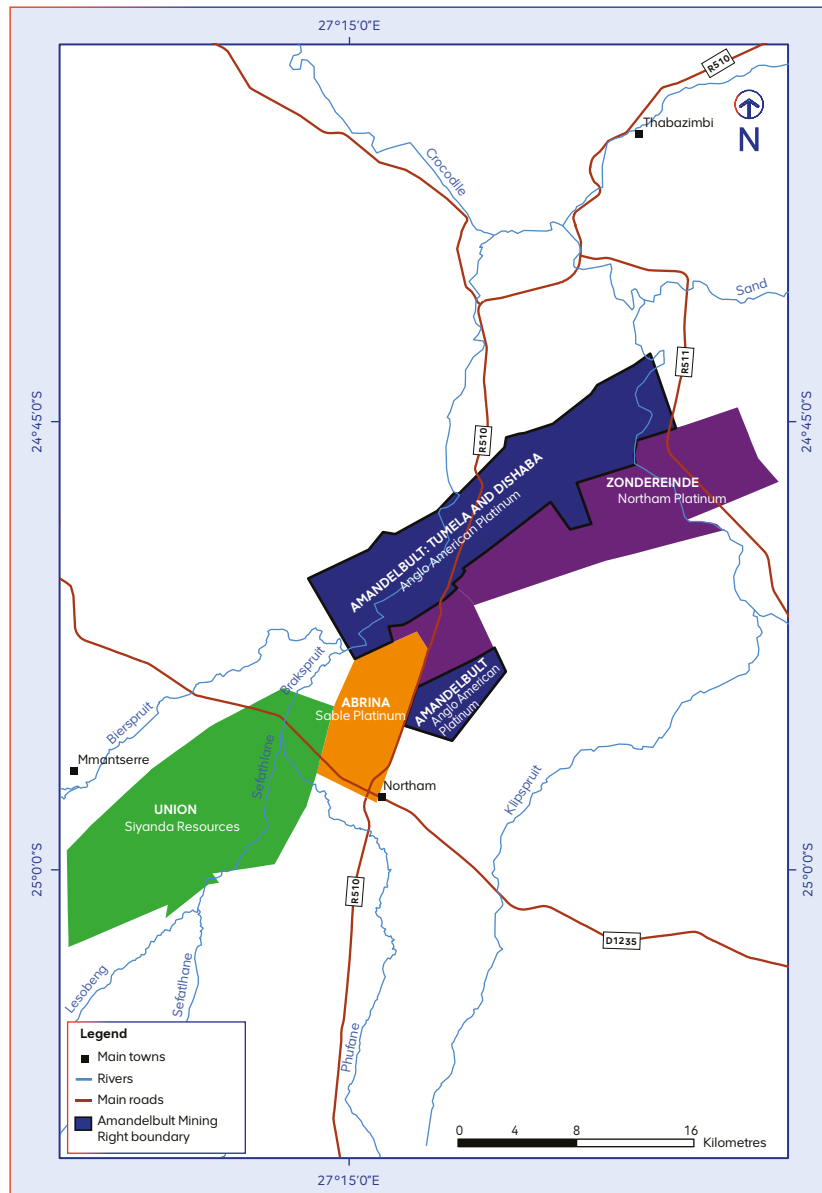
Estimates and reconciliation – managed operations

as at 31 December 2022

Amandelbult

Anglo American Platinum
Limited interest: **100%**

Management structure:
managed



Location

Amandelbult is in Limpopo, between the towns of Northam and Thabazimbi, on the north western limb of the Bushveld Complex in South Africa.



Property description

Amandelbult is wholly owned and managed by Anglo American Platinum, with two mines: Tumela and Dishaba. The mine is at a steady-state phase, with specific focus on modernisation and mechanisation. The primary reef mined is UG2 Reef, with limited mining of Merensky Reef.

Competence

Annamart Jarman

Competent Person:

Mineral Resources

Role:

Resource geologist

Relevant qualifications:

BSc (hons) (geology), MSc (mineral economics)

Professional organisation:

SACNASP, PrSciNat (400026/10)

Relevant experience:

12 years

Marlon van Heerden

Competent Person:

Ore Reserves

Role:

Principal Ore Reserves – platinum

Relevant qualifications:

BTech (mining engineering)

Professional organisation:

SAIMM, member (704211)

Relevant experience:

15 years

Brief history

Soon after the discovery of platinum in the eastern Bushveld Complex in the 1920s, attention focused on the geologically similar, but further exposed, western Bushveld Complex. The discovery of the Merensky Reef near Rustenburg in 1925 prompted exploration in other parts of the western Bushveld Complex, including the Amandelbult area. The Steelpoort Platinum Syndicate first prospected the Amandelbult section in 1926. The syndicate was acquired by Potgietersrus Platinum Limited, but the Great Depression of 1929 halted most mining operations in the Bushveld Complex and interest in the Amandelbult area waned.

Rustenburg Platinum Mines (Anglo American Platinum) acquired the Mineral Rights in the area, starting in 1964 with the farm Amandelbult and in 1974, with the acquisition of the Mineral Rights of the farm Elandskuil from Amcor. A mining lease was applied for in 1974. Mining operations at Amandelbult started on the farm Schilpadsnest but, due to lack of demand for platinum, operations were curtailed in January 1975, and only essential maintenance work was performed. With an improvement in the market, production resumed on a small scale in March 1976, building up to current production.

In 2009, Amandelbult was split into two mines, Dishaba and Tumela. Ore Reserves and Mineral Resources are reported separately. The feasibility study for a chromite recovery plant was completed and approved in 2013 and project execution commenced in 2014. Construction and commissioning were completed in 2016.

In 2016, Mineral Resources in the south-western portion of Tumela were sold to Northam Platinum. To conclude the 2016 transaction, Anglo American Platinum acquired the block of ground from Northam Platinum Limited through a section 102 transfer in 2019.

Mineral Rights

The Mining Right covers an area of 12,504ha. Anglo American Platinum holds a converted Mining Right under the DMRE reference LP 48 MR, valid from July 2010 to July 2040. A section 102 application to amend the Amandelbult Mining Right by extending the current Mining Right area to include the Northam block was approved by the DMRE and notorally executed on 25 November 2021. The regulation 29(a) NEMA (National Environment Management Act 1998) application and environmental authorisation was also approved.

There are no known impediments to the Mining Right.

Brief geological description

Amandelbult is in the north-western limb of the Bushveld Complex. In this area, the Merensky and UG2 reefs, strike north-east/south-west over approximately 22km, and dips at 16° to 30° in a south-easterly direction. The Merensky Reef has a variable thickness ranging from 1cm (contact reef facies) to greater than 140cm, over large areas. The reef comprises up to five different facies. Each facies type exhibits unique geological, geochemical and mineralisation characteristics and plays a fundamental role in geozone delineations and Mineral Resource width estimation.

The UG2 Reef occurs between 15m and 60m vertically below the Merensky Reef and also dips at 18° to 27° in a south-easterly direction. The UG2 normally comprises a 60cm to 100cm main chromitite layer overlain by up to three chromitite layers (UG2 leaders) varying in thickness from 5cm to 30cm, separated by feldspathic pyroxenite. The immediate footwall of the UG2 is usually a pegmatoidal feldspathic pyroxenite, which varies in thickness from a few centimetres up to 100cm.

The Upper Zone transgression to the west of Amandelbult (known as the northern “gap”) onto Main Zone, Critical Zone and Transvaal Supergroup floor, effects a rapid steepening of the dip toward the extreme north-eastern portion of the mining area as well as an abrupt change in the strike of the reefs in the south-western portion of the mining area. Dolerite dykes and sills of Pilanesberg and Karoo age and lamprophyre dykes occur. These trend typically north-west/south-east and their thickness varies from centimetres up to approximately 50m. Potholes of variable sizes and a range of often iron-rich ultramafic pegmatites (locally termed IRUPs) occur as well. Faults of various sizes occur throughout the lease area. The largest faults occur in the Middellaagte area, trending north-west/south-east with associated throws of up to 500m confining a 2.5km wide graben.

 For a description of the Mineral Resources estimation and classification process see [pages 22–24](#) of this report.

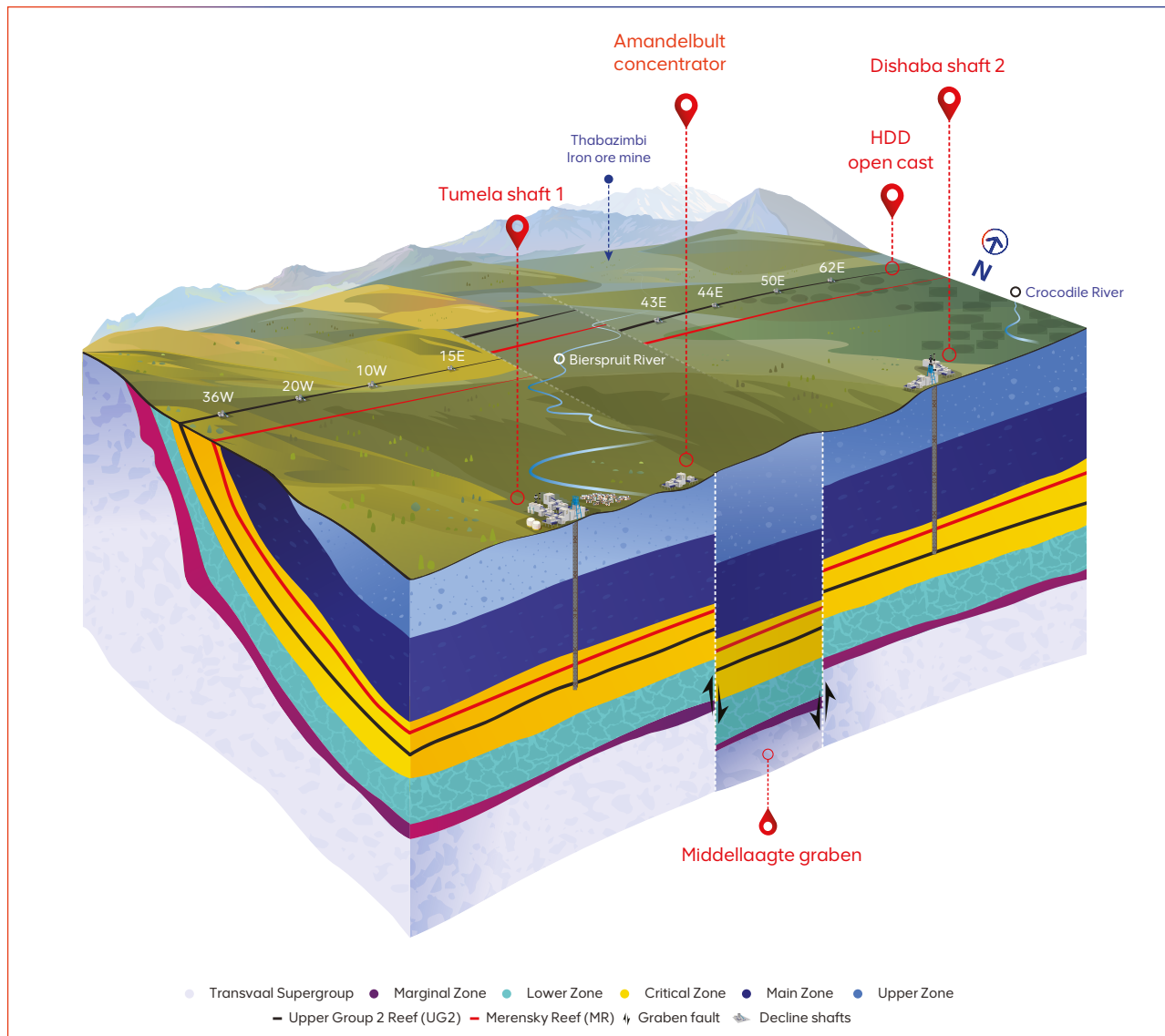
Reasonable prospects of eventual economic extraction

The following factors were considered when determining reasonable prospects of eventual economic extraction of the declared Mineral Resources:

- **Legal:** The mine adheres to all regulatory requirements and has requisite permits and licences to explore and mine.
- **Environmental, social and governance:** The sustainable mining plan framework considers the local communities, the environment and land use as well as current legislation as inputs when determining RPEEE.
- **Geology:** The latest updated geological and Mineral Resource models underpin the RPEEE considerations applied in the context of Mineral Resources declaration.
- **Mining method:** The RPEEE considerations are based on the current mining methods of underground conventional (scattered breast mining), extra-low profile (XLP) mechanisation and very minimal opencast for shallow reefs near the outcrop.
- **Metallurgical:** Sufficient geometallurgical and mineralogical test work has been carried out for reefs declared and recovery potentials considered. The mine has sufficient plant data to predict recovery potential.
- **Economics:** Using the current global assumptions (prices and costs), the current mining methods are known to be viable at depth as currently applied and when considering adjacent mining operations.
- **Technology:** Current technology is deemed to be inadequate for mining any material below the 75° isotherm line, and therefore has been excluded from the Mineral Resources declaration.
- **Other factors** such as market assessments and infrastructure requirements are adequately assessed in various levels of technical studies within the mine plan.

Amandelbult (100%) continued

Schematic diagram of the Bushveld Complex at Amandelbult (western limb)



Schematic drawing compiled by Ruddy Maakamedi (Amandelbult geology team), not to scale

Mining method and operational infrastructure

The primary mining method used at Amandelbult is scattered breast mining for both Dishaba and Tumela mines and has been in practice since the start of the mining in 1973.

Conventional scattered breast mining is preceded by haulage development below reef, in parallel to strike. Access to the reef horizon is developed by means of south or north crosscuts. On-reef true dip raises or winzes connect to cross-cuts on different levels by means of step overs and travelling ways. The ore passes are generally done by inverse drilling (from the reef horizon down to the crosscut). Modernised equipment is being rolled out on the stoping horizon to address safety and efficiency concerns, including the introduction of cycle mining, split panels utilising throw blasting and water-jet cleaning to eliminate the use of scraper winches.

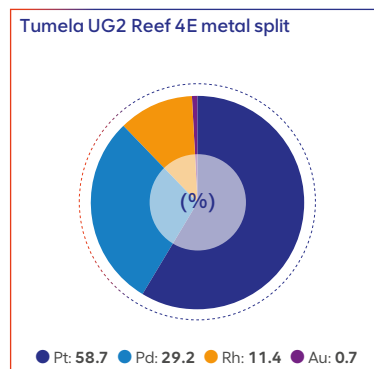
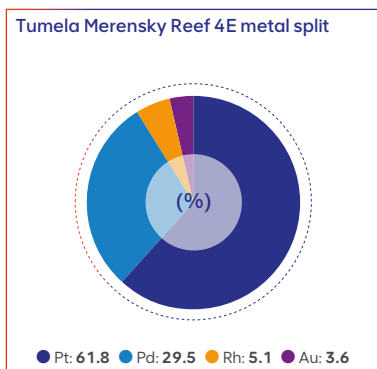
Extra-low profile (XLP) mechanised mining method is being implemented at the 15E dropdown project area since inception

in 2019. The XLP mechanised mining is an underground mining method designed to extract narrow reef orebodies (1.2m to 1.7m width) with a dip less than 22°. It maximises reef extraction by placing the primary development (main infrastructure) on reef. A constant production is planned coordinating narrow-reef equipment (NRE) and low-profile (LP) equipment to continuously feed the conveyor belt system.

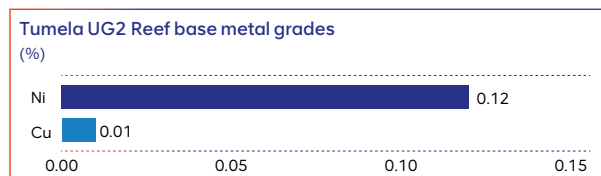
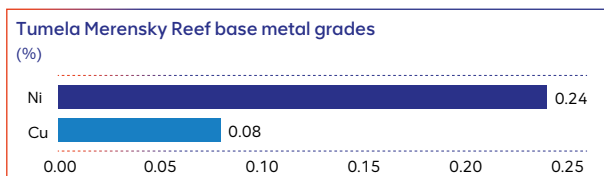
The mine has two vertical shafts at Tumela and Dishaba, three concentrators and two chromite plants. Current working infrastructure has five vertical and seven decline shaft systems to transport rock, employees and material, with mining on the Merensky and UG2 reefs horizons. The operating depth for current workings extends from surface to 1.3km below surface. At Dishaba mine, short-life, low-tonnage outcrop strip-mining supplements underground production.

For a description of the Ore Reserves estimation and classification processes see [pages 29-31](#) of this report.

Tumela mine

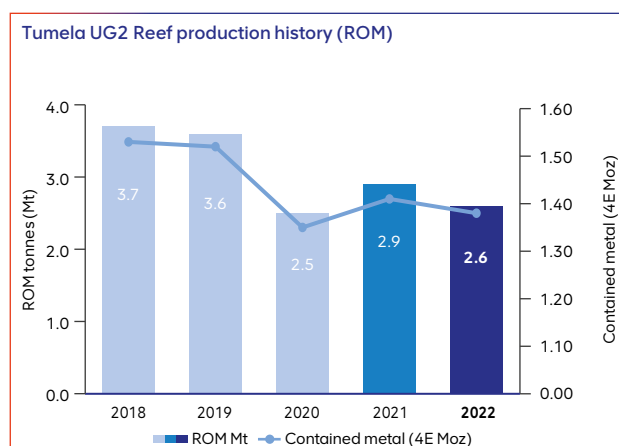
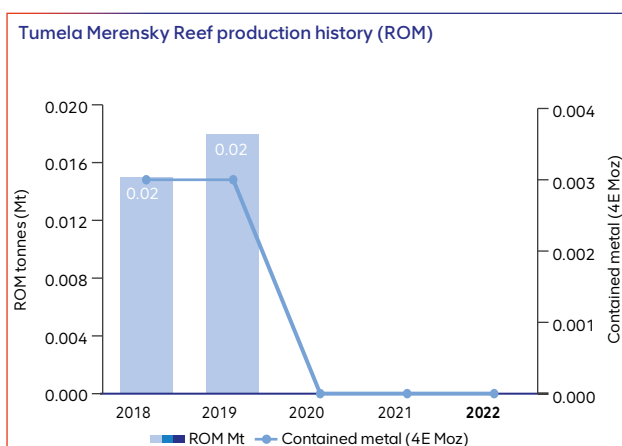


UG2 Reef chromite grade: **31.9%**



	Units	Merensky	UG2
Mineral Resource assumptions			
Average geological loss	%	35	24
Minimum resource cut width	cm	120	120
Average density	g/cm ³	3.3	4.1
Ore Reserve Modifying Factors			
Mining loss factor	%	5*	35
Mining dilution	%	15*	25
Planned stoping width	cm	153*	150
4E concentrator recoveries	%	84	85
Mine call factor	%	100	100

* Underground conventional mining methods only.

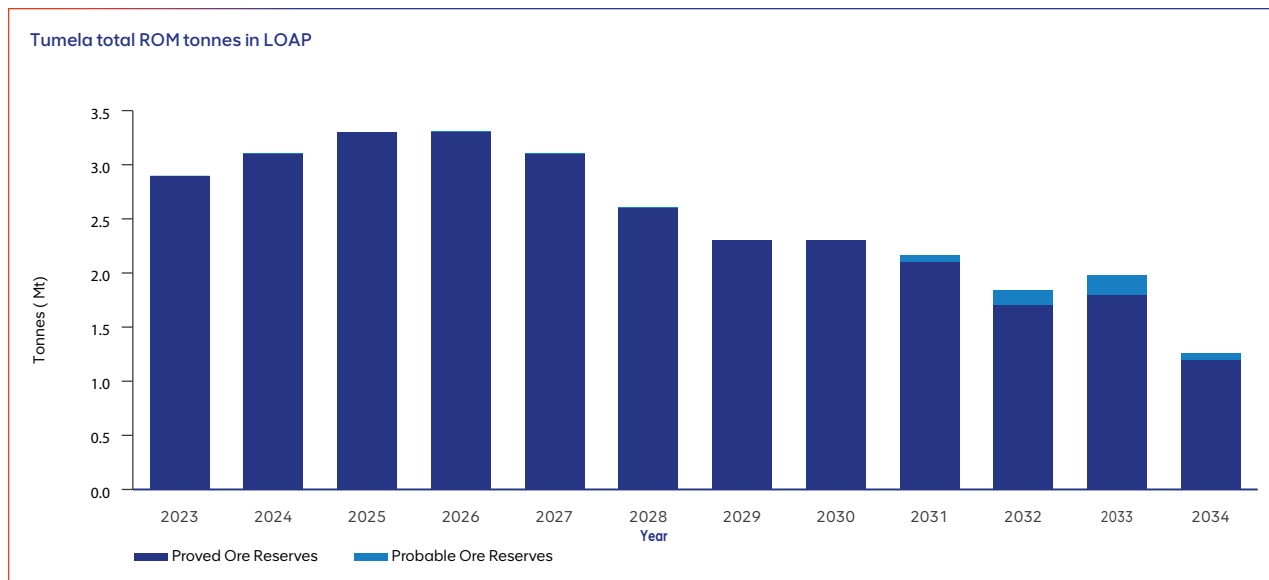


 For additional details on the 2022 production information see the operations review section, **pages 107-109** of the **Integrated report**.

Amandelbult (100%) continued

Tumela life-of-asset profile

The life-of-asset schedule for Tumela indicates the current combined reefs' production planned in the approved LOAP and includes projects that have passed the necessary approvals that underpin the Ore Reserve declaration. The anticipated life-of-asset is for 12 years and is within the current Mining Right expiry date of 2040.



Ore Reserve estimates

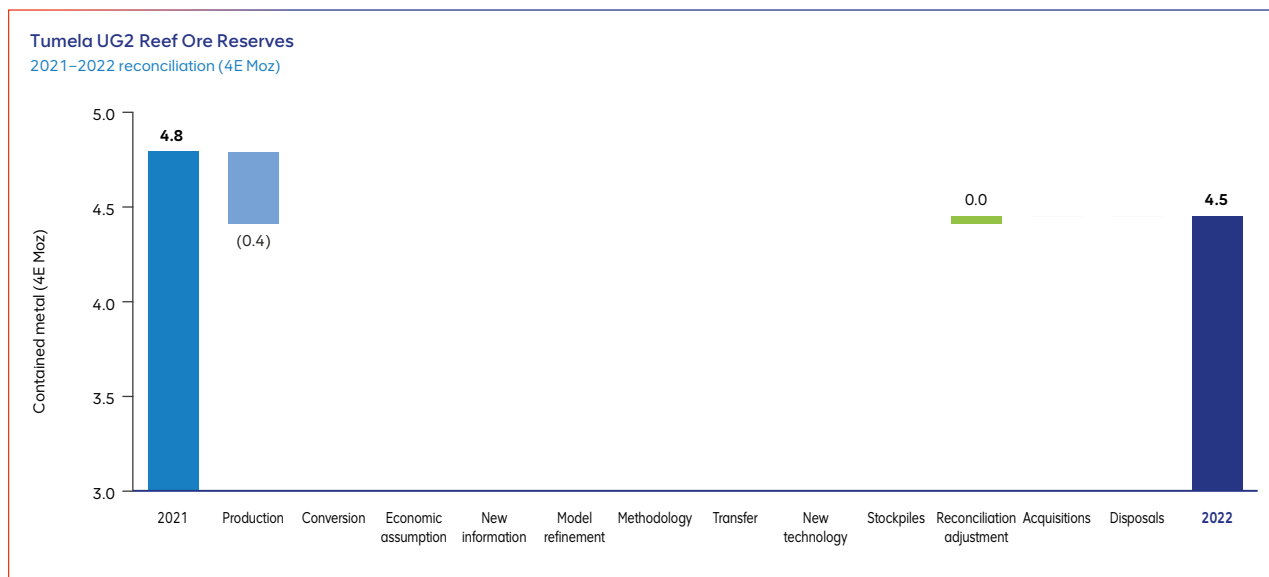
Amandelbult – Tumela mine (100%)	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
Merensky Reef	12	Proved	0.1	0.1	5.74	5.74	0	0	0.0	0.0
		Probable	0.2	0.2	3.33	3.33	1	1	0.0	0.0
		Total	0.3	0.3	3.95	3.95	1	1	0.0	0.0
UG2 Reef		Proved	29.7	32.1	4.64	4.62	138	148	4.4	4.8
		Probable	0.2	0.3	3.39	3.39	1	1	0.0	0.0
		Total	29.9	32.3	4.63	4.61	139	149	4.5	4.8

Merensky Reef Ore Reserves reconciliation

There was no mining or new LOAP. Estimates are unchanged from previous reporting.

UG2 Reef Ore Reserves reconciliation

The UG2 Reef Ore Reserve 4E content decreased slightly due to annual production.



Exclusive Mineral Resource estimates

Amandelbult – Tumela mine (100%)*	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
Merensky Reef	Measured	23.4	23.4	6.68	6.68	156	156	5.0	5.0
	Indicated	46.7	46.7	7.05	7.05	329	329	10.6	10.6
	Measured and Indicated	70.1	70.1	6.93	6.93	485	485	15.6	15.6
	Inferred	44.9	44.9	7.01	7.01	315	315	10.1	10.1
	Total	115.0	115.0	6.96	6.96	800	800	25.7	25.7
UG2 Reef	Measured	77.7	78.3	5.35	5.35	416	419	13.4	13.5
	Indicated	70.2	70.2	5.51	5.51	387	387	12.4	12.4
	Measured and Indicated	148.0	148.5	5.43	5.43	803	806	25.8	25.9
	Inferred	47.5	47.4	5.76	5.76	273	273	8.8	8.8
	Total	195.4	195.9	5.51	5.51	1,076	1,079	34.6	34.7

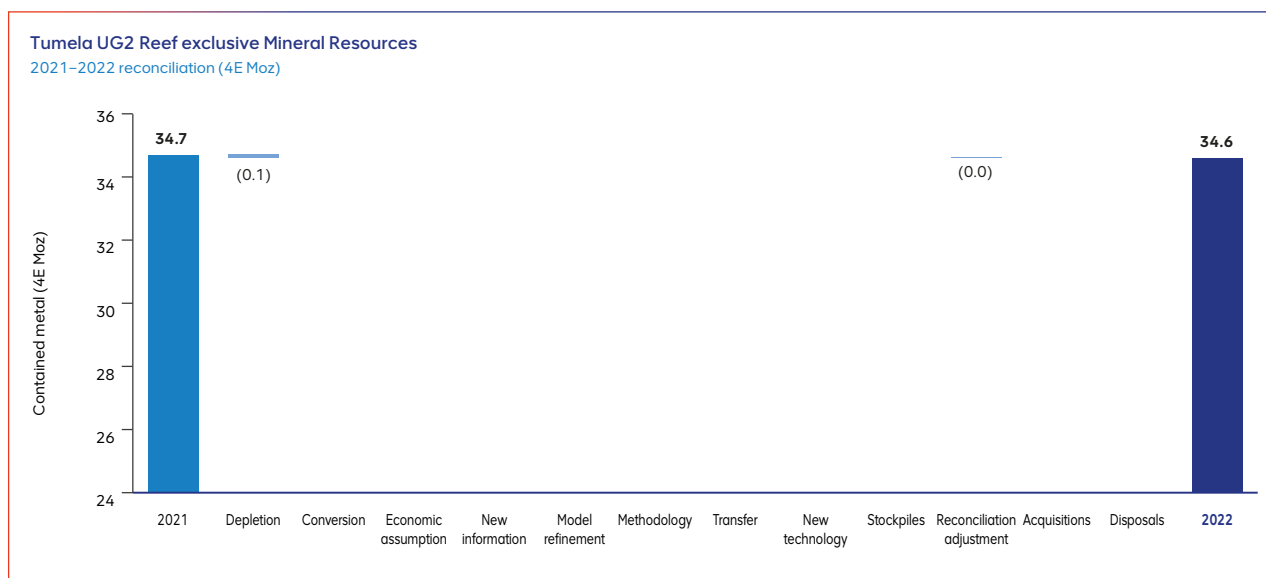
* The exclusive Measured Mineral Resources include low-tonnage opencast Merensky Reef Mineral Resources of 0.1 4E Moz (0.3Mt at 8.11 4E g/t) and UG2 Reef Mineral Resources of 0.2 4E Moz (0.9 Mt at 5.49 4E g/t).

Merensky Reef exclusive Mineral Resources reconciliation

The Merensky Reef Mineral Resource 4E content remain unchanged from previous reporting.

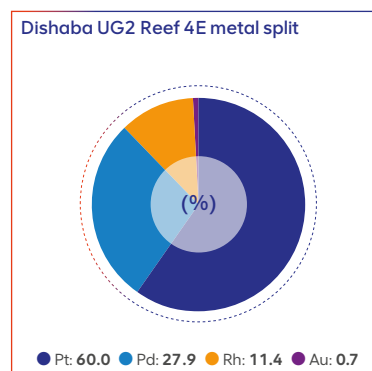
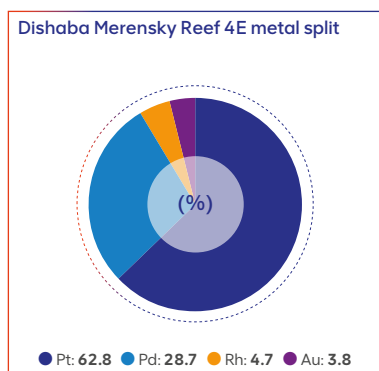
UG2 Reef exclusive Mineral Resources reconciliation

The UG2 Reef Mineral Resource 4E content marginally decreased due to slight change in pillar positions.

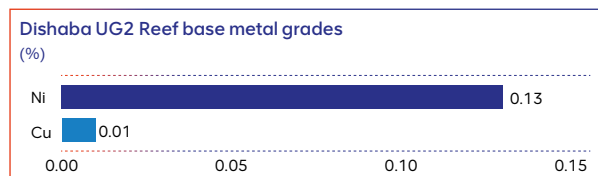
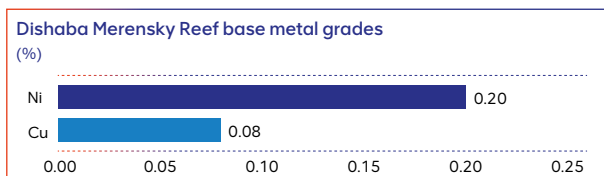


Amandelbult (100%) continued

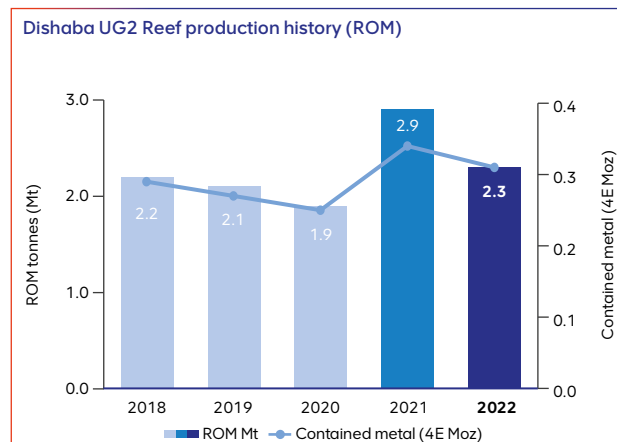
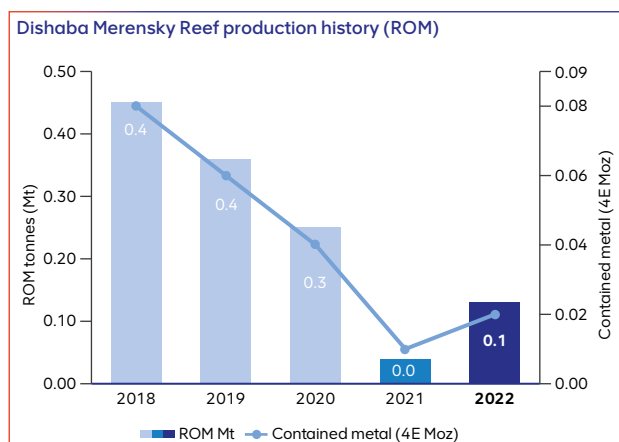
Dishaba mine (100%)



UG2 Reef chromite grade: 31.6%



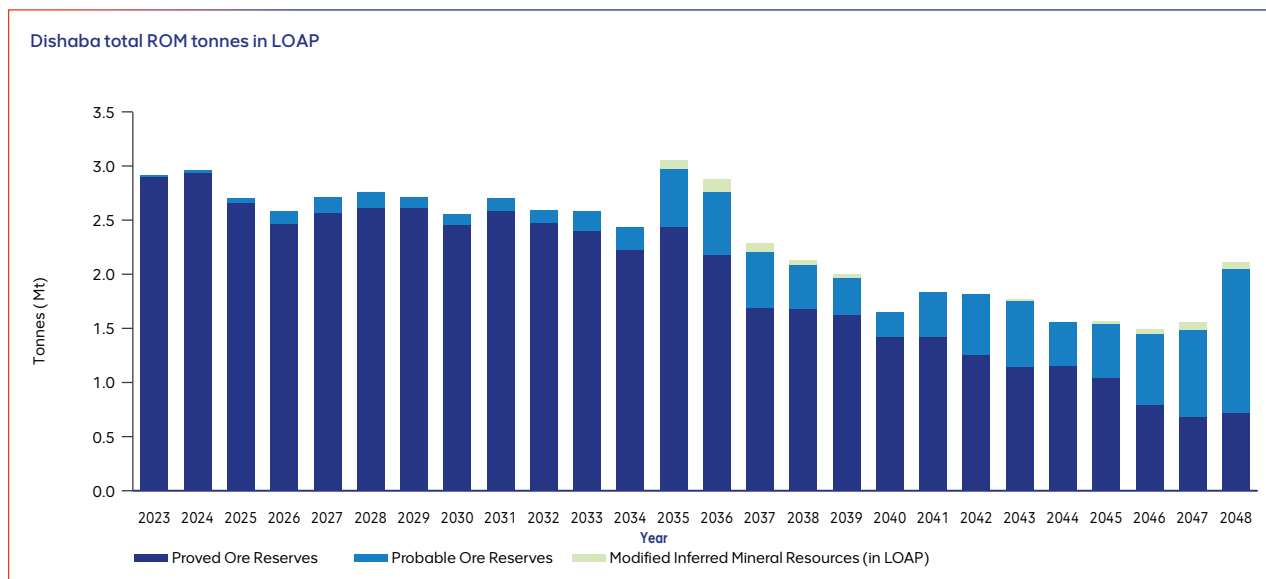
	Units	Merensky	UG2
Mineral Resource assumptions			
Average geological loss	%	23	18
Minimum resource cut width	cm	120	120
Average density	g/cm ³	3.1	4.0
Ore Reserve Modifying Factors			
Mining loss factor	%	47	37
Mining dilution	%	37	19
Planned stoping width	cm	152	158
4E concentrator recoveries	%	83	85
Mine call factor	%	100	100



For additional details on the 2022 production information see the operations review section, **pages 107–109** of the **Integrated report**.

Dishaba life-of-asset profile

The life-of-asset schedule for Dishaba indicates the current combined reefs' production planned in the approved life-of-asset plan and includes projects that have passed the necessary approvals that underpin the Ore Reserve declaration. The anticipated life-of-asset is for 26 years and exceeds the current Mining Right expiry date of 2040 (Reserve life of 18 years). An application to extend the Mining Right will be submitted at the appropriate time and there is reasonable expectation that such an extension will not be withheld. The modified Inferred Mineral Resources in life-of-asset plan are excluded from Ore Reserves declaration and assessments have indicated that the exclusion of these Inferred Mineral Resources will have no impact on the current life-of-asset.



Ore Reserve estimates

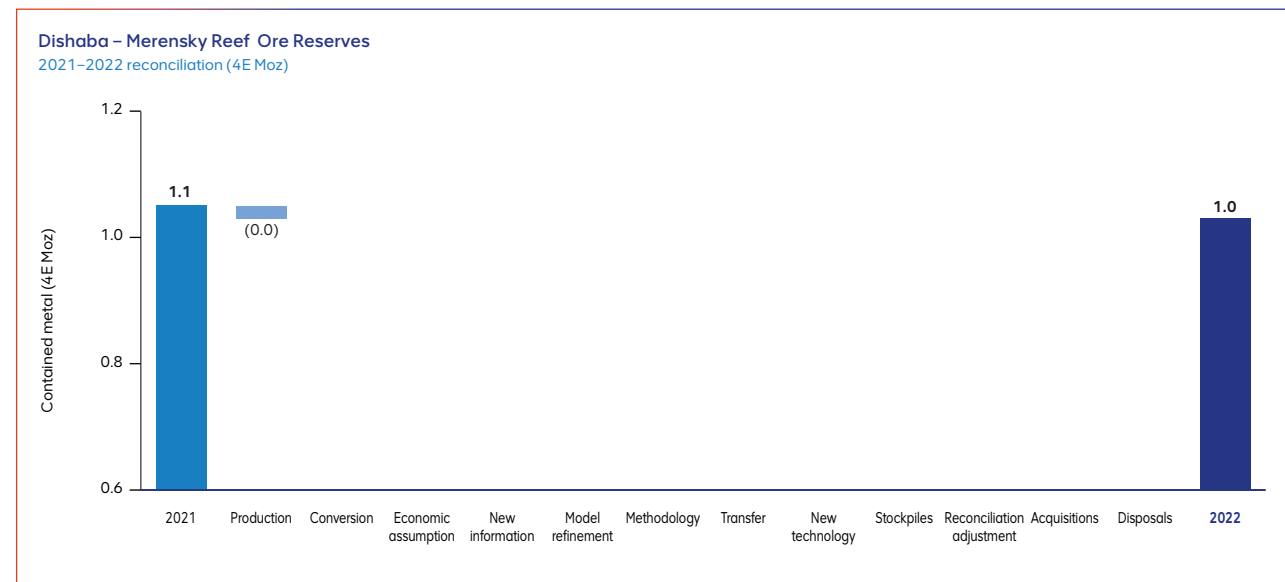
Amandelbult – Dishaba mine (100)*	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
Merensky Reef	>18	Proved	1.9	2.0	4.25	4.23	8	9	0.3	0.3
		Probable	4.1	4.1	5.82	5.83	24	24	0.8	0.8
		Total	6.0	6.2	5.33	5.30	32	33	1.0	1.1
UG2 Reef		Proved	47.2	49.7	4.37	4.37	206	217	6.6	7.0
		Probable	6.0	5.4	4.59	4.51	28	25	0.9	0.8
		Total	53.2	55.1	4.40	4.38	234	242	7.5	7.8

* The Proved Ore Reserves include short-life, low-tonnage, open-cast Merensky Reef Ore Reserves of 0.002 4E Moz (0.03 Mt at 2.45 4E g/t) and UG2 Reef Ore Reserves of 0.1 4E Moz (0.5Mt at 4.50 4E g/t).

Amandelbult (100%) continued

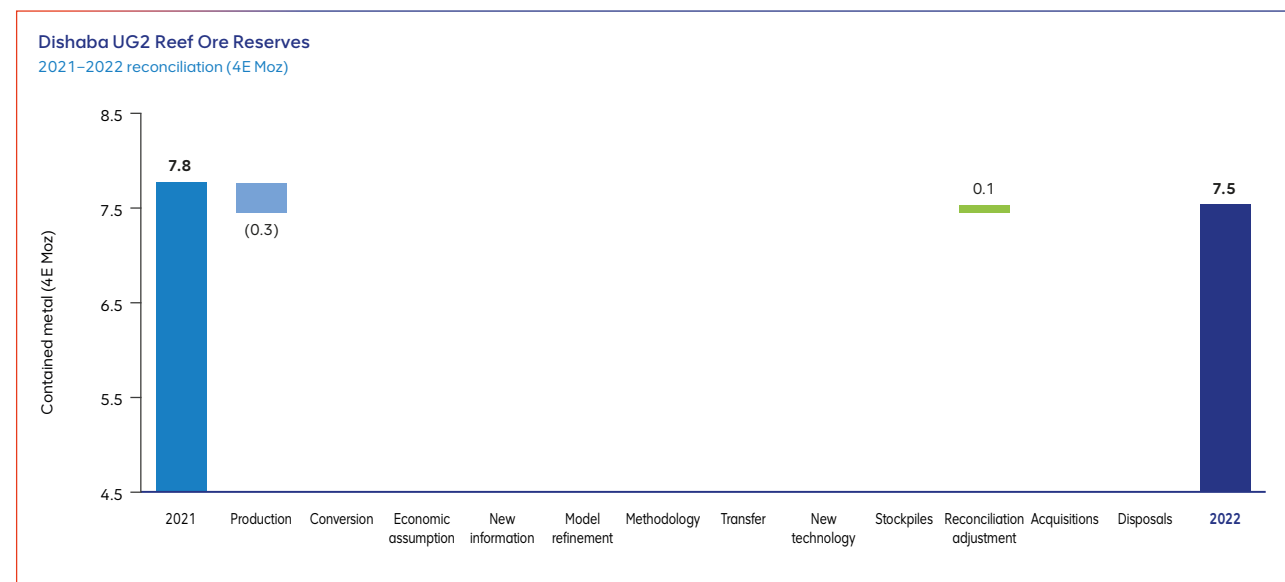
Merensky Reef Ore Reserves reconciliation

The Merensky Reef Ore Reserve 4E content decreased slightly due to annual production.



UG2 Reef Ore Reserves reconciliation

The UG2 Reef Ore Reserve 4E content decreased slightly due to annual production.



Exclusive Mineral Resource estimates

		Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
Amandelbult – Dishaba (100%)*	Classification	2022	2021	2022	2021	2022	2021	2022	2021
Merensky Reef	Measured	9.4	9.4	7.00	7.00	66	66	2.1	2.1
	Indicated	11.6	11.6	6.64	6.64	77	77	2.5	2.5
	Measured and Indicated	21.0	21.0	6.80	6.80	143	143	4.6	4.6
	Inferred	12.6	12.6	6.03	6.03	76	76	2.4	2.4
	Total	33.6	33.6	6.51	6.51	219	219	7.0	7.0
UG2 Reef	Measured	21.1	21.2	5.25	5.25	111	111	3.6	3.6
	Indicated	25.6	25.5	5.72	5.72	146	146	4.7	4.7
	Measured and Indicated	46.7	46.7	5.51	5.51	257	257	8.3	8.3
	Inferred	9.0	9.2	5.50	5.50	49	50	1.6	1.6
	Total	55.7	55.9	5.51	5.51	306	307	9.9	9.9

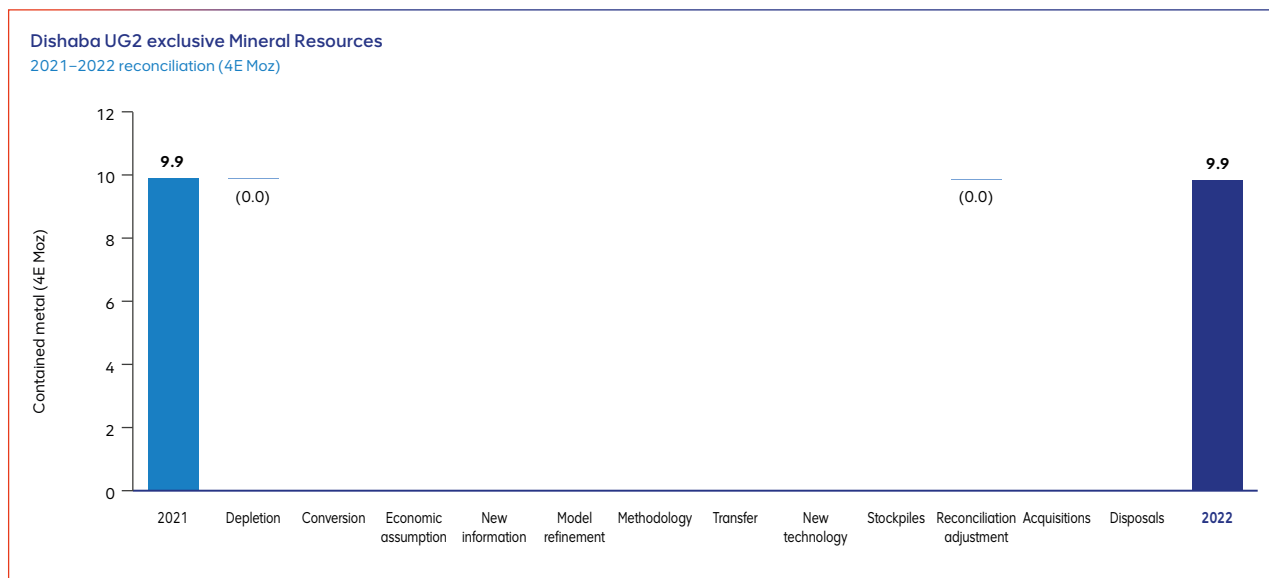
* The exclusive Measured Resources include low-tonnage open cast Merensky Reef Mineral Resources of 0.1 4E Moz (0.5Mt at 6.42 4E g/t) and UG2 Reef Mineral Resources of 0.2 4E Moz (1.0 Mt at 5.24 4E g/t).

Merensky Reef exclusive Mineral Resources reconciliation

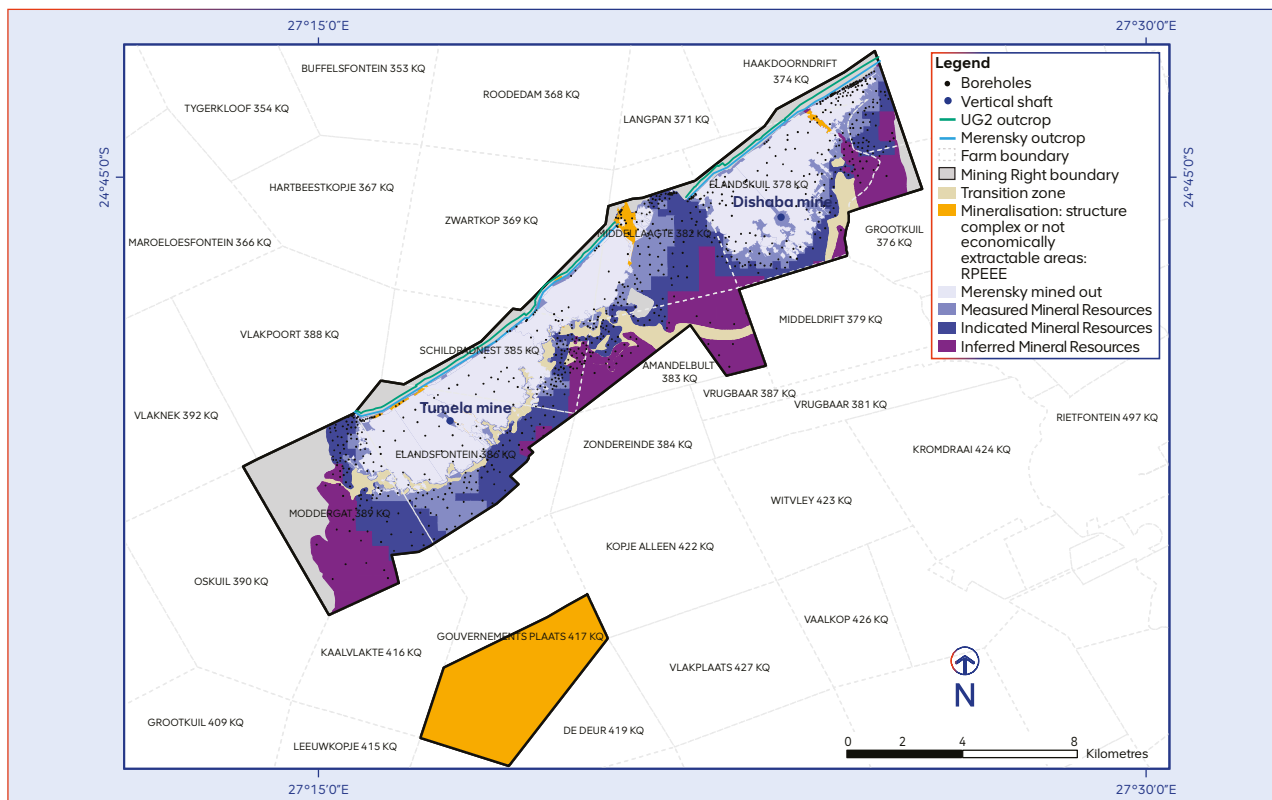
The Merensky Reef Mineral Resource 4E content is unchanged from previous reporting.

UG2 Reef exclusive Mineral Resources reconciliation

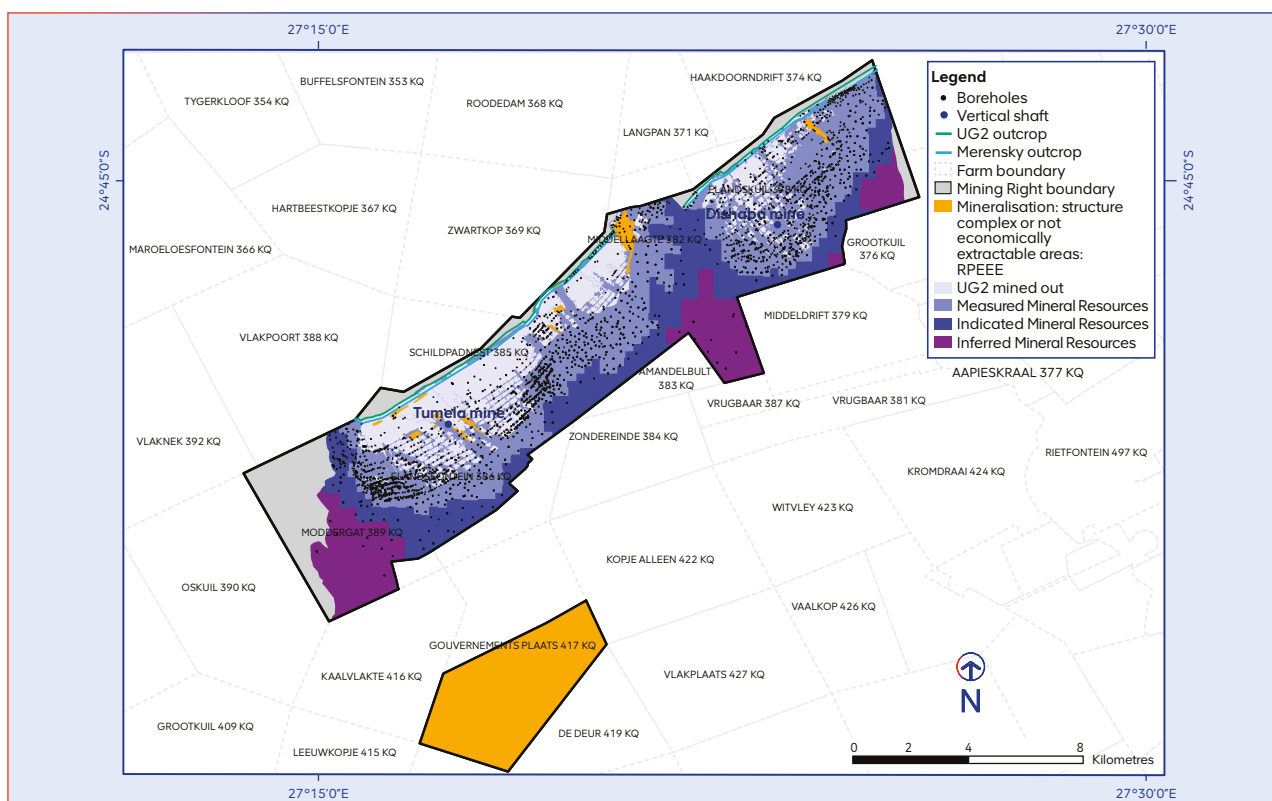
The UG2 Reef Mineral Resource 4E content marginally decreased due to slight change in pillar positions.



Amandelbult Merensky Reef Mineral Resources classification map



Amandelbult UG2 Reef Mineral Resources classification map



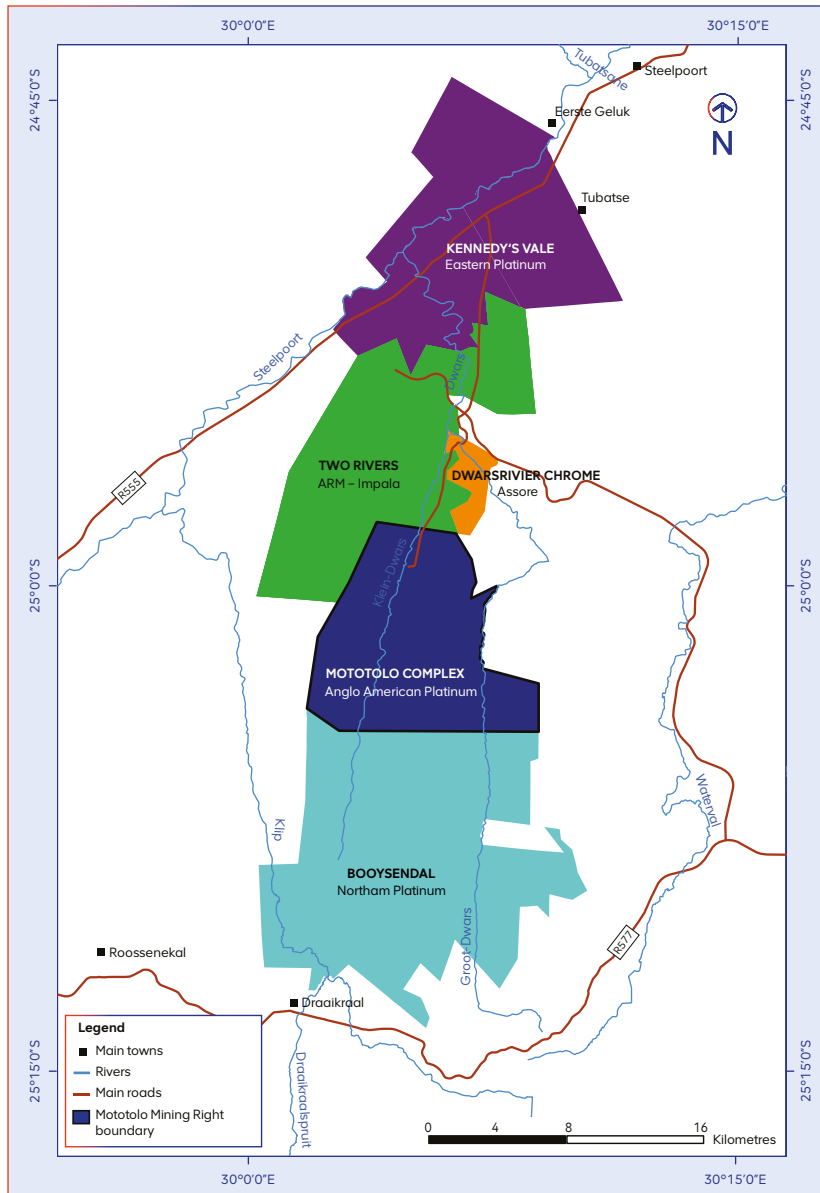
Estimates and reconciliation – managed operations

as at 31 December 2022

Mototolo

Anglo American Platinum
Limited interest: **100%**

Management structure:
managed



Location

Located in Limpopo province, Mototolo is 30km west of the town of Burgersfort. Mototolo Mine and Der Brochen project have merged and now report as a consolidated complex.



Property description

The consolidated operation has transformed into a new PGM complex following the approval for the development of Der Brochen south project and extension of the life-of-asset in 2021. The complex is focused on extending the life-of-asset and remaining in the first half of the cost curve. The UG2 Reef is the primary reef being mined.

Competence

Kavita Mohanlal

Competent Person:

Mineral Resources

Role:

Principal Mineral Resources estimation

Relevant qualifications:

BSc (hons) (geology), MSc (Mineral Resources management)

Professional organisation:

SACNASP, PrSciNat (400003/05)

Relevant experience:

19 years

Dion Hanekom

Competent Person:

Ore Reserves

Role:

Specialist Ore Reserves – platinum

Relevant qualifications:

Higher national diploma (MRM)

Professional organisation:

SAGC (PMS 0242)

Relevant experience:

17 years

Brief history

The eastern limb of the Bushveld Complex has since the 1920s, been the subject of numerous exploration programmes. Exploration in the Groot and Klein Dwarsrivier valleys also dates to 1924, with Platinum Proprietary exploring Richmond and Helena between 1924 and 1930. At the same time, Transvaal Consolidated Land and Exploration Company explored the Der Brochen farm, opening up adits and winzes on the Merensky Reef.

In 1999, Xstrata South Africa purchased Consolidated Metallurgical Industries (CMI) and acquired rights for chromite and PGM on the Thorncliffe farm. At that time, Thorncliffe was viewed as a chromite mine and the PGM potential was disregarded. In 2002, drilling targeting the Merensky and UG2 reefs allowed for the preferential selection targets for these reefs to be determined.

In 2005, Anglo American Platinum and Xstrata (later acquired by Glencore), formed a 50:50 joint partnership, the Mototolo joint operation, and contributed individual portions of Mining Rights. Anglo American Platinum contributed Mining Rights over Richmond farm and Glencore contributed rights over Thorncliffe farm. The first blast in November 2005 marked the start of 2 x 4 barrel, on-reef shaft clusters that eventually reached steady-state production in June 2009.

In 2018, Anglo American Platinum had acquired the 50% stake in Mototolo Mine from Glencore and minority shareholders. The 100% acquisition of Mototolo Mine and the subsequent transfer of Mining Rights to Anglo American Platinum paved the way for the approval and execution of the Der Brochen south project feasibility study in 2021. This project substantially increased the UG2 Reef Ore Reserves and extended life-of-asset beyond 50 years.

Anglo American Platinum has a standing royalty mining agreement with Two Rivers Platinum Mine to access UG2 mining areas from Mototolo's Lebowa shaft to the north, adjacent to the Thorncliffe farm boundary.

Mineral Rights

The Der Brochen Mining Right covers an area of 9,628ha. Anglo American Platinum holds a converted Mining Right under DMRE reference LP 182 MR, valid from July 2010 to July 2040. A section 102 application submitted to the DMRE to consolidate the Mototolo and Der Brochen areas Mineral Rights, was approved/granted by the DMRE on the 3 August 2022. The notarial execution of Deed of Amendment is still pending.

There are no known impediments to the current Mining Rights.

Brief geological description

Mototolo Mine is in the eastern limb of the Bushveld Complex. In this area, the Merensky and UG2 reefs outcrops strike north to south over approximately 13km, dipping at an average 10° to the west. The UG2 Reef is characterised by a single thick chromitite layer known as the main band, followed by an overlying poikilitic feldspathic pyroxenite and a series of chromitite layers. These narrow chromitite layers that occur in the hangingwall of the UG2 main band and are collectively termed the triplets. The three chromitite stringers vary in thickness from 2cm to 5cm (triplet 1), 10cm to 25cm (triplet 2), and approximately 5mm (triplet 3). The immediate footwall of the UG2 is usually a pegmatoidal feldspathic pyroxenite, which varies in thickness from a few centimetres to over 1m. Localised internal pyroxenite or anorthosite-rich layers can occur within the UG2 main chromitite band, creating areas of 'split-reef' facies. The vertical separation between the Merensky Reef and UG2 Reef horizons is approximately 170m.

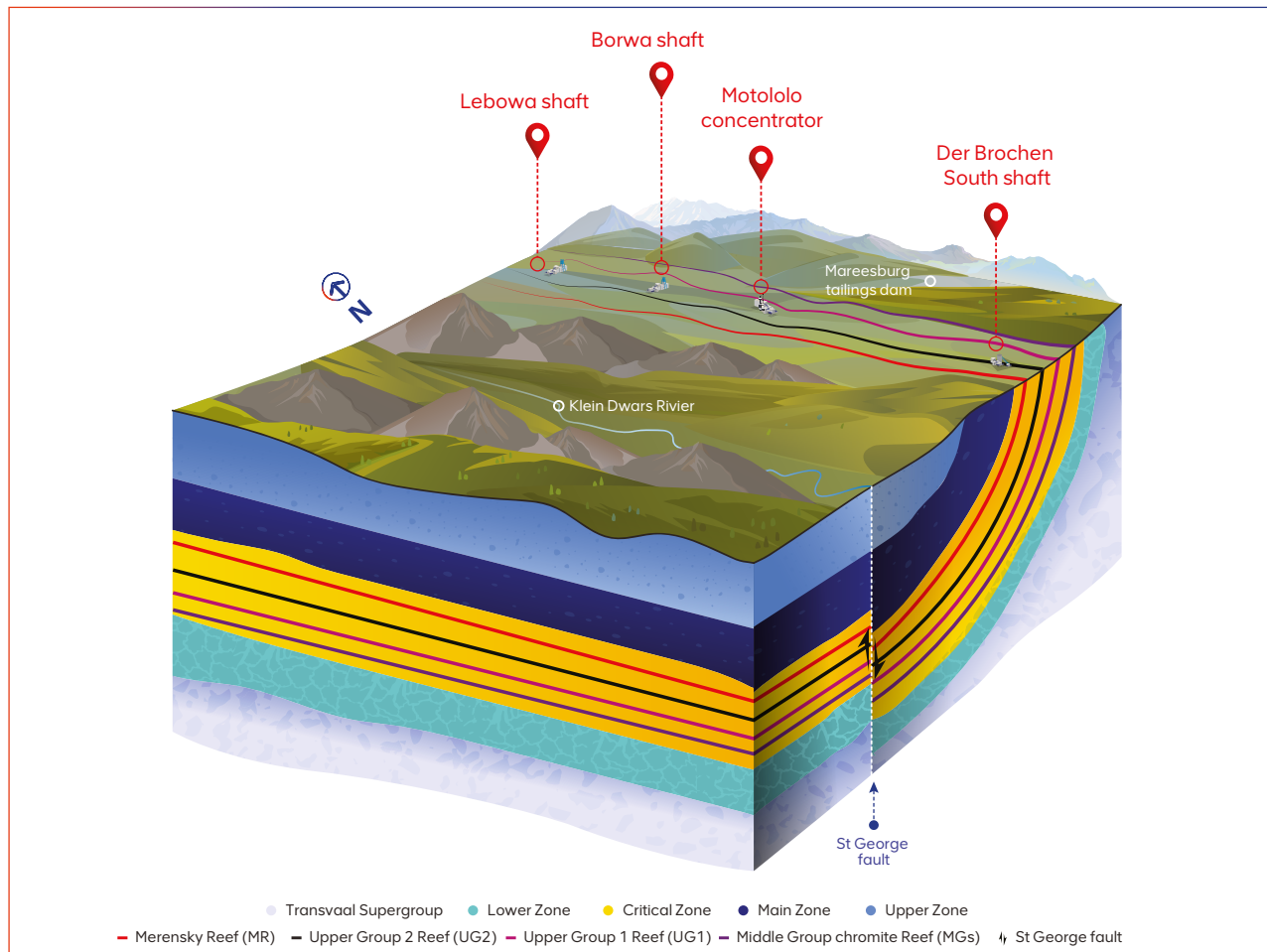
The north/south trending St George fault traverses through the mine and represents a natural boundary that divides the mine into a 'shallow' eastern, and an upthrown 'deep' (offset of 30-60m from north to south) western portion. On average, an 80-300m wide corridor in the proximity of the fault including a highly fractured damage zone (interpreted from 3D seismic surveys), has been assigned a 100% geological loss.

The Helena pothole is located immediately south of Borwa shaft and represents an area of severe slumping and destructive potholing. Dykes are predominantly dolerite/diabase in composition and of Karoo age with little variation in strike directions and steep dips, with the Caracle dyke swarm traversing the Der Brochen south area. Whilst the main structural trend is north north-east/south south-west, most small-scale faulting in the mining operations is trending north-west/south-east. A regional depression is currently interpreted west of the St George fault on Richmond farm.

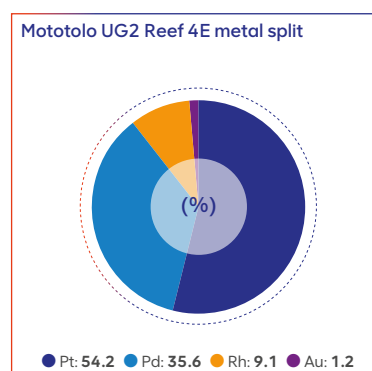
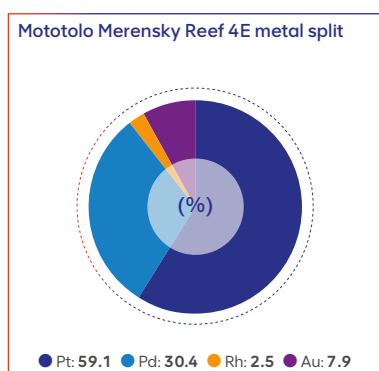
 For a description of the Mineral Resource estimation and classification processes see [pages 22-24](#) of this report.

Mototolo (100%) continued

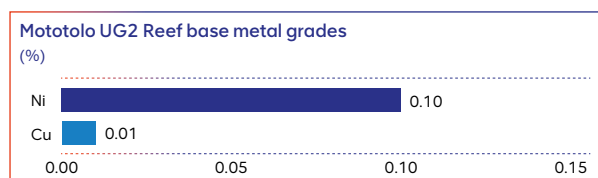
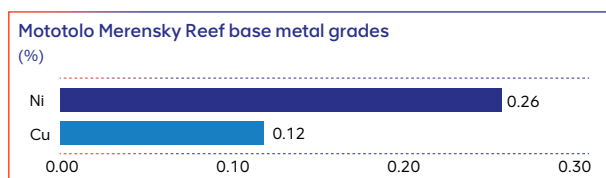
Schematic diagram of the Bushveld Complex at Mototolo (eastern limb)



Schematic drawing compiled by Stephan van As (Mototolo geology team), not to scale.



UG2 Reef chromite grade: **18.3%**



Reasonable prospects of eventual economic extraction

The following factors were considered when determining reasonable prospects of eventual economic extraction of the declared Mineral Resources:

- Legal: Mototolo adheres to all regulatory requirements and has requisite permits and licences to explore and mine.
- Environmental, social and governance: The sustainable mining plan framework considers the local communities, the environment and land use as well as current legislation as inputs when determining RPEEE.
- Geology: The latest updated geological and Mineral Resource models underpin the RPEEE considerations applied in the context of Mineral Resources declaration.
- Mining method: The RPEEE considerations are based on the current mining methods of underground mechanised bord-and-pillar.
- Metallurgical: Sufficient geometallurgical and mineralogical test work has been carried out for reefs declared and recovery potentials considered. The mine has sufficient plant data to predict recovery potential.
- Economics: Using current global assumptions (prices and costs), current mining methods are known to be viable at depth when considering the current operation and adjacent mining operations.
- Other factors such as market assessments and infrastructure requirements are adequately assessed in various levels of technical studies within the mine plan.

Mining method

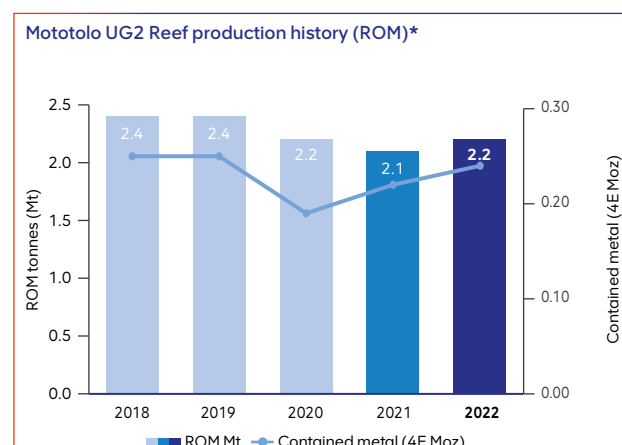
Mototolo is a mechanised, trackless, bord-and-pillar underground operation which extracts the UG2 Reef from near outcrop, extending to over 450m below surface. The low profile underground mining equipment utilised is designed to extract narrow reef orebodies (>1.8m width) with dip less than 22°. It maximises reef extraction by placing the primary development (main infrastructure) on reef. Access to the orebody is by means of a three-barrel decline system. All the development is done on-reef at an apparent angle of 9°. Strike development provides machine access, rock handling, as well as all the necessary services and infrastructure to the panels. The strike development incorporates one transport drive and one belt drive connected by laterals every 75m. The ledging starts off with developing the panels on strike from the decline cluster, with the ledging layout consisting of 16 panels on the western and eastern sides respectively.

Current mine infrastructure consists of two decline shafts, Lebowa and Borwa, a concentrator and a chromite processing plant. The Der Brochen decline shaft is currently being developed. The ore is extracted from the two shafts and transported by overland conveyor belts to the concentrator.



For a description of the Ore Reserve estimation and classification processes see [pages 29–31](#) of this report.

	Units	Merensky	UG2
Mineral Resource assumptions			
Average geological loss	%	17	18
Minimum resource cut width	cm	90	180
Average density	g/cm ³	3.3	3.7
Ore Reserve Modifying Factors			
Mining loss factor	%	—	25.1
Mining dilution	%	—	13.2
Mine extraction factor	%	—	54 – 75
Planned stoping width	cm	—	218
4E concentrator recoveries	%	—	84
Mine call factor	%	—	97



* Production figures exclude production from the Two Rivers Mine royalty mining area.

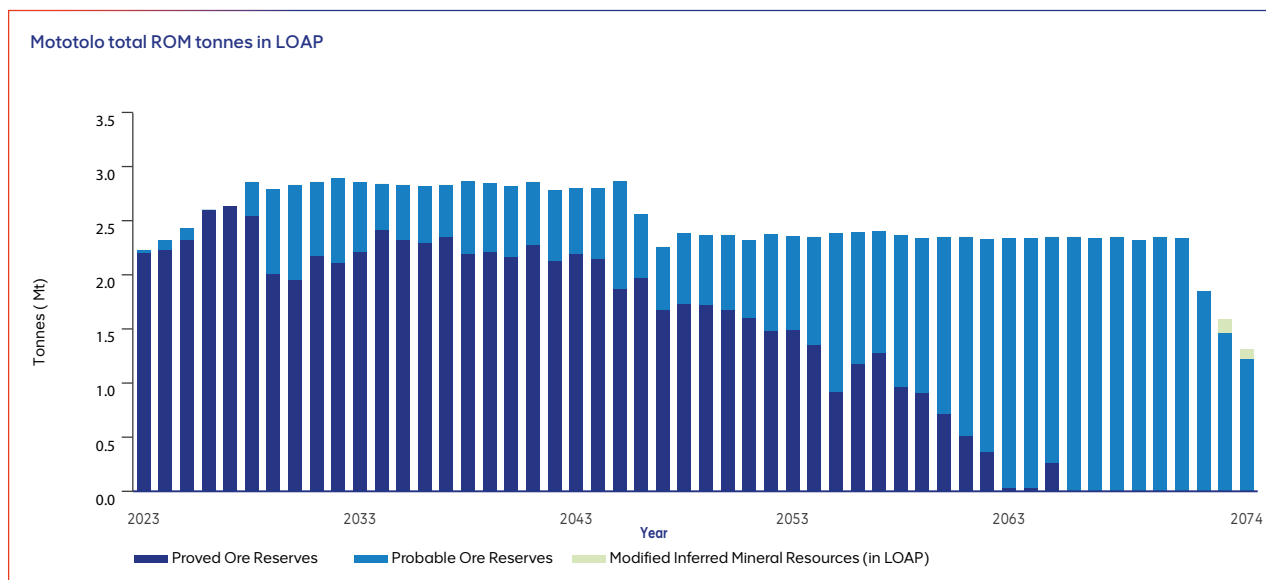


For additional details on the 2022 production information see the operations review section, [pages 110–111](#) of the [Integrated report](#).

Mototolo life-of-asset profile

The life-of-asset schedule for Mototolo indicates the current UG2 Reef production planned in the approved life-of-asset plan and includes the projects that have passed the necessary approvals that underpin the Ore Reserve declaration. The anticipated mining is for 52 years and exceeds the current Mining Right expiry date of 2040 (Reserve life of 18 years). An application to extend the Mining Right will be submitted at the appropriate time and there is reasonable expectation that such an extension will not be withheld. The modified Inferred Mineral Resources in life-of-asset plan are excluded from Ore Reserves declaration and assessments have indicated that the exclusion of these Inferred Mineral Resources will have no impact on the current life-of-asset.

Mototolo (100%) continued

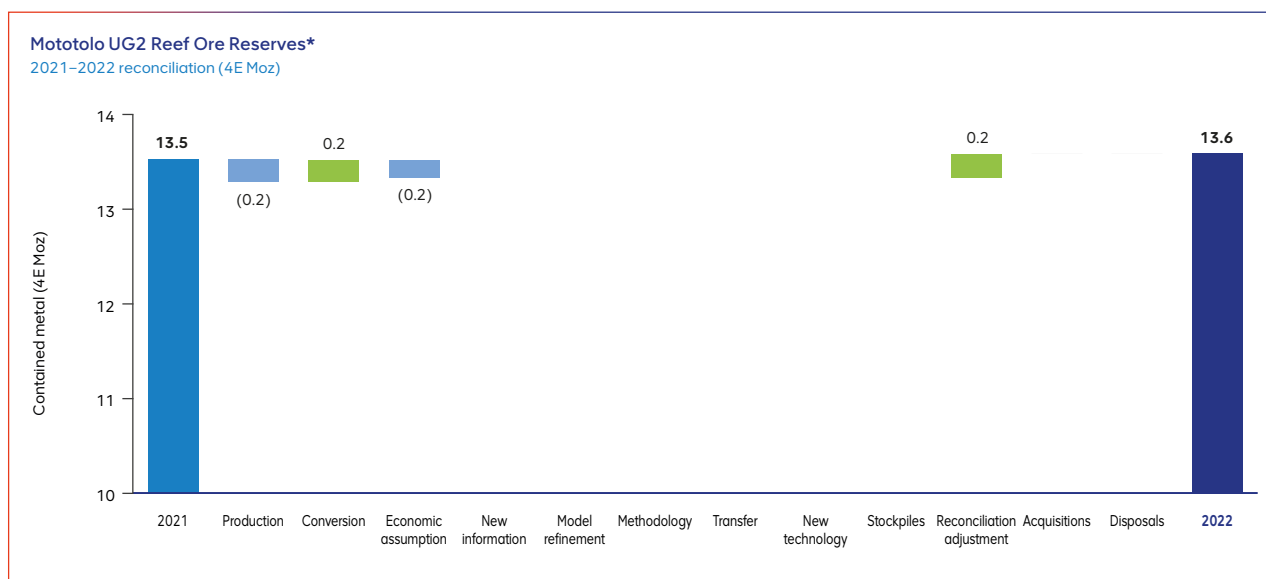


Ore Reserve estimates

Mototolo (100%)	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
UG2 Reef	>18	Proved	73.3	68.6	3.38	3.56	248	244	8.0	7.9
		Probable	55.7	53.1	3.13	3.32	174	176	5.6	5.7
		Total	129.0	121.7	3.27	3.45	422	420	13.6	13.5

UG2 Reef Ore Reserves reconciliation

The UG2 Ore Reserves 4E content increased marginally following the conversion of Mineral Resources to Ore Reserves in the upper area of Der Brochen south and the 2021 production forecast adjustment. The extent of the increase was offset by annual production and economic tail cuts at year 2074 of the life-of-asset.



* Production figures exclude production from the Two Rivers Mine royalty mining area.

Exclusive Mineral Resource estimates

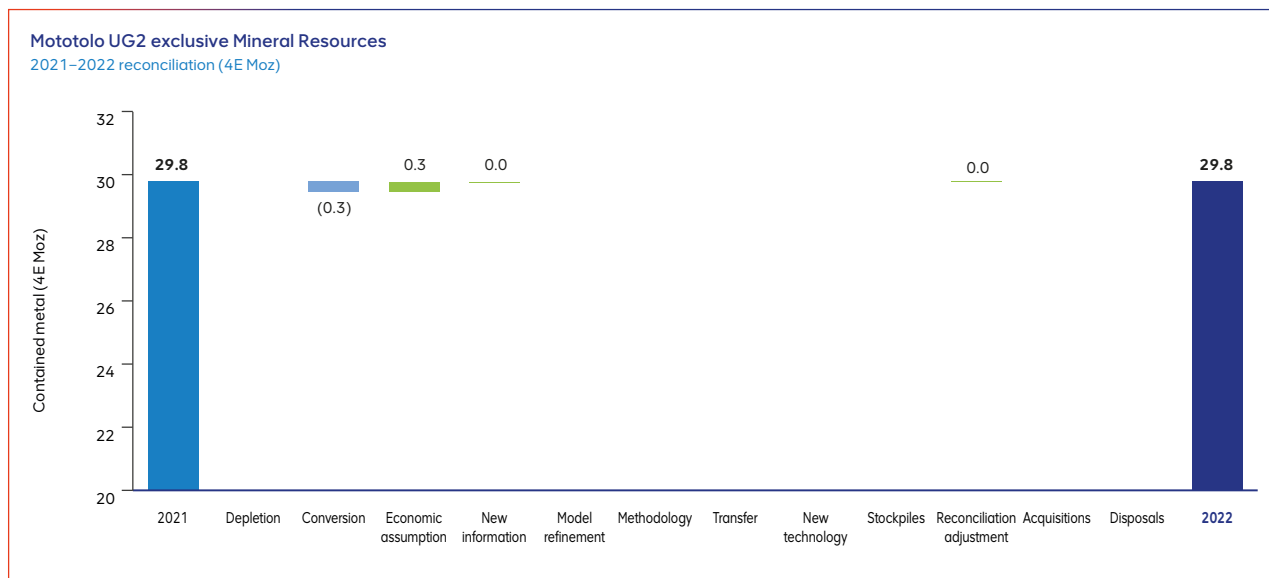
Mototolo (100%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
Merensky Reef	Measured	41.3	41.3	4.75	4.75	196	196	6.3	6.3
	Indicated	57.4	57.4	4.55	4.55	261	261	8.4	8.4
	Measured and Indicated	98.7	98.7	4.63	4.64	457	457	14.7	14.7
	Inferred	73.7	73.7	4.51	4.51	332	332	10.7	10.7
	Total	172.4	172.4	4.58	4.58	789	789	25.4	25.4
UG2 Reef	Measured	38.1	40.8	3.85	3.85	147	157	4.7	5.1
	Indicated	70.9	68.3	3.97	3.97	281	271	9.0	8.7
	Measured and Indicated	109.0	109.1	3.93	3.92	428	428	13.8	13.8
	Inferred	124.0	124.0	4.02	4.02	499	499	16.0	16.0
	Total	233.0	233.1	3.98	3.98	927	927	29.8	29.8

Merensky Reef exclusive Mineral Resources reconciliation

The Merensky Reef Mineral Resource 4E content is unchanged from previous reporting.

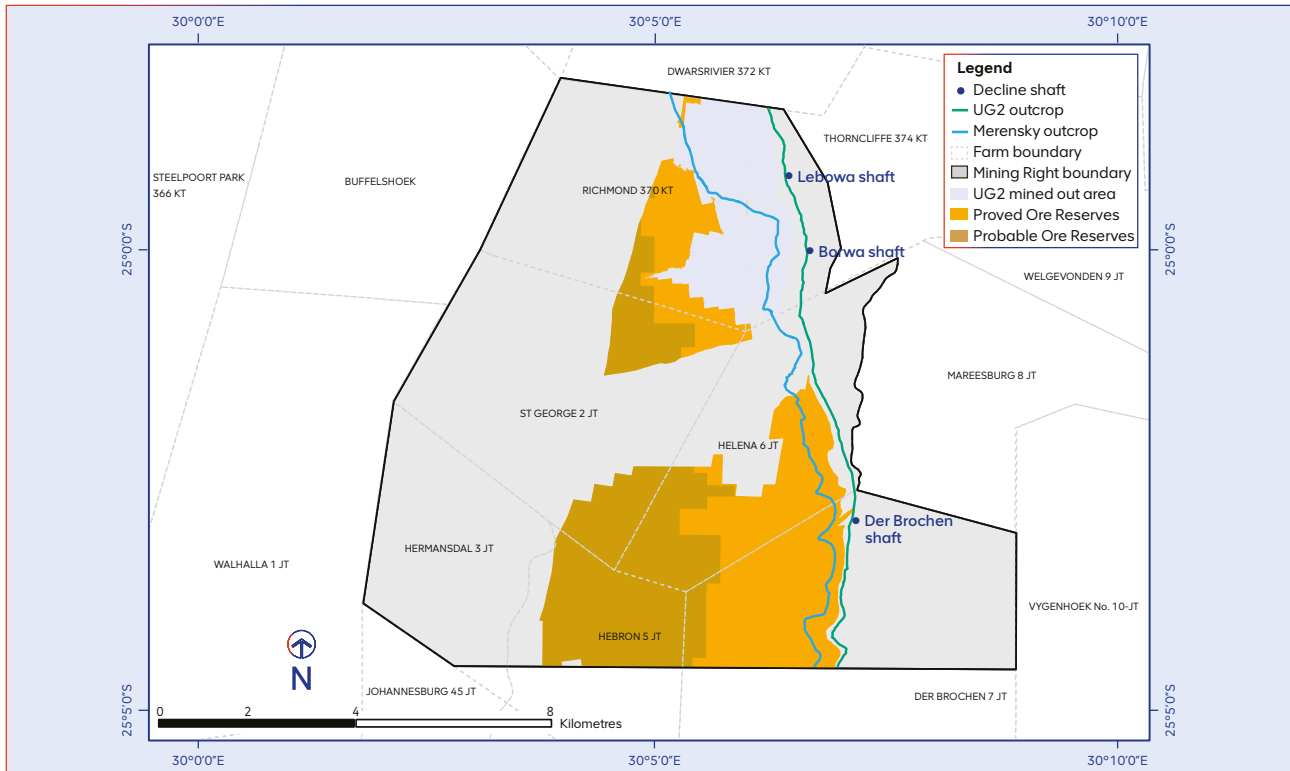
UG2 Reef exclusive Mineral Resources reconciliation

The UG2 Mineral Resources 4E content remained unchanged. The conversion of Mineral Resources to Ore Reserves in the upper area of Der Brochen south was offset by the reallocation of Ore Reserves to Mineral Resources due to economic tail cuts at year 2074 of the life-of-asset.

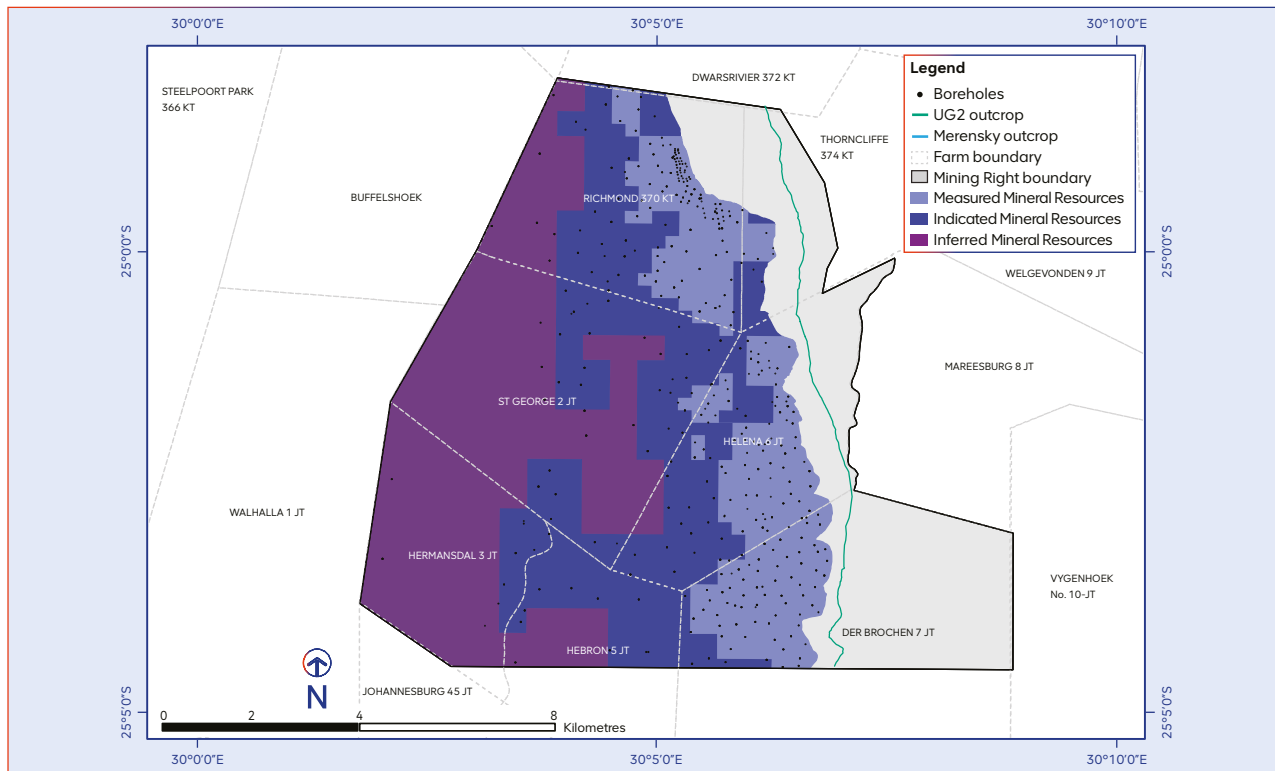


Mototolo (100%) continued

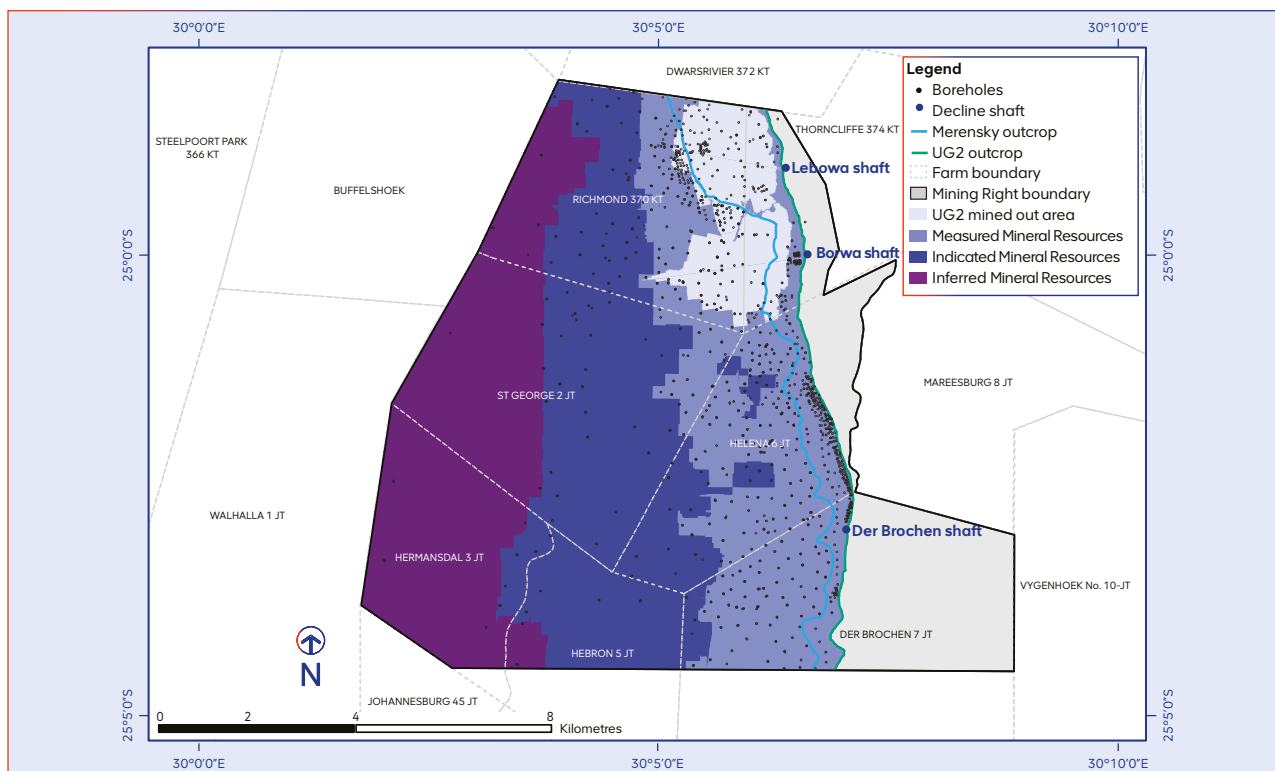
Mototolo UG2 Reef Ore Reserves classification map



Mototolo Merensky Reef Mineral Resources classification map



Mototolo UG2 Reef Mineral Resources classification map



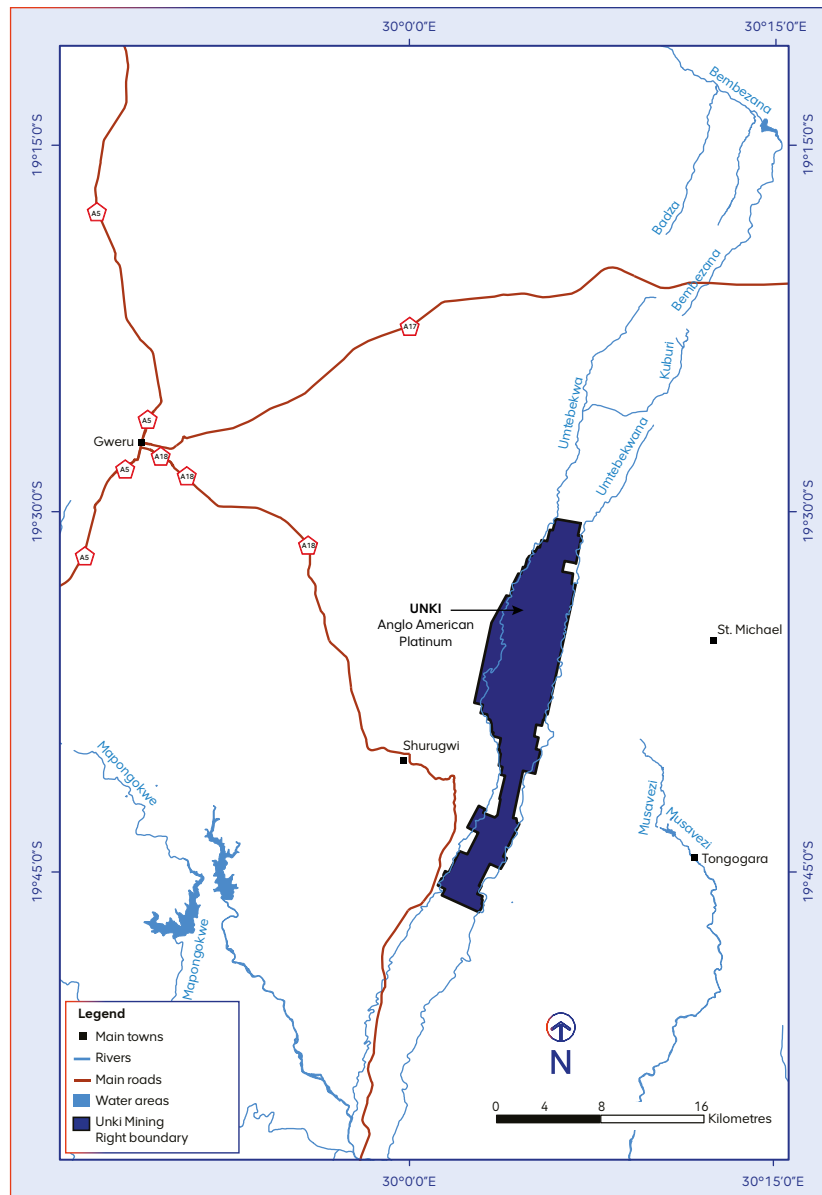
Estimates and reconciliation – managed operations

as at 31 December 2022

Unki

Anglo American Platinum
Limited interest: **100%**

Management structure:
managed



Location

Unki is located on the Great Dyke in Zimbabwe, 60km south-east of the town of Gweru and 15km north-east of Shurugwi.



Property description

The Unki Special Mining Lease (SML) lies in the Selukwe subchamber of the Great Dyke. The mine extracts the Main Sulphide Zone (MSZ) and is at steady-state production, with long-dated strategic growth potential. The mine's strategy is focused on implementing new technology and controlling costs to remain competitive against peers.

Competence

Kavita Mohanlal

Competent Person:

Mineral Resources

Role:

Principal Mineral Resource estimation

Relevant qualifications:

BSc (hons) (geology), MSc (Mineral Resources management)

Professional organisation:

SACNASP, PrSciNat (400003/05)

Relevant experience:

19 years

Marlon van Heerden

Competent Person:

Ore Reserves

Role:

Principal Ore Reserves - platinum

Relevant qualifications:

BTech (mining engineering)

Professional organisation:

SAIMM, member (704211)

Relevant experience:

15 years

Brief history

Exploration for PGM and associated base metals in the Great Dyke dates back over 50 years, when PGM and base metal zones were delineated from soil geochemical surveys. The first phase of drilling began in 1967 near the Paarl area and expanded to cover the rest of the Middleridge claims. In 1969, trial mining started at Paarl where a winze was developed on-reef and two mining levels established.

In 1972, focus shifted to the Unki area – regarded as having better PGM grades than Paarl. A vertical prospect shaft which was used for various trial mining initiatives was sunk in 1974 in the Unki area. This was followed by intermittent exploration and feasibility studies on the Unki project. The project failed to take off due to several challenges, primarily the price of the metals and difficulties of MSZ identification. However, understanding of the MSZ has improved over the years and it is successfully mined on the Great Dyke.

The development of Unki Mine began in 2006 after the approval of the 2005 feasibility study. Unki Mine ramped production to planned output of 120,000 tonnes per month in late 2011 and is investigating opportunities to increase production twofold by 2026.

More recently, the KV-SR Claims, which were previously reported at Unki Mine have been sold to Mimosa Platinum Mine.

Mineral Rights

The current Mining Lease covers an area of 10,386ha. On 5 October 2009, Unki Mines and Southridge Limited were granted a Special Mining Lease, valid until October 2034.

There are no known impediments to the Mining Lease.

Brief geological description

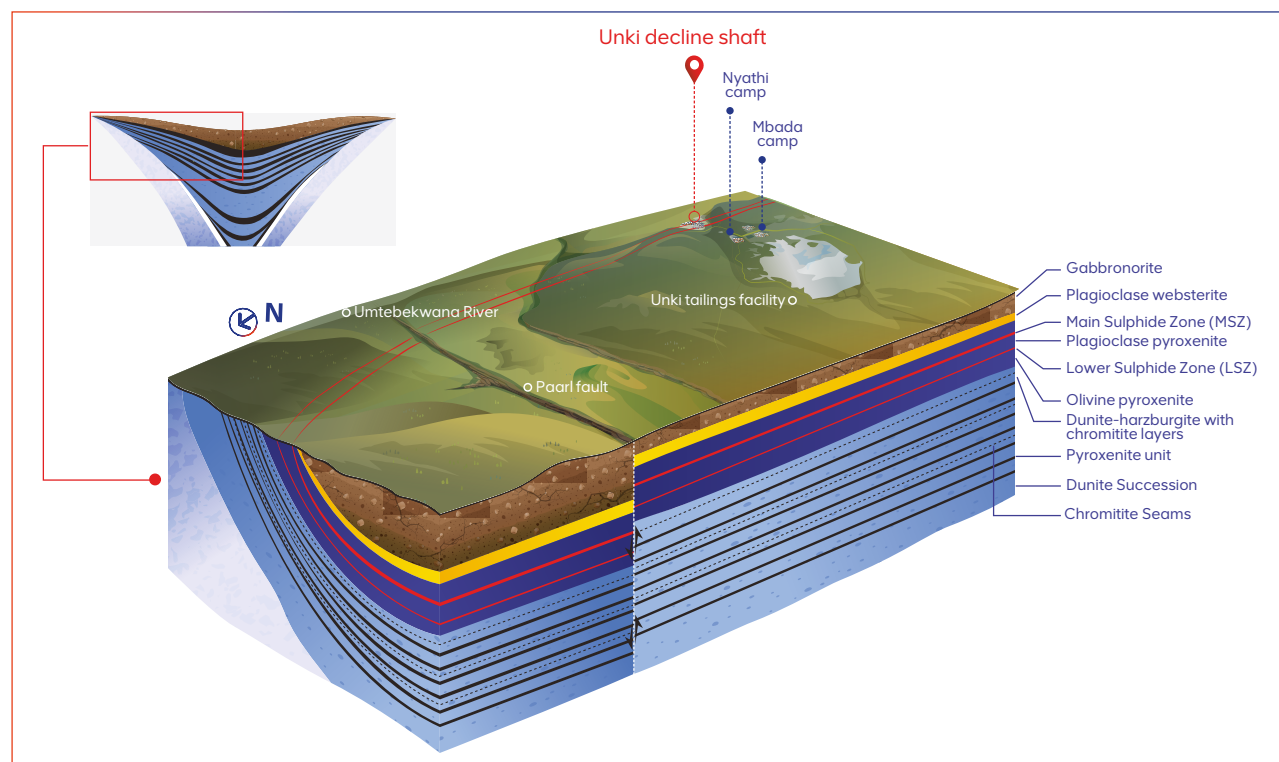
Unki Mine is located in the Selukwe subchamber of the Great Dyke in Zimbabwe. In transverse section, the subchamber is synclinal in shape, with essentially the same lithological succession being exposed on both sides of the longitudinal axis. The general dip decreases from outcrops to the central area varying from 14° to 0°. Within the Special Mining Lease, the intrusion strikes north north-east/south south-west and extends about 26km.

The PGM and associated base metal mineralisation are developed within the uppermost pyroxenite horizon, the Main Sulphide Zone (MSZ). The main rock types are gabbro-norites, websterites and pyroxenites of the mafic and ultramafic succession. Based on geochemistry, the MSZ has two distinguishable subzones – the base metal subzone, which is dominated by nickel and copper, as well as the PGM subzone. The transition from the upper zone to lower zone is marked by a reduction in iron-nickel-copper sulphides disseminated in the pyroxenite.

The MSZ is affected by structural disturbances such as faults, xenoliths and replacement pegmatites. The two most prominent faults are the Paarl and Footwall faults. Paarl fault is a transverse, steeply dipping fault in the north of the mine. The magnitude of its displacement is just over 100m. The Footwall fault occurs over a localised area in the eastern section of the mine at an average stratigraphic distance of 1.6m below the base of the MSZ.

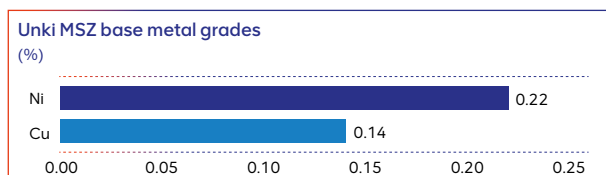
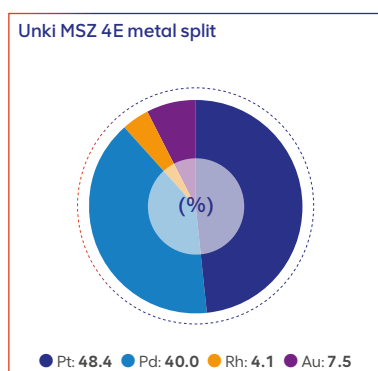
 For a description of the Mineral Resource estimation and classification processes see [pages 22-24](#) of this report.

Schematic diagram of the Great Dyke at Unki (Selukwe subchamber)



Schematic drawing compiled by Melusi Hlambelo (Unki geology team), not to scale

Unki (100%) continued



Reasonable prospects of eventual economic extraction

The following factors were considered when determining reasonable prospects of eventual economic extraction of the declared Mineral Resources:

- Legal: Unki adheres to all regulatory requirements and has requisite permits and licences to explore and mine.
- Environmental, social and governance: The sustainable mining plan framework considers the local communities, the environment and land use as well as current legislation as inputs when determining RPEEE.
- Geology: The latest updated geological and Mineral Resource models underpin the RPEEE considerations applied in the context of Mineral Resources declaration.
- Mining method: The RPEEE considerations are based on the current mining methods of underground mechanised bord-and-pillar.
- Metallurgical: Sufficient geometallurgical and mineralogical test work has been carried out for the reef declared and recovery potentials considered. The mine has sufficient plant data to predict recovery potential.
- Economics: Using the current global assumptions (prices and costs), the current mining method is known to be viable at the deepest point of the orebody.
- Other factors such as market assessments and infrastructure requirements are adequately assessed in various levels of technical studies and within the mine plan.

	Units	MSZ
Mineral Resource assumptions		
Average geological loss	%	6
Minimum resource cut width	cm	180/120*
Average density	g/cm ³	3.2
Ore Reserve Modifying Factors		
Mining loss factor	%	3
Mining dilution	%	12
Mine extraction factor	%	80 – 83
Planned stoping width	cm	200
4E concentrator recoveries	%	82
Mine call factor	%	95

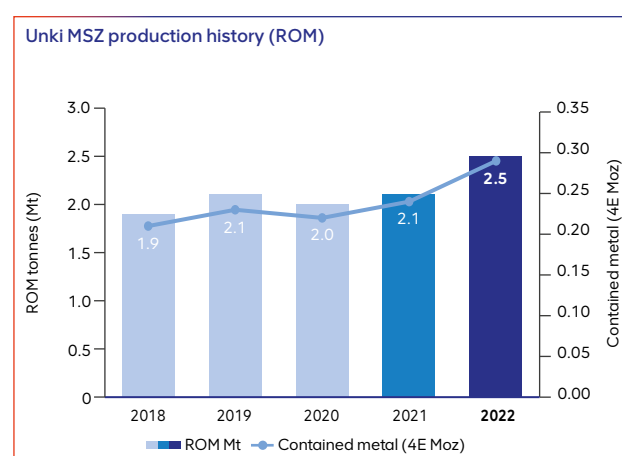
* The current mining areas at Unki east and west are estimated over a Resource cut of 180cm. The remaining area is estimated over a Resource cut of 120cm.

Mining method and operational infrastructure

Unki Mine is a mechanised, trackless, bord-and-pillar underground operation. Minimal development is required to prepare for mining. Development is mainly on-reef and comprises roadways for ore transport and travelling ways for mine personnel. Excavation of roadways is combined with ore production. Mined-out stopes serve as transport routes. A twin-decline shaft system provides access to underground workings for employees and material, as well as ore conveyance. Both shafts are now 2,822m from the portal on surface. Currently there are 17 established mining sections. The equipped sections have strikes belts for transferring ore directly to the main incline shaft conveyor.

Run-of-mine ore is processed at the concentrator plant on site, which was commissioned in 2011. The Unki smelter was completed and commissioned in 2018.

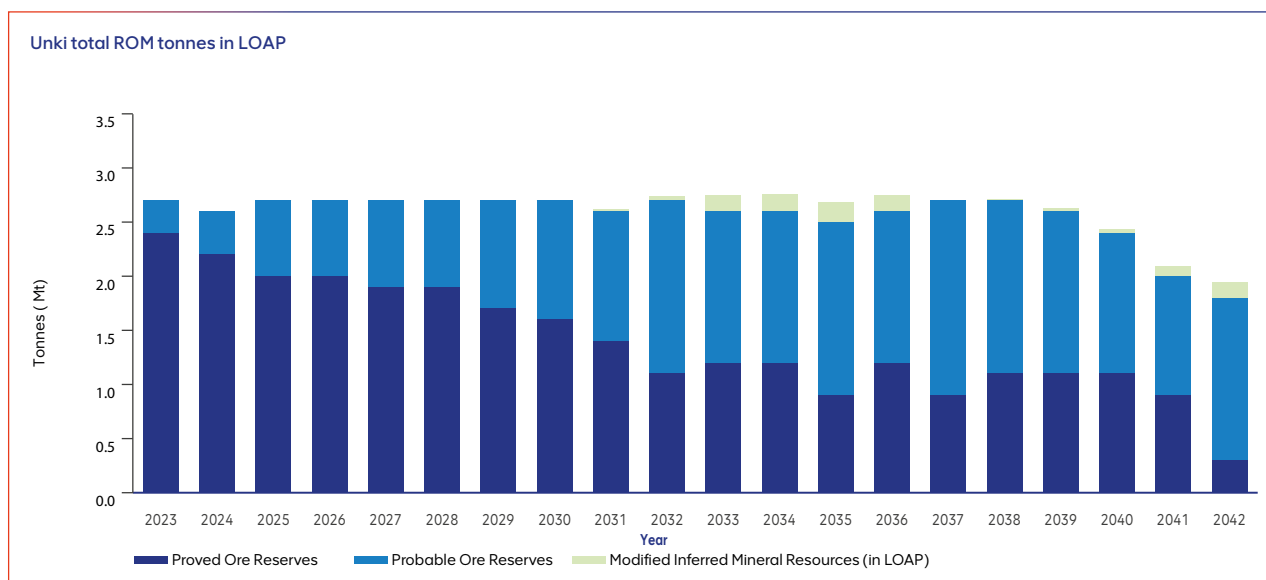
For a description of the Ore Reserves estimation and classification processes see [pages 29-31](#) of this report.



For additional details on the 2022 production information see the operations review section, [pages 112-113](#) of the [Integrated report](#).

Unki life-of-asset profile

The life-of-asset schedule for Unki indicates the current MSZ production planned in the approved life-of-asset plan and includes projects that have passed the necessary approvals that underpin the Ore Reserve declaration. The anticipated mining is for 20 years and is within the Special Mining Lease conditions. The modified Inferred Mineral Resources in life-of-asset plan are excluded from Ore Reserves declaration and assessments have indicated that the exclusion of these Inferred Mineral Resources will have no impact on the current life-of-asset.

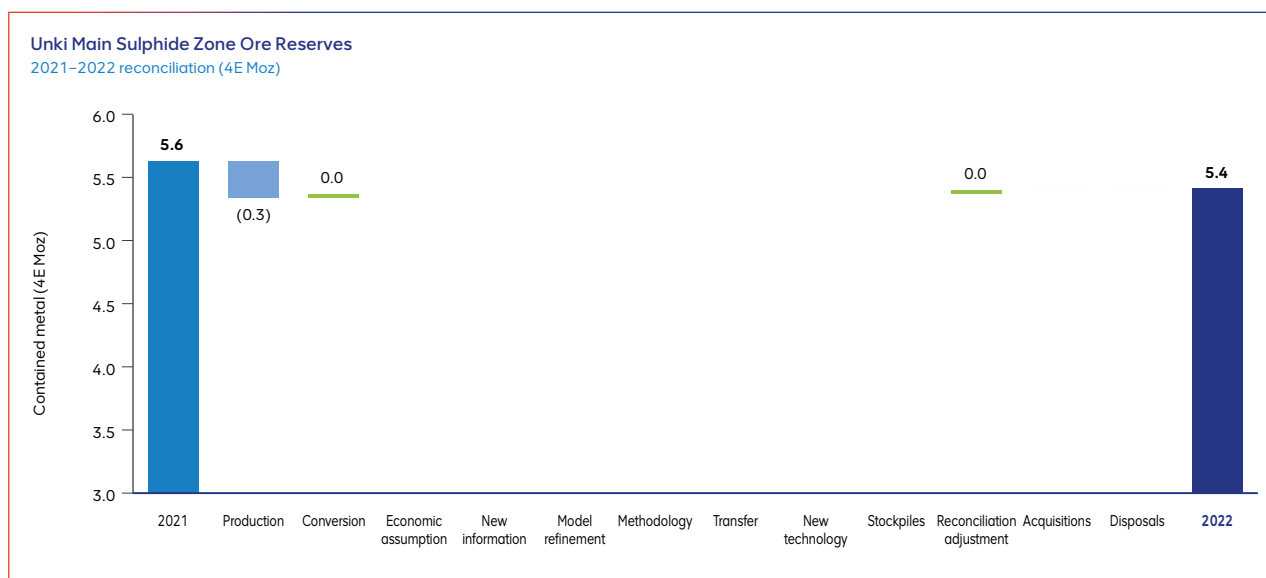


Ore Reserves estimates

Unki (100%)	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
MSZ	20	Proved	28.2	30.3	3.24	3.27	91	99	2.9	3.2
		Probable	23.0	22.8	3.35	3.33	77	76	2.5	2.4
		Total	51.2	53.1	3.29	3.29	168	175	5.4	5.6

MSZ Ore Reserves reconciliation

The MSZ Ore Reserves 4E ounces decreased due to annual production.



Unki (100%) continued

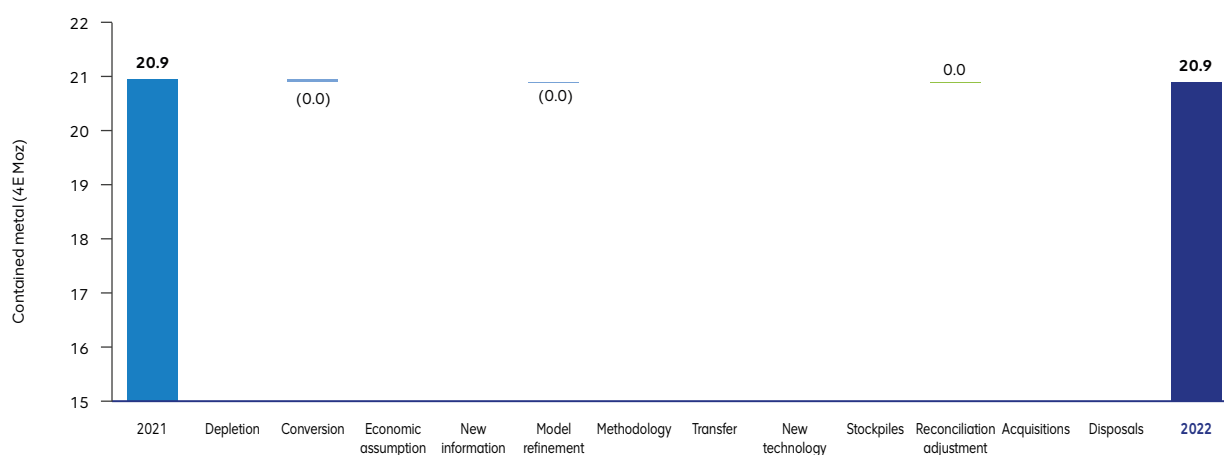
Exclusive Mineral Resources estimates

Unki (100%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
MSZ	Measured	6.1	6.7	4.12	4.11	25	27	0.8	0.9
	Indicated	114.6	114.5	4.33	4.33	496	496	16.0	15.9
	Measured and Indicated	120.8	121.2	4.32	4.32	521	523	16.8	16.8
	Inferred	31.8	31.7	4.04	4.04	128	128	4.1	4.1
	Total	152.5	152.8	4.26	4.26	649	651	20.9	20.9

MSZ exclusive Mineral Resources reconciliation

Mineral Resources at Unki remained the same, with minor changes emanating from conversion of the upper and southern sections of the mine to Ore Reserves following a revised mine design that will enable efficient return airway to new vent shaft.

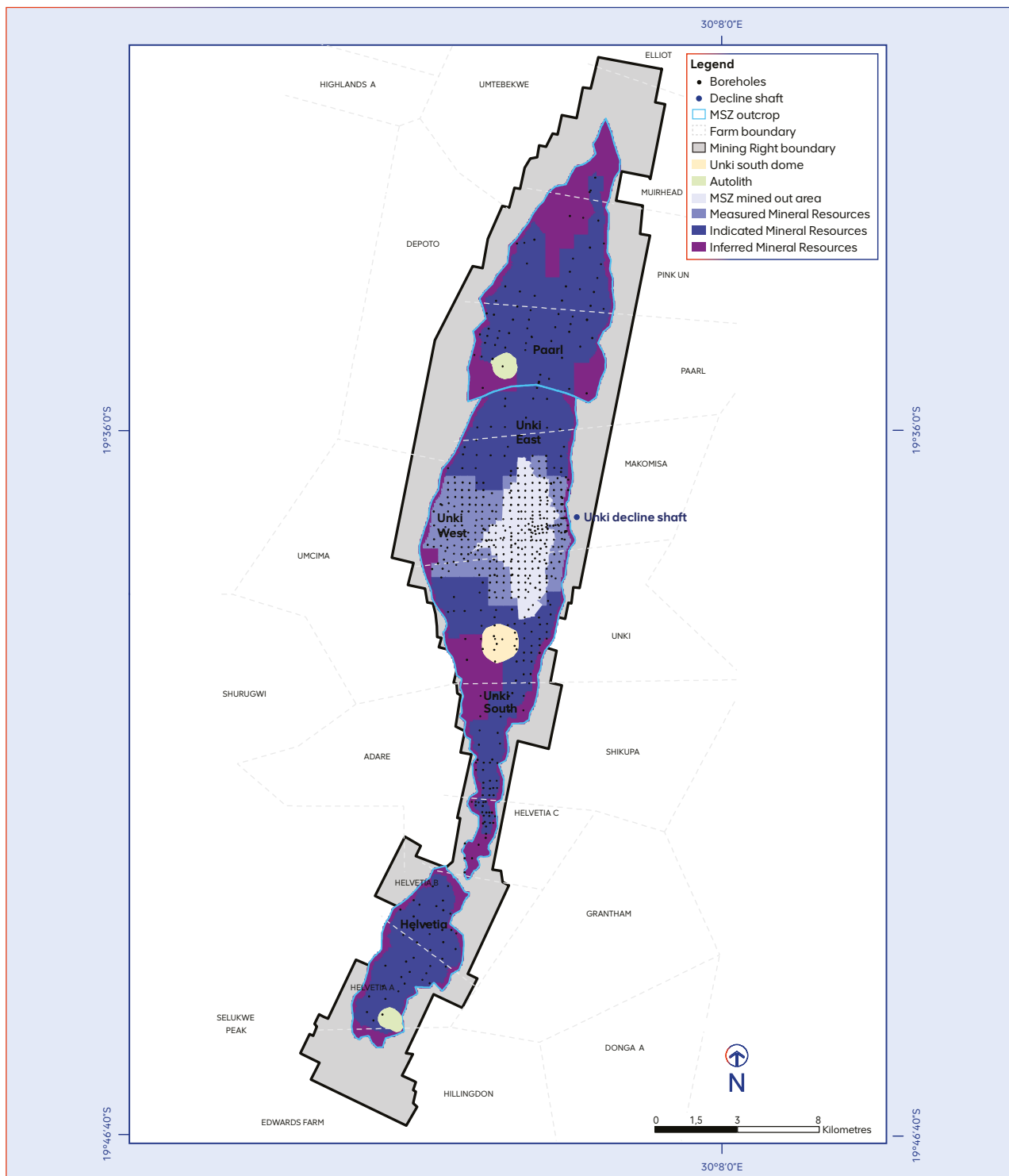
Unki Main Sulphide Zone exclusive Mineral Resources
2021–2022 reconciliation (4E Moz)



An aerial view of the concentrator at Unki

Unki (100%) continued

Unki MSZ Mineral Resources classification map





Laser device used underground for precision mark-up of centre lines and panel marking at Unki . Foreground is Prosper Ngwerume (section surveyor) and marking in the background is Kissiot Sibanda (miner)

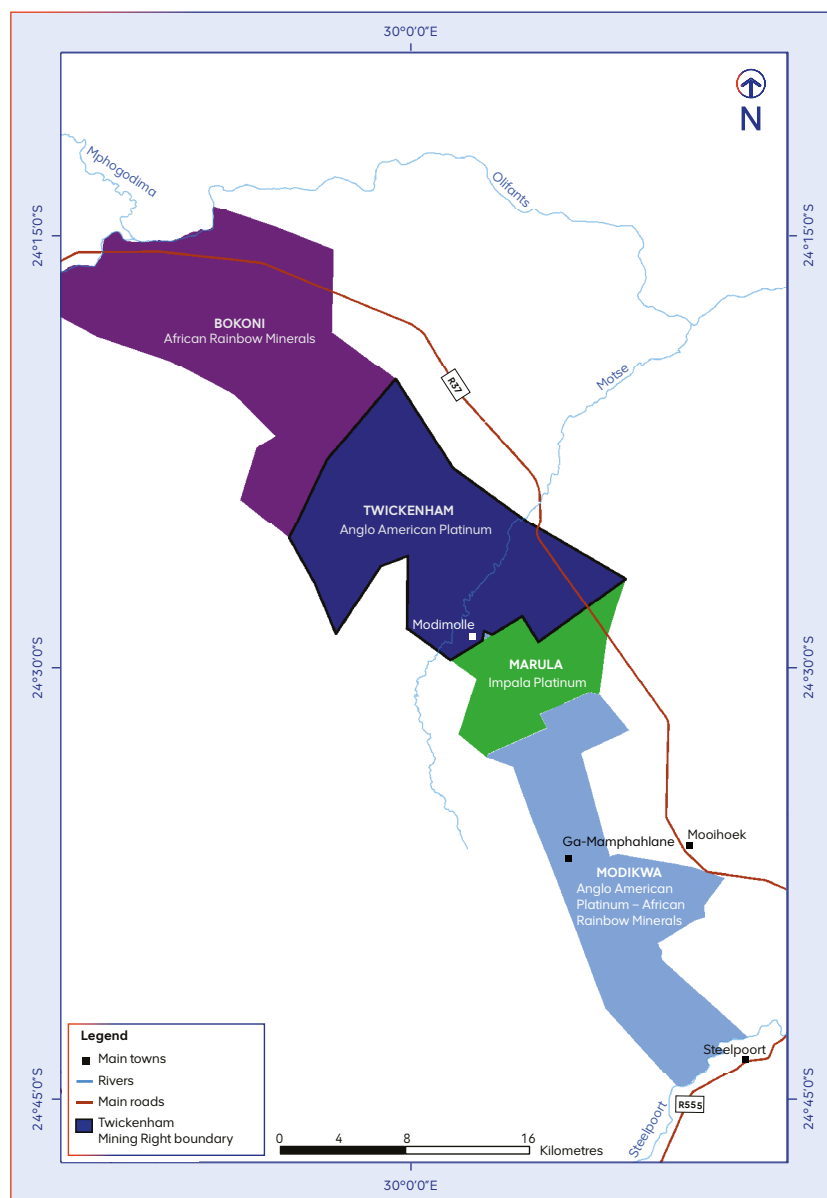
Estimates and reconciliation – managed operations

as at 31 December 2022

Twickenham

Anglo American Platinum
Limited interest: **100%**

Management structure:
managed



South Africa



Location

Twickenham is in the eastern limb of the Bushveld Complex, immediately south-east of Bokoni Mine and some 35km north-west of the town of Burgersfort.



Property description

Twickenham was placed on care and maintenance strategy in 2016.

The mine offers long-term prospects for shallow mechanised mining on both the Merensky Reef and UG2 Reef horizons. In the current commodity price environment, Anglo American Platinum is in the process of exploring possibilities through feasibility studies, to evaluate options that would bring the Twickenham Mine project into production and ensure sustainability of the operation in the future.

Competence

Martha Setuke

Competent Person:

Mineral Resources

Role:

Mineral Resources and Reserves reporting specialist - platinum

Relevant qualifications:

BSc (hons) (geology), GDE (mining)

Professional organisation:

SACNASP, PrSciNat (400300/12)

Relevant experience:

17 years

Brief history

After the Merensky Reef was discovered in the mid-1920s on Maandagshoek farm, in the eastern limb of the Bushveld Complex, the Twickenham area has been the subject of different exploration programmes. A phase of trenching and numerous small adits were excavated on both the Merensky and UG2 Reef horizons, notably where these occurred in the hills on the eastern side of the area. In the 1960s, diamond drilling programmes were undertaken throughout the area to determine the basic characteristics of the orebody.

The Hackney area was the focus of extensive exploration since 1966 to 1982. Trial mining of the UG2 Reef at Hackney was conducted between 1977 and 1979. During 1988 to 1989 further diamond drilling commenced. Renewed interest sparked further drilling during the period between 1996 and 1997. At the same time detailed mineralogical and metallurgical studies of the UG2 and Merensky reefs were conducted to better predict the treatment characteristics of the orebody.

Since 2001, Anglo American Platinum exploration activities have included several major exploration drilling programmes and related activities. The UG2 was identified as the primary target at the mine, based on geological continuity, grade consistency and precious metal values. The development of the mine started in 2001 and was planned to peak at 250,000 tonnes per month by 2008.

However, due to economic conditions prevailing at the time, Twickenham has been placed on care and maintenance since 2016.

Mineral Rights

The current Mining Right covers an area of 17,747ha. Anglo American Platinum holds a converted Mining Right under DMRE reference LP 89 MR, valid from March 2011 to March 2041.

There are no known impediments to the Mining Right.

Brief geological description

Twickenham is located in the eastern limb of the Bushveld Complex, north of the Steelpoort fault. The main economic horizons and PGM mineralisation are the UG2 and the Merensky reefs. Both reefs subcrop on the property, striking roughly north north-west/south south-east at an average dip of 15° to the south-west over a strike length of 16km. The UG2 and Merensky reefs are separated by approximately 400m of mafic cumulate rocks.

Merensky Reef has a thickness that range from 100cm to 200cm, with an average thickness of 140cm. The mineralisation occurs mainly in a poikilitic plagioclase pyroxenite bound by thin chromitite stringers and associated pegmatoidal textures, which contain the highest PGM grades. The UG2 Reef chromitite layer varies in thickness from 30cm to 110cm (average of 62cm), overlain by up to five chromitite stringers varying in thickness from 2mm to 1cm. The immediate footwall of the UG2 Reef is usually a pegmatoidal feldspathic pyroxenite, which varies in thickness from a few centimetres to 200cm, with an average of 60cm.

The topography consists of a long valley between the fairly rugged Leolo mountain range, comprising Main Zone gabbro and gabbro-norites. The tectonic setting is characterised by north north-east/south south-west striking dolerite dykes of post-Karoo age and faults. A fairly prominent dyke swarm exists on Paschaskraal farm with individual dyke widths reaching 30m to 40m. Other geological discontinuities are potholes and replacement pegmatites of various compositions (sometimes iron rich) are rare, but do occur.



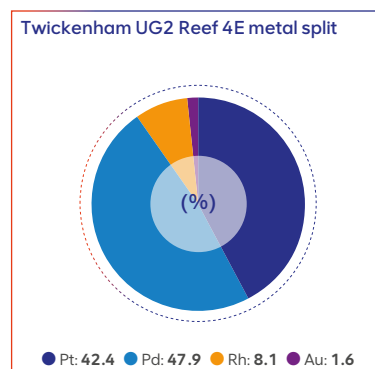
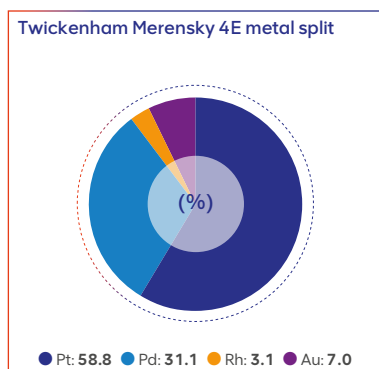
For a description of the Mineral Resources estimation and classification processes see [pages 22-24](#) of this report.

Reasonable prospects of eventual economic extraction

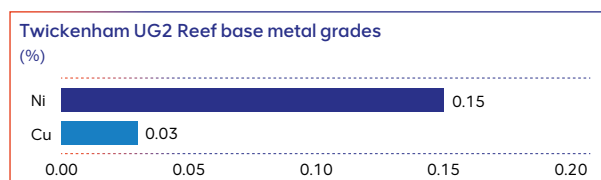
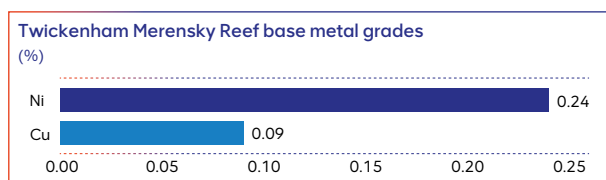
The following factors were considered when determining reasonable prospects of eventual economic extraction of the declared Mineral Resources:

- Legal: Twickenham adheres to all regulatory requirements and has requisite permits and licences to explore and mine.
- Environmental, social and governance: The sustainable mining plan framework considers the local communities, the environment and land use as well as current legislation as inputs when determining RPEEE.
- Geology: The latest geological and Mineral Resource models underpin the RPEEE considerations applied in the context of Mineral Resources declaration.
- Mining method: The RPEEE consideration is based on the current mining methods as utilised on adjacent mines.
- Metallurgical: Sufficient geometallurgical and mineralogical test work has been carried out for reefs declared and recovery potentials considered. The mine has sufficient plant data to predict recovery potential.
- Economics: Using current global assumptions (prices and costs), current mining methods are known to be viable when considering adjacent mining operations.
- Technology: Current technology is deemed to be inadequate for mining any material below the 75° isotherm line, and therefore has been excluded from the Mineral Resources declaration.
- Other factors such as market assessments and infrastructure requirements are adequately assessed in various levels of technical studies and within the mine plan.

Twickenham (100%) continued



UG2 Reef chromite grade: **24.6%**



	Units	Merensky	UG2
Mineral Resource assumptions			
Average geological loss	%	22	21
Minimum resource cut width	cm	105	95
Average density	g/cm ³	3.4	4.0

Exclusive Mineral Resource estimates

Twickenham (100%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
Merensky Reef	Measured	48.4	48.4	4.75	4.75	230	230	7.4	7.4
	Indicated	87.3	87.3	4.97	4.97	434	434	14.0	14.0
	Measured and Indicated	135.7	135.7	4.89	4.89	664	664	21.3	21.3
	Inferred	165.7	165.7	5.26	5.26	872	872	28.0	28.0
	Total	301.4	301.4	5.09	5.09	1,536	1,536	49.4	49.4
UG2 Reef	Measured	54.6	54.6	6.29	6.29	344	344	11.1	11.1
	Indicated	145.4	145.4	6.05	6.05	879	879	28.3	28.3
	Measured and Indicated	200.0	200.0	6.12	6.12	1,223	1,223	39.3	39.3
	Inferred	148.2	148.2	5.88	5.88	871	871	28.0	28.0
	Total	348.2	348.2	6.02	6.02	2,094	2,094	67.3	67.3

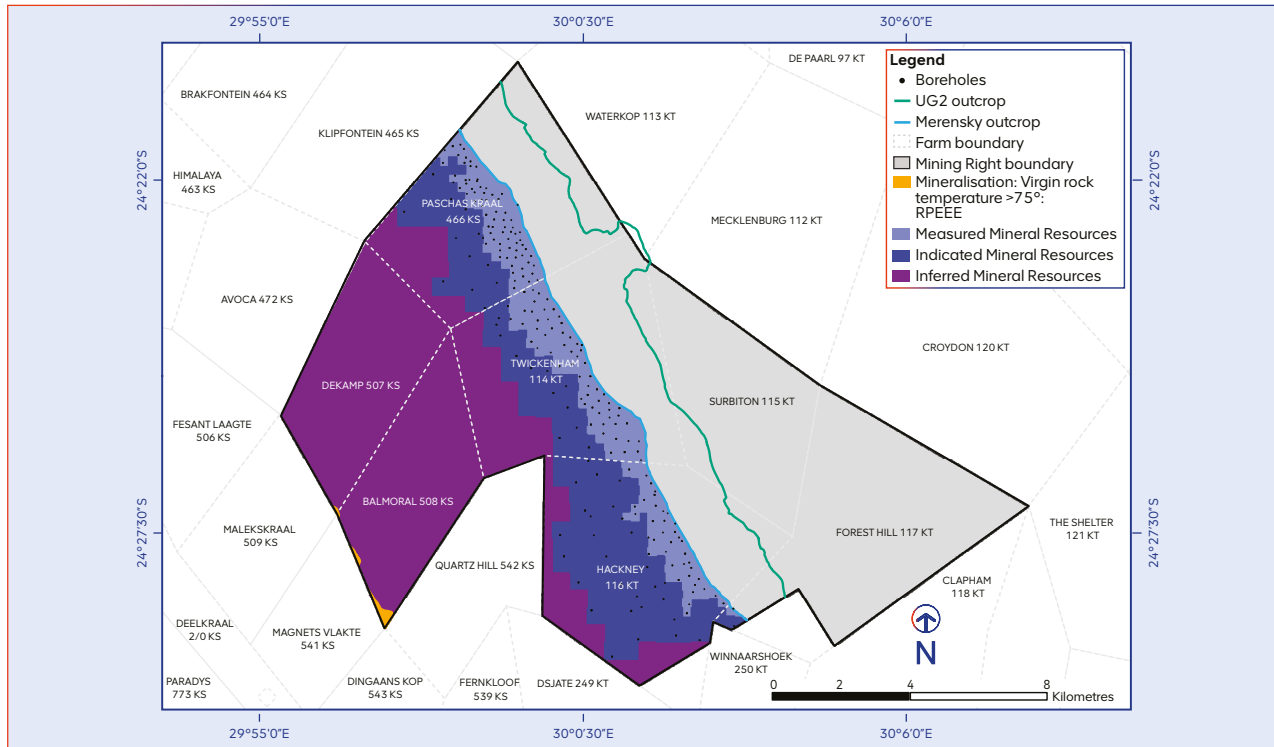
Merensky Reef exclusive Mineral Resources reconciliation

Twickenham Mine is on care and maintenance. Estimates are unchanged from previous reporting.

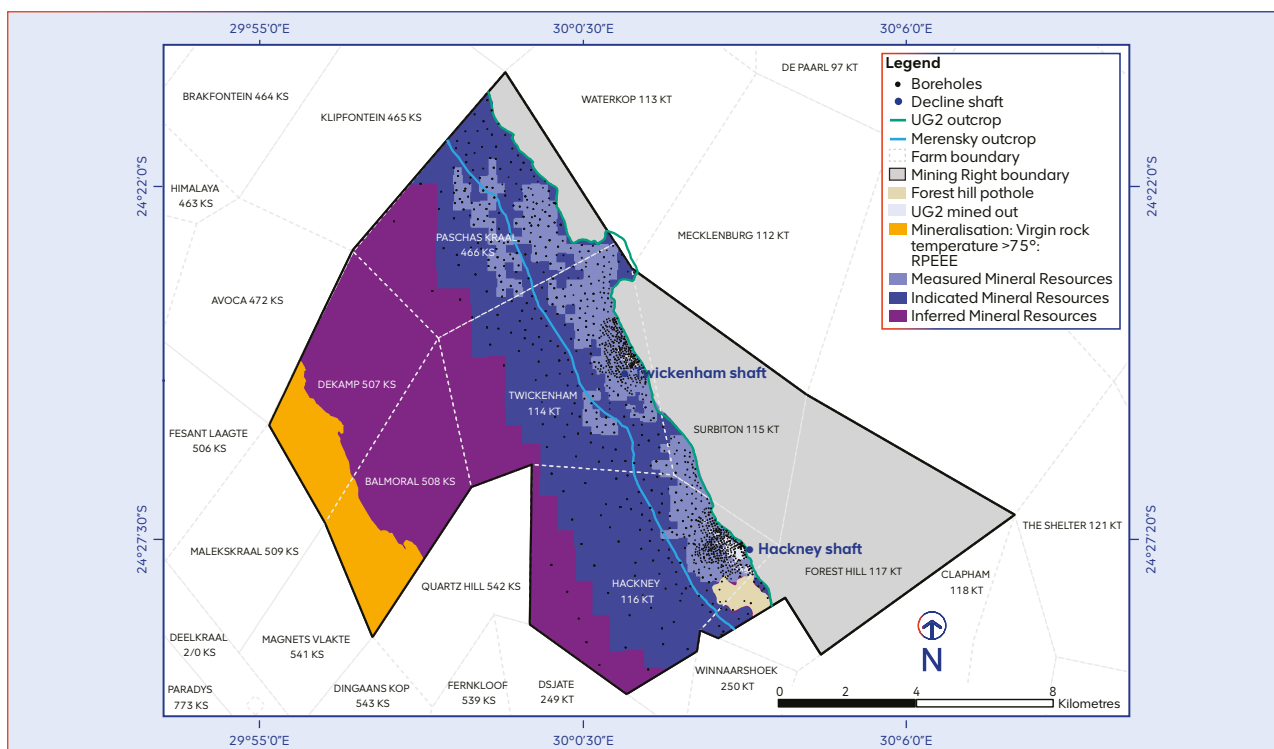
UG2 Reef exclusive Mineral Resources reconciliation

Twickenham Mine is on care and maintenance. Estimates are unchanged from previous reporting.

Twickenham Merensky Reef Mineral Resources classification map



Twickenham UG2 Reef Mineral Resources classification map



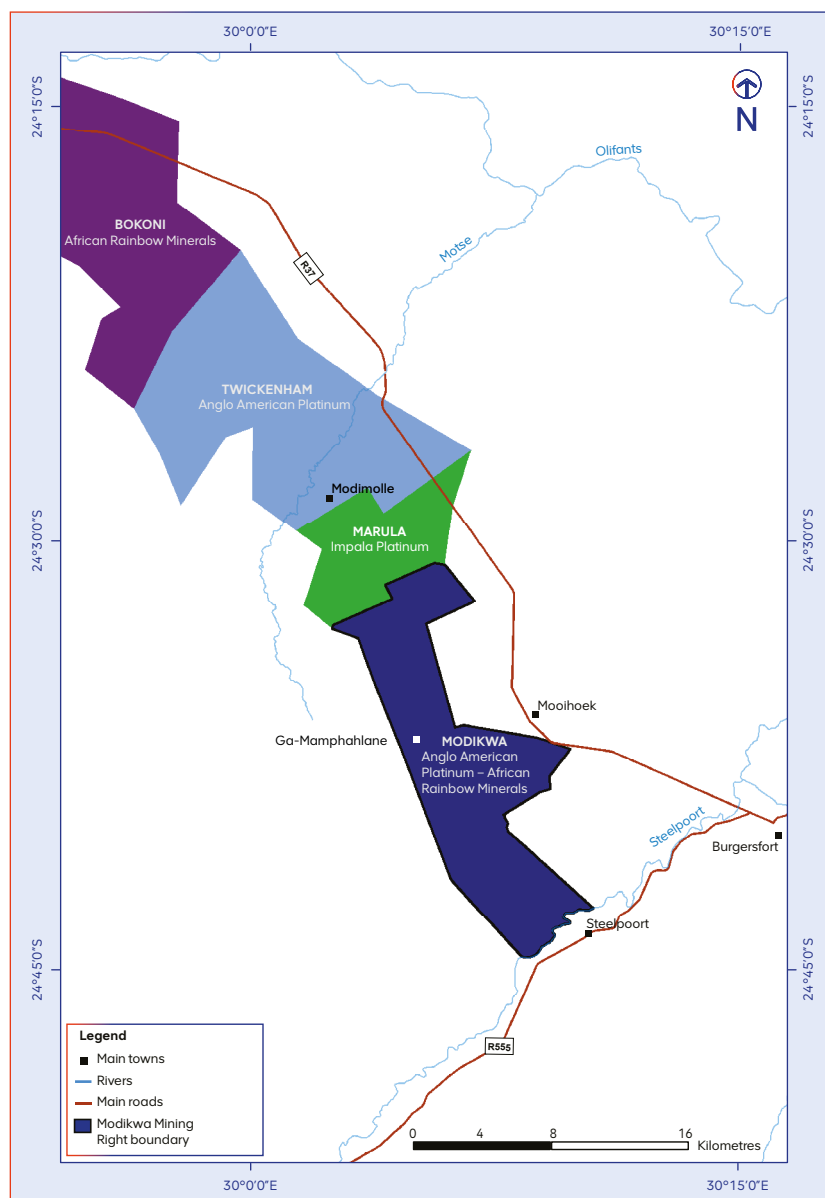
Estimates and reconciliation – joint operations

as at 31 December 2022

Modikwa

Anglo American Platinum
Limited interest: **50%**

Management structure:
non-managed



Location

Modikwa is located 25km north-west of the town of Burgersfort and 15km north of Steelpoort, along the border of Mpumalanga and Limpopo provinces in South Africa. It is an independently managed joint-operation partnership between Anglo American Platinum (50%), African Rainbow Minerals (41.5%) and Modikwa communities (8.5%).

Competence

Martha Setuke*

Competent Person:

Mineral Resources

Role:

Mineral Resources and Reserves reporting specialist – platinum

Relevant qualifications:

BSc (hons) (geology), GDE (mining)

Professional organisation:

SACNASP, PrSciNat (400300/12)

Relevant experience:

17 years

Alpheus Lesufi**

Competent Person:

Ore Reserves

Role:

Resource leader: survey

Relevant qualification:

BTech (survey)

Professional organisation:

SAIMM, member (706902)

Relevant experience:

10 years



Property description

It forms part of the eastern limb of the Bushveld Complex, with UG2 and Merensky reefs present. The mine extracts UG2 Reef from surface to in excess of 450m below surface.

* Employed by Anglo American plc.

** Employed by Modikwa Mine.

Information for non-managed operations is provided by joint operations partners. For additional details please refer to the applicable annual reports.

Brief history

The discovery of the Merensky Reef on the eastern limb of the Bushveld Complex occurred in the mid 1920s on Maandagshoek farm. The area has since then been the subject of different exploration programmes. A phase of trenching and numerous small adits were excavated on both the Merensky and the UG2 Reef horizons, notably where these occurred in the hills on the eastern side of the area. This was followed in the 1960s by a sequence of diamond drilling programmes undertaken throughout the area to determine the basic characteristics of the orebody.

In the late 1970s to early 1980s, several limited underground operations were established, which included the development of a vertical shaft at the Driekop pipe, and a number of inclined winzes on the Maandagshoek farm. The UG2 was identified as the primary target in the vicinity of the Modikwa Mine lease based on geological continuity, grade consistency and precious metal values. The Anglo American Platinum and African Rainbow Minerals 50:50 joint partnership culminated in the inception of the mine in the early 2000s. Mining operations started as a project in 2001, reaching mining status in 2003. Both the N1 and S1 shafts started simultaneously in 2001 and the S2 shaft was established in 2013.

Mineral Rights

The Mining Right covers an area of 14,136ha and is held in equal shares by Anglo American Platinum and African Rainbow Minerals. The converted Mining Right held under DMRE reference LP129 MR and is valid from November 2013 to November 2043.

There are no known impediments to the Mining Right.

Brief geological description

Modikwa is located in the eastern limb of the Bushveld Complex, north of the Steelpoort fault. The main economic horizons and PGM mineralisation are the UG2 and the Merensky reefs. Both reefs subcrop on the property, striking roughly north north-west/south south-east at dips ranging from 10° to 12° to the south-west over a strike length of 25km. The UG2 and Merensky reefs are separated by approximately 245m to 360m of mafic cumulate rocks.

Merensky Reef thickness is approximately 2.5m and mineralisation occurs mainly in a poikilitic plagioclase pyroxenite bound by thin

chromitite stringers and associated pegmatoidal textures, which contain the highest PGM grades. The UG2 chromitite layer is varying in thickness from 55cm to 65cm, overlain by three chromitite stringers which varies thickness from 2mm to 1 cm. The immediate footwall of the UG2 is usually a pegmatoidal feldspathic pyroxenite, which varies in thickness from a few centimetres to 20cm. Gentle undulations of the UG2 Reef with amplitudes of less than 2m are developed across the mine area.

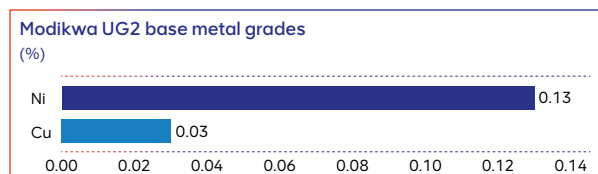
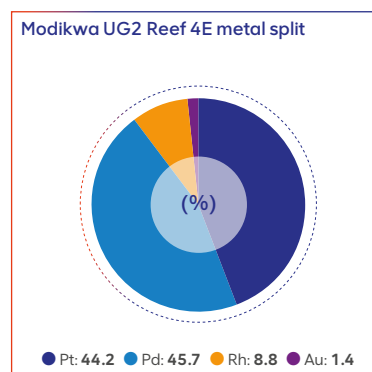
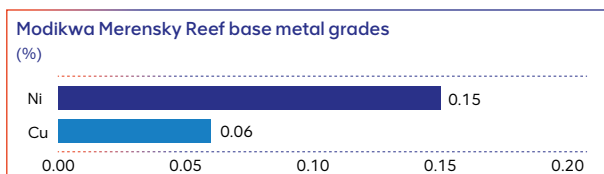
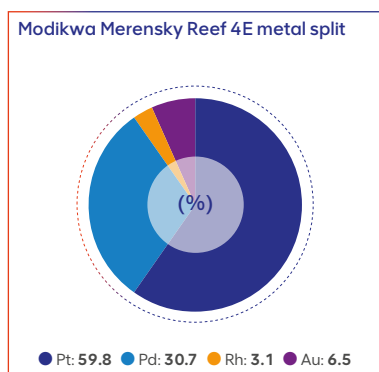
Potholes are randomly distributed within the North shaft area but are less abundant in the South shaft area. The dolerite dykes are generally vertical or steep dipping, varying between 70° and 90° and the thickness from several centimetres to approximately 30m, including four north/south trending dyke swarms, one of which cuts across the South shaft area. The Onverwacht Hill and Driekop areas in the southern portion of the mine are characterised by the presence of several large ultramafic pegmatoid intrusions that disrupt, and locally replace the UG2 Reef.

 For a description of the Mineral Resources estimation and classification processes see [pages 22-24](#) of this report.

Reasonable prospects of eventual economic extraction

The following factors were considered when determining reasonable prospects of eventual economic extraction of the declared Mineral Resources:

- Legal: Modikwa adheres to all regulatory requirements and has requisite permits and licences to explore and mine.
- Environmental, social and governance: The Modikwa Mine's ESG framework considers the local communities, the environment and land use as well as current legislation as inputs when determining RPEEE.
- Geology: The latest updated geological and Mineral Resource models underpin the RPEEE considerations applied in the context of Mineral Resources declaration.
- Mining method: The RPEEE considerations are based on the current mining methods as utilised currently on the operation and adjacent mines.
- Metallurgical: Sufficient geometallurgical and mineralogical test work has been carried out for reefs declared and recovery potentials considered. The mine has sufficient plant data to predict recovery potential.
- Economics: Using current global assumptions (prices and costs), applicable mining methods are known to be viable as utilised on the current mining footprint.
- Other factors such as market assessments and infrastructure requirements are adequately assessed in various levels of technical studies and within the mine plan.



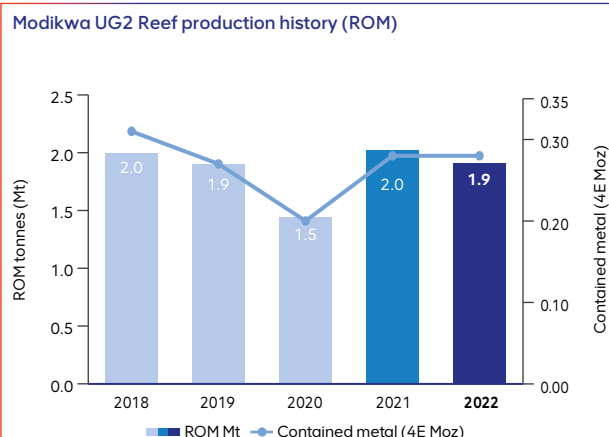
Modikwa (50%) continued

	Units	Merensky	UG2
Mineral Resource assumptions			
Average geological loss	%	21	17
Minimum resource cut width	cm	180	103
Average density	g/cm ³	3.4	3.9
Ore Reserve Modifying Factors			
Mining loss factor	%	—	1.2
Mining dilution	%	—	33
Planned stoping width	cm	—	119
4E concentrator recoveries	%	—	87
Mine call factor	%	—	95

Mining methods and operational infrastructure

The mine is a hybrid operation using conventional breast stoping with strike pillars, supported by mechanised development and ore clearance. On-reef mining/stoping is supported by on-reef infrastructure which will be developed ahead of on-reef operations and will be conducted by means of trackless mechanised mining equipment. There is also trial mining activities along the outcrop of the Merensky Reef through one of the three adits (the J adit) in the Onverwacht Hill area. The current infrastructure comprises three primary decline shafts (North 1, South 1 and South 2), three adits on Onverwacht Hill and a concentrator with mainstream inert grinding (MIG) plant. ROM ore is processed at the mine concentrator and the PGM-rich concentrate is transported to the Anglo American Platinum Polokwane smelter for further processing and refining.

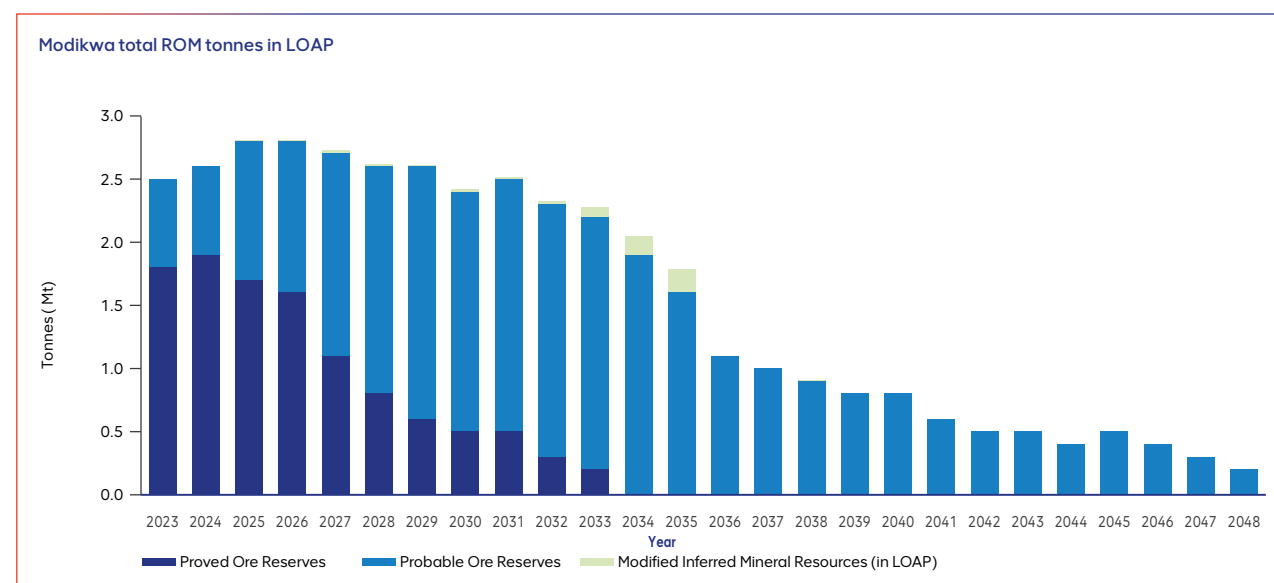
For a description of the Ore Reserves estimation and classification processes see [pages 29–31](#) of this report.



For additional details on the 2022 production information see the operations review section, [pages 114–115](#) of the *Integrated report*.

Modikwa life-of-asset profile

The life-of-asset schedule for Modikwa indicates the current UG2 Reef production planned in the approved life-of-asset plan and includes projects that have passed the necessary approvals that underpin the Ore Reserve declaration. The anticipated life-of-asset is for 26 years and exceeds the current Mining Right expiry date of 2043 (Reserve life of 21 years). An application to extend the Mining Right will be submitted at the appropriate time and there is reasonable expectation that such an extension will not be withheld. The modified Inferred Mineral Resources in life-of-asset plan are excluded from Ore Reserves declaration and assessments have indicated that the exclusion of these Inferred Mineral Resources will have no impact on the current life-of-asset.

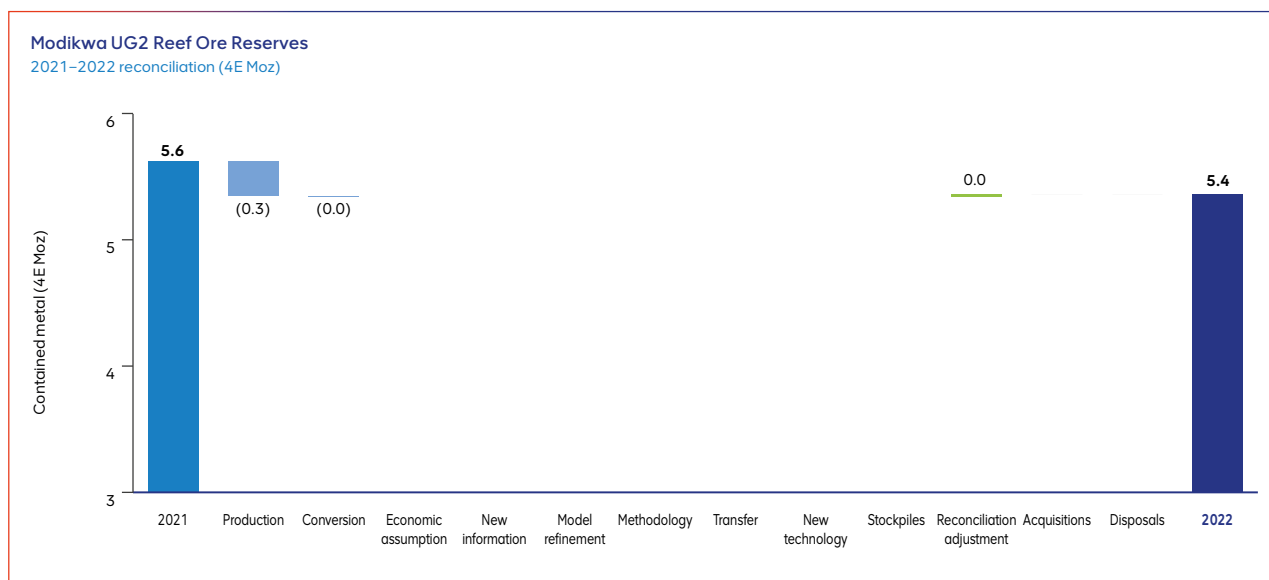


Ore Reserve estimates

Modikwa (50%)	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
UG2 Reef	>21	Proved	10.8	11.3	4.47	4.48	48	51	1.6	1.6
		Probable	28.5	29.9	4.15	4.16	118	124	3.8	4.0
		Total	39.3	41.1	4.24	4.25	166	175	5.4	5.6

UG2 Reef Ore Reserves reconciliation

The UG2 Reef Ore Reserve 4E ounces decreased due to annual production.



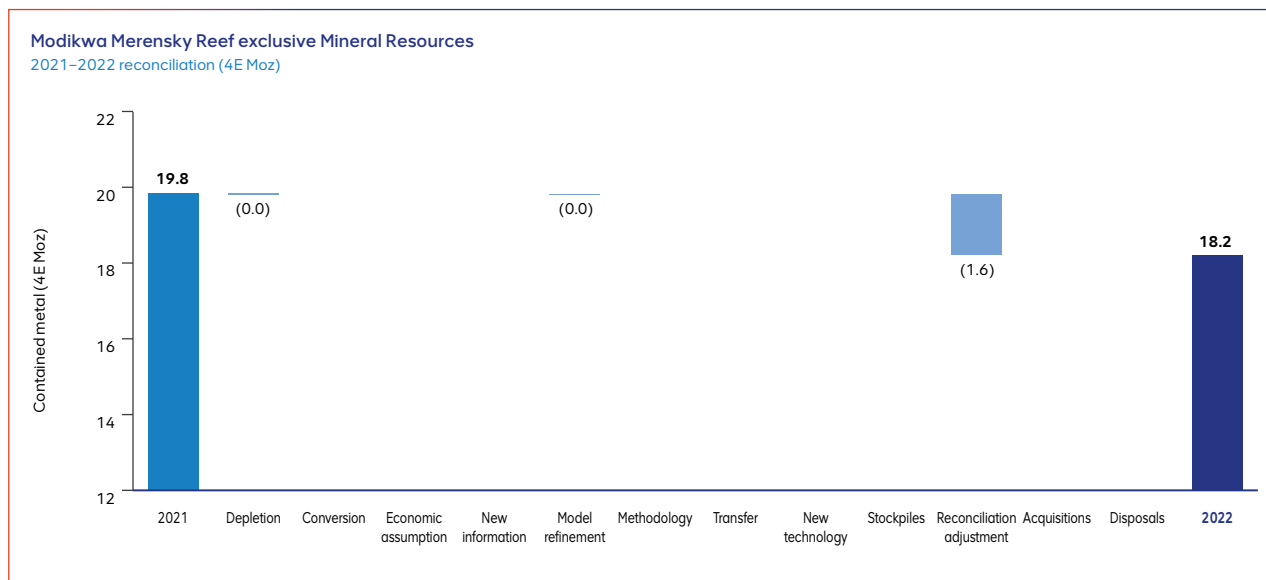
Exclusive Mineral Resource estimates

Modikwa (50%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
Merensky Reef	Measured	18.3	20.7	3.15	3.16	58	65	1.9	2.1
	Indicated	51.2	53.8	2.86	2.90	146	156	4.7	5.0
	Measured and Indicated	69.5	74.6	2.94	2.97	204	221	6.6	7.1
	Inferred	128.5	139.3	2.82	2.84	362	396	11.6	12.7
	Total	197.9	213.9	2.86	2.89	566	617	18.2	19.8
UG2 Reef	Measured	47.0	47.0	5.88	5.88	276	276	8.9	8.9
	Indicated	89.5	89.5	5.90	5.90	528	528	17.0	17.0
	Measured and Indicated	136.6	136.6	5.89	5.89	804	804	25.9	25.9
	Inferred	78.1	78.1	6.21	6.21	485	485	15.6	15.6
	Total	214.6	214.6	6.01	6.01	1,289	1,289	41.5	41.5

Modikwa (50%) continued

Merensky Reef exclusive Mineral Resources reconciliation

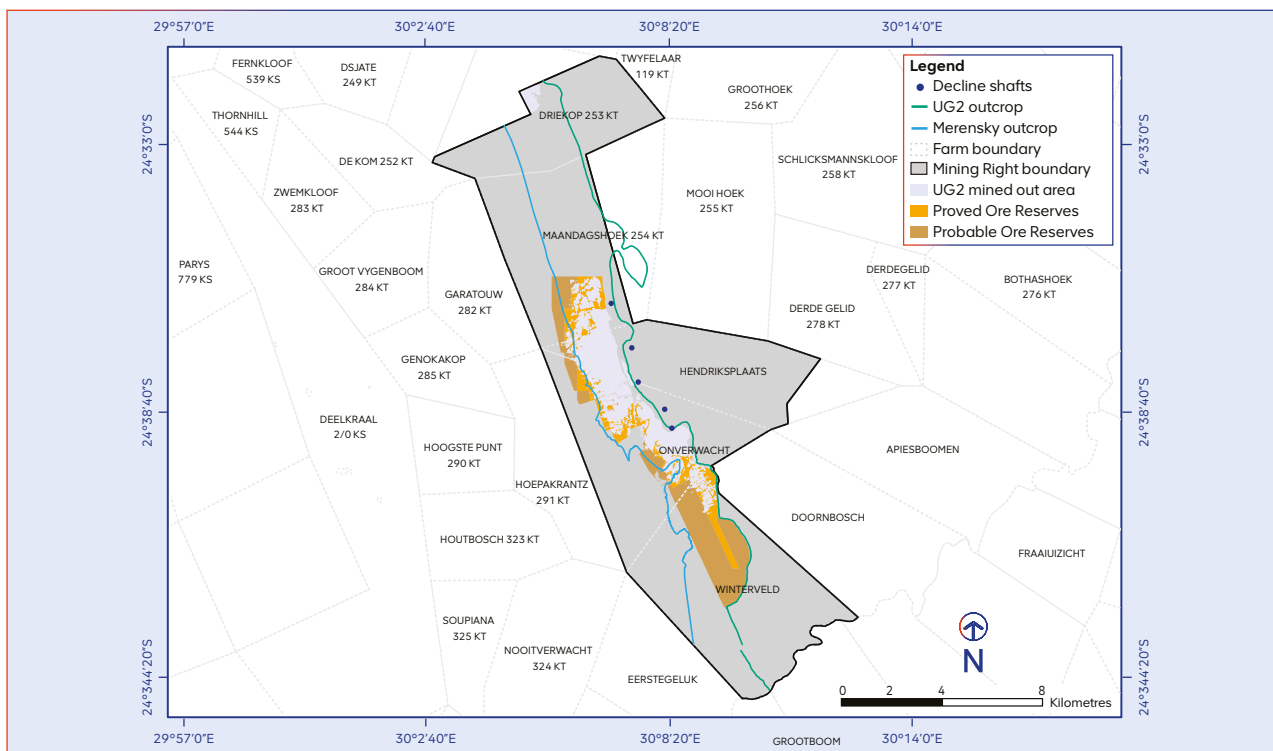
The Merensky Reef exclusive Mineral Resources 4E ounces decreased due to a reporting boundary change.



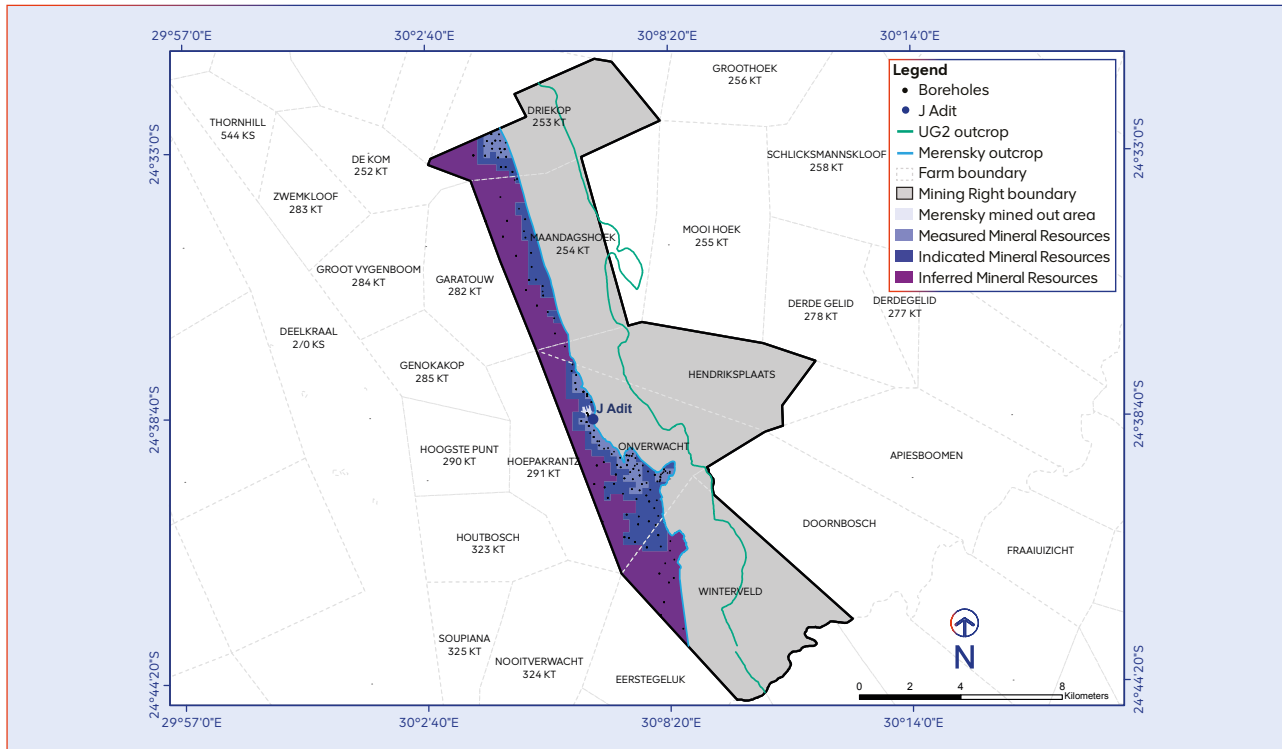
UG2 Reef exclusive Mineral Resources reconciliation

Estimates are unchanged from previous reporting.

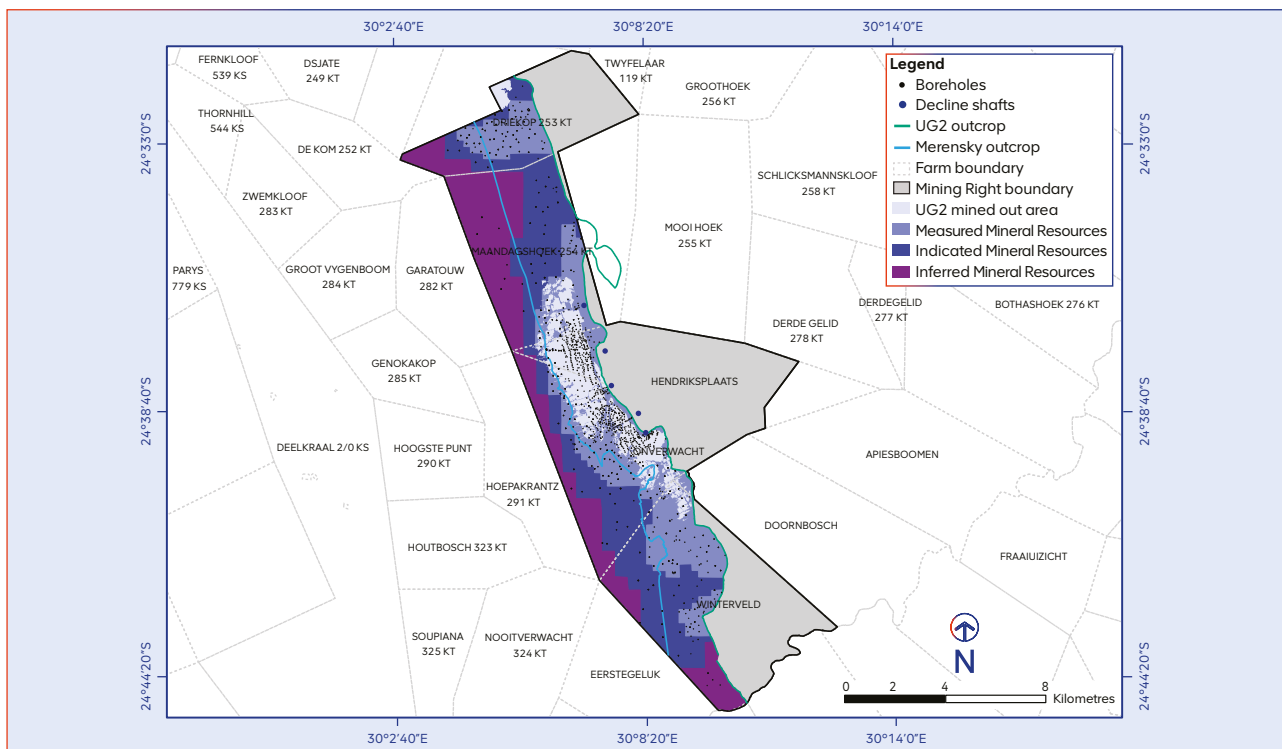
Modikwa UG2 Reef Ore Reserves classification map



Modikwa Merensky Reef Mineral Resources classification map



Modikwa UG2 Reef Mineral Resources classification map



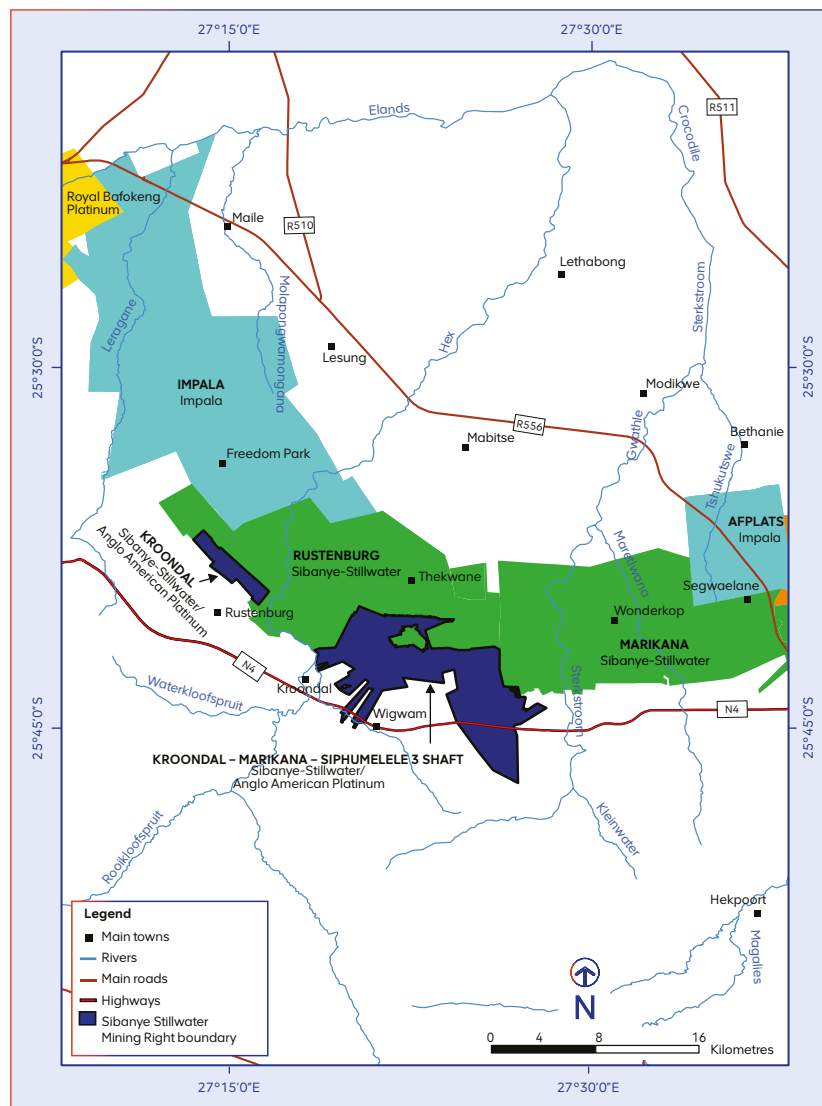
Estimates and reconciliation – joint operations

as at 31 December 2022

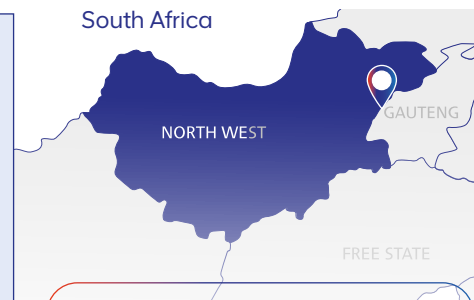
Sibanye-Stillwater joint operations

Anglo American Platinum Limited interest:
50% (Kroondal-Marikana) and **100%** (Siphumelele 3)

Management structure:
non-managed



South Africa



Location

The Siphumelele 3 shaft, Kroondal and Marikana mines are located in the North West province, 12km outside the town of Rustenburg and some 120km north-west of Johannesburg.



Property description

Kroondal and Marikana are a 50/50 joint operation with Sibanye-Stillwater. The joint-operation agreement is a pooling-and-sharing agreement (PSA), where the Sibanye-Stillwater infrastructure is used to access Ore Reserves and Mineral Resources on the Anglo American Platinum-held Mining Right. The joint operations are managed by Sibanye-Stillwater.

The Siphumelele 3 shaft is part of the Kroondal Extension area, an area situated down-dip of the original PSA agreement area. Anglo American Platinum has 100% ownership of the operation but, it is mined on a royalty basis by Sibanye-Stillwater. Siphumelele 3, Kroondal and Marikana mines form part of the western limb of the Bushveld Complex and extract UG2 Reef.

Marikana, with infrastructure comprising four decline shafts and a concentrator, was placed on care and maintenance in 2012.

Competence

Nicole Wansbury*

Competent Person:

Mineral Resources

Role:

Unit manager geology

Relevant qualifications:

MSc (geology)

Professional organisation:

SACNASP, PrSciNat (400060/11)

Relevant experience:

17 years

Brian Smith*

Competent Person:

Ore Reserves

Role:

Unit manager survey

Relevant qualifications:

MEng (mineral resource management)

Professional organisation:

SAGC (GPr MS 0218)

Relevant experience:

36 years

* Employed by Sibanye-Stillwater

Information for non-managed operations is provided by joint operations partners. For additional details please refer to the applicable annual reports.

Brief history

A pre-feasibility study of the Kroondal platinum project, in which Aquarius had a 45% stake, was completed in 1996, followed by a feasibility study the next year. Mine developments started in 1998, with development and completion of two decline shafts.

In 2000, Aquarius increased its stake to 100%, but entered into a 50/50 joint-operation agreement with Anglo American Platinum the next year. The agreement included an offtake agreement with Anglo American Platinum for the Ore Reserves covered by the agreement and planned to build a concentrator. In 2012, Marikana Mine, was placed on care and maintenance.

In 2013, the extent of the Mineral Resource included in the PSA agreement was extended by including Siphumelele 3 shaft (Kroondal extension area), extending the life-of-asset. In April 2016, following the acquisition in full of Aquarius, Sibanye-Stillwater acquired a 50% stake in Kroondal Mine. Sibanye-Stillwater is now Anglo American Platinum's joint operations partner and manages the operations.

On 31 January 2022, Anglo American Platinum announced its intent to dispose of the interest in the Siphumelele 3, Kroondal and Marikana joint operations to Sibanye-Stillwater, conditional on a number of contractual and regulatory approvals. The sale transaction is expected to be concluded in 2023.

Mineral Right

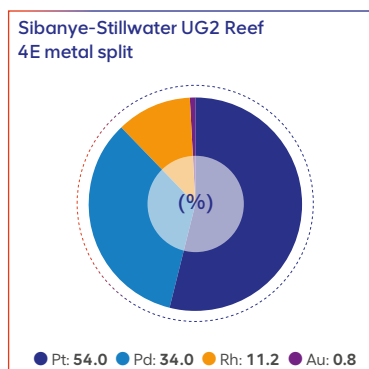
The principal Mining Right covers an area of 3,212ha. Anglo American Platinum holds a converted Mining Right under DMRE reference NW 80 MR, valid from July 2010 to July 2040. The Mining Right is under the PSA agreements and covers Siphumelele 3 shaft, Kroondal and Marikana mines. The Right also covers the Klipfontein open pit project, which is part of the original PSA agreement.

Following the announcement of the disposal of Anglo American Platinum interest in joint operation, an application to transfer the PSA Mining Right in terms of Section 11 of the MPRDA to Sibanye was submitted to the DMRE and is currently being processed.

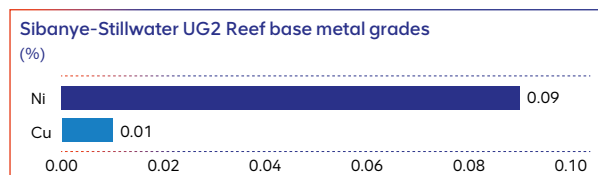
There are no known impediments to the Mining Right or the transfer thereof.

Brief geological description

The mines are located in the western limb of the Bushveld Complex. The economic horizon being exploited is the UG2 Reef which consists of two chromitite-rich horizons hosting PGM minerals, separated by a pyroxenite parting forming the mineable horizon. The reef dips at 9° to 10° towards the north-east. The two chromitite horizons, termed the UG2 leader seam and UG2 main seam, are about 20cm and 70cm thick respectively, and the non-mineralised pyroxenite parting has a variable thickness of up to 4m, but is typically less than 1.5m. The mining cut typically includes both the seams and the internal pyroxenite. The orebody is tabular, laterally continuous with relatively long-range grade consistency and predictability. Reef disruptions in the form of potholes, faults, IRUPs and dykes occur throughout the orebody.



UG2 Reef chromite grade: 24.1%



Mineral Resources estimation and classification summary

The Mineral Resource estimates are based on data generated from underground and surface diamond drilling, underground channel sampling, geological mapping, 3D surface seismic surveys and aerial magnetic surveys. The UG2 Reef is subdivided into a number of geozones, which relate primarily to reef width, differences in reef elevation within the stratigraphic succession and mineralisation alignment. These are used as separate geostatistical domains for estimation. Detailed exploratory data analysis, including sample verification, histogram and cumulative frequency plots for distributional analysis, additive constant estimates, outlier checks, trend analysis and declustering are carried out on individual domains. The optimum estimation parameters are determined using a kriging neighbourhood analysis in combination with the variogram models defined for the UG2 domains. Variography studies are carried out on different domains, with traditional variograms used for kriging purposes.

Mineral Resources estimation for platinum, palladium, rhodium, gold, ruthenium, iridium, density and true width using ordinary kriging; and inverse distance for copper, nickel and chromite. Modelling is completed using 2D block models, except for the Klipfontein open pit section where a 3D block model was created. The Resource widths are compiled over a minimum practical mining cut. It includes additional varying thickness over break material to a minimum mining width. The minimum mining widths are determined by a number of parameters, namely: reef width, mineralisation of the hanging wall and footwall, mining method, rock quality, location of weak parting planes, support systems and associated equipment required for support installation. At the Kroondal operation, a minimum 200cm mining width was modelled for all areas where a high-profile trackless mining method is applied.

Geological losses are split into known and unknown (anticipated) losses and determined for each structural domain and per shaft. All Mineral Resources reported are exclusive of geological losses. The final Mineral Resource quantities are determined by projecting the 2D estimated parameters onto the 3D structural polygons, exclusive of the geological losses, and reporting them on a 4E composite grade basis.

Sibanye-Stillwater joint operations continued

Mineral Resource classifications are based on the scoring and rating of five statistical parameters (kriging variance, kriging efficiency, slopes of regression, search volume and number of samples) and seven non-statistical parameters (aeromagnetic survey, seismic interpretation, structural model, facies interpretation, geological loss estimates, historical data (mining history) and quality assurance/quality control (QA/QC) reports).

Reasonable prospects of eventual economic extraction

The following factors were considered to determine reasonable prospects of eventual economic extraction of the declared Mineral Resources:

- Legal: Kroondal, Marikana and Siphumelele 3 adhere to all regulatory requirements and have requisite permits and licences to mine.
- Environmental, social and governance: The Sibanye-Stillwater ESG framework considers the local communities, the environment and land use as well as current legislation as inputs when determining RPEEE.
- Geology: The latest updated geological and Mineral Resource models underpin the RPEEE considerations applied in the context of Mineral Resources declaration.
- Mining method: The RPEEE considerations are based on the current mining method as utilised currently on the operation and adjacent mines.
- Metallurgical: Sufficient geometallurgical and mineralogical test work has been carried out for reefs declared and recovery potentials considered. The mine has sufficient plant data to predict recovery potential.
- Economics: Using current global assumptions (prices and costs), applicable mining methods are known to be viable as utilised on the current mining footprint.
- Other factors such as market assessments and infrastructure requirements are adequately assessed in various levels of technical studies and within the mine plan.

	Units	UG2
Mineral Resource assumptions		
Average geological loss	%	19 – 33
Minimum resource cut width	cm	183 – 201
Average density	g/cm ³	3.5
Ore Reserve Modifying Factors		
Mining loss factor	%	0.0 – 0.13
Mining dilution	%	7
Pillar extraction factor	%	75 – 81
Planned stoping width	cm	218 – 227
4E concentrator recoveries	%	83
Mine call factor	%	95

Ore Reserves estimation and classification summary

Ore Reserves are estimated following the generation of a life-of-asset plan by incorporating Modifying Factors into the Mineral Resource model. All design and scheduling work is undertaken within Cadmine, a mine planning and scheduling programme. The planning process incorporates appropriate Modifying Factors based on the reconciliation exercises and technical economic investigations. The mill tonnes are quoted as the expected mill delivered run-of-mine metric tonnes and 4E PGM grades, inclusive of all mining dilutions and losses except mill recovery.

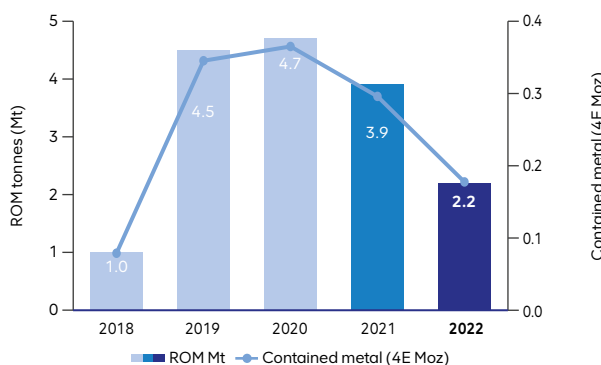
The tonnage and grades scheduled in Measured Mineral Resources are classified as Proved Ore Reserves and those in the Indicated Mineral Resources are classified as Probable Ore Reserves. No Measured Mineral Resources were converted to Probable Ore Reserves. The Ore Reserve estimation process is based on the development of an appropriately detailed and engineered life-of-asset plan, which accounts for all necessary access development and stope designs. All Ore Reserves are quoted in terms of the expected run-of-mine tonnages and grades delivered to the metallurgical processing facilities, and therefore the quantities reported account for dilution. Mine dilution includes other material, which is waste that is broken on the mining horizon, other than on the stope face, inclusive of unknown geological losses.

Mining method and operational infrastructure

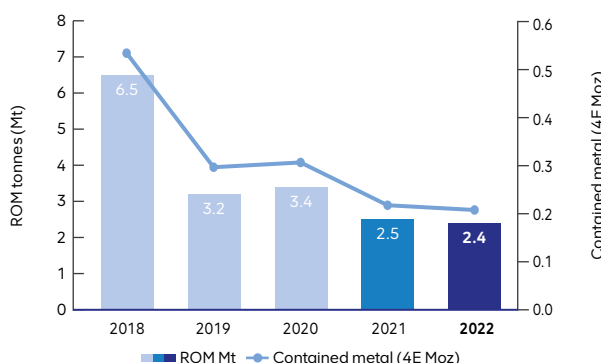
The UG2 Reef ore is mined through the mechanised bord-and-pillar mining as well as open pit methods. Ore Reserves at Siphumelele 3 shaft are mined, hoisted and processed using the Kroondal Mine infrastructure. The UG2 Reef is accessed from surface using several decline systems. Mining takes place at depths between 250m and 550m below surface. Klipfontein open pit operation utilises roll-over, truck and shovel mining methods. Run-of-mine ore is processed via two concentrator processing plants (K1 and K2).

The concentrate is sold to Anglo American Platinum, under an offtake agreement.

Siphumelele 3 UG2 Reef production history (ROM)



Kroondal UG2 Reef production history (ROM)



For additional details on the 2022 production information see the operations review section, [pages 116–117](#) of the [Integrated report](#).

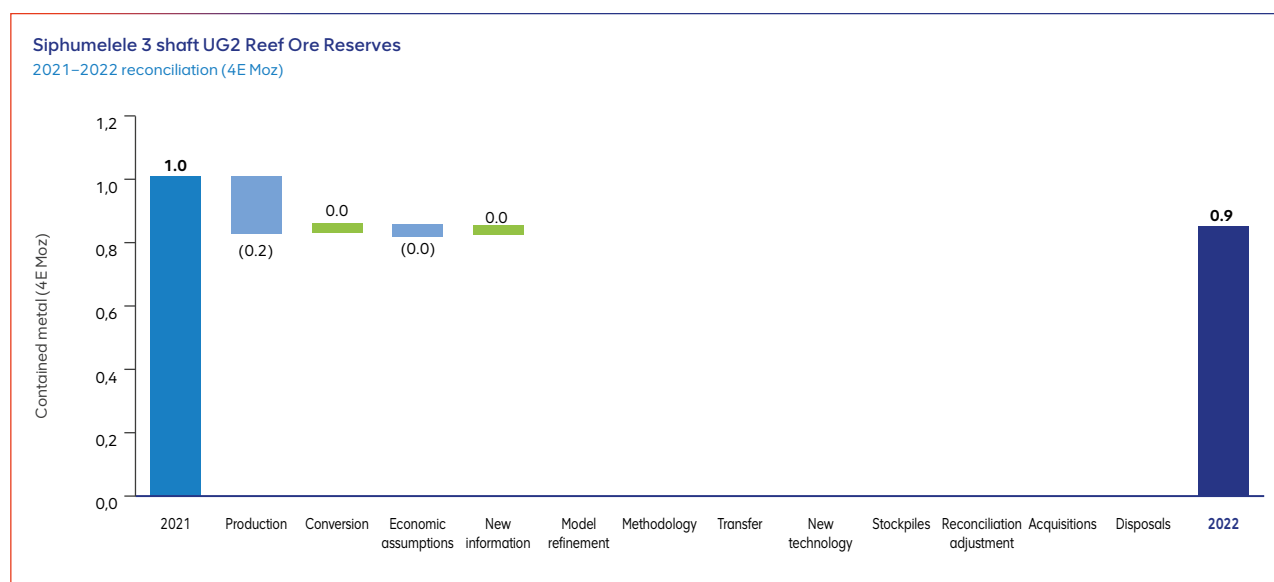
Siphumelele 3 shaft

Ore Reserve estimates

Siphumelele 3 shaft (100%)	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
UG2 Reef	15	Proved	10.3	12.1	2.57	2.60	27	32	0.9	1.0
		Probable	—	—	—	—	—	—	—	—
		Total	10.3	12.1	2.57	2.60	27	32	0.9	1.0

UG2 Reef Ore Reserves reconciliation

The UG2 Reef Ore Reserve 4E content decreased primarily due to annual production.



Exclusive Mineral Resource estimates

Siphumelele 3 shaft (100%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
UG2 Reef	Measured	4.8	5.0	3.17	3.18	15	16	0.5	0.5
	Indicated	—	—	—	—	—	—	—	—
	Measured and Indicated	4.8	5.0	3.17	3.18	15	16	0.5	0.5
	Inferred	—	—	—	—	—	—	—	—
	Total	4.8	5.0	3.17	3.18	15	16	0.5	0.5

UG2 Reef exclusive Mineral Resources reconciliation

The UG2 Reef exclusive Mineral Resources 4E content remained relatively unchanged from previous reporting.

Sibanye–Stillwater joint operations continued

Kroondal

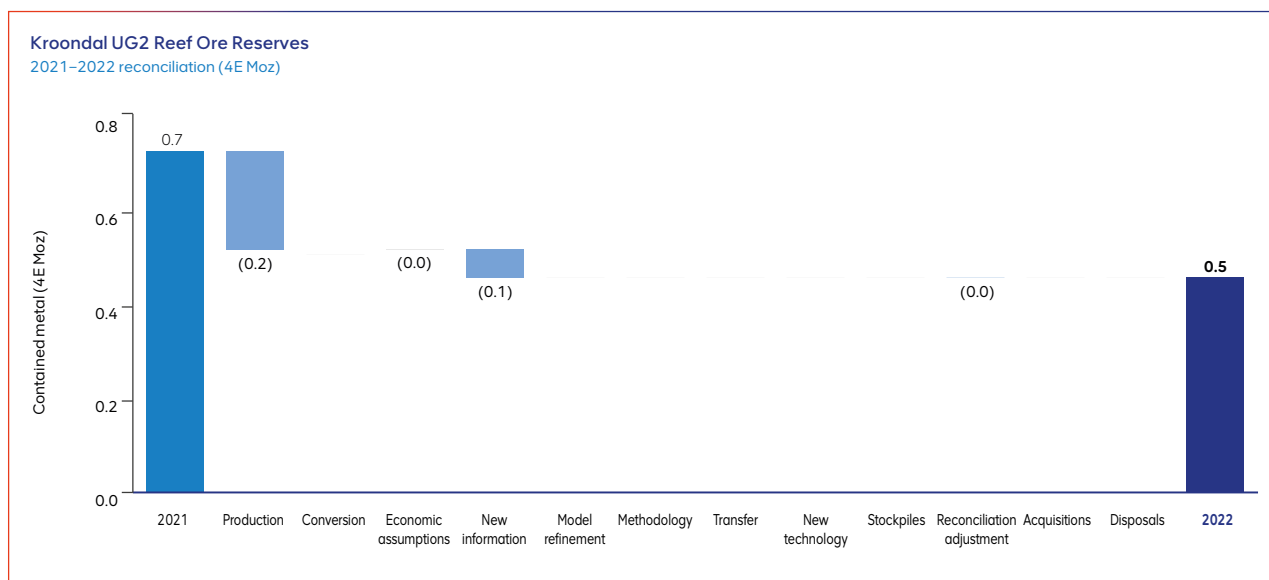
Ore Reserve estimates

Kroondal (50%)*	Reserve life	Classification	Tonnes (ROM) Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
			2022	2021	2022	2021	2022	2021	2022	2021
UG2 Reef	5	Proved	5.6	8.7	2.54	2.60	14	23	0.5	0.7
		Probable	—	—	—	—	—	—	—	—
		Total	5.6	8.7	2.54	2.60	14	23	0.5	0.7

* The Proved Ore Reserves include Klipfontein shallow open pit UG2 Reef Reserves of 0.1 4E Moz (1.0 Mt and 3.40 4E g/t).

UG2 Reef Ore Reserves reconciliation

The UG2 Reef Ore Reserve 4E content decreased due to annual production and updated geological models.



Exclusive Mineral Resource estimates

Kroondal (50%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
UG2 Reef	Measured	1.1	1.1	2.99	3.01	3	3	0.1	0.1
	Indicated	—	—	—	—	—	—	—	—
	Measured and Indicated	1.1	1.1	2.99	3.01	3	3	0.1	0.1
	Inferred	—	—	—	—	—	—	—	—
	Total	1.1	1.1	2.99	3.01	3	3	0.1	0.1

UG2 Reef exclusive Mineral Resources reconciliation

The UG2 Reef exclusive Mineral Resources 4E content remained unchanged from previous reporting.

Marikana

Exclusive Mineral Resource estimates

Marikana (50%)	Classification	Tonnes Mt		Grade 4E g/t		Contained metal 4E tonnes		Contained metal 4E Moz	
		2022	2021	2022	2021	2022	2021	2022	2021
UG2 Reef	Measured	25.1	25.4	3.45	3.44	87	87	2.8	2.8
	Indicated	9.4	9.5	3.84	3.84	36	36	1.2	1.2
	Measured and Indicated	34.5	34.8	3.56	3.55	123	123	3.9	4.0
	Inferred	4.9	4.9	2.95	2.95	15	15	0.5	0.5
	Total	39.5	39.8	3.48	3.48	138	138	4.4	4.4

UG2 Reef exclusive Mineral Resources reconciliation

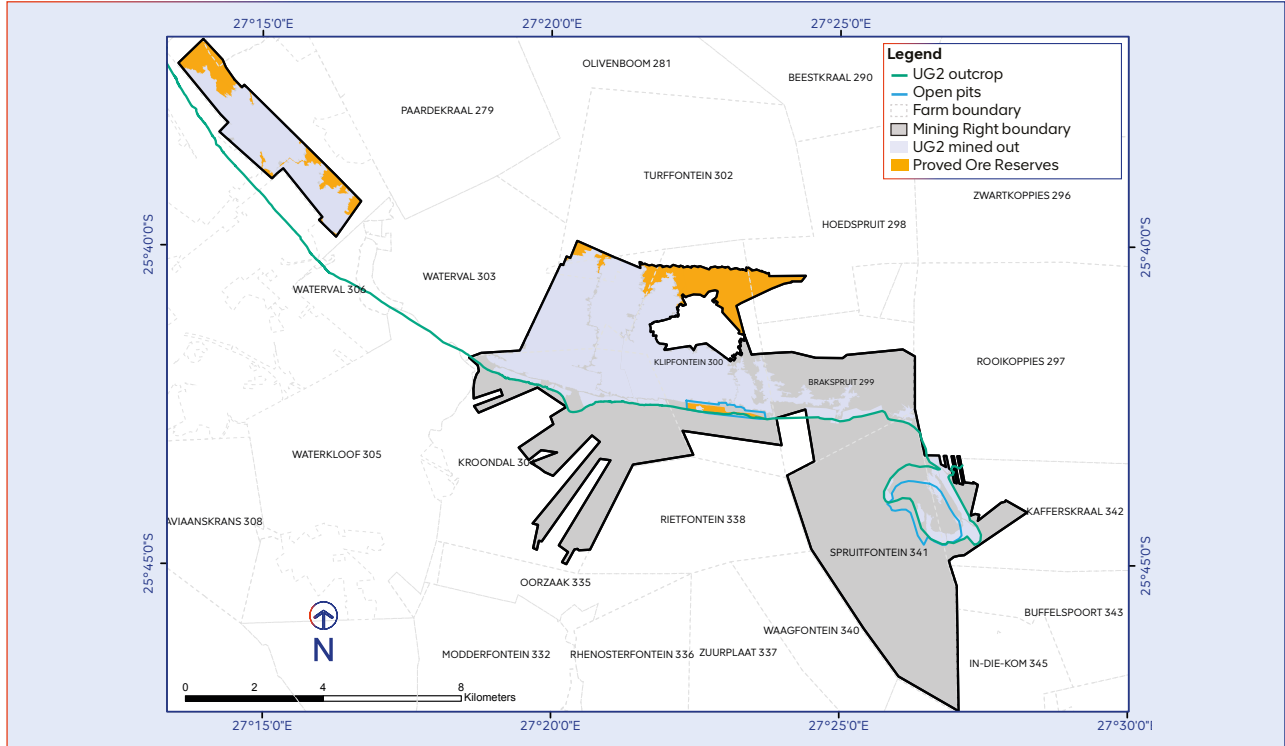
The UG2 Reef exclusive Mineral Resources 4E content remained relatively unchanged from previous reporting.



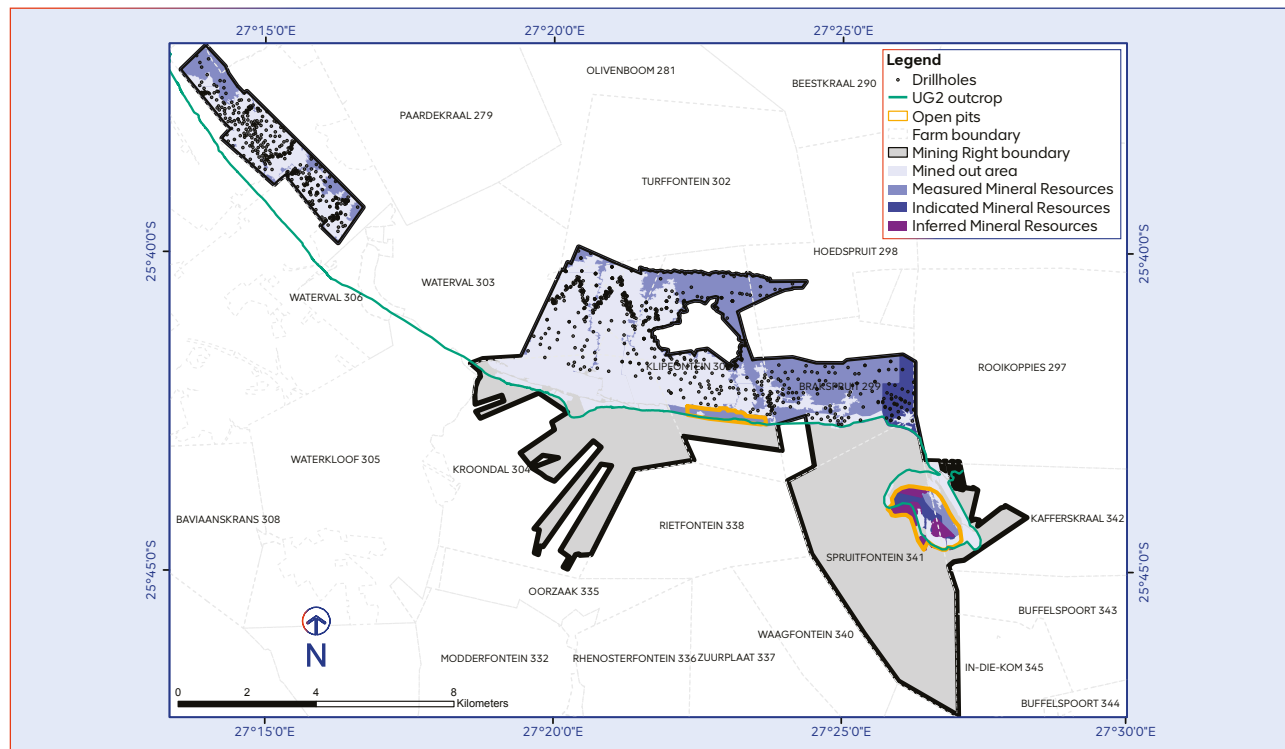
Digital slope monitoring at Mogalakwena Main pit

Sibanye-Stillwater joint operations continued

Sibanye-Stillwater joint operations UG2 Reef Ore Reserves classification map



Sibanye-Stillwater joint operations UG2 Reef Mineral Resources classification map



Endowment

as at 31 December 2022

Endowment

General

In addition to evaluated and reported Ore Reserves and Mineral Resources, Anglo American Platinum holds various Mineralisations that are not publicly reported.

Different types of Mineralisation exist, either stockpiled material on surface or still in situ underground. This material requires studies to determine the potential economic value (reasonable prospects for eventual economic extraction).

Surface material

Tailings storage facilities

Tailings Mineralisation: operating (active) tailings facilities for current mining operations are not evaluated and therefore not reported as part of Mineral Resources. They contain residual amounts of PGM, base metals, chromite and are registered internally in Anglo American Platinum's asset books. Currently, significant Mineralisation is available at the following operations:

- Amandelbult – western limb
- Modikwa and Mototolo – eastern limb
- Mogalakwena – northern limb
- Unki – Great Dyke (Zimbabwe).

Chromite by-product from UG2 tailings

Under current market conditions, the recovery of saleable chromite concentrate as a by-product from UG2 Reef processing is economically viable. Currently chromite recovery plants, with a community partner, are operating at Amandelbult. The UG2 Reef at Tumela and Dishaba mines has an average in situ Cr_2O_3 grade of approximately 32%.

Recovery from inter-stage or final UG2 flotation tail streams produces saleable chromite product. The amount of chromite concentrate produced is directly linked to UG2 Reef production and is recovered as a by-product in processing. Chromite recoveries are between 12% and 23% from every tonne of UG2 ore processed (overall yield factor) when the Cr_2O_3 content in the UG2 ore is greater than 20%. The resultant chromite concentrate has an average Cr_2O_3 grade of between 41% and 44%. The contained monetary value of the chromite by-product is included when assessing UG2 Reef Ore Reserves where the chromite recovery plants are in production.



General view across the return water dams at Mogalakwena North concentrator

External audit assurance letter



Specialist Consultants to the Mining Industry

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 email: info@msagroupservices.com
 Henley House, Greenacres Office Park:
 Cnr Victory and Rustenburg Roads, Victory Park, 2195
 PO Box 81356, Parkhurst, 2120, South Africa
 Directors: KD Scott, NNP Makhoba, IG Haddon

Mr. Scott Jackson,
 Head of Mineral Resources and Ore Reserves,
 Anglo American: Technical and Sustainability,
 144 Oxford Road,
 Rosebank,
 South Africa.

07 February 2023

Dear Sir

Mogalakwena Sandsloot Underground Mineral Resource Audit 2023

At the request of Anglo Platinum Limited (“AAPL”), The MSA Group (Pty) Ltd (“MSA”) completed an Independent Audit of the 31 December 2022 Mineral Resource for the Sandsloot Underground area of the Mogalakwena Mine complex (Sandsloot UG). Mogalakwena comprises large scale open-pits and concentrators that extract Platinum Group Metals (“PGMs”), nickel and copper from the Platreef of the Northern Limb of the Bushveld Complex in South Africa.

The Mineral Resource area that is the subject of this audit occurs beneath the current Sandsloot life of asset open pit limit, portions of which are being considered for underground mining. The audit covered the processes of collection, quality control and management of the Mineral Resource data, and Mineral Resource estimation, classification and reporting. The audit process comprised discussions and interactive presentations with the persons responsible for the key areas of the Mineral Resource process, followed by analysis of the input data, detailed review of the underlying assumptions and estimation methodology, and checks on the resulting estimates.

It is MSA’s opinion that the Mineral Resources have been estimated using reasonable assumptions and techniques for the style of mineralisation and perceived mining methods at Sandsloot UG. The Mineral Resources have been prepared by suitably qualified and experienced Competent Persons who were assisted by various experts from AAPL. The processes for the collection, quality control and management of the Mineral Resource data are guided by comprehensive procedures and governed by standards that are assured by internal audit and review processes.

The Mineral Resource has considered knowledge gained from AAPL’s experience in open-pit mining of the Platreef over several decades, while considering underground mining factors. No material items were identified during the course of the audit, although recommendations were made by MSA on reporting of the Mineral Resource that should be considered as the Mineral Resource develops from further drilling and as the underground mining study progresses. MSA has verified the quantum of Mineral Resource reported for Sandsloot UG and considers that the Mineral Resources have been prepared in accordance with 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) and are suitable for public disclosure in Anglo American Platinum Limited’s Annual Report.

The Mineral Resource audit was completed by Mr. Jeremy Witley (Pri. Sci. Nat.) who is appropriately qualified and experienced in PGE deposits to carry out the audit. Neither MSA nor Mr. Witley have any material interest in the assets concerned, and MSA is remunerated based on fees that are not contingent on the outcome of this independent external audit.

On behalf of The MSA Group (Pty) Ltd.



Jeremy Witley
 Head of Mineral Resources
 Pri. Sci. Nat., FGSSA, FPONEN, BSc (Hons), MSc (Eng.)

Definitions for SAMREC Code terminology

Ore Reserves and Mineral Resources

Definition: Mineralisation

Mineralisation is a concentration or occurrence of material of possible economic interest, in or on the earth's crust, for which quantity and quality cannot be estimated with sufficient confidence to be defined as a Mineral Resource. Mineralisation is not classified as a Mineral Resource or Mineral Reserves and can only be reported under Exploration Results. The data and information relating to it must be sufficient to allow a considered and balanced judgement of its significance.

Definition: 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.

Mineral Resources are subdivided, and must be so reported, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated or Measured Resources categories (SAMREC Code, clause 24).

Measured Mineral Resources

That part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.

(SAMREC Code, clause 28)

Indicated Mineral Resources

That part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.

(SAMREC Code, clause 27)

Inferred Mineral Resources

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.

(SAMREC Code, clause 25)

Definitions for SAMREC Code terminology continued

Definitions: Ore Reserves

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 (SAMREC Code, clause 35). Ore Reserves are subdivided, in order of increasing confidence, into Probable Ore Reserves and Proved Ore Reserves. Code considers the term Ore Reserves synonymous with Mineral Reserves.

Proved Mineral Reserves	The economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.	(SAMREC Code, clause 37)
Probable Mineral Reserves	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.	(SAMREC Code, clause 36)



An aerial view of the Amandelbult concentrator

Definitions for reconciliation categories

Opening balance	As at 31 December 2021.
Production	The amount of material (expressed in terms of tonnage and content as applicable) removed by mining from the scheduled Ore Reserves, ie areas actually mined in the reporting period which are removed from reserve model(s).
Depletion	Mineral Resources: the amount of material (expressed in terms of tonnage and content as applicable) removed by mining from Mineral Resources, ie areas actually mined in the reporting period which are removed from Mineral Resource.
Conversion	The effect of applying updated 'Modifying Factors' to Ore Reserves and Mineral Resources which include geotechnical, mining, metallurgical, marketing, legal, environmental, social and governmental considerations including infrastructure. Includes changes to the mining method, mine plan and/or layout changes eg changes in pit slope angles or mineable cut due to geotechnical reasons. The change can be positive or negative year-on-year. Subcategories: • Conversion is the process of up-grading Mineral Resources to Ore Reserves based on a change in confidence levels and/or Modifying Factors • Reallocation is the process of down-grading of Ore Reserves to Mineral Resources or Mineral Resources to Mineralised Inventory based on a change in confidence levels and/or Modifying Factors • Sterilisation is the process of removing material from Ore Reserves and/or Mineral Resources that no longer has reasonable prospects for eventual economic extraction (RPEEE).
Economic assumptions	The effect of economic assumptions based on the current or future price of a commodity and associated exchange rate estimates as determined by the corporate centre (Global Assumptions) which has a direct impact on the Mineral Resources or Ore Reserves particularly the cut-off grade (which can be affected by changes in costs).
New information	The effect of additional resource definition information (with QA/QC information) which initiates an update to the geological models (facies, structural, grade, geotechnical) and results in an updated (reclassified) resource model and subsequent determination of new Ore Reserve estimates. Includes orebodies (or portions of current orebodies) within the same project/operation not previously reported.
Model refinement	No additional resource definition drilling has been undertaken but the interpretation (geometry/ore-waste contacts) of the orebody has been refined or internal mine/lease boundaries changed, eg based on mapping information obtained during mining or a different structural model being applied. Changes to in situ tonnages as a result of new geological losses being applied or a change to the definition of the boundary of the Mineral Resources due to an updated 'economically mineable cut' being applied.
Methodology	Changes to Mineral Resources or Ore Reserves in response to the application of new or improved mining and/or processing methods.
Transfer	Movement of Mineral Resources and/or Ore Reserves from one type of product/ore type facies to another due to internal contact changes/updates or from one mining/project area to another or re-location of in situ material to stockpiles.
New technology	Changes to Mineral Resources or Ore Reserves in response to the application of new or improved mining and/or processing methods.
Stockpiles	Only used the first time a stockpile is declared ('opening balance' of stockpile, thereafter a separate reconciliation for stockpiles is required).
Reconciliation adjustment	Changes which cannot be allocated to a defined category or an adjustment necessary to mitigate inaccurate production/depletion estimates of the previous year.
Acquisition	Additional Ore Reserves and Mineral Resources due to acquisitions of assets or increased direct ownership in joint operations agreements/associate companies.
Disposal	Reduction in Ore Reserves and Mineral Resources due to disposals of assets or reduced direct ownership in joint operations agreements/associate companies, refusal/withdrawal/relinquishment of Mining/Prospecting Rights or related permits eg due to environmental issues, changes in policy.
Closing balance	As at 31 December 2022.

Glossary of terms

Anorthosite	Igneous rock composed almost entirely of plagioclase feldspar
Chromitite	An igneous cumulate rock composed mostly of the mineral chromite
Competent Person	A person who is registered with SACNASP, ECSA or SAGC, or is a member or Fellow of the SAIMM, the GSSA, IMSSA or a Recognised Professional Organisation (RPO). A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking
DMRE	Department of Mineral Resources and Energy
Dolerite	A dark, crystalline, igneous rock consisting predominantly of pyroxene with labradorite often emplaced in dykes
Dunite	Igneous rock consisting predominately of olivine
Dyke	Bodies of magma that cut through and across the layering of adjacent rocks. They form when magma rises into an existing fracture or creates a new fracture forcing its way through existing rock, and then solidifies. Karoo-age dykes are estimated to have been emplaced ca 180 million years ago
Feasibility study	A comprehensive design and costing study of a project. Appropriate assessments have been made of realistically assumed geological, mining, metallurgical, economic, marketing, legal, environmental, social, governmental, engineering, operational and all other Modifying Factors, which are considered in sufficient detail to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable) and the factors 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 overall confidence of the study should be stated
Gabbro	Igneous rock composed predominately of plagioclase feldspar and clinopyroxene occurring in approximately equal proportions
Gabbro-norites	Igneous rock composed predominately of a higher proportion of plagioclase feldspar and clinopyroxene
Harzburgite	Igneous rock composed mainly of olivine and pyroxene
In situ	In its natural position or place
IRUP	Iron-rich ultramafic pegmatite
ISO 31000	International Organization for Standardization sets the international standards for risk management
IsoMetrix	Social and environmental data management system
Isotherm	A line connecting points of equal temperature, in the context of this report, 75°C
LOAP	Life-of-asset plan. A design and financial/economic study of an existing operation in which appropriate assessments have been made of existing geological, mining, metallurgical, economic, marketing, legal, environmental, social, governmental, engineering, operational and all other Modifying Factors, which are considered in sufficient detail to demonstrate that continued extraction is reasonably justified
Mafic	Igneous rock composed mainly of dark ferromagnesium minerals which are less than 90% by volume
Metal split	A metal split in the context of PGM mining indicates the relative proportions of the various PGMs contained in a tonne of ore. The metal split is classified as a 4E metal split when it reports on the elements: platinum, palladium, rhodium, and gold
Mine call factor	The ratio, expressed as a percentage, of the metals produced in recovery plus residue to the corresponding product "called for" by the mine's measuring and evaluation methods
Modified Inferred Mineral Resources	A portion of Inferred Mineral Resources that has been modified/ converted and included in as part of the approved LOAP or technical study. They are however, excluded in the declaration of Ore Reserves
Norite	Igneous rock composed mainly of plagioclase feldspar and orthopyroxenes in approximately equal proportions
Pay limit grade	The average grade at which it is estimated that ore can be mined at break-even over the life-of-asset
Pegmatoid	Igneous rock that has the coarse crystalline texture of a pegmatite (large interlocking crystals) but lacks the graphic appearance

**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

Pyroxenite

Igneous rock composed predominately of pyroxene and minor feldspar

RC

Reverse circulation drilling method

Reef

A geological or stratigraphic horizon that may contain economic levels of mineralisation

RPEEE

Reasonable prospects of eventual economic extraction

RPO

A Recognised Professional Organisation

SAMREC Code

South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves 2016 Edition

SAMVAL Code

South African Code for the Reporting of Mineral Asset Valuation 2016 Edition

Scoping study

An order of magnitude technical and economical study of the potential viability of Mineral Resources that includes appropriate assessments of realistically assumed Modifying Factor 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

Stripping ratio

An open pit mining process measurement that represents the amount of waste material, also known as overburden, that must be moved in order to extract a given amount of ore

Tailings

Material resulting from processing operations

Ultramafic

Igneous rock composed mainly of dark ferromagnesium minerals which constitute more than 90% by volume

Websterite

Igneous rock composed of equal proportions of orthopyroxene and clinopyroxene

Recognised professional organisations

Recognised professional organisations contact details

Organisations	Addresses and contact details
ECSA	Engineering Council of South Africa 1st Floor, Waterview Corner Building, 2 Ernest Oppenheimer Ave, Bruma Lake Office Park, Bruma, Johannesburg, 2198 Website: www.ecsa.co.za
IMSSA	The Institute for Mine Surveyors of Southern Africa Room 210, Mandela Mining Precinct, Carlow Road and Rustenburg Road, Melville, Johannesburg, 2109 Website: www.ims.org.za
SACNASP	South African Council for Natural Scientific Professions The Innovation Hub, Enterprise Building Suite L4, 1 Mark Shuttleworth Street, Lynwood, Pretoria, 0087 Website: www.sacnasp.org.za
SAGC	South African Geomatics Council Unit 3, Building 2, Bruma Boulevard Office Park, 20 Zulberg Close, Bruma, Johannesburg, 2026 Website: www.sagc.org.za
SAIMM	The Southern African Institute of Mining and Metallurgy 7th Floor, Rosebank Towers, 19 Biermann Avenue, Rosebank, 2196 Website: www.saimm.co.za

Administration

Directors

Executive directors

N Viljoen (chief executive officer)
CW Miller (finance director)

Independent non-executive directors

NB Mbazima (Zambian)
JR Dixon
T Leoka
NP Mageza
NT Moholi
D Naidoo
JM Vice

Non-executive directors

N Fakude
A Michaud (British)
D Wanblad (British)

Company secretary

Elizna Viljoen
elizna.viljoen@angloamerican.com
Telephone +27 (0) 11 638 3425
Facsimile +27 (0) 11 373 5111

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Anglo Corporate Services South Africa Proprietary Limited

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Sponsor

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Auditor

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4 Lisbon Lane
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2090

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Telephone +27 (0) 11 638 0279

Lead Competent Persons

Andrew Smith: Lead Ore Reserves

Kavita Mohanlal: Principal Mineral Resources

Fraud line – YourVoice

Anonymous whistleblower facility 087 232 5426 (South Africa)
www.yourvoice.angloamerican.com

Human resources-related queries



Job opportunities:

www.angloamericanplatinum.com/careers/job-opportunities

Bursaries, email:

bursaries@angloplat.com



Career information:

www.angloamericanplatinum.com/careers

As announced on 15 February 2023, Natascha Viljoen resigned from the company. She will continue to serve as CEO and executive director until completion of her notice period of up to 12 months.

Forward-looking statements disclaimer

Certain elements in this integrated annual report constitute forward-looking statements. These are typically identified by terminology such as 'believes', 'expects', 'may', 'will', 'could', 'should', 'intends', 'estimates', 'plans', 'assumes' and 'anticipates', or negative variations. Such forward-looking statements are subject to a number of risks and uncertainties, many beyond the company's control and all based on the company's current beliefs and expectations about future events. Such statements could cause actual results and performance to differ materially from expected results or performance, expressed or implied. No assurance can be given that such future results will be achieved; actual events or results may differ materially as a result of risks and uncertainties facing the company and its subsidiaries.



PLATINUM

Anglo American Platinum Limited
Incorporated in the Republic of South Africa
Date of incorporation: 13 July 1946
Registration number: 1946/022452/06
JSE code: AMS – ISIN: ZAE000013181

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