African Rainbow Minerals

Mineral Resources and Mineral Reserves report

2022

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Our 2022 suite of reports

IAR **2022 integrated annual report**

A holistic assessment of ARM's ability to create sustainable value, with relevant extracts from the annual financial statements, the environmental, social and governance (ESG) report and Mineral Resources and Mineral Reserves report.

AFS **2022 annual financial statements**

The audited annual financial statements have been prepared according to International Financial Reporting Standards (IFRS).

ESG **2022 ESG report**

A detailed review of our performance on our key environmental, social and governance matters. The ESG report includes the full remuneration report and should be read in conjunction with the GRI Index.

CCW **2022 climate change and water report**

A detailed review of our performance on our key climate change and water matters, in line with the Taskforce on Climate-related Financial Disclosures (TCFD).

KING **2022 King IV™* application register**

A summary of how ARM implements the principles and practices in King IV to achieve the governance outcomes envisaged.

MRMR **2022 Mineral Resources and Mineral Reserves report**

In line with JSE Listings Requirements, ARM prepares Mineral Resources and Mineral Reserves statements for all its mining operations as per SAMREC guidelines and definitions (2016).

AGM **2022 notice to shareholders**

- Notice of annual general meeting
- Form of proxy
- Commitment to good governance
- Board of directors
- Report of the audit and risk committee
- Report of the social and ethics committee chairman
- Summarised remuneration report
- Summarised directors' report
- Summarised consolidated financial statements

Information available on our website **www.arm.co.za**

Information available elsewhere in our reports

All monetary values in this report are in South African rand unless otherwise stated. Rounding may result in computational discrepancies on management and operational review tabulations.

African Rainbow Minerals (ARM) is a **leading South African diversified mining and minerals company** with operations in South Africa and Malaysia. ARM mines and beneficiates iron ore, manganese ore, chrome ore, platinum group metals (PGMs), nickel and coal. It also produces manganese alloys and has a strategic investment in gold through Harmony Gold Mining Company Limited (Harmony Gold).

Report on Mineral Resources and Mineral Reserves

as at 30 June 2022

The report is issued annually to inform shareholders and potential investors of the mineral assets held by African Rainbow Minerals Limited (ARM). The report is a summary of Competent Persons' reports or technical reports on Mineral Resources and Mineral Reserves for ARM's mining operations.

Locality map of ARM operations

Adding value

Extracting optimal value from the Mineral Resources and Mineral Reserves in our portfolio is fully aligned to ARM's purpose of delivering competitive returns and create sustainable value for all our shareholders through its strategic pillars:

STRATEGIC PILLAR	HOW WE ADD VALUE
Operate our portfolio of assets safely, responsibly and efficiently	Manage life-of-mine Mineral Resources and Mineral Reserves for each operation efficiently, revising mine plans as required.
Allocate capital to value-creating investments	Undertake exploration activities on-mine and apply stringent criteria in allocating capital for the work, to ensure value creation in the areas that we explore.
Focus on value-enhancing and integrated growth	Maintaining the appropriate balance between Mineral Reserves depletion and growth to ensure a sustainable company.

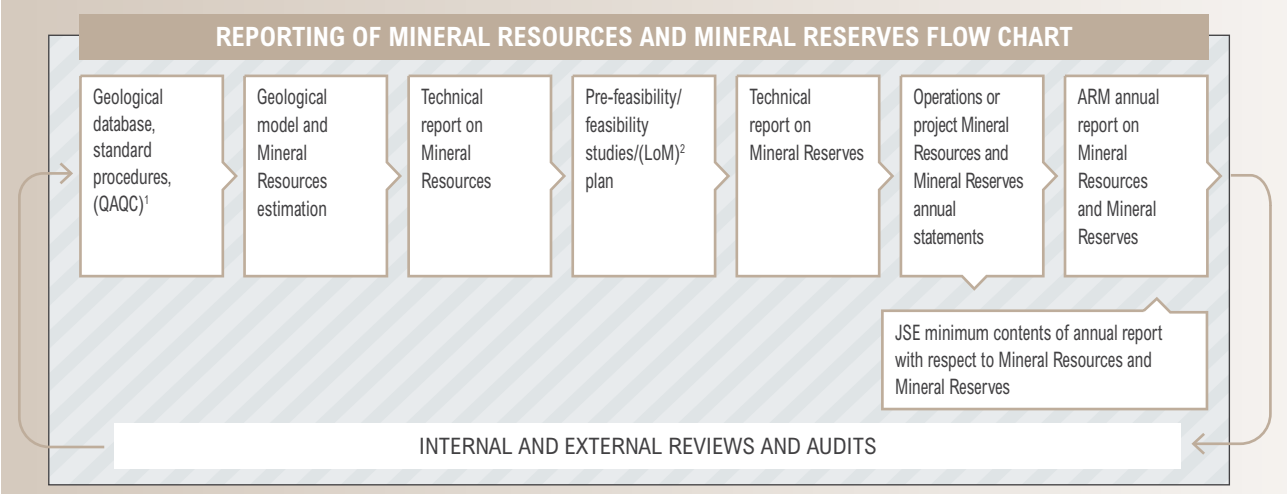
Introduction

ARM's method of reporting Mineral Resources and Mineral Reserves complies with The South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves (the SAMREC Code) 2016 edition, The South African Code for Reporting of Mineral Asset Valuation (the SAMVAL Code), 2016 edition and section 12.13 of the JSE Listings Requirements.

Historical ARM Mineral Resources and Mineral Reserves reports can be found at **www.arm.co.za** under investor relations, financial results, integrated report.

An abridged version is included in the 2022 ARM integrated annual report, which can be found at **www.arm.co.za**.

The SAMREC Code, 2016 edition sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in South Africa. It was launched and adopted by the Johannesburg Stock Exchange (JSE) in May 2016. The 2022 ARM Mineral Resources and Mineral Reserves report is based on the SAMREC Code, 2016 edition. The reporting of Mineral Resources and Mineral Reserves is done annually according to the following flow chart:



[1] *QAQC: Quality Assurance Quality Control.*
[2] *LoM: Life-of-mine.*

A set of guidelines have been formulated to assist Competent Persons in the estimation, classification and reporting of Mineral Resources and Mineral Reserves and are contained in the document entitled: "ARM Guidelines for Estimation, Classification, Reporting and Auditing of Mineral Resources and Mineral Reserves". The document has been distributed to all the ARM Competent Persons and a copy of the document is available at the corporate offices on the Mineral Resources Management (MRM) server.

As part of ARM's management process of Mineral Resources and Mineral Reserves, quarterly divisional forums are conducted with the following objectives:

- Skills and technical knowledge transfer in the Mineral Resources and Mineral Reserves fields
- Ensuring that best practices through SAMREC compliant standard procedures are shared and applied
- Facilitate internal peer reviews and audits
- Advance professional development and registration of technical personnel.

The convention adopted in this report is that the Measured and Indicated Mineral Resources estimates are reported inclusive of that portion converted to Mineral Reserves. Inferred Mineral Resources have not been included in feasibility studies or life-of-mine plans. Mineral Resources and Mineral Reserves estimates are quoted as at 30 June 2022 unless stated otherwise.

Underground Mineral Resources are in situ tonnages that have reasonable prospects for eventual economic extraction (RPEEE) at the postulated mining width, after deductions for geological losses. Underground Mineral Reserves reflect tonnages that will be mined and processed. Open-pit Mineral Resources are quoted as in situ tonnages that have reasonable prospects for eventual economic extraction and Mineral Reserves are tonnages falling within an economic pit-shell. Surface Mineral Resources and Mineral Reserves consist of stockpiles already mined. All Mineral Reserves are quoted at the grade fed to the plant.

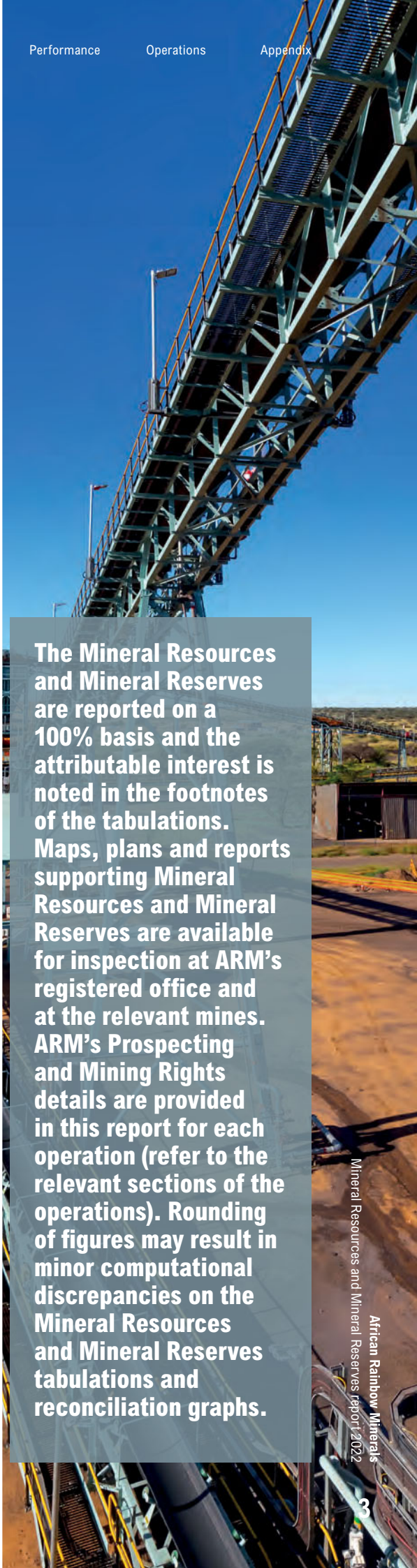
The classification into Measured, Indicated and Inferred Mineral Resources is done by consideration of geostatistical parameters, spacing of boreholes, geological structures and continuity of the mineralisation.

External consulting firms audit the Mineral Resources and Mineral Reserves of the ARM operations when substantial geological borehole data has been added to the previously established database or every three years, whichever comes first. During the past reporting cycle the following operations were externally audited:

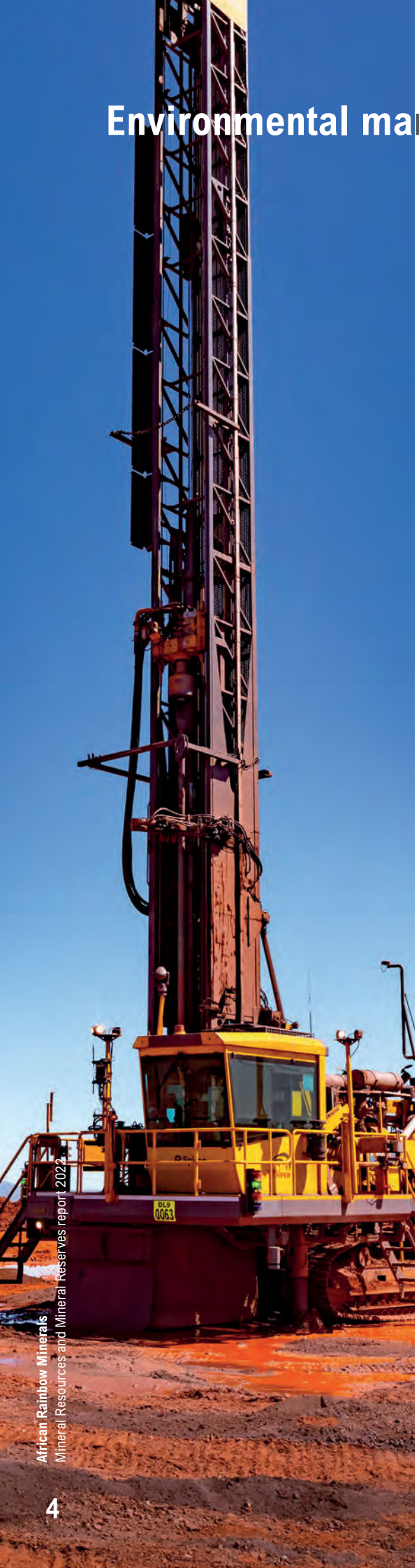
- Black Rock Mine: Mineral Resources were audited by Pivot Mining while Mineral Reserves were audited by Fraser McGill – Mining and Minerals Advisory
- Khumani Mine: Mineral Resources and Mineral Reserves were audited by Ukwazi.

The findings from these audits provided recommendations to improve some aspects of Mineral Resources and Mineral Reserves estimations, but also noted some areas of good practice.

The glossary of terms on page 95 of this report provides details of the abbreviations or acronyms used in this report.



The Mineral Resources and Mineral Reserves are reported on a 100% basis and the attributable interest is noted in the footnotes of the tabulations. Maps, plans and reports supporting Mineral Resources and Mineral Reserves are available for inspection at ARM's registered office and at the relevant mines. ARM's Prospecting and Mining Rights details are provided in this report for each operation (refer to the relevant sections of the operations). Rounding of figures may result in minor computational discrepancies on the Mineral Resources and Mineral Reserves tabulations and reconciliation graphs.



Environmental management

Mining activities may result in environmental impacts which include disturbance of biodiversity, changes in topography and land use, ground and surface water, waste, air pollution and other impacts. ARM has undertaken studies at all its mining operations that are required in terms of the relevant legislation to prevent or mitigate potential impacts, and proposed remedial measures have been documented in the form of environmental authorisations and the environmental management programme/plan (known as EMPr). Systems have been put in place to ensure compliance with legal and other requirements, which include undertaking compliance audits, specialist environmental studies (eg, geo-hydrological studies, biodiversity studies, etc), environmental monitoring and regular site inspections.

ARM's operations have the obligation to manage its environmental impacts and has systems in place to achieve the following:

- **Topography** – minimise topographic disturbances and where possible ensuring that site topography after mining activities does not conflict with the end-use plan of the site. Tailings storage facilities will also be rehabilitated and revegetated as per the EMPr
- **Soil** – strive to manage the disturbance or impacts caused on the soil so that where the viability of the topsoil is not negatively impacted to the extent where it will defeat the proposed end-use plan, and lead to the demise of biodiversity
- **Biodiversity** – to conserve the biodiversity found within the area through relevant means such as establishing the biodiversity offset area and other means
- **Water** – prevent negative impacts on the availability of water and contamination of ground and surface water resources. That includes collective actions at the catchment level, reducing consumption, mitigating pollution from all potential sources such as tailings storage facilities, wastewater treatment facilities and other activities
- **Air quality and greenhouse gas emissions** – minimise the emissions to the atmosphere using proper measures and technology
- **Waste** – strive to put measures in place to manage waste in a legally compliant manner and strive for achieving the objectives of the National Waste Management Strategy, especially reducing disposal of waste to landfill to achieve zero waste to landfill.

ARM has long-term provisions and guarantees for environmental closure and rehabilitation obligations for all its operations totalling R1 917 million as at 30 June 2022. The details of these provisions and guarantees are detailed in the 2022 ESG report on page 77.

Details of management of risk factors that relate to environmental, social and governance (ESG) aspects that could impact on the Mineral Resources and Mineral Reserves estimates are in the following reports which are part of the 2022 integrated annual report suite:

IAR Integrated annual report, in the operating environment, sustainability performance for 2022 and managing our risks sections on pages 30 to 37.

ESG ESG report, in the our approach to ESG and value creation, environment and social sections on pages 30 to 111.

Definitions

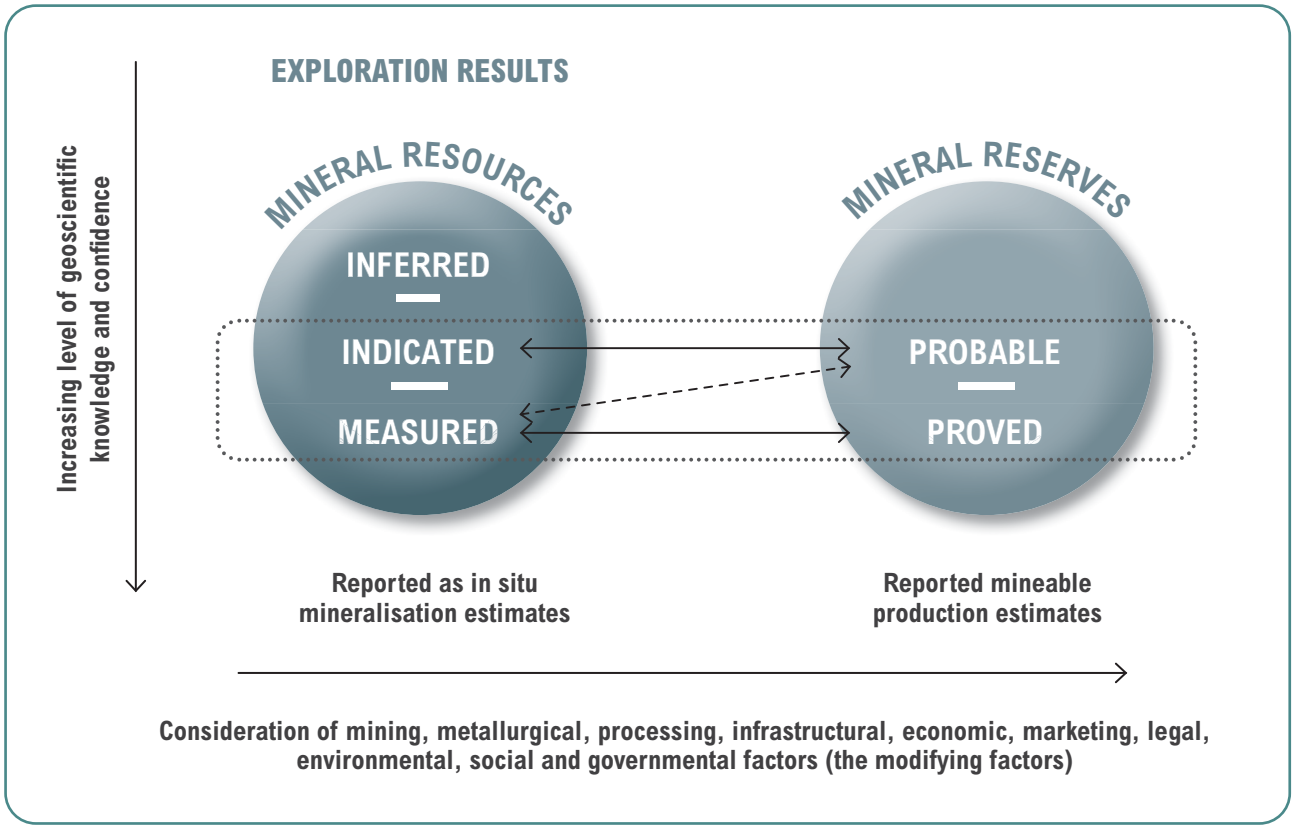
Mineral Resources

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.
A "Measured Mineral Resource"	is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.
An "Indicated Mineral Resource"	is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.
An "Inferred Mineral Resource"	is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Mineral 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.
A "Proved Mineral Reserve"	is the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the modifying factors.
A "Probable Mineral Reserve"	is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the modifying factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.

Relationship between Exploration Results, Mineral Resources and Mineral Reserves



Modikwa Mine.

Competence

The lead Competent Person with overall responsibility for the compilation of the 2022 Mineral Resources and Mineral Reserves report is Shepherd Kadzviti, an ARM employee. He confirms that the information in this report complies with the SAMREC Code, 2016 edition and that it may be published in the form and context in which it was intended.

Shepherd Kadzviti graduated with a BSc in geology and mathematics and an MSc in exploration geology from the University of Zimbabwe. He later completed a graduate diploma in mining engineering (GDE) at the University of the Witwatersrand. He worked at RioZim's Renco Gold Mine for 14 years in various capacities as geologist, technical services superintendent and mine manager. In 2005, he joined Anglo American Platinum at Union Mine as an evaluation geologist with responsibilities for geological database management and Mineral Resource estimation. After two years at the mine, he was transferred to the Anglo American Platinum corporate office where he was appointed resource geologist. He then joined ARM as mineral resources specialist in 2008, and was involved in the evaluation of various mineral deposits for the group. In 2012, he was appointed group mineral resources manager for ARM. He is registered with the South African Council for Natural Scientific Professions (SACNASP) as a professional natural scientist (PrSciNat) in the field of practice of geological science, registration number 400164/05. SACNASP is based in the Management Enterprise Building, Mark Shuttleworth Street, Innovation Hub, Pretoria, 0087, South Africa. He has a total of 32 years' experience in various aspects of mining and exploration geology, database management and Mineral Resource estimation and as such is considered to be a Competent Person.

All Competent Persons at the ARM corporate office and the operations have sufficient relevant experience in the type of deposit and in the activity for which they have taken responsibility. The Competent Persons consent to the inclusion of the Exploration Results, Mineral Resources and Mineral Reserves information in this report, in the form and context in which it appears. Details of ARM's Competent Persons are available from the company secretary on written request.

Shepherd Kadzviti *PrSciNat*
Group mineral resources manager

African Rainbow Minerals
24 Impala Road, Chislehurston,
Sandton, South Africa.

7 October 2022

The following ARM corporate office Competent Persons were involved in compiling some aspects of the Mineral Resources and Mineral Reserves report or general review of the report. They are all employed by ARM.

ARM corporate office

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience	Area of responsibility and commodity experience
S Kadzviti	SACNASP	400164/05	BSc, MSc Exploration Geology, GDE (Mining Engineering)	32 years	Lead Competent Person. Compiling of the MRMR report. PGMs, copper, nickel, manganese and iron ore
M Mabuza	SACNASP	400081/94	BSc, BSc Hons (Geology), MSc (Geology), GDE (Mining Engineering)	32 years	Internal review of MRMR report. PGMs, copper, nickel, manganese, iron ore and coal
V Moyo	SACNASP	400305/11	BSc, BSc Hons (Geology), MSc (Project Management)	25 years	Internal review of MRMR report. PGMs, copper, nickel, manganese and iron ore
R Jooste	SACNASP	400163/05	BSc, BSc Hons (Geology), MEng (Mining Engineering)	21 years	Mineral Resource estimation, internal review of MRMR report. PGMs, copper, nickel, manganese and iron ore

Salient features for F2022

ARM Platinum

Two Rivers Mine

Mineral Reserves for the UG2 Reef decreased from 71.14 million tonnes at a grade of 3.47g/t (6E) to 70.72 million tonnes at 3.30g/t (6E) mainly due to mining production. The UG2 Mineral Reserves 6E ounces decreased by 5% from 7.93 to 7.51 million ounces.

Modikwa Mine

The UG2 Reef Mineral Reserves at Modikwa decreased to 40.33 million tonnes at 4.25g/t (4E) when compared with the F2021 statement of 44.26 million tonnes at 4.21g/t (4E). This was mainly due to production, design changes and modifying factor changes. The UG2 Mineral Reserves 4E ounces decreased by 8% from 5.99 to 5.51 million ounces.

Nkomati Mine

There were no changes to the Measured and Indicated Mineral Resources for Nkomati Mine at 167.51 million tonnes at 0.35% Ni as the operation remained on care and maintenance.

ARM Ferrous

Black Rock Mine

Gloria Mine Mineral Reserves for Seam 1 increased by 19% from 105.70 million tonnes at 37.25% Mn to 125.51 million tonnes at 36.90% Mn due to the significant increase in Indicated Mineral Resources from which the additional Mineral Reserves have been converted. The incorporation of new infill surface drilling information contributed to the increase in the Indicated Mineral Resources which accounted for the increase in Mineral Reserves.

Beeshoek Mine

Measured and Indicated Mineral Resources increased by 8% from 86.45 million tonnes at 64.13% Fe to 93.45 million tonnes at 64.19% Fe. The increase is mainly due to the increase in Mineral Resources for Village pit and Oppikoppie area after the completion of geological and grade model updates.

Khumani Mine

Open-pit Mineral Reserves decreased by 5% from 414.16 million tonnes at 62.27% Fe to 395.09 million tonnes at 62.28% Fe, mainly due to mining production as well as consideration of pillar constraints at Mokaning.

ARM Coal

Goedgevonden Coal Mine

Coal Reserves (ROM) decreased by 4% from 270 million tonnes to 260 million tonnes mainly due to mining production.

F2022 Mineral Resources and Mineral Reserves summary

as at 30 June 2022

The tables below are summaries of ARM Mineral Resources and Mineral Reserves. The detailed information on Mineral Resources and Mineral Reserves is provided per operation from page 12 of the report.

ARM Platinum operations

Platinum group elements

Mineral Resources and Mineral Reserves are reported on a 100% basis*	MINERAL RESOURCES								MINERAL RESERVES						
	Measured		Indicated		Measured and Indicated		Inferred		Proved		Probable		Total Reserves		
	Mt	Grade g/t	Mt	Grade g/t	Mt	Grade g/t	Mt	Grade g/t	Mt	Grade g/t	Mt	Grade g/t	Mt	Grade g/t	Moz
Two Rivers Mine															
2022 UG2 (grade reported as 6E)	**17.81**	**5.52**	**77.21**	**5.74**	**95.02**	**5.70**	**80.69**	**5.38**	**12.21**	**3.18**	**58.51**	**3.33**	**70.72**	**3.30**	**7.51**
2021 UG2 (grade reported as 6E)	16.26	5.72	84.29	5.73	100.55	5.73	83.53	5.23	9.24	3.46	61.90	3.47	71.14	3.47	7.93
2022 Merensky (grade reported as 6E)			**75.73**	**3.42**	**75.73**	**3.42**	**61.39**	**4.32**			**50.41**	**2.89**	**50.41**	**2.89**	**4.68**
2021 Merensky (grade reported as 6E)			75.73	3.42	75.73	3.42	61.39	4.32			49.62	2.89	49.62	2.89	4.60
Modikwa Mine															
2022 UG2 (grade reported as 4E)	**81.28**	**5.90**	**102.23**	**5.90**	**183.51**	**5.90**	**78.10**	**6.21**	**11.05**	**4.48**	**29.28**	**4.16**	**40.33**	**4.25**	**5.51**
2021 UG2 (grade reported as 4E)	83.50	5.93	102.10	5.91	185.60	5.92	77.50	6.22	15.59	4.33	28.67	4.14	44.26	4.21	5.99
2022 Merensky (grade reported as 4E)	**20.61**	**3.16**	**53.85**	**2.90**	**74.45**	**2.97**	**139.33**	**2.84**							
2021 Merensky (grade reported as 4E)	20.70	3.15	53.88	2.90	74.58	2.97	139.33	2.84							

6E *= platinum + palladium + rhodium + iridium + ruthenium + gold.*
4E *= platinum + palladium + rhodium + gold.*
The Mineral Resources are ***inclusive*** *of those modified to produce Mineral Reserves.*
**** Two Rivers Platinum Mine attributable interests (ARM 54%; Impala Platinum 46%).***
**** Modikwa Platinum Mine attributable interests (ARM 41.5%; Modikwa communities 8.5%; Anglo American Platinum 50%).***

Nickel

Mineral Resources are reported on a 100% basis*	MINERAL RESOURCES							
	Measured		Indicated		Measured and Indicated		Inferred	
	Mt	Ni%	Mt	Ni%	Mt	Ni%	Mt	Ni%
Nkomati Mine								
2022 MMZ+PCMZ	**72.89**	**0.32**	**94.62**	**0.37**	**167.51**	**0.35**	**46.35**	**0.40**
2021 MMZ+PCMZ	72.89	0.32	94.62	0.37	167.51	0.35	46.35	0.40
2022 MMZ stockpiles	**0.10**	**0.30**			**0.10**	**0.30**		
2021 MMZ stockpiles	0.10	0.30			0.10	0.30		
2022 PCMZ stockpiles	**0.24**	**0.18**			**0.24**	**0.18**		
2021 PCMZ stockpiles	0.24	0.18			0.24	0.18		

MMZ *– Main Mineralised Zone;* ***PCMZ*** *– Chromititic Peridotite Mineralised Zone.*
Nkomati Mine MMZ Mineral Resources also contain Cu, Co, and PGEs – details available on pages 44 and 45 of this report.
Nkomati Mine PCMZ Mineral Resources also contain Cu, Co, PGEs and Cr_2O_3 – details available on pages 44 and 45 of this report.
**** Nkomati Mine attributable interests (ARM 50%; Norilsk Nickel Africa (Pty) Ltd 50%).***

F2022 Mineral Resources and Mineral Reserves summary continued

as at 30 June 2022

ARM Platinum operations continued

Chrome

Mineral Resources are reported on a 100% basis*	MINERAL RESOURCES					
	Measured		Indicated		Measured and Indicated	
	Mt	Cr_2O_3%	Mt	Cr_2O_3%	Mt	Cr_2O_3%
Nkomati Mine						
2022 Oxidised massive chromitite	**0.13**	**27.16**	**0.05**	**23.28**	**0.18**	**26.14**
2021 Oxidised massive chromitite	0.13	27.16	0.05	23.28	0.18	26.14
2022 Un-oxidised massive chromitite	**0.12**	**25.16**	**0.21**	**24.43**	**0.32**	**24.89**
2021 Un-oxidised massive chromitite	0.12	25.16	0.21	24.43	0.32	24.89

**** Nkomati Mine attributable interests (ARM 50%; Norilsk Nickel Africa (Pty) Ltd 50%).***

ARM Ferrous operations

Manganese

Mineral Resources and Minera Reserves are reported on a 100% basis*	MINERAL RESOURCES								MINERAL RESERVES					
	Measured		Indicated		Measured and Indicated		Inferred		Proved		Probable		Total Reserves	
	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%
Black Rock Mine (Nchwaning Mine)														
2022 Seam 1	**94.14**	**45.27**	**39.69**	**39.68**	**133.83**	**43.61**			**31.43**	**45.41**	**23.01**	**42.35**	**54.44**	**44.12**
2021 Seam 1	79.72	45.03	39.03	40.29	118.75	43.47			35.01	44.42	27.38	42.06	62.39	43.38
2022 Seam 2	**118.62**	**42.63**	**59.51**	**41.95**	**178.13**	**42.40**			**74.35**	**42.53**	**27.66**	**42.67**	**102.00**	**42.57**
2021 Seam 2	106.08	42.81	68.83	42.20	174.91	42.57			70.44	42.49	35.57	42.86	106.01	42.61
Black Rock Mine (Koppie area)														
2022 Seam 1	**15.80**	**40.00**	**23.00**	**39.30**	**38.80**	**39.60**	**25.20**	**41.10**						
2021 Seam 1	15.80	40.00	23.00	39.30	38.80	39.60	25.20	41.10						
2022 Seam 2	**7.30**	**39.10**	**8.00**	**35.80**	**15.30**	**37.40**	**18.70**	**38.20**						
2021 Seam 2	7.30	39.10	8.00	35.80	15.30	37.40	18.70	38.20						
Black Rock Mine (Gloria Mine)														
2022 Seam 1	**80.56**	**37.25**	**122.30**	**36.97**	**202.86**	**37.08**			**42.79**	**37.10**	**82.72**	**36.79**	**125.51**	**36.90**
2021 Seam 1	77.41	37.29	90.11	37.49	167.52	37.40	33.90	36.77	44.10	37.20	61.60	37.28	105.70	37.25
2022 Seam 2			**31.06**	**28.46**	**31.06**	**28.46**	**109.04**	**29.65**						
2021 Seam 2			30.97	28.35	30.97	28.35	121.28	30.00						

*The Mineral Resources are **inclusive** of those modified to produce Mineral Reserves.*

**** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).***

ARM Ferrous operations continued

Iron ore

Mineral Resources and Mineral Reserves are reported on a 100% basis*	MINERAL RESOURCES								MINERAL RESERVES					
	Measured		Indicated		Measured and Indicated		Inferred		Proved		Probable		Total Reserves	
	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
Beeshoek Mine														
2022 All pits	**84.45**	**64.30**	**9.00**	**63.14**	**93.45**	**64.19**	**2.50**	**60.00**	**52.01**	**64.10**	**6.12**	**60.24**	**58.13**	**63.32**
2021 All pits	80.99	64.18	5.46	63.37	86.45	64.13	5.49	62.70	55.50	64.17	6.19	60.20	61.69	63.77
2022 Stockpiles											**0.64**	**57.09**	**0.64**	**57.09**
2021 Stockpiles											1.37	58.45	1.37	58.45
2022 Low-grade stockpiles	**2.41**	**56.46**	**14.64**	**52.72**	**17.05**	**53.25**								
2021 Low-grade stockpiles	2.41	56.46	14.64	52.72	17.05	53.25								
Khumani Mine														
2022 Bruce and King/ Mokaning	**511.85**	**63.00**	**58.61**	**62.32**	**570.46**	**62.94**	**7.20**	**62.73**	**371.72**	**62.29**	**23.37**	**62.18**	**395.09**	**62.28**
2021 Bruce and King/ Mokaning	507.49	62.91	76.31	62.53	583.80	62.86	10.53	59.96	380.70	62.29	33.46	61.97	414.16	62.27
2022 Stockpiles											**6.36**	**59.48**	**6.36**	**59.48**
2021 Stockpiles											6.02	59.59	6.02	59.59
2022 Low-grade stockpiles			**23.26**	**54.22**	**23.26**	**54.22**								
2021 Low-grade stockpiles			20.76	54.24	20.76	54.24								

*The Mineral Resources are **inclusive** of those modified to produce Mineral Reserves.*
**** Iron ore operations attributable interests (ARM 50%; Assore 50%).***

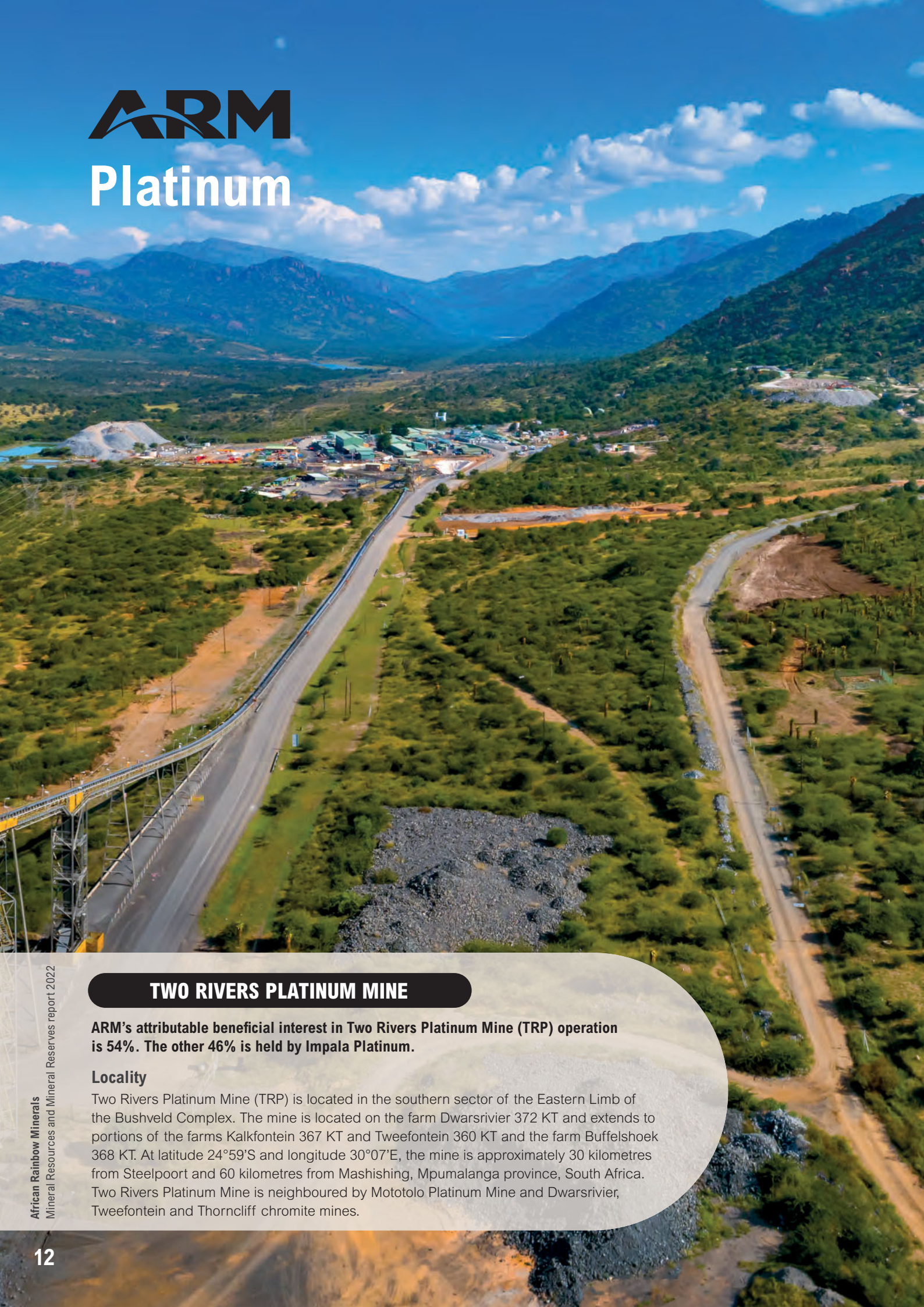
ARM Coal operations

Coal

Coal Resources and Coal Reserves are reported on a 100% basis*	COAL RESOURCES								COAL RESERVES (ROM)						COAL RESERVES (SALEABLE)					
	Measured		Indicated		Measured and Indicated		Inferred		Proved		Probable		Total Reserves		Proved		Probable		Total Reserves	
	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)	Mt	CV (MJ/kg)
Goedgevonden Coal Mine																				
2022 (Coal Resources reported as MTIS)**	**460**	**19.76**	**10**	**18.28**	**470**	**19.73**			**260**	**19.57**			**260**	**19.57**	**168**	**^**			**168**	**^**
2021 (Coal Resources reported as MTIS**)	480	19.76	7	18.28	487	19.74	1	16.72	270	19.57			270	19.57	167	^^			167	^^

*The Coal Resources are **inclusive** of those modified to produce Coal Reserves.*
*** Mineable tonnes in situ (MTIS) coal resources are now reported as per SAMREC Code, 2016 edition requirements.*
^ 2022 [HG export (68 Mt; CV 6 000 Kcal/kg)] and [LG export (99 Mt; CV 21.50 MJ/kg)].
^^ 2021 [HG export (71 Mt; CV 6 000 Kcal/kg)] and [LG export (96 Mt; CV 21.50 MJ/kg)].
**** Goedgevonden Coal Mine attributable interests (ARM 26%; Glencore Operations 74%).***

ARM Platinum



TWO RIVERS PLATINUM MINE

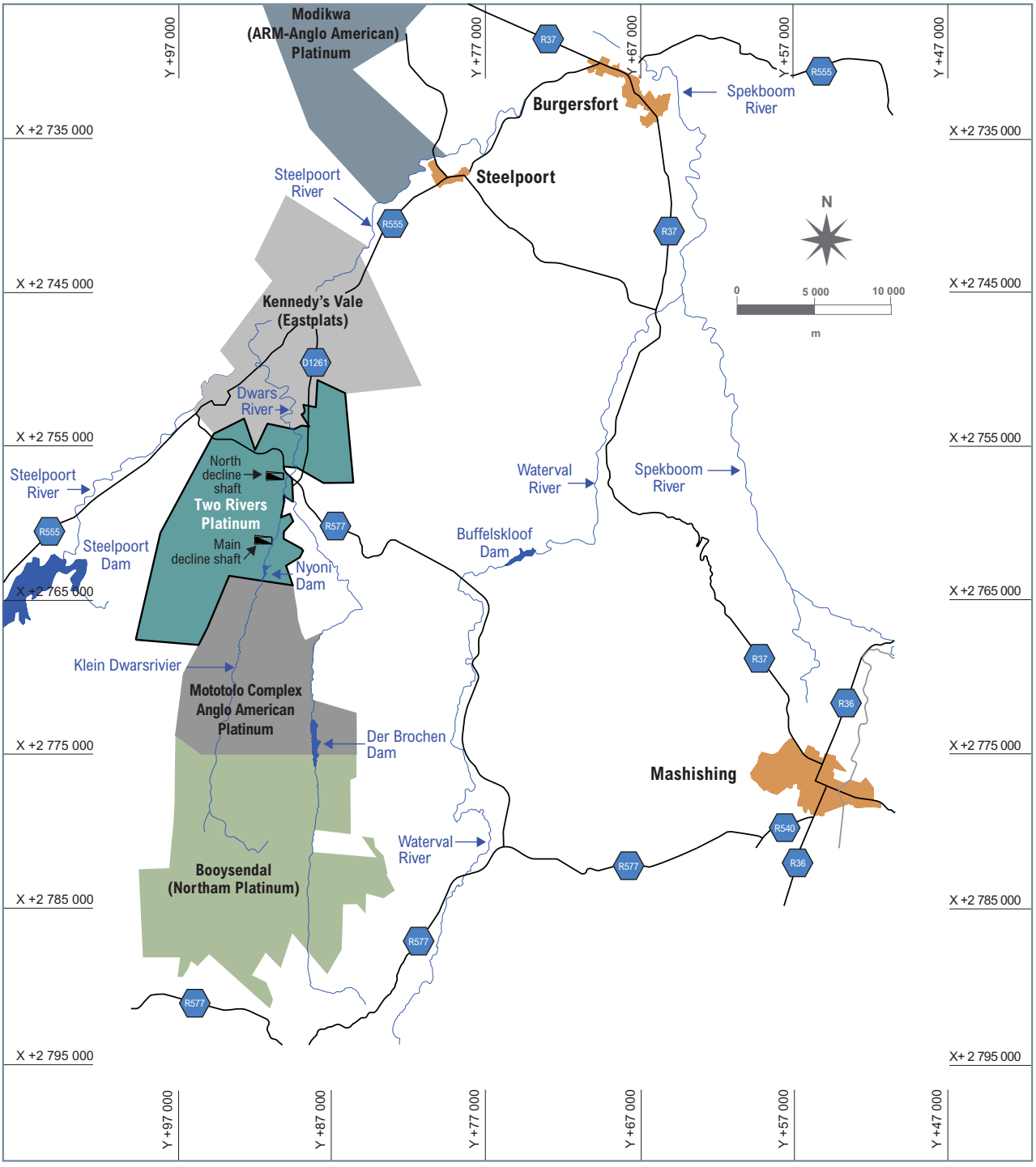
ARM's attributable beneficial interest in Two Rivers Platinum Mine (TRP) operation is 54%. The other 46% is held by Impala Platinum.

Locality

Two Rivers Platinum Mine (TRP) is located in the southern sector of the Eastern Limb of the Bushveld Complex. The mine is located on the farm Dwarsrivier 372 KT and extends to portions of the farms Kalkfontein 367 KT and Tweefontein 360 KT and the farm Buffelshoek 368 KT. At latitude 24°59'S and longitude 30°07'E, the mine is approximately 30 kilometres from Steelpoort and 60 kilometres from Mashishing, Mpumalanga province, South Africa. Two Rivers Platinum Mine is neighboured by Mototolo Platinum Mine and Dwarsrivier, Tweefontein and Thorncliff chromite mines.

ARM Platinum continued

Locality map of Two Rivers Platinum Mine



Legend

Two Rivers Mine | Decline shaft positions | Towns | Roads | Rivers and dams

ARM Platinum continued

History

Exploration, development and production history in the area dates from the early 1920s. During 1929, Lydenburg Platinum Areas Limited started mining activity, but no records are available.

Following the acquisition of the area by Gold Fields Mining and Development Limited, exploration started again in 1987 and was mainly directed at the Merensky Reef. Assmang Limited acquired the Dwarsrivier farm in September 1998, primarily to exploit the LG6 chromitite. During 2001, Anglovaal acquired the PGE rights on the farm from Assmang and targeted the UG2 Reef. In June 2005, after the 2004 ARM/Anglovaal merger, and following a full feasibility study and a period of trial underground mining, the ARM/Impala Joint Venture (JV) announced the approval of a 220 000 ounce-per-year PGM mine. As a result, an underground mine was established.

Competence

The following Competent Persons were involved in the estimation of Mineral Resources and Mineral Reserves for the Two Rivers Platinum Mine and are employed by the mine.

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
J Coetzee (Mineral Resources)	SACNASP	114086	BSc (Geology), BSc Hons (Geology)	19 years
JZ Khumalo (Geology)	SACNASP	400256/05	BSc (Geology), BSc Hons (Geology), GDE (Mining Engineering)	23 years
TJ Horak (Mineral Reserves)	IMSSA	1113	NHD (Mine Surveying), GDE (Mining Engineering)	23 years
C Henderson (Mineral Resources and Mineral Reserves)	SACNASP	400165/07	BSc (Geology), BSc Hons (Geology), MSc (MRM)	19 years

Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Right LP 178 MR (as amended)	Platinum, palladium, rhodium, ruthenium, osmium, iridium, silver, gold and ores.	On 8 November 2017, the TRP Mining Right was amended to incorporate the following properties into the Mining Right: Remaining extent of the farm Kalkfontein 367 KT (from the Tamboti Mining Right LP 178 MRC), and Portions 1, 2, 3, 4, 5, 6, 8, 9, 10 and 11 of the farm Kalkfontein 367 KT (from the Tamboti Prospecting Right LP 2125 PR).	25 years: 20 March 2013 to 19 March 2038	None

Geology

Two Rivers Platinum Mine (TRP) is exploiting platinum group metals (PGMs) and associated by-products comprising chromite and base metals (Cu, Ni and Co) which are hosted in the UG2 and Merensky reefs of the Bushveld Complex. The Bushveld Complex is the largest layered igneous complex in the world, hosting approximately 85% of known global platinum group metals resources.

Layered accumulations of mafic and ultramafic lithologies in the Bushveld Complex are collectively referred to as the Rustenburg Layered Suite (RLS). The stratigraphy of the RLS is broadly sub-divided into five zones namely (from bottom to top) the marginal zone, the lower zone, the critical zone, the main zone and the upper zone. The critical zone is of economic significance to Two Rivers Platinum Mine because it is the host of economically viable reefs – the UG2 and Merensky reefs. The critical zone is further subdivided into lower and upper critical zones. Both UG2 and Merensky reefs occur in the upper critical zone. (Refer to stratigraphic column, page 15).

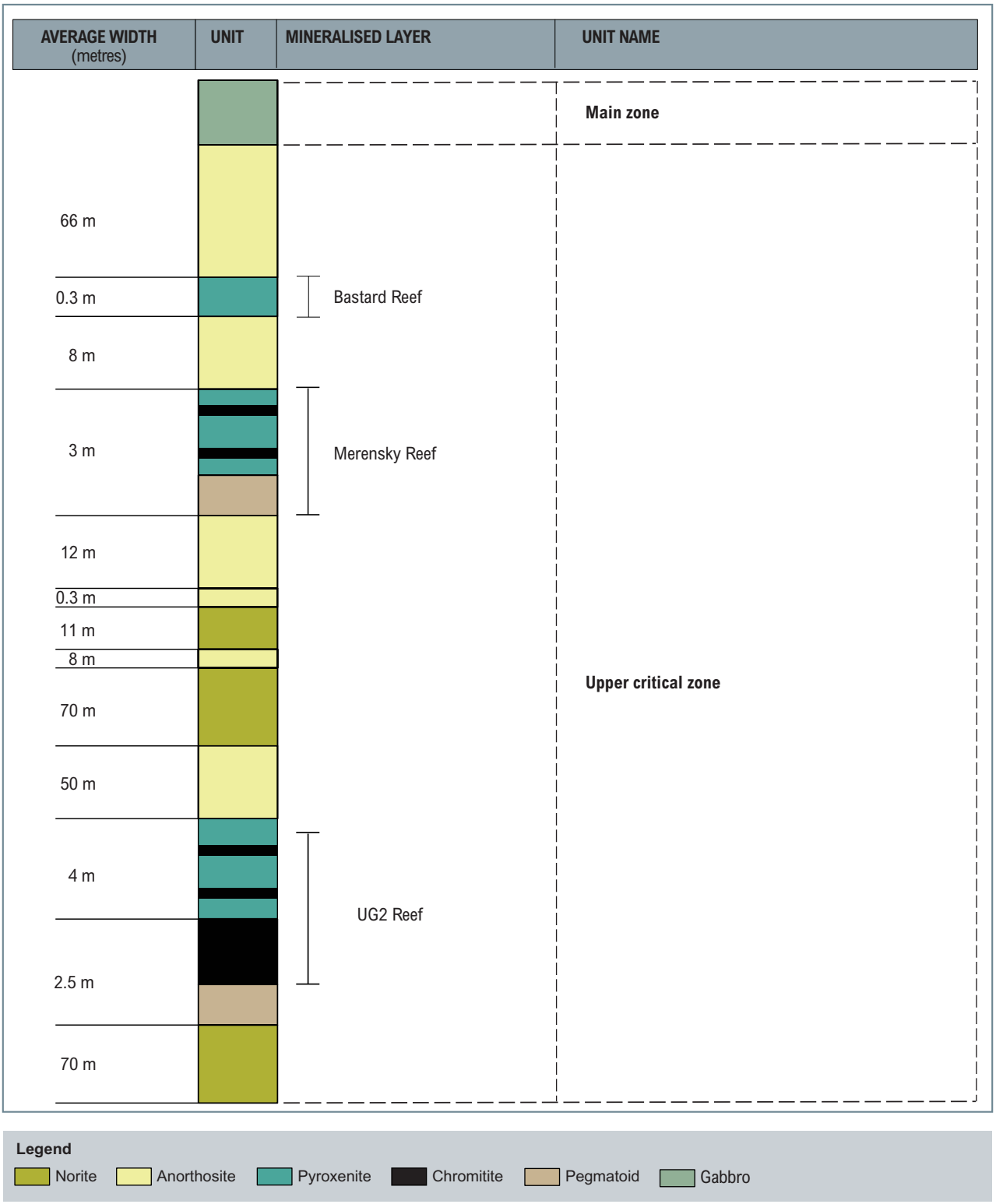
The geological succession at Two Rivers Platinum Mine is broadly similar to that encountered on the other operations in the southern portion of the eastern limb of the Bushveld Complex. An exception is the occurrence of the Steelpoortpark granite which is outcropping on the farm Buffelshoek 368 KT on the south-western part of the TRP mineral right area.

The Mineral Resources and Mineral Reserves for TRP are declared for both UG2 and Merensky Reef horizons. The UG2 Reef is currently the prime source of TRP current production.

ARM Platinum continued

A representative stratigraphic column of the upper critical zone of the Bushveld Complex as observed at Two Rivers Platinum Mine is presented below.

Simplified stratigraphic column of the Upper Critical Zone from the Merensky Hangingwall through to the UG2 Footwall at Two Rivers Platinum Mine



ARM Platinum continued

Mining of the Merensky Reef was re-initiated from the beginning of 2022 in line with the optimised life-of-mine plan as informed by the feasibility study.

The middling between the Merensky Reef and the UG2 Reef is approximately 140 metres to 160 metres. There is a notable increase in the middling between the UG2 and Merensky reef horizons from north to south across the mine.

The UG2 Reef is a chromitite hosted PGM orebody with poorly mineralised pyroxenite partings. High PGM concentrations are closely associated with the chromitite layers while the pyroxenite layers within and between the chromites contain low to no concentrations of PGMs.

The UG2 Reef outcrops along the Klein Dwarsrivier valley on Dwarsrivier 372 KT farm, with a north-south strike length of 7.5 kilometres, dipping to the west at between 7º to 10º. Elevated topography in the lease area results in the UG2 occurring at a depth of approximately 935 metres on the western extent of Dwarsrivier 372 KT farm.

Elevated concentrations of PGMs in the UG2 Reef generally occur in the basal and uppermost 10 centimetre portions of the main chromitite layer with basal contact having higher PGM grades.

The following three reef facies have been defined for the UG2 at Two Rivers Platinum Mine:

- UG2 Normal Reef facies which is characterised by an 80 to 120 centimetre-thick main chromitite layer overlain by up to three chromitite "leader layers" collectively termed the UG2A chromitites.
- UG2 Split Reef facies, characterised by a chromitite seam that is separated by a broadly persistent, 50 centimetres to 400 centimetres single layer of fine to medium-grained pyroxenite unit in the southern, west-central and north-eastern parts of the mine
- The UG2 Multiple Split Reef facies which is represented by multiple splitting of the UG2 main chromitite by internal pyroxenite layers of variable thicknesses. It occurs mainly in the southern section of the mine on the Dwarsrivier 372 KT farm as well as the east-central section of Buffelshoek 368 KT farm.

The Merensky Reef is a pyroxenite unit consisting of orthopyroxene with lesser amounts of plagioclase and clinopyroxene. Thin chromitite stringers (usually 1 to 4 millimetres thick) occur near the upper and lower contacts of the reef. The upper chromitite stringer occurs approximately 20 centimetres to 30 centimetres below the top contact of the Merensky pyroxenite unit. It is associated with highest concentrations of PGMs. The bottom chromitite stringer occurs at the base of the pyroxenite unit, above the anorthosite footwall. It is associated with a pronounced PGM bottom mineralisation peak.

The Merensky Reef has variable thicknesses across the mine. There is a general decrease in thickness from east to west from Dwarsrivier 372 KT farm (4 metres to 2 metres thick), through Kalkfontein 367 KT up to Buffelshoek 368 KT farm where the reef reduces to 20 centimetres in thickness.

Prominent northeast to southwest trending, upthrow faults with displacements ranging from 5 metres to 60 metres are common on the northern portion of the mine. There is regional north-northeast to south-southwest trending Kalkfontein fault, with a vertical displacement of greater than 1 000 metres down-thrown to the west. This fault marks the limit of the eastern structural domain for both the UG2 and Merensky reefs.

The ground to the western side of the Kalkfontein fault is declared as an exploration target because the reef occurs at depths greater than 1 000 metres from surface and there is insufficient exploration drilling information.

Exploration activities

In F2022 two inclined surface exploration boreholes were drilled on Kalkfontein 367 KT farm along the deepening path of Two Rivers' north decline shaft. The boreholes were drilled to confirm the position of a major fault with a 58 metres upward displacement. The inclined surface boreholes were targeted to confirm the reef plane on both upthrown and downthrown sides of the fault.

A total of 687 metres of surface drilling was done, yielding three UG2 (one potholed and two normal intersections) and three normal Merensky intersections. The project cost was R2.45 million. This included costs for the construction of access roads to the drill sites, actual drilling activities and project management by the consultant.

It is planned to drill six additional infill surface exploration boreholes in F2023, totalling 1 600 metres within the faulted blocks at the north decline shaft. The boreholes will confirm occurrence and potential impact of sympathetic faults associated with the confirmed major faults. The project is expected to cost approximately R4.10 million.

ARM Platinum continued

Routine underground diamond drilling was conducted to mitigate geological risks during the mining process. A total of 15 365 metres was drilled at a cost of R10.01 million. The purpose of the drilling was to provide cover for flammable gases and ground water in the development ends and to confirm and delineate geological anomalies in the stoping sections.

Mining methods and infrastructure

The TRP mining operation consists of two UG2 decline shaft systems, the main decline and the north decline, located approximately 2.5 kilometres apart on strike. Both shafts were designed for mechanised bord and pillar mining method. Merensky Reef is also being accessed via a decline shaft system with the mining method being bord and pillar as applied on the UG2 Reef. The mine has a concentrator plant onsite where initial processing is done. The PGE rich concentrate is transported by road to Impala Platinum's smelter and refining facilities for further processing.

Mineral Resources

The UG2 geological and grade block model was updated in F2022 using the following additional data: four new boreholes drilled in Dwarsrivier 372 KT farm in the split reef area, GEOPLOT data points and 12 new underground sampling sections. GEOPLOT data points are lithological points that are geo-referenced in three-dimensional space. These points are used to define the behaviour of the lithological units when updating the wireframes for both the UG2 and Merensky reefs. One major dyke approximately 30 metres wide was also modelled and included in the block model for the first time.

The surface boreholes at TRP have an average grid spacing of 500 metres over the whole property and 350 metre-grid spacing in some areas. The borehole spacing is 100 metres on strike and 50 metres on dip in the northeastern portion of Dwarsrivier farm. Current drilling in the south area of Dwarsrivier 372 KT has been designed with a 150 metre by 150 metre drilling grid.

The borehole core drilled by TRP is split by diamond saw and the half-core sampled at 20 centimetre intervals. Samples for both Merensky and UG2 reefs are crushed and split and submitted for assaying. All samples from recent drilling at TRP were assayed at Genalysis Laboratory Services (Pty) Ltd (Genalysis) using Ni-sulphide fire-assay with an ICP-MS finish to determine Pt, Pd, Rh, Ru, Ir and Au values. Base metals (Ni, Cu and Co) were assayed by aqua regia partial digestion/OES finish.

Duplicate samples and check analyses are carried out.

Densities are determined at the Genalysis laboratory by pycnometer. The historic Gold Fields and Assmang samples were assayed by Pb-collector fire-assay with gravimetric finish. In order to combine the data, some of the original core samples were re-assayed by means of Ni-sulphide collection fire-assay and a regression equation was derived, to re-cast the original Pb-collection data as Ni-sulphide assay "equivalents". Samples from other drilling campaigns by Implats and Kameni used the Genalysis laboratory as well.

In F2022, the UG2 Reef geological modelling was undertaken in Datamine Strat 3D. The software is suitable for stratified deposits and allows for the modelling of faults. The model produced shows consistency in the fault displacements. Ordinary Kriging interpolation within Datamine Studio RM was used to estimate the grade of each 50 x 50 x 1 metre block generated within the UG2 Reef geological models. Variables estimated were Pt, Pd, Rh, Au, Ru, and Ir, Cu and Ni. The internal pyroxenite and the leader chromitites were also modelled and estimated. Sub-cell splitting of blocks was allowed to follow the geological boundaries accurately. Density was estimated by Ordinary Kriging in the resource model. Additional models of the UG2 leaders and the footwall of the UG2 chromitite were created for use in the Mineral Reserve model as mining dilution.

The Merensky Reef model was not updated, therefore the Mineral Resource statement is based on the 2019 model. In 2019, Strat 3D was utilised in creating the geological model. Ordinary Kriging interpolation within Datamine Studio RM was used to estimate the grade of each 50 x 50 x 1 metre block generated within the Merensky Reef geological models. Variables estimated were Pt, Pd, Rh, Au, Ru, and Ir, Cu and Ni. Three models for the Top Mineralised zone, Middle Mineralised zone and the Bottom Mineralised zone were produced. An additional model was produced for the footwall unit.

The UG2 and Merensky Mineral Resource classification is based on the consideration of both geological and geostatistical parameters. The geological continuity of the reef is assessed by considering minor and major faulting and other structural disturbances on the reefs and the consistency in thickness and grade. Geostatistical parameters such as Kriging variance, Kriging efficiency, regression slope, number of samples used in estimation and search volume are also considered in the Mineral Resource classification.

ARM Platinum continued

Geological losses of 18.14% (UG2 Reef) and 30% (Merensky Reef) were applied to account for potholes, faults, dykes and iron-rich replacement pegmatoids. These geological losses are re-assessed every year and changed if necessary.

The Mineral Resources declared have reasonable prospects for eventual economic extraction having considered the following:

- Location, quality, grade and geological continuity which are known and are supported by drilling information which includes sampling
- UG2 and Merensky Reef mineralisation with a minimum thickness of 1 metre and a grade of not less than 1.8 g/t (6E) is considered a Mineral Resource that can be reported from experience on the platinum mines. If the thickness of reef is less than 1 metre then the accumulation value should not be less than 180 cmg/t
- A depth constraint has also been applied as mineralisation at depth of greater than 1 000 metres will be at temperatures that are likely to be too high for safe mining, so all the Mineral Resources at this depth have been excluded
- Mining and processing methods are well established at the operation and are currently used to exploit the orebody
- All other considerations such as legal, infrastructural, environmental, marketing, social and economic factors are covered as part of the mining plan for the operation.

Two Rivers Platinum Mine: UG2 Reef Mineral Resources estimates as at 30 June 2022

Mineral Resources are reported on a 100% basis*	MINERAL RESOURCES								
	Mt	Pt g/t	Pd g/t	Rh g/t	Au g/t	4E g/t	6E g/t	Pt Moz	6E Moz
Measured	17.81	2.56	1.47	0.47	0.04	4.53	5.52	1.46	3.16
Indicated	77.21	2.59	1.64	0.48	0.05	4.76	5.74	6.43	14.26
Total Measured and Indicated 2022	**95.02**	**2.59**	**1.61**	**0.48**	**0.05**	**4.72**	**5.70**	**7.90**	**17.42**
Total Measured and Indicated 2021	100.55	2.59	1.61	0.48	0.05	4.73	5.73	8.39	18.51
Inferred 2022	**80.69**	**2.37**	**1.64**	**0.45**	**0.05**	**4.51**	**5.38**	**6.15**	**13.96**
Inferred 2021	83.53	2.30	1.59	0.43	0.05	4.37	5.23	6.18	14.03

***4E** = platinum + palladium + rhodium + gold; **6E** = platinum + palladium + rhodium + iridium + ruthenium + gold.*
The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
Key assumptions for Mineral Resources:
Geological loss factor applied: 18.14%.
**** Two Rivers Platinum Mine attributable interests (ARM 54%; Impala Platinum 46%).***

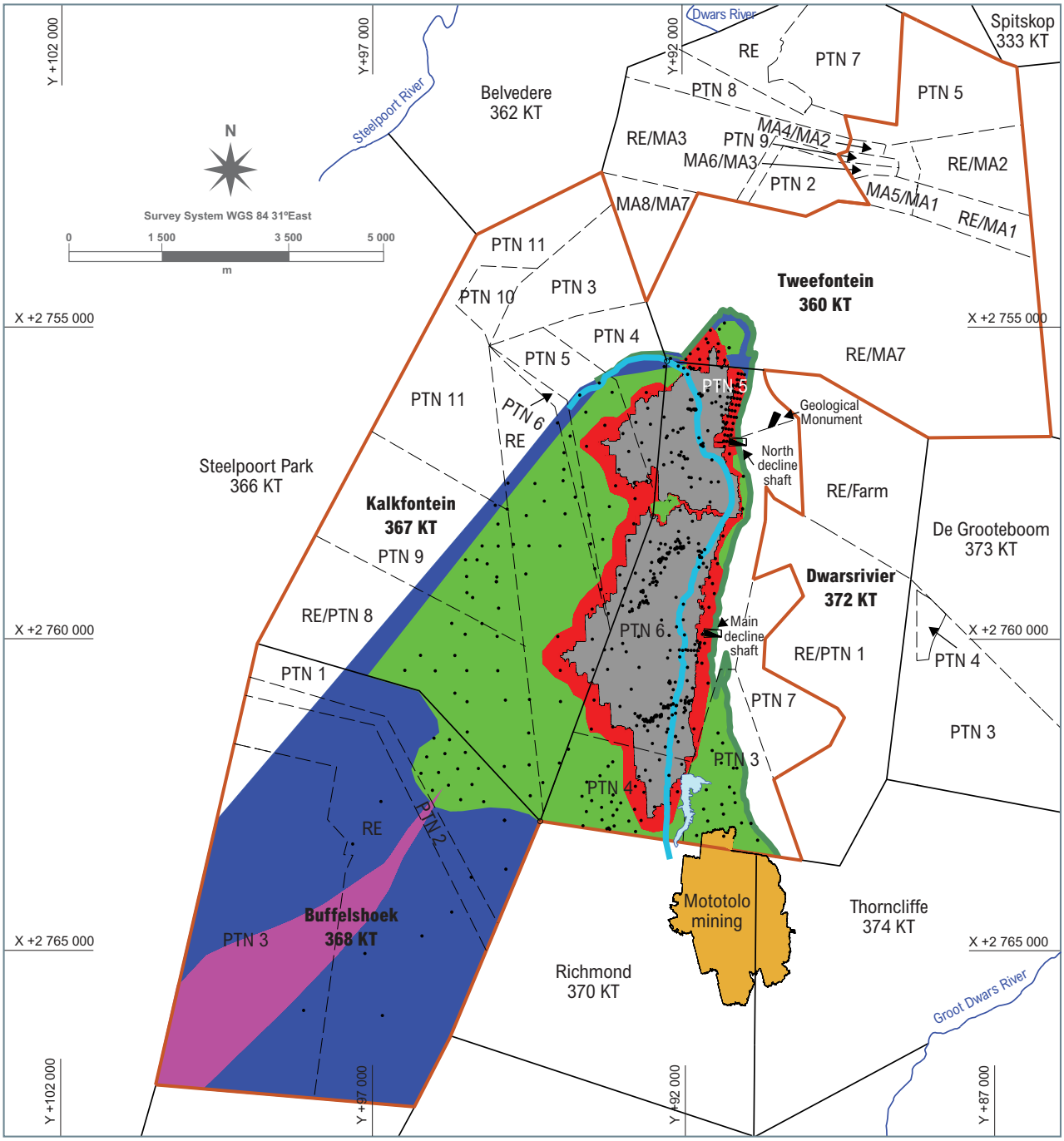
Two Rivers Platinum Mine: Merensky Reef Mineral Resources estimates as at 30 June 2022

Mineral Resources are reported on a 100% basis*	MINERAL RESOURCES								
	Mt	Pt g/t	Pd g/t	Rh g/t	Au g/t	4E g/t	6E g/t	Pt Moz	6E Moz
Measured									
Indicated	75.73	1.87	0.95	0.11	0.20	3.13	3.42	4.55	8.32
Total Measured and Indicated 2022	**75.73**	**1.87**	**0.95**	**0.11**	**0.20**	**3.13**	**3.42**	**4.55**	**8.32**
Total Measured and Indicated 2021	75.73	1.87	0.95	0.11	0.20	3.13	3.42	4.55	8.32
Inferred 2022	**61.39**	**2.28**	**1.31**	**0.14**	**0.25**	**3.98**	**4.32**	**4.50**	**8.53**
Inferred 2021	61.39	2.28	1.31	0.14	0.25	3.98	4.32	4.50	8.53

***4E** = platinum + palladium + rhodium + gold; **6E** = platinum + palladium + rhodium + iridium + ruthenium + gold.*
The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
Key assumptions for Mineral Resources:
Geological loss factor applied: 30%.
**** Two Rivers Platinum Mine attributable interests (ARM 54%; Impala Platinum 46%).***

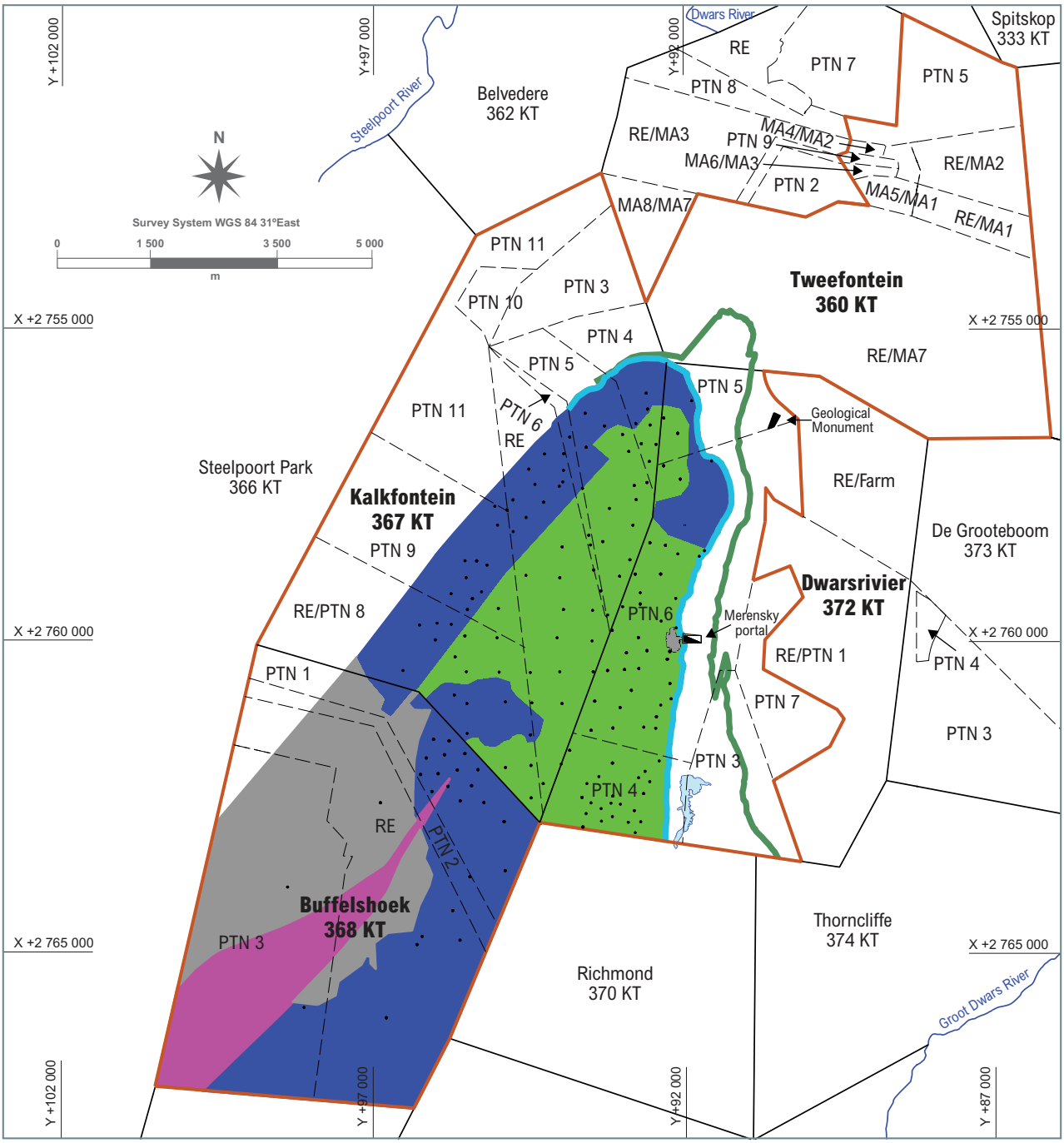
ARM Platinum continued

Two Rivers Platinum Mine UG2 Mineral Resources classification



ARM Platinum continued

Two Rivers Platinum Mine Merensky Mineral Resources classification



Legend

Indicated · Inferred · Merensky excluded · Granite · UG2 outcrop · Merensky outcrop · Boreholes

Mining Right boundary · Mined out area · Merensky portal · Nyoni dam

ARM Platinum continued

Mineral Reserves

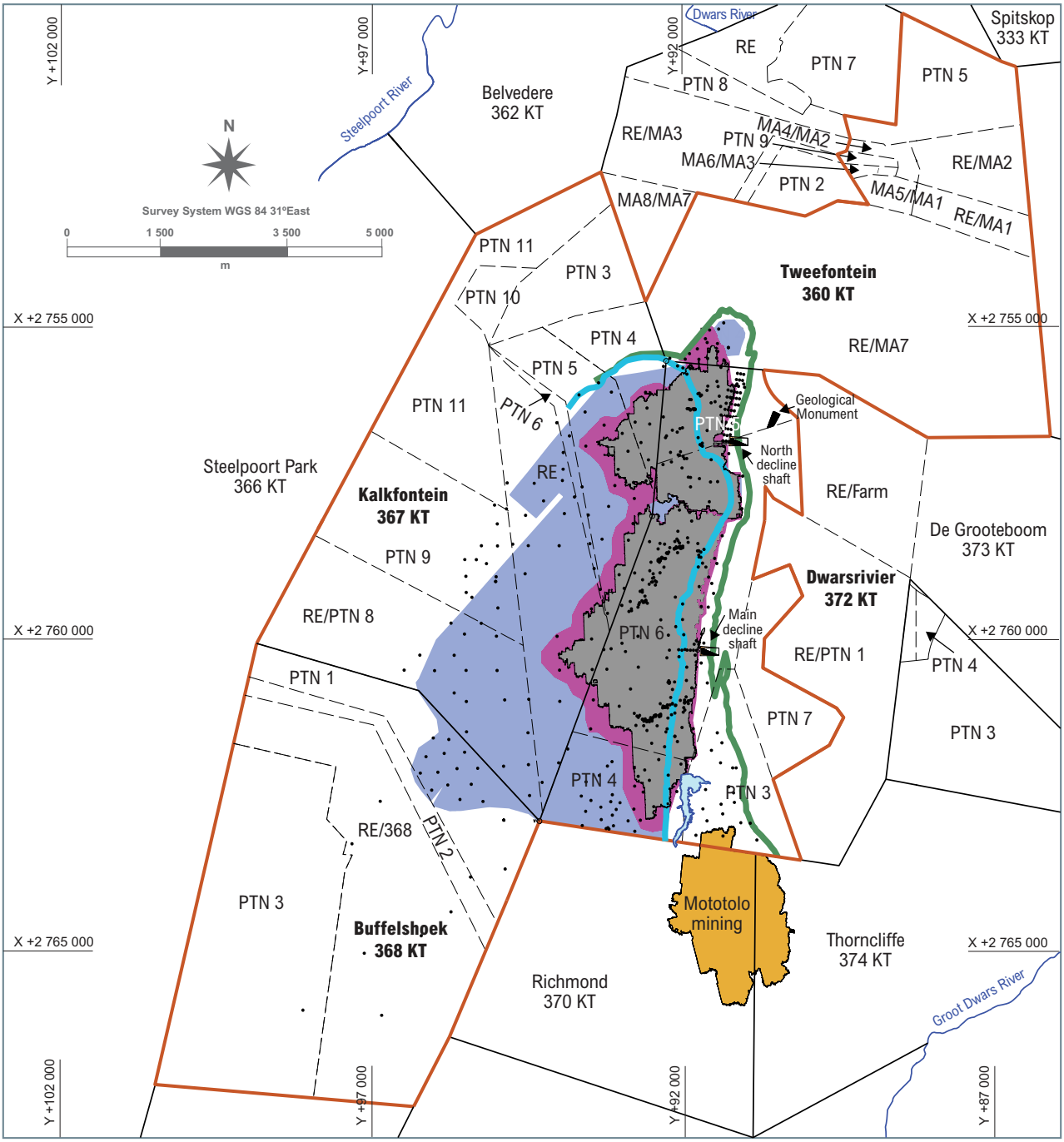
The Mineral Resources to Mineral Reserves conversion for the UG2 and Merensky reefs was done using the Datamine Studio 5D Mine Planner software package. The Mineral Reserves are classified as Proved and Probable and are converted from Measured and Indicated Mineral Resources respectively. Conversion of the UG2 Mineral Resources was done for the Measured and Indicated Mineral Resources in Dwarsrivier farm, Kalkfontein farm, Buffelshoek farm and Tweefontein. Stockpile tonnages reported in the Mineral Reserve statement were surveyed at the end of May 2022 and a forecast for the remainder of the financial year was applied to determine the stockpile balance and reported as part of the Proved Mineral Reserves.

The modifying factors used for the conversion of Mineral Resources to Mineral Reserves took into account the mining method, mining extraction factor, mining losses, mining dilution, mine call factor and commodity prices among other financial parameters and were derived from the July 2019 to September 2021 actual results for the mine. Details of some of the key parameters are provided as footnotes on the Mineral Reserves tabulations. A portion of the Two Rivers Mine Mineral Resources in the Dwarsrivier farm, are currently being mined by Rustenburg Platinum Mines Limited (RPM) after being appointed by Two Rivers Mine as per agreement between the two parties. The mining is an extension of the mining from Mototolo Mine.

Two Rivers Platinum Mine.

ARM Platinum continued

Two Rivers Platinum Mine UG2 Mineral Reserves classification



Legend

Proved · Probable · UG2 outcrop · Merensky outcrop · Boreholes · Mining Right boundary

Mined out area · Mototolo mining · Decline shaft · Nyoni dam

ARM Platinum continued

Two Rivers Platinum Mine: UG2 Reef Mineral Reserves estimates as at 30 June 2022

Mineral Reserves are reported on a 100% basis*	MINERAL RESERVES								
	Mt	Pt g/t	Pd g/t	Rh g/t	Au g/t	4E g/t	6E g/t	Pt Moz	6E Moz
Proved	12.21	1.47	0.85	0.27	0.03	2.61	3.18	0.58	1.25
Probable	58.51	1.53	0.90	0.29	0.03	2.74	3.33	2.88	6.26
Total Reserves 2022	**70.72**	**1.52**	**0.89**	**0.28**	**0.03**	**2.72**	**3.30**	**3.45**	**7.51**
Total Reserves 2021	71.14	1.59	0.95	0.29	0.03	2.85	3.47	3.63	7.93

***4E** = platinum + palladium + rhodium + gold; **6E** = platinum + palladium + rhodium + iridium + ruthenium + gold.*
Totals are rounded off.
Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:
Mining loss factor: Main decline 7.7%; North decline 0.6%.
Plant recovery: 83% (6E) depending on plant feed grade.
Shaft call factor: 100%.
Mining dilution: On average 20cm on hangingwall and 35cm on footwall.
Minimum mining height: 2.20 metres; maximum mining height 3.20 metres.
Prices (US$/oz): Pt: 950; Pd: 1 900; Rh: 11 500; Ru: 290 ; Ir: 3 125; Au: 1 785.
Prices (US$/tonne): Cu: 9 142; Cr_2O_3: 151.
Exchange rate (R/US$): 15.20.
Life-of-mine: >23 years.
**** Two Rivers Platinum Mine attributable interests (ARM 54%; Impala Platinum 46%).***

The modifying factors used for the conversion of the Merensky Mineral Resources to Mineral Reserves considered the mining method, mining extraction factor, mining losses, mining dilution and financial parameters such as the commodity prices. Some of these modifying factors were derived from the trial mining project of the Merensky Reef which was undertaken in the past. The scheduled results of the Merensky feasibility study resulted in a Probable Mineral Reserve. The details of the Merensky Mineral Reserves are provided in the table below together with a summary of some of the modifying factors.

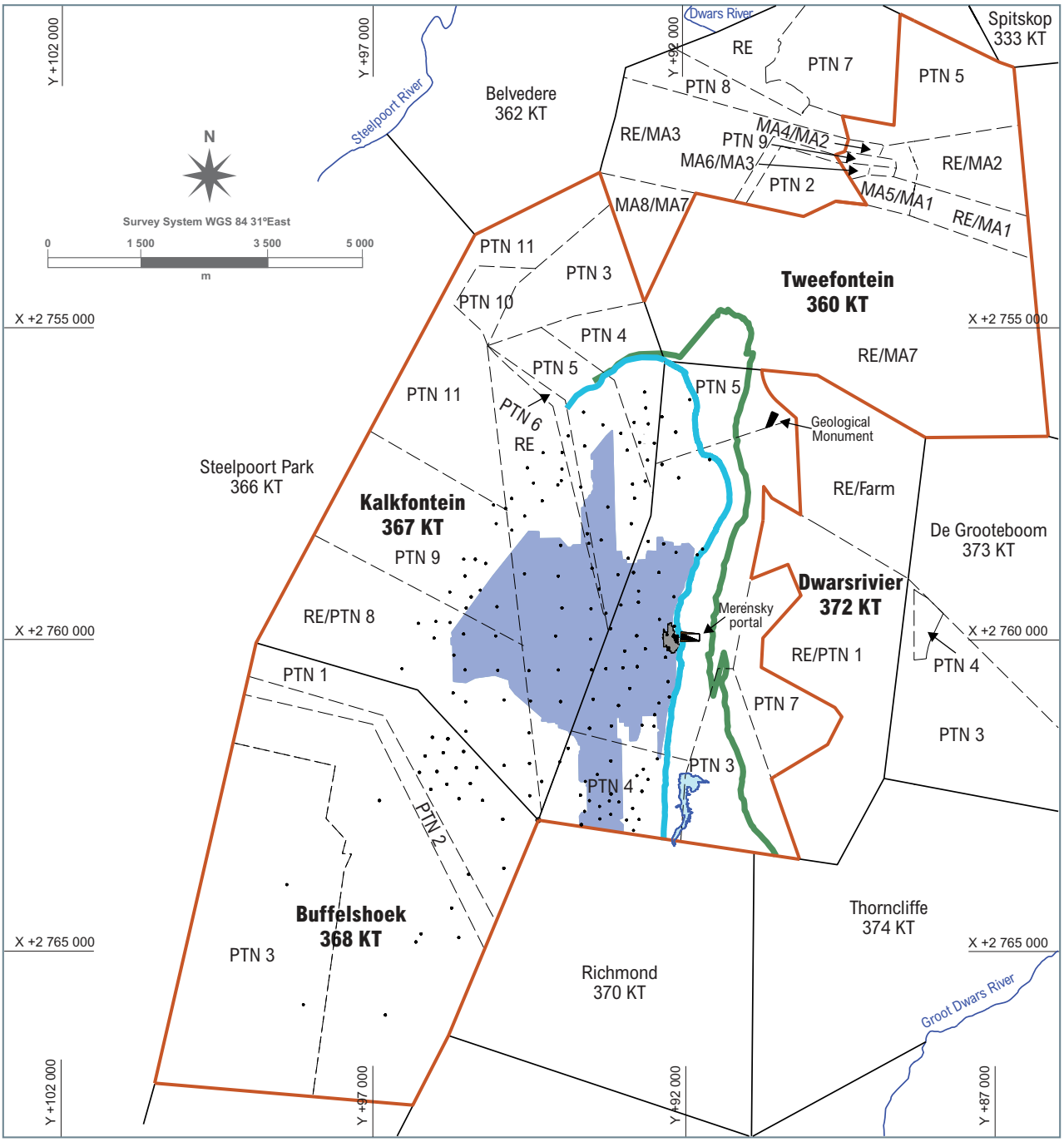
Two Rivers Platinum Mine: Merensky Reef Mineral Reserves estimates as at 30 June 2022

Mineral Reserves are reported on a 100% basis*	MINERAL RESERVES								
	Mt	Pt g/t	Pd g/t	Rh g/t	Au g/t	4E g/t	6E g/t	Pt Moz	6E Moz
Proved									
Probable	50.41	1.58	0.81	0.09	0.17	2.65	2.89	2.56	4.68
Total Reserves 2022	**50.41**	**1.58**	**0.81**	**0.09**	**0.17**	**2.65**	**2.89**	**2.56**	**4.68**
Total Reserves 2021	49.62	1.58	0.80	0.09	0.17	2.65	2.89	2.52	4.60

***4E** = platinum + palladium + rhodium + gold; **6E** = platinum + palladium + rhodium + iridium + ruthenium + gold.*
Totals are rounded off.
Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:
Mining loss factor: 3%.
Plant recovery: 82% (6E) depending on plant feed grade.
Shaft call factor: 95%.
Mining dilution: On average 50cm on hangingwall and on footwall.
Minimum mining height: 2.00 metres; maximum mining height 3.50 metres.
Prices (US$/oz): Pt: 950; Pd: 1 900; Rh: 11 500; Ru: 290 ; Ir: 3 125; Au: 1 785.
Prices (US$/tonne): Cu: 9 142; Cr_2O_3: 151.
Exchange rate (R/US$): 15.20.
Life-of-mine: >23 years.
**** Two Rivers Platinum Mine attributable interests (ARM 54%; Impala Platinum 46%).***

ARM Platinum continued

Two Rivers Platinum Mine Merensky Mineral Reserves classification



Legend

Probable — UG2 outcrop — Merensky outcrop — Boreholes — Mining Right boundary — Mined out area

Merensky portal — Nyoni dam

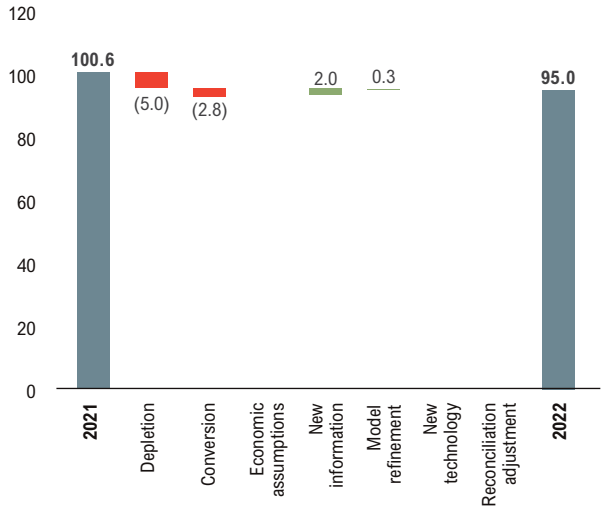
ARM Platinum continued

Two Rivers Platinum Mine year-on-year change

Two Rivers Platinum Mine UG2 Mineral Resources

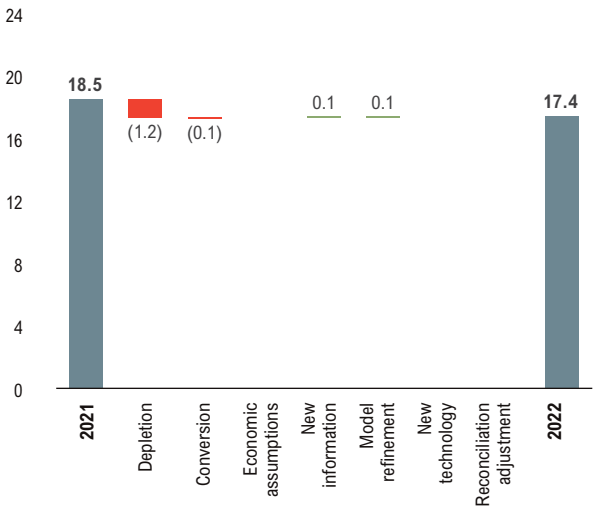
Two Rivers UG2 year-on-year reconciliation Mineral Resources*

Tonnes (million)



Two Rivers UG2 year-on-year reconciliation Mineral Resources*

Million ounces (6E)



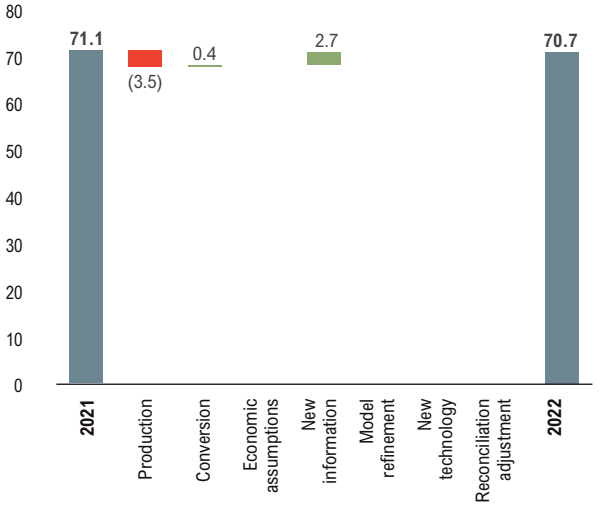
* *Mineral Resources represent Measured and Indicated only.*

Measured and Indicated Mineral Resources decreased from 100.55 million tonnes at 5.73 g/t (6E) to 95.02 million tonnes at 5.70 g/t (6E) mainly due to modelling of a major dyke and depletion of thick split reef areas at the main decline.

Two Rivers Platinum Mine UG2 Mineral Reserves

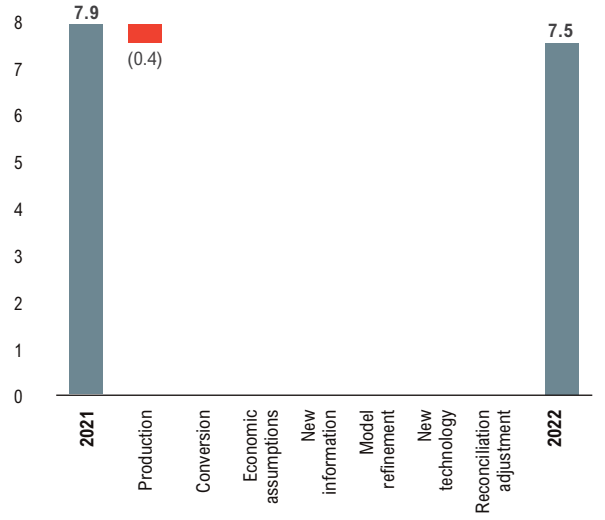
Two Rivers UG2 year-on-year reconciliation Mineral Reserves

Tonnes (million)



Two Rivers UG2 year-on-year reconciliation Mineral Reserves

Million ounces (6E)



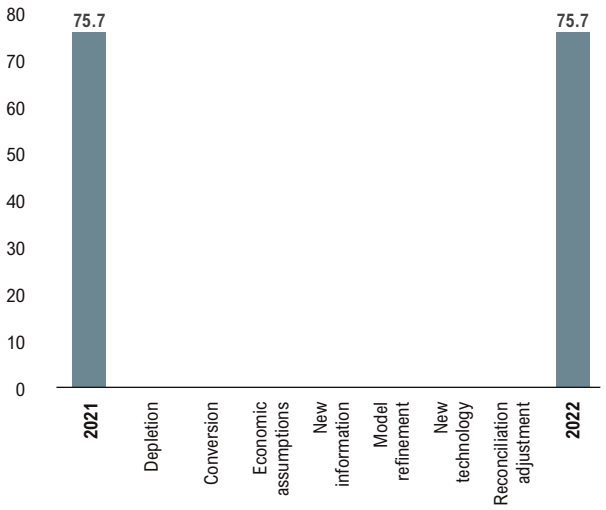
Mineral Reserves for the UG2 Reef decreased from 71.14 million tonnes at a grade of 3.47 g/t (6E) to 70.72 million tonnes at 3.30 g/t (6E) mainly due to a change in mining cut and mining depletion. A total of 3.5 million tonnes was depleted by mining. The UG2 Mineral Reserve 6E ounces decreased from 7.93 to 7.51 million ounces.

Two Rivers Platinum Mine year-on-year change

Two Rivers Platinum Mine Merensky Mineral Resources

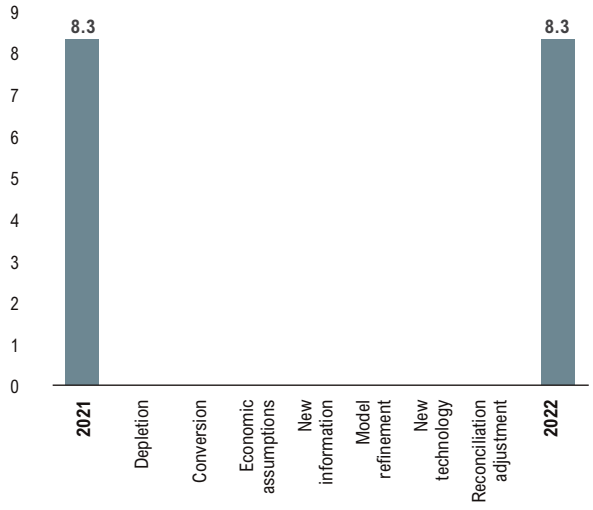
Two Rivers Merensky year-on-year reconciliation Mineral Resources*

Tonnes (million)



Two Rivers Merensky year-on-year reconciliation Mineral Resources*

Million ounces (6E)



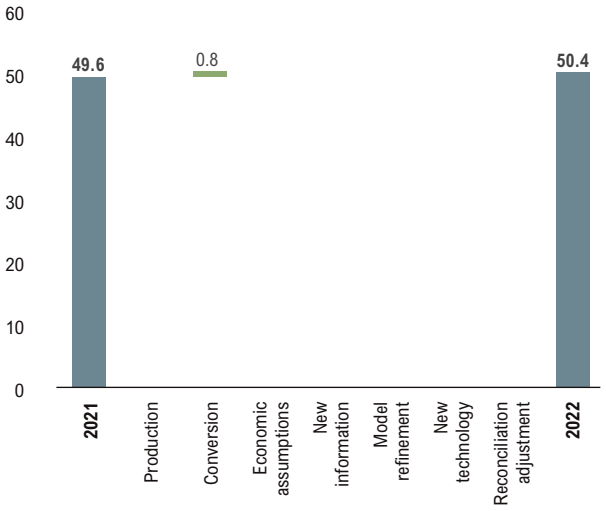
* *Mineral Resource represent Measured and Indicated only.*

Merensky Mineral Resource remain unchanged from F2021.

Two Rivers Platinum Mine Merensky Mineral Reserves

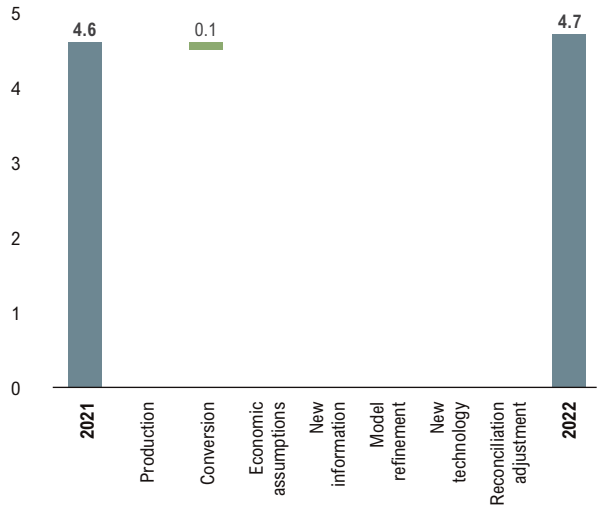
Two Rivers Merensky year-on-year reconciliation Mineral Reserves

Tonnes (million)



Two Rivers Merensky year-on-year reconciliation Mineral Reserves

Million ounces (6E)



The Merensky Mineral Reserve increased from 49.62 million tonnes at a grade of 2.89 g/t (6E) to 50.41 million tonnes at a grade of 2.89 g/t (6E) due to no tail cutting being necessary for F2022 as cash flows remain positive up to F2045.

ARM Platinum continued

Historical production at Two Rivers Platinum Mine (UG2 Reef)

	ROM*		Milled	
Financial year	Mt	Grade g/t (6E)	Mt	Grade g/t (6E)
2017/2018	3.45	3.57	3.46	3.63
2018/2019	3.32	3.58	3.40	3.52
2019/2020	2.94	3.52	3.02	3.45
2020/2021	3.44	3.41	3.28	3.43
2021/2022	**3.26**	**3.18**	**3.46**	**3.22**

* *ROM: Run-of-mine.*

Historical production at Two Rivers Platinum Mine (Merensky Reef)

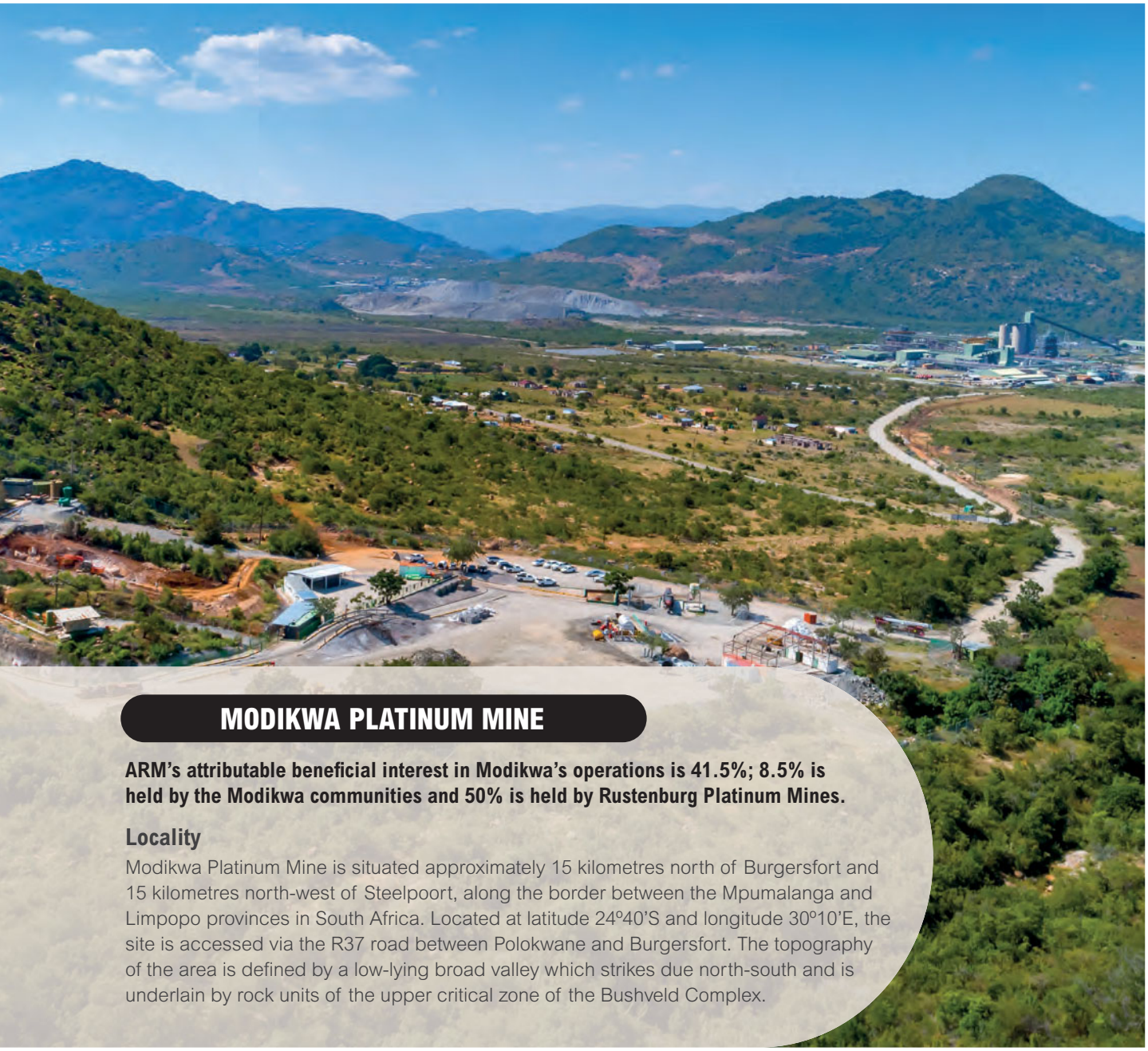
	ROM		Milled**	
Financial year	Mt	Grade g/t (6E)	Mt	Grade g/t (6E)
2021/2022	**0.06**	**1.83**		

** *No Merensky milled yet.*

IAR Additional information on production figures can be found in the ARM Platinum operational review of the 2022 ARM integrated annual report which can be found at **www.arm.co.za**.

Two Rivers Platinum Mine.

ARM Platinum continued



MODIKWA PLATINUM MINE

ARM's attributable beneficial interest in Modikwa's operations is 41.5%; 8.5% is held by the Modikwa communities and 50% is held by Rustenburg Platinum Mines.

Locality

Modikwa Platinum Mine is situated approximately 15 kilometres north of Burgersfort and 15 kilometres north-west of Steelpoort, along the border between the Mpumalanga and Limpopo provinces in South Africa. Located at latitude 24º40'S and longitude 30º10'E, the site is accessed via the R37 road between Polokwane and Burgersfort. The topography of the area is defined by a low-lying broad valley which strikes due north-south and is underlain by rock units of the upper critical zone of the Bushveld Complex.

History

Exploration in the area started in the mid-1920s with the discovery of the Merensky Reef. During the late 1980s, drilling was undertaken on the UG2 and Merensky reefs. In the late 1990s, a feasibility study was completed for the exploitation of the UG2 Reef. During 2001, a 50:50 JV agreement was signed between Rustenburg Platinum Mines and ARM Mining Consortium Limited. ARM's effective stake in Modikwa is 41.5%, through its 83% ownership of the ARM Mining Consortium. The other 8.5% is held by the Mampudima and Matimatjatji community companies through their 17% shareholding in the ARM Mining Consortium.

ARM Platinum continued

Competence

The following Competent Persons were involved in the estimation of Mineral Resources and Mineral Reserves for the Modikwa Platinum Mine. They are employed by Anglo American Plc (M Setuke) and Modikwa Mine (AM Lesufi).

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
M Setuke (Mineral Resources)	SACNASP	400300/12	BSc (Geology), BSc Hons (Geology)	17 years
AM Lesufi (Mineral Reserves)	SAIMM	706902	Government Survey Certificate of Competency	10 years

Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Right LP 129 MR (as amended)	Platinum group metals together with metals and minerals found in association therewith.	The acquisition in respect of a portion of the farm Doornbosch 294 KT was completed in 2019.	30 years: 13 November 2013 to 12 November 2043	None

Geology

The Bushveld layered sequence around Modikwa strikes north-northwest to south-southeast and dips to the south-west at 9º to 12º, with local variations in the dip resulting in gradients of nearly 20º. There are several instances where some gentle "rolling" of the reef horizons have been recorded, and normally steeper dips are noted nearer the outcrop (as opposed to at depth).

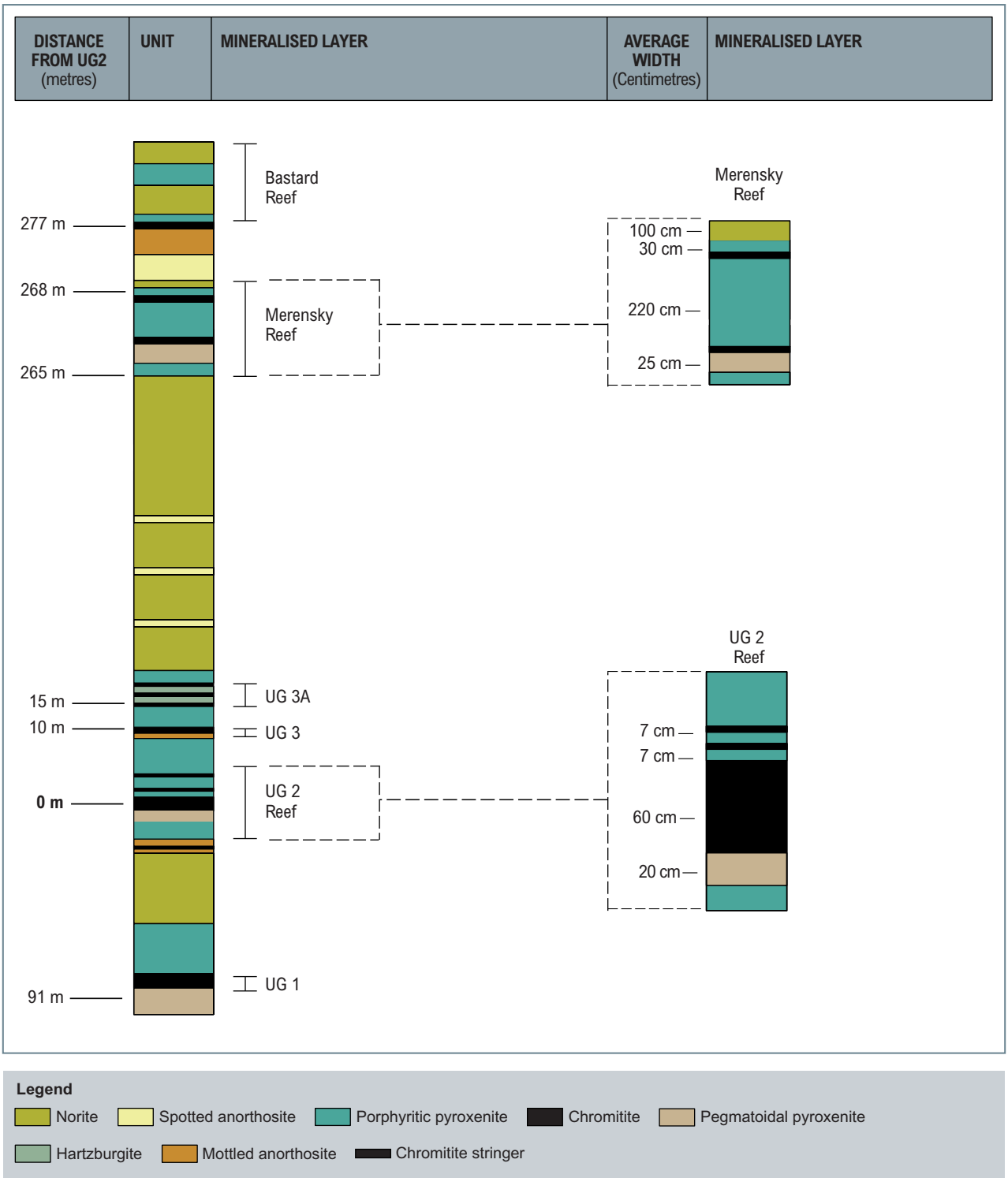
The outcrop positions of the Merensky Reef and the UG2 Reef normally occur within the areas of low relief, and much of the outcrop is masked by extensive development of black turf as well as, in places, transported sediments. On the farms Maandagshoek 254 KT, Onverwacht 292 KT and Winterveld 293 KT, however, the UG2 Reef (and occasionally the Merensky Reef) outcrops in a series of elongated hills. Although frequently covered with scree material, much of this outcrop has been marked by a series of trenches and pits, many of which date from early pioneer prospecting.

Both the UG2 and Merensky reefs are present at Modikwa. The UG2 Reef occurs as a chromitite layer with an average thickness of approximately 60 centimetres. Three leader chromitites occur above the main seam. Gentle undulations of the UG2 Reef with amplitudes of less than 2 metres 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 Onverwacht Hill area in the southern portion of the mine is characterised by the presence of several large iron-rich ultramafic pegmatoid intrusions (IRUP) that disrupt, and locally replace, the UG2 Reef.

Modikwa Mine.

ARM Platinum continued

Generalised geological succession at Modikwa Platinum Mine



ARM Platinum continued

Exploration activities

No surface boreholes were drilled during the F2022 period. A total of 65 underground boreholes were drilled during the year at the North and South shafts and Merensky Shaft at a cost of R8.41 million. This includes increased methane mitigation drilling at North shaft, and borehole radar surveys. The UG2 Reef, dykes, faults and reef potholes were intersected providing valuable information for updating the structural information for the UG2 Reef.

Exploration drilling from surface planned for the North 1 Phase 3 drilling may have to be done from underground if the requested permissions are not obtained. The objective of this drilling is to increase understanding of the grade profile and geological structures and to increase the Measured Mineral Resource base for feasibility purposes. The approved budget for this drilling is R20 million.

Mining methods and infrastructure

Mining consists of mechanised development and conventional stoping. The UG2 Reef is accessed via three primary declines from the surface and Merensky Shaft. Run-of-mine tonnage is processed at the Modikwa concentrator and the PGE-rich concentrate is transported to Anglo Platinum's Polokwane smelter and refining facilities.

Mineral Resources

The Mineral Resource modelling and estimation for Modikwa Platinum Mine is done by the mine with assistance from Anglo American Platinum resource modelling team.
The UG2 and Merensky Reef Mineral Resource is based on surface diamond boreholes (mother drillholes and deflections) and underground sample sections. The logs and assay values are kept in separate electronic databases and are combined for estimation purposes after rigorous data validation. Currently, assaying of samples is done at the SGS and EBRL laboratories.

The UG2 Mineral Resource cut is divided into three units comprising the UG2 Reef and dilution cuts in the hangingwall and footwall to make up the mining cut. Estimation of the three sub-units in the mining cut is carried out separately and independently. Two-dimensional block models with block sizes of 125 x 125 metres, 250 x 250 metres and 500 x 500 metres, depending on the drillhole/sample section spacing, are created. The Pt, Pd, Rh, Au, Cu and Ni grades, reef width and density are interpolated using Ordinary Kriging. Mineral Resources are reported after deduction of geological losses. The geological losses account for losses due to pegmatoidal intrusions, faults, dykes and potholes.

Mineral Resource classification for both UG2 and Merensky reefs is based on geostatistical parameters (search volume, number of samples used in estimation, Kriging efficiency, Kriging variance and regression slope), geological structure information (aeromagnetic data, seismics, facies, structural model, reef facies, mining history and geological loss information) and QAQC assessment. These parameters are allocated weightings to get the final Mineral Resource classification score which is then reviewed by the Competent Person's team.

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

- Legal – Modikwa Mine has permits and licences to mine and also adheres to regulatory requirements
- Geology – all data used for Mineral Resource models are validated and no Mineral Resources are declared below the 75°C isotherm, below which mining is currently not feasible. Geological losses are applied based on an annual assessment of mined-out areas
- Mining method – mining is conventional and has been used in the past and at adjacent mines to economically exploit the orebody
- Metallurgical – material mined is currently processed on and off-mine
- Other factors such as marketing, environmental and social, infrastructure and economic are adequately covered in the mine plan.

Mineral Reserves

Part of the Measured and Indicated Mineral Resources are converted to Mineral Reserves by applying appropriate mining, metallurgical and economic factors, ie "modifying factors", details of which are below the Mineral Reserves table.
A minimum mining cut of 102 centimetres is used to determine the amount of footwall waste that is included in the mining cut. Where the hangingwall and the main seam thickness are greater than 102 centimetres, an additional 5 centimetres of footwall waste is included. The basal contact of the UG2 layer is typically high-grade and it is important that this contact is not left in the footwall during mining.

ARM Platinum continued

Modikwa Platinum Mine: UG2 Mineral Resources and Mineral Reserves estimates as at 30 June 2022

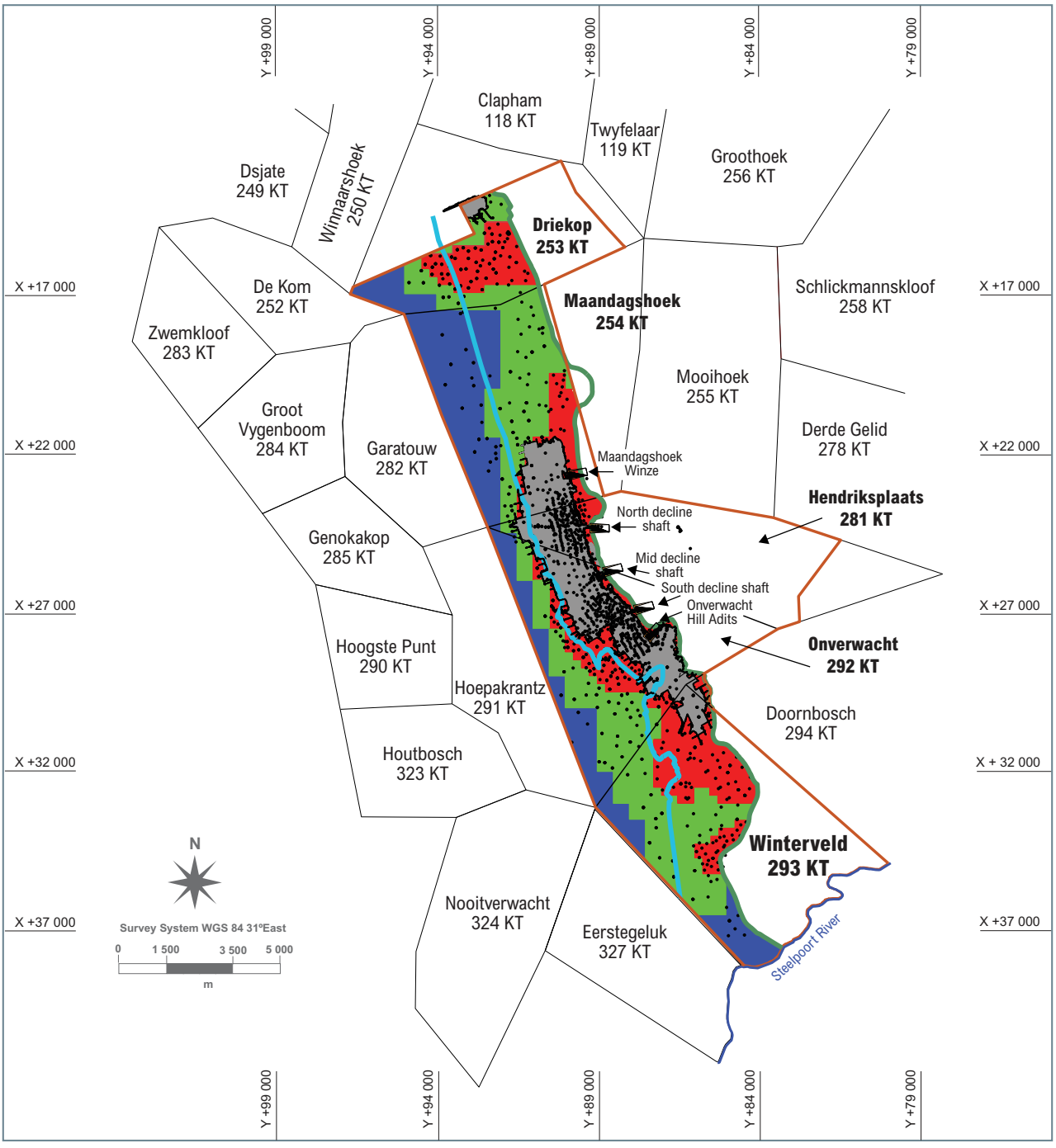
	MINERAL RESOURCES				MINERAL RESERVES		
Mineral Resources and Mineral Reserves are reported on a 100% basis*	Mt	4E g/t	4E Moz		Mt	4E g/t	4E Moz
Measured	81.28	5.90	15.42	Proved	11.05	4.48	1.59
Indicated	102.23	5.90	19.40	Probable	29.28	4.16	3.92
Total Measured and Indicated 2022	**183.51**	**5.90**	**34.82**	**Total Reserves 2022**	**40.33**	**4.25**	**5.51**
Total Measured and Indicated 2021	185.60	5.92	35.32	Total Reserves 2021	44.26	4.21	5.99
Inferred 2022	**78.10**	**6.21**	**15.59**				
Inferred 2021	77.50	6.22	15.50				

4E *= platinum + palladium + rhodium + gold.*
The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
Key assumptions for Mineral Resources:
Geological loss factor applied: an average of 17.07% over lease area.
Grade and thickness cut-off: No grade cut-off applied.
Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:
"Unknown" geological loss factor applied: 4%-9%.
Mining loss factor: 1.2%.
Mining dilution: 32.7%.
Plant recovery: 86.5% (4E).
Mine call factor: 95%.
Mineral Reserve cut-off grade: 2.76 g/t (4E).
Price ranges (US$/oz): Pt: 805 to 1 100; Pd: 1 136 to 2 150; Rh: 4 910 to 21 125; Ru: 184 to 250; Ir: 1 012 to 1 500; Au: 1 433 to 1 669.
Prices (US$/tonne): Cu: 6 239 to 9 435; Ni: 11 993 to 18 210.
Exchange rate (R/US$): 15.27 to 15.97.
Life-of-mine: >22 years.
**** Modikwa Platinum Mine attributable interests (ARM 41.5%; Modikwa communities 8.5%, Anglo American Platinum 50%).***

Modikwa Mine.

ARM Platinum continued

Modikwa Platinum Mine UG2 Mineral Resources classification

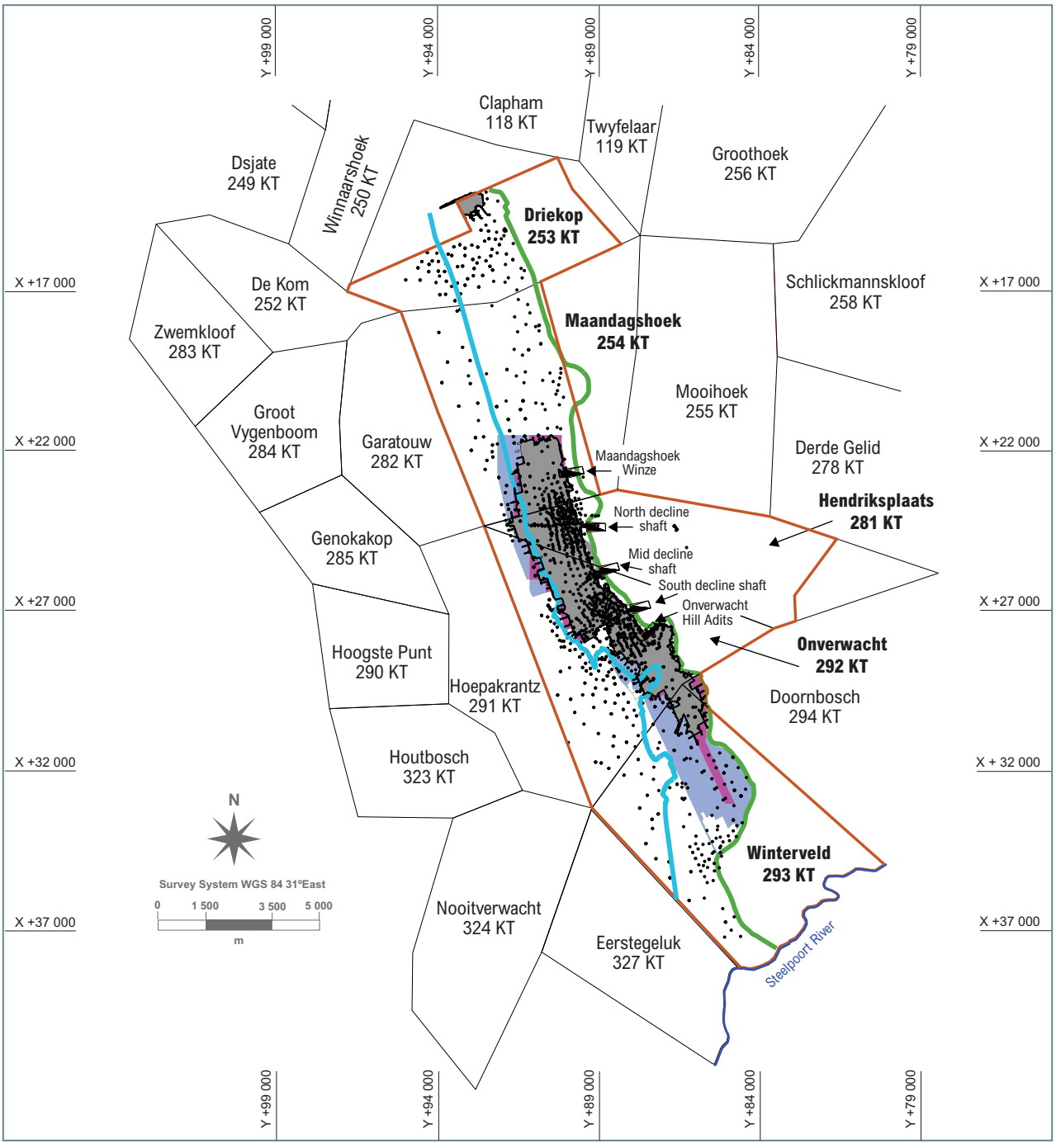


Legend

Measured · Indicated · Inferred · UG2 outcrop · Merensky outcrop · Boreholes · Mined out area · Mining Right boundary · Shaft positions

ARM Platinum continued

Modikwa Platinum Mine UG2 Mineral Reserves classification



Legend

Proved · Probable · UG2 outcrop · Merensky outcrop · Boreholes · Mining Right boundary · Mined out area · Shaft positions

ARM Platinum continued

Modikwa Platinum Mine: Merensky Reef Mineral Resources estimates as at 30 June 2022

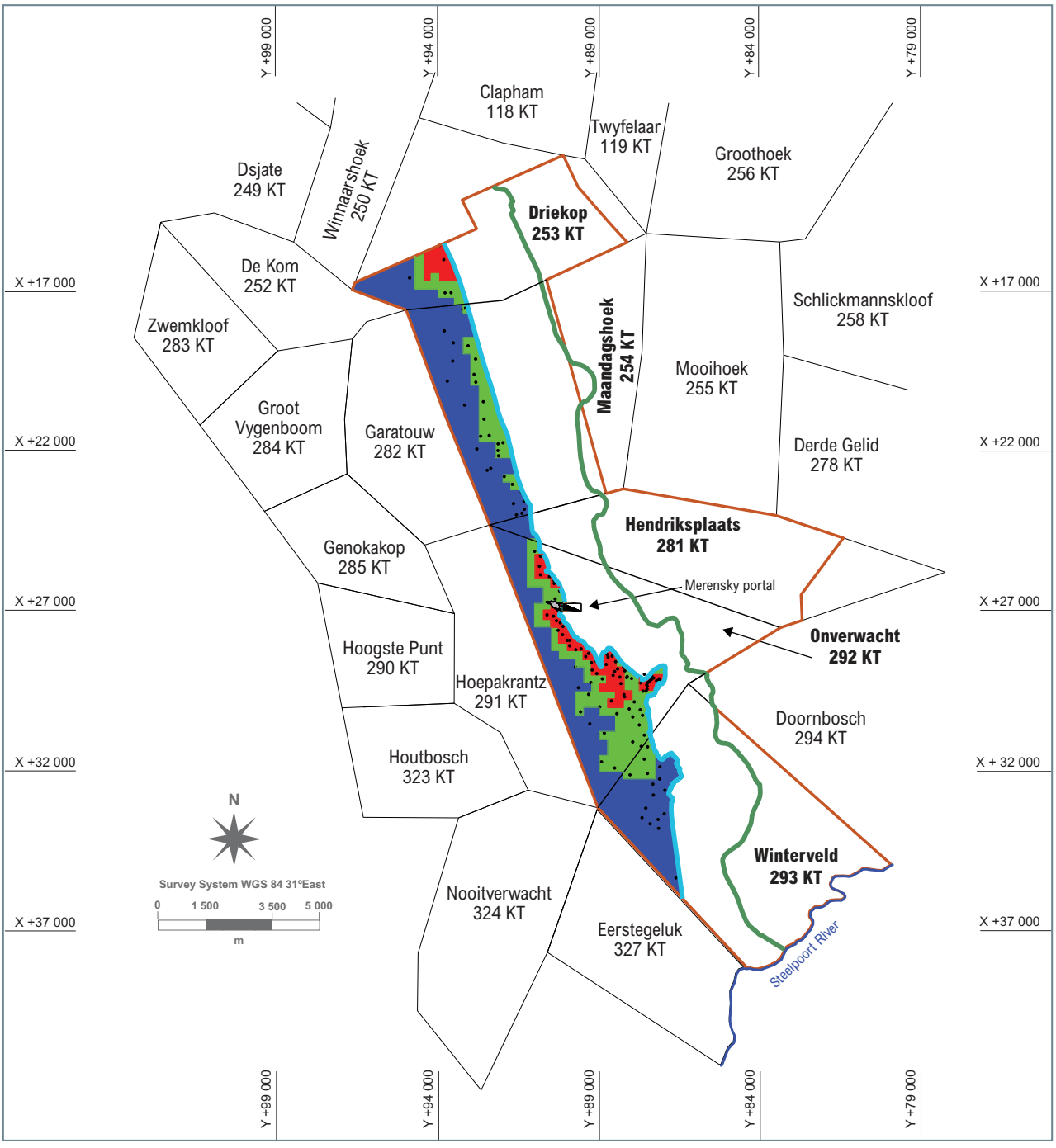
	MINERAL RESOURCES		
Mineral Resources are reported on a 100% basis*	Mt	4E g/t	4E Moz
Measured	20.61	3.16	2.09
Indicated	53.85	2.90	5.01
Total Measured and Indicated 2022	**74.45**	**2.97**	**7.10**
Total Measured and Indicated 2021	74.58	2.97	7.12
Inferred 2022	**139.33**	**2.84**	**12.72**
Inferred 2021	139.33	2.84	12.72

4E *= platinum + palladium + rhodium + gold.*
Totals are rounded off.
Key assumptions for Mineral Resources:
Geological loss factor applied: 17.49% to 36.59%.
Grade and thickness cut-off: No cut-off grade applied.
**** Modikwa Platinum Mine attributable interests (ARM 41.5%; Modikwa communities 8.5%; Anglo American Platinum 50%).***

Modikwa Mine.

ARM Platinum continued

Modikwa Platinum Mine Merensky Mineral Resources classification



Legend

Measured · Indicated · Inferred · UG2 outcrop · Merensky outcrop · Boreholes · Mining Right boundary · Mined out area · Shaft positions

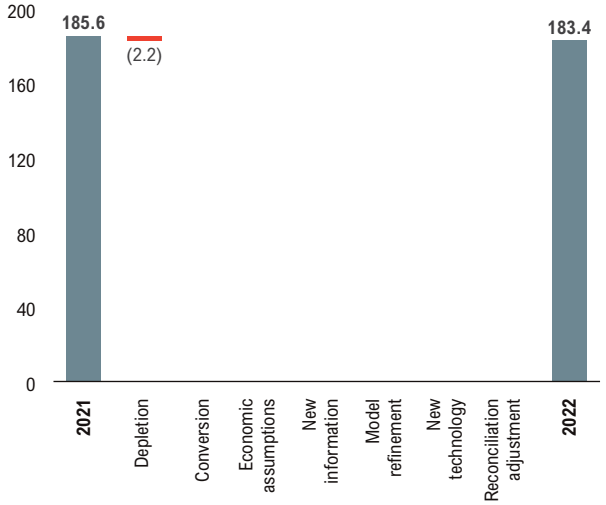
ARM Platinum continued

Modikwa Platinum Mine year-on-year change

Modikwa Platinum Mine UG2 Mineral Resources

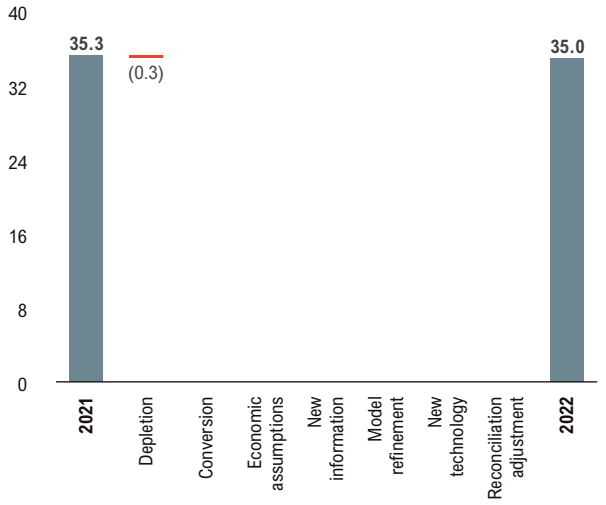
Modikwa Mine UG2 year-on-year reconciliation Mineral Resources*

Tonnes (million)



Modikwa Mine UG2 year-on-year reconciliation Mineral Resources*

Million ounces (4E)



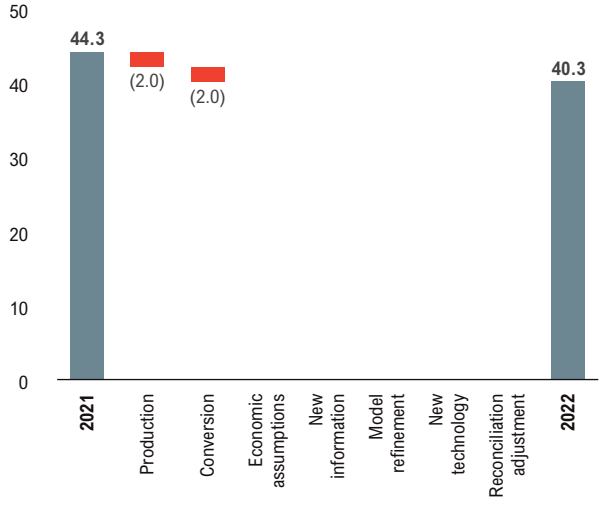
* *Mineral Resources represent Measured and Indicated only.*

The UG2 Reef Measured and Indicated Mineral Resources decreased from 185.60 million tonnes at 5.92 g/t (4E) to 183.51 million tonnes at 5.90 g/t (4E) mainly due to depletion.

Modikwa Platinum Mine UG2 Mineral Reserves

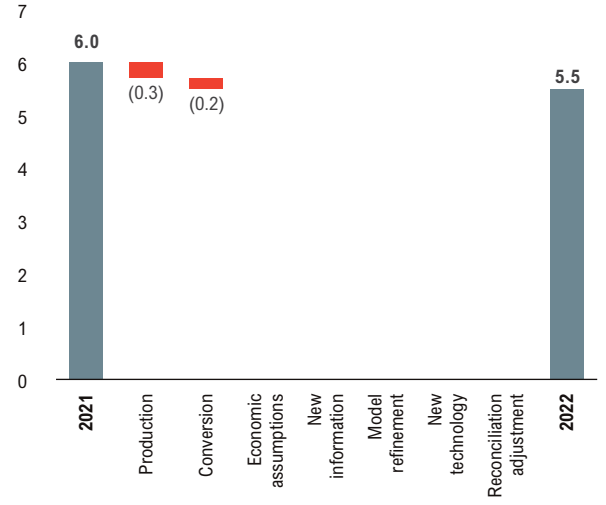
Modikwa Mine UG2 year-on-year reconciliation Mineral Reserves

Tonnes (million)



Modikwa Mine UG2 year-on-year reconciliation Mineral Reserves

Million ounces (4E)



Mineral Reserves of the UG2 Reef decreased from 44.26 million tonnes at 4.21 g/t (4E) to 40.33 million tonnes at 4.25 g/t (4E) mainly due to mining production.

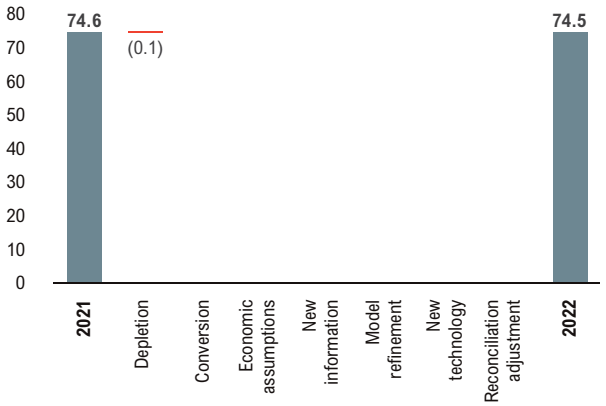
ARM Platinum continued

Modikwa Platinum Mine year-on-year change continued

Modikwa Platinum Mine Merensky Mineral Resources

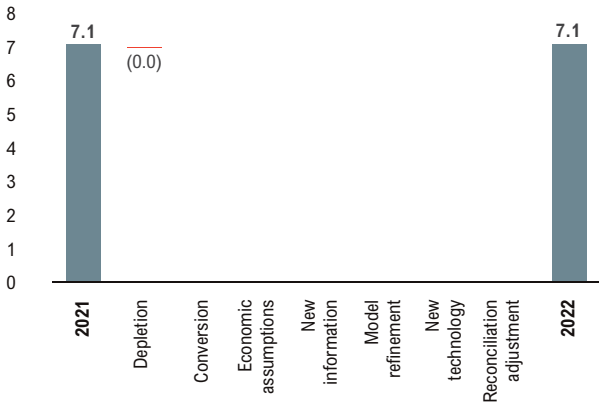
Modikwa Mine Merensky year-on-year reconciliation Mineral Resources*

Tonnes (million)



Modikwa Mine Merensky year-on-year reconciliation Mineral Resources*

Million ounces (4E)



* *Mineral Resources represent Measured and Indicated only.*

Modikwa Mine Merensky Mineral Resources remains unchanged.

Historical production at Modikwa Platinum Mine (UG2 Reef)

	ROM		Milled	
Financial year	Mt	Grade g/t (4E)	Mt	Grade g/t (4E)
2017/2018	2.06	5.26	2.43	4.22
2018/2019	2.06	4.17	2.29	4.18
2019/2020	1.91	4.24	1.94	4.09
2020/2021	1.95	4.12	2.05	3.83
2021/2022	**2.19**	**3.99**	**2.30**	**3.88**

Historical production at Modikwa Platinum Mine (Merensky Reef)

	ROM		Milled	
Financial year	Mt	Grade g/t (4E)	Mt	Grade g/t (4E)
2021/2022	**0.10**	**1.95**	**0.10**	**2.21**

IAR Additional information on production figures can be found in the ARM Platinum operational review of the 2022 ARM integrated annual report which can be found at **www.arm.co.za**.

ARM Platinum continued

NKOMATI NICKEL MINE

ARM's attributable beneficial interest at Nkomati Mine is 50%. The other 50% is held by Norilsk Nickel Africa (Pty) Ltd.

Locality

Nkomati Nickel Mine is located approximately 300 kilometres east of Johannesburg in the Mpumalanga province of South Africa. Situated at latitude 25º40'S and longitude 30º30'E, the mine is accessed via the national N4 highway between Johannesburg and Machadodorp, the R341 provincial road and the R351 tarred road.

History

Nickel, copper, cobalt, PGM and chromite mineralisation is hosted by the Uitkomst Complex, a layered mafic-ultramafic, Bushveld satellite intrusion. The Uitkomst Complex outcrops on the farms Slaaihoek 540 JT and Nkomati 770 JT. In 1929, the Mineral Rights on Slaaihoek were purchased by ETC, an Anglovaal subsidiary, to mine gold at the old Mamre and Slaaihoek mines. In the early 1970s, an Anglo American/INCO JV began exploring Uitkomst for nickel. In 1990, Anglo American Corporation (AAC) completed a feasibility study on an open-pit operation exploiting the large disseminated sulphide resource on Uitkomst, with negative results.

Exploration on Slaaihoek by Anglovaal began in 1989, and in 1991, the Massive Sulphide Body (MSB) was discovered by surface drilling. In 1995, the Nkomati JV between Anglovaal and AAC was formed. In January 1997, underground production started on the MSB. In 2004, Anglovaal acquired AAC's interest and in 2005, following the merger of Anglovaal and ARM, a 50:50 JV was formed between ARM and LionOre, then a global nickel producer and owner of the Activox technology. In February 2006, Nkomati approved the Phase 1 expansion project to exploit the Main Mineralised Zone (MMZ), one of the disseminated sulphide orebodies, by underground and open-pit mining at a rate of 100 000 tonnes per month of ore to maintain annual nickel production at approximately 5 000 tonnes in concentrate, after output from the MSB started declining. The project was completed in 2007. In the same year, Norilsk Nickel acquired LionOre, together with its 50% share in Nkomati. The MSB orebody is now mined out.

The Phase 2a expansion project, increasing MMZ ore production to 375 000 tonnes per month with the construction of a new plant, was commissioned during 2010.

ARM Platinum continued

The Phase 2b expansion, involving the upgrading of the 100 000 tonnes per month MMZ plant to a 250 000 tonnes per month Chromititic Peridotite Mineralised Zone (PCMZ) plant, was completed during F2011. The PCMZ, which was being mined only in the open-pit, is a disseminated chromite-rich sulphide body within the Chromititic Peridotite (PCR) Unit (overlying the MMZ), which has to be treated separately to liberate the chromite fines.

Nkomati has also been producing lumpy chromite, chips and fines from the oxidised massive chromitite since 2006, a layer which overlies the PCMZ orebody. A chrome washing plant to treat the fines stockpile was commissioned in 2008. In addition, the Oxidised PCR, which is the highly weathered PCR Unit immediately below the oxidised massive chromitite, was being stockpiled for future processing for its chromite content.

The Nkomati operation was placed on care and maintenance at the end of the third quarter of F2021 as continued mining became financially unviable.

Competence

The following Competent Person was involved in the review of the estimation of Mineral Resources for the Nkomati Mine. He is employed by ARM.

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
S Kadzviti (Mineral Resources)	SACNASP	400164/05	BSc, MSc Exploration Geology, GDE (Mining Engineering)	32 years

Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Rights MP 146 MR and MP 147 MR	Nickel, copper, cobalt, platinum, palladium, rhodium, iridium, ruthenium, osmium, gold, silver and other contained minerals and metals.	None	25 years: 6 June 2012 to 5 June 2037	None

Geology

Sulphide and chromite mineralisation occurs within the Uitkomst Complex, a Bushveld-age, layered, mafic-ultramafic intrusion, which concordantly intrudes dolomite/chert of the Malmani Subgroup and shales/quartzites of the Timeball Hill Formation. The Uitkomst Complex, which lies unconformably on an Archaean basement, is a north-west/south-east tubular shaped body which outcrops in the Slaaihoek Valley for approximately nine kilometres before dipping at 4º below an escarpment where it has been drilled down-dip for another four kilometres and is still open-ended to the north-west.

From the base to top, the stratigraphy of the Uitkomst Complex comprises the Basal Gabbro Unit (up to 15 metres thick), the Lower Pyroxenite Unit (average 35 metres), the Chromititic Peridotite Unit (30 to 60 metres), the Massive Chromitite Unit (up to 10 metres), the Peridotite Unit (330 metres), the Upper Pyroxenite Unit (65 metres), the Gabbronorite Unit (250 metres), and the Upper Gabbro Unit (50 metres). The complex and surrounding sediments are intruded by numerous diabase sills up to 30 metres in thickness.

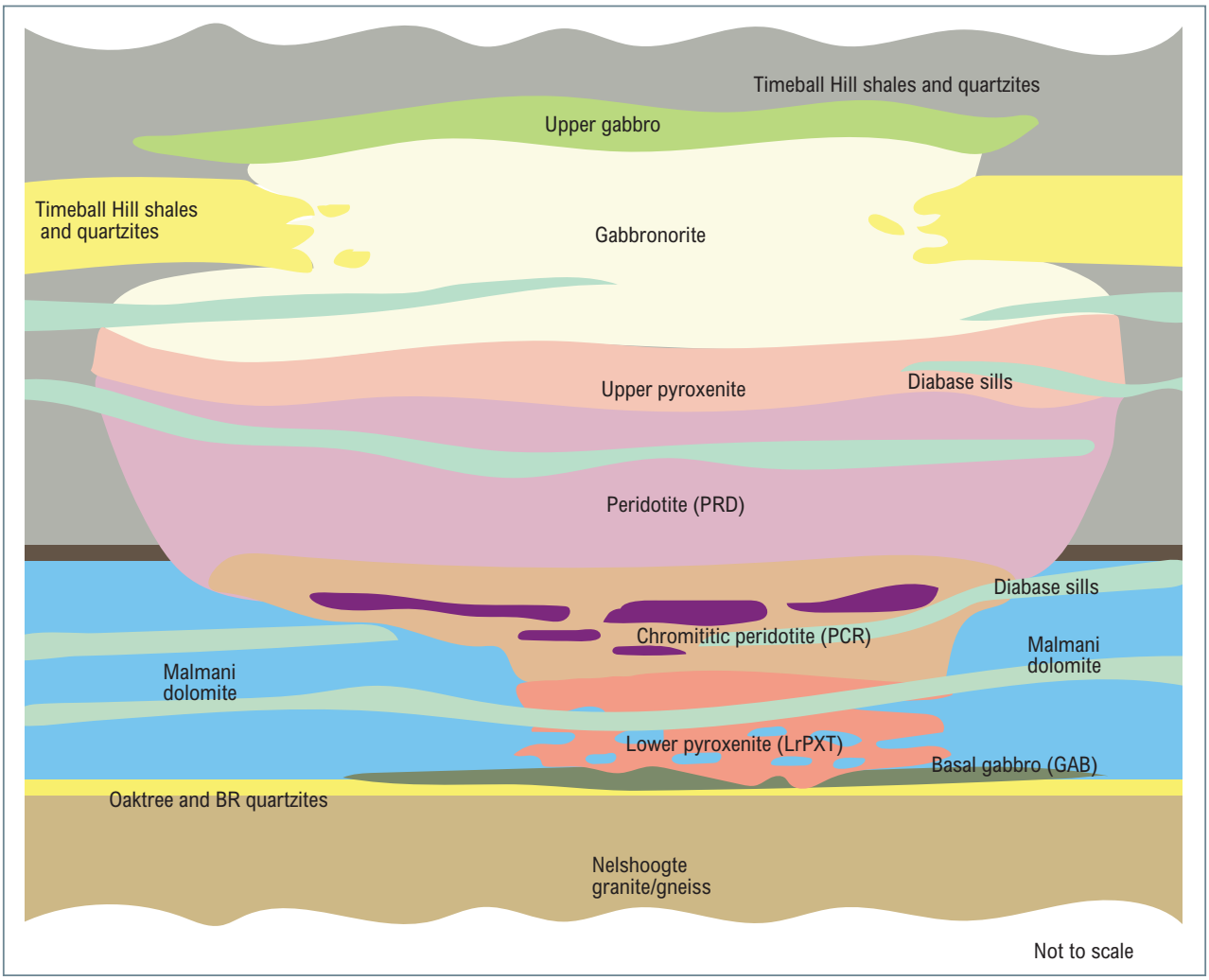
Apart from the now mined-out Massive Sulphide Body (MSB), situated at and below the base of the Uitkomst Complex, there are three main economic sulphide mineralised zones:

- The Basal Mineralised Zone (BMZ) within the Basal Gabbro
- The Main Mineralised Zone (MMZ) occurring within the Lower Pyroxenite Unit
- The Chromititic Peridotite Mineralised Zone (PCMZ) which occurs within the Chromititic Peridotite (PCR).

In addition, the Peridotite Unit contains the Peridotite Mineralised Zone (PRDMZ) which is a low-grade disseminated sulphide mineralisation zone not yet included in the mine's Mineral Resource base. The dominant sulphide minerals are pyrrhotite, pentlandite and chalcopyrite. Cobalt is mostly in solid solution in the pentlandite, and the platinum group metals (PGMs) occur as separate minerals, with merenskyite being dominant. The chromite is contained within the Massive Chromitite Unit (MCHR) in the open-pit area.

ARM Platinum continued

Idealised geological section of Uitkomst Complex



Legend

- Diabase
- Upper gabbro
- Gabbronorite
- Upper pyroxenite
- Peridotite (Harzburgite)
- Massive chromitite
- Chromititic peridotite
- Lower pyroxenite
- Basal gabbro

Uitkomst Complex

- Timeball Hill shale Klapperkop quartzite
- Rooihoogte formation
- Malmani subgroup
- Oaktree formation and black reef formation

Transvaal Sequence

- Nelshoogte granite

Basement

ARM Platinum continued

Exploration activities

There were no exploration activities conducted during F2022.

Mining methods and infrastructure

Mining operations comprised open-pit mining operations which feed two concentrators (MMZ and PCMZ) producing concentrate containing PGMs, nickel, copper and cobalt. All these operations have now been placed on care and maintenance. Previously, MMZ was also mined by underground mechanised mining methods but this operation is on care and maintenance. Final products were transported to various third parties for toll smelting and refining. Chrome products from oxidised massive chromitite and the PCMZ, produced from the chrome washing plant and the PCMZ plant, were sold to local and export markets.

Mineral Resources

There have been numerous diamond, percussion and RC drilling campaigns since 1972.

Consequently, various sampling and assaying protocols as well as varying standards of QA/QC have been used. Core sizes are mainly NQ and TNW. Before 1990 (Anglo American boreholes), half core samples over widths ranging from 1 metre to 5 metres were taken. Samples were assayed at the Anglo American Research Laboratory (AARL) for total nickel, copper and cobalt using Atomic Absorption (AA) and for "sulphide" nickel using a peroxide leach/AA finish. Composite samples were assayed for platinum and palladium by Pb-collection fire-assay/ICP, S by combustion, and a range of major elements by fusion and density using the Archimedes bath method. Between 1990 and 1997 (Anglovaal boreholes), assays were carried out at the Anglovaal Research Laboratory (AVRL), with internal standard checks. Nickel analyses were also carried out by the partial digestion methods. Comparisons between AARL and AVRL were undertaken to ensure that the data was compatible.

In 2003, a 50 metre-spaced drilling programme was carried out in the shallow open-pit area. Samples from this drilling were analysed at AVRL for nickel, copper and cobalt using an aqua regia partial extraction/AA finish. Platinum, palladium, rhodium and gold were analysed by Pb-collection fire-assay/AA finish. Analyses also included Cr_2O_3, MgO, FeO and S. Density was also determined by gas pycnometer. Duplicates and internal standards were used and a suite of referee samples were analysed at the Genalysis laboratory in Perth. Comparisons indicated good correlations between laboratories. In 2005, it was decided to resample many of the Anglo American drillholes to improve the sample density for PGEs in the open-pit area. Drill core was resampled (quarter core) at 1 metre intervals. Assays were carried out by the SGS laboratory in Johannesburg for Pt, Pd and Au by Pb-collection fire-assay/AA finish and for Ni, Cu and Co by aqua regia leach/AA finish. Blanks, duplicates and standards were included for quality control.

In 2007/2008, a 50 metre infill diamond drilling programme (116 holes – 18 000 metres) was completed in the shallower part of Pit 3. In the Pit 2 area, another 44 holes (3 450 metres) were added to the database. Half-core samples from the Pit 3 drilling were analysed at Genalysis Laboratory Services in Perth for Ni, Cu and Co by aqua regia partial digestion/ICP finish; for Pt, Pd and Au by Pb-collection fire-assay/ICP finish; high chrome samples for Cr_2O_3 by fusion/ICP and density by gas pycnometer. AMIS standards, duplicates and blank samples were used for internal QA/QC. Half-core samples from the Pit 2 drilling were analysed at Nkomati Mine's laboratory for Ni, Cu and Co by aqua regia partial digestion/AA finish.

The underground MMZ and PCMZ Mineral Resources were based on surface and underground diamond drilling as well as RC holes. Underground holes are spaced 10 to 20 metres apart and the drill core is sampled at 1 metre intervals. The Nkomati Mine laboratory analysed samples for Ni, Cu and Co using aqua regia leach/ICP finish, while the PGE assays were carried out by SGS and Mintek Laboratories in Johannesburg. Both laboratories use blanks, standards and check assays for quality control.

Geological wireframe models were generated from the entire borehole database (boreholes and RC holes) in Datamine Studio 3. All data was used for the variography. Grade estimation was by Ordinary Kriging. In addition to the estimation of Ni, Pt, Pd, Rh, Au, Co and Cu, density was also estimated for each model cell. Block sizes for the resource model were at 50 x 50 x 2.5 metres for poorly informed areas, 25 x 25 x 2.5 metres for moderately informed areas and 12.5 x 12.5 x 2.5 metres for well-informed areas. Grade cut-offs used for the Mineral Resources were 0.16% Ni for MMZ and PCMZ (open-pit) and 0.30% Ni for MMZ and PCMZ (underground).

ARM Platinum continued

The underground and open-pit Mineral Resources were based on the 2016 and 2019 Mineral Resource models respectively, which were created on-mine and internally reviewed. An external audit was undertaken by MSA in March 2019 to review the open-pit Mineral Resource estimate. No fatal flaws or critical issues were identified. There were, however, some issues necessary to implement as well as some continuous improvement items which have since been addressed.

A three-dimensional approach to the Mineral Resource classification was applied. It allows for the classification of each block model cell based on a combination of model cell geostatistical parameters and geological confidence. The geostatistical parameters considered are search volume, Kriging variance, Kriging efficiency and regression slope. The geological confidence is based on geological continuity, influence of geological structures and the quality of geological data.

The Mineral Resources for Nkomati Mine have reasonable prospects for eventual economic extraction on the basis of the following:

- Location, quality, grade and geological continuity which are known and are supported by drilling information which includes sampling
- Appropriate grade cut-offs used for the Mineral Resources are 0.16% Ni for MMZ and PCMZ (open-pit) and 0.30% Ni for MMZ and PCMZ (underground). These grade cut-offs are based on material that can be processed in the current plants and on material that is economic now or in the future
- Mining and processing methods are well established at the operation and have been used to exploit the orebody
- All other considerations such as legal, infrastructural, environmental, marketing, social and economic factors were covered as part of the mining plan for the operation.

Nkomati Mine.

ARM Platinum continued

Mineral Reserves

Nkomati Mine was placed on care and maintenance from the end of February 2021 after production at the mine ceased. No Mineral Reserves have been declared for F2022.

Nkomati Mine: Mineral Resources estimates as at 30 June 2022

		Underground		Open-pit			
Mineral Resources are reported on a 100% basis*		MMZ	PCMZ	MMZ Pit 3	PCMZ Pit 3	**Total 2022 Mineral Resources**	Total 2021 Mineral Resources
Measured Resources	Mt	10.08	1.05	30.70	31.06	**72.89**	72.89
	Ni%	0.57	0.37	0.34	0.22	**0.32**	0.32
	Cu%	0.20	0.12	0.16	0.06	**0.12**	0.12
	Co%	0.03	0.02	0.02	0.01	**0.02**	0.02
	4E g/t	1.18	0.95	0.97	0.71	**0.89**	0.89
	Cr_2O_3%		10.11		14.00		
Indicated Resources	Mt	37.37	12.68	19.04	25.53	**94.62**	94.62
	Ni%	0.48	0.38	0.37	0.21	**0.37**	0.37
	Cu%	0.21	0.12	0.16	0.06	**0.15**	0.15
	Co%	0.02	0.02	0.02	0.01	**0.02**	0.02
	4E g/t	1.19	0.92	0.98	0.71	**0.98**	0.98
	Cr_2O_3%		10.77		12.95		
Total Measured and Indicated Resources	Mt	47.45	13.73	49.74	56.59	**167.51**	167.51
	Ni%	0.50	0.38	0.35	0.22	**0.35**	0.35
	Cu%	0.21	0.12	0.16	0.06	**0.14**	0.14
	Co%	0.02	0.02	0.02	0.01	**0.02**	0.02
	4E g/t	1.19	0.92	0.97	0.71	**0.94**	0.94
	Cr_2O_3%		10.72		13.53		
Inferred Resources	Mt	6.30	40.05			**46.35**	46.35
	Ni%	0.41	0.40			**0.40**	0.40
	Cu%	0.20	0.12			**0.13**	0.13
	Co%	0.02	0.02			**0.02**	0.02
	4E g/t	1.26	0.92			**0.97**	0.97
	Cr_2O_3%		10.52				

***4E** = platinum + palladium + rhodium + gold. Prill split: Pt: 26%; Pd: 63%; Rh: 7%; Au: 5% (Based on Measured and Indicated grades): MMZ and PCMZ. Totals are rounded off.*

Key assumptions for Mineral Resources:

Grade cut-off: Underground: 0.30% Ni MMZ and 0.30% Ni PCMZ. Open-pit: 0.16% Ni MMZ and 0.16% Ni PCMZ.

**** Nkomati Mine attributable interests (ARM 50%; Norilsk Nickel Africa (Pty) Ltd 50%).***

ARM Platinum continued

Nkomati Mine: MMZ and PCMZ stockpile Mineral Resources estimates as at 30 June 2022

Mineral Resources are reported on a 100% basis*		MMZ	PCMZ	**Total 2022 Mineral Resources**	Total 2021 Mineral Resources
Measured Resources	Mt	0.10	0.24	**0.34**	0.34
	Ni%	0.30	0.18	**0.22**	0.22
	Cu%	0.12	0.06	**0.08**	0.08
	Co%	0.02	0.01	**0.01**	0.01
	4E g/t	0.59	0.64	**0.63**	0.63
	Cr_2O_3%		11.86		
Indicated Resources	Mt				
	Ni%				
	Cu%				
	Co%				
	4E g/t				
	Cr_2O_3%				
Total Measured and Indicated Resources	Mt	0.10	0.24	**0.34**	0.34
	Ni%	0.30	0.18	**0.22**	0.22
	Cu%	0.12	0.06	**0.08**	0.08
	Co%	0.02	0.01	**0.01**	0.01
	4E g/t	0.59	0.64	**0.63**	0.63
	Cr_2O_3%		11.86		
Inferred Resources	Mt				
	Ni%				
	Cu%				
	Co%				
	4E g/t				
	Cr_2O_3%				

***4E** = platinum + palladium + rhodium + gold.*
Totals are rounded off.
Grade cut-off: 0.16% Ni.
** **Nkomati Mine attributable interests (ARM 50%; Norilsk Nickel Africa (Pty) Ltd 50%).***

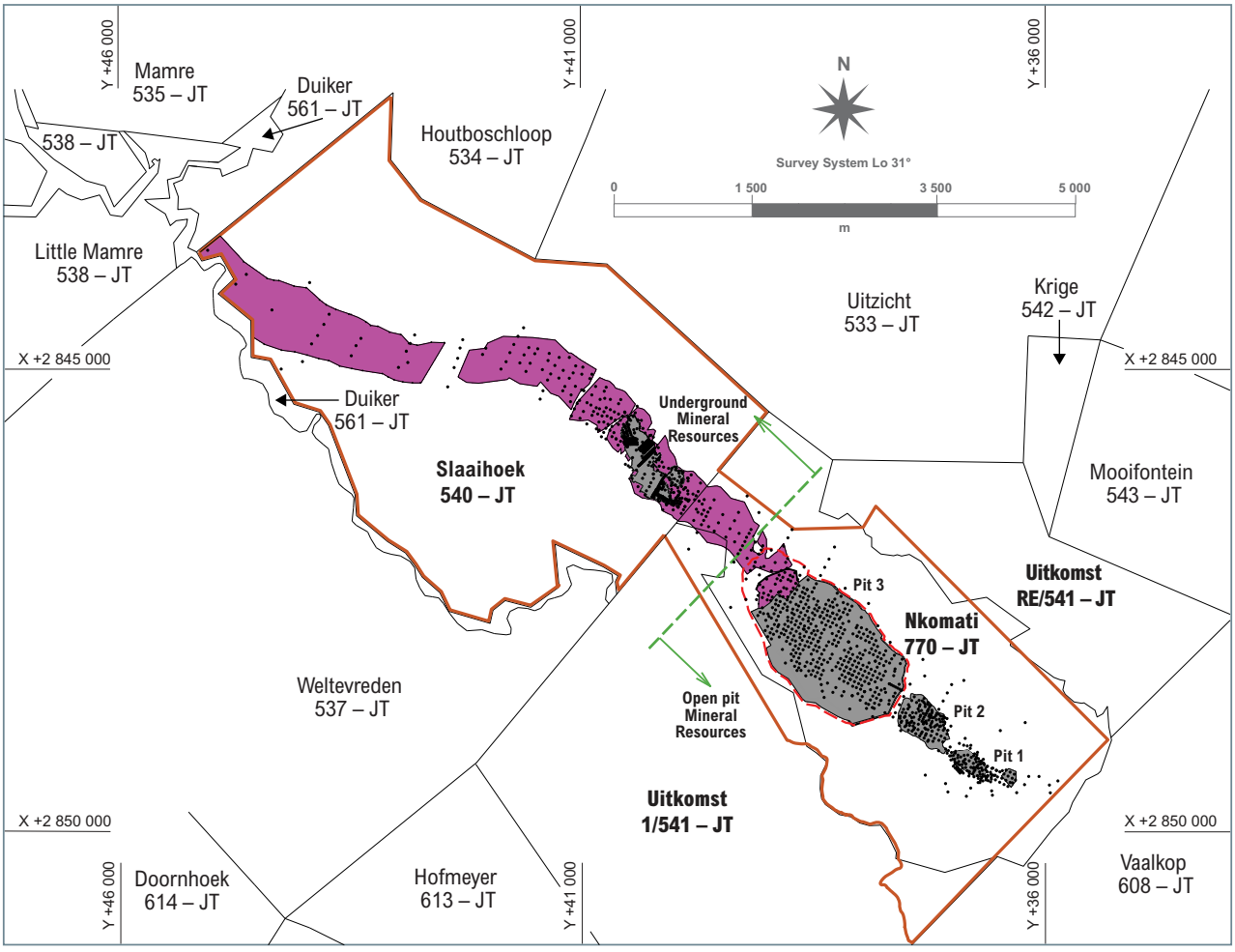
ARM Platinum continued

Nkomati Mine: Chromite Mineral Resources estimates as at 30 June 2022

Mineral Resources are reported on a 100% basis*	Measured Resources		Indicated Resources		Measured and Indicated Resources		Inferred Resources	
	Mt	Cr_2O_3%	Mt	Cr_2O_3%	Mt	Cr_2O_3%	Mt	Cr_2O_3%
Oxidised Massive Chromitite Pit 3 2022	**0.13**	**27.16**	**0.05**	**23.28**	**0.18**	**26.14**		
Oxidised Massive Chromitite Pit 3 2021	0.13	27.16	0.05	23.28	0.18	26.14		
Un-oxidised (fresh) Massive Chromitite Pit 3 2022	**0.12**	**25.16**	**0.21**	**24.43**	**0.32**	**24.89**		
Un-oxidised (fresh) Massive Chromitite Pit 3 2021	0.12	25.16	0.21	24.43	0.32	24.89		

Totals are rounded off.
Key assumptions for Mineral Resources:
Grade cut-off: 20% Cr_2O_3.
**** Nkomati Mine attributable interests (ARM 50%; Norilsk Nickel Africa (Pty) Ltd 50%).***

Nkomati Mine Mineral Resources map



Legend
Extent of Mineral Resources · Mining Right boundary · Open-pit/underground Mineral Resources boundary
Proposed/final pit outlines · Mined out area · Boreholes

ARM Platinum continued

Nkomati Mine year-on-year change

There were no changes in Mineral Resources.

No Mineral Reserves have been declared for Nkomati Mine as the mine is on care and maintenance.

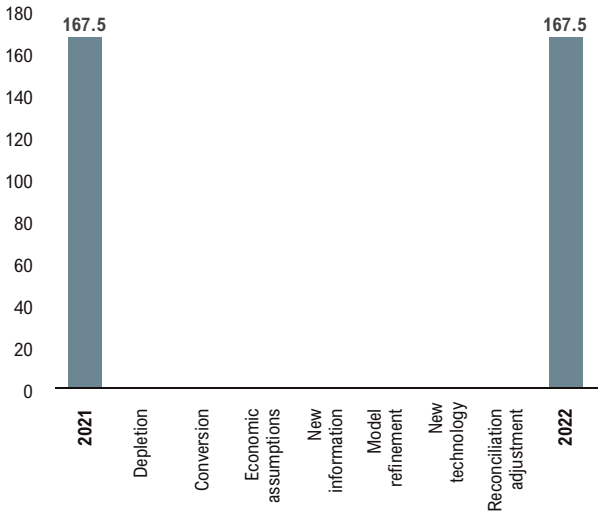
Historical production at Nkomati Nickel Mine (MMZ AND PCMZ)

	ROM		Milled	
Financial year	Mt	Ni%	Mt	Ni%
2017/2018	5.90	0.26	8.04	0.24
2018/2019	7.09	0.28	8.15	0.26
2019/2020	5.18	0.27	6.62	0.25
2020/2021	3.51	0.25	4.70	0.25
2021/2022*				

** There was no production from Nkomati as the operation is on care and maintenance.*

Nkomati Mine MMZ and PCMZ Mineral Resources

Nkomati Mine year-on-year reconciliation Mineral Resources*



** Mineral Resources represent Measured and Indicated only.*

Two Rivers Mine.

Ferrous

ASSMANG PROPRIETARY LIMITED (ASSMANG) OPERATIONS

ARM's attributable beneficial interest in Assmang operations is 50%. The other 50% is held by Assore Ltd. Assmang operations comprise the Black Rock manganese mine as well as Khumani and Beeshoek iron ore mines.

BLACK ROCK MANGANESE MINE

Locality

Black Rock manganese mine encompasses Nchwaning and Gloria mines which are situated approximately 80 kilometres north-west of the town of Kuruman in the Northern Cape province of South Africa. Located at latitude 27°07'50"S and longitude 22°50'50"E, the mines are accessed via the national N14 route between Johannesburg and Kuruman, and the provincial R31 road.

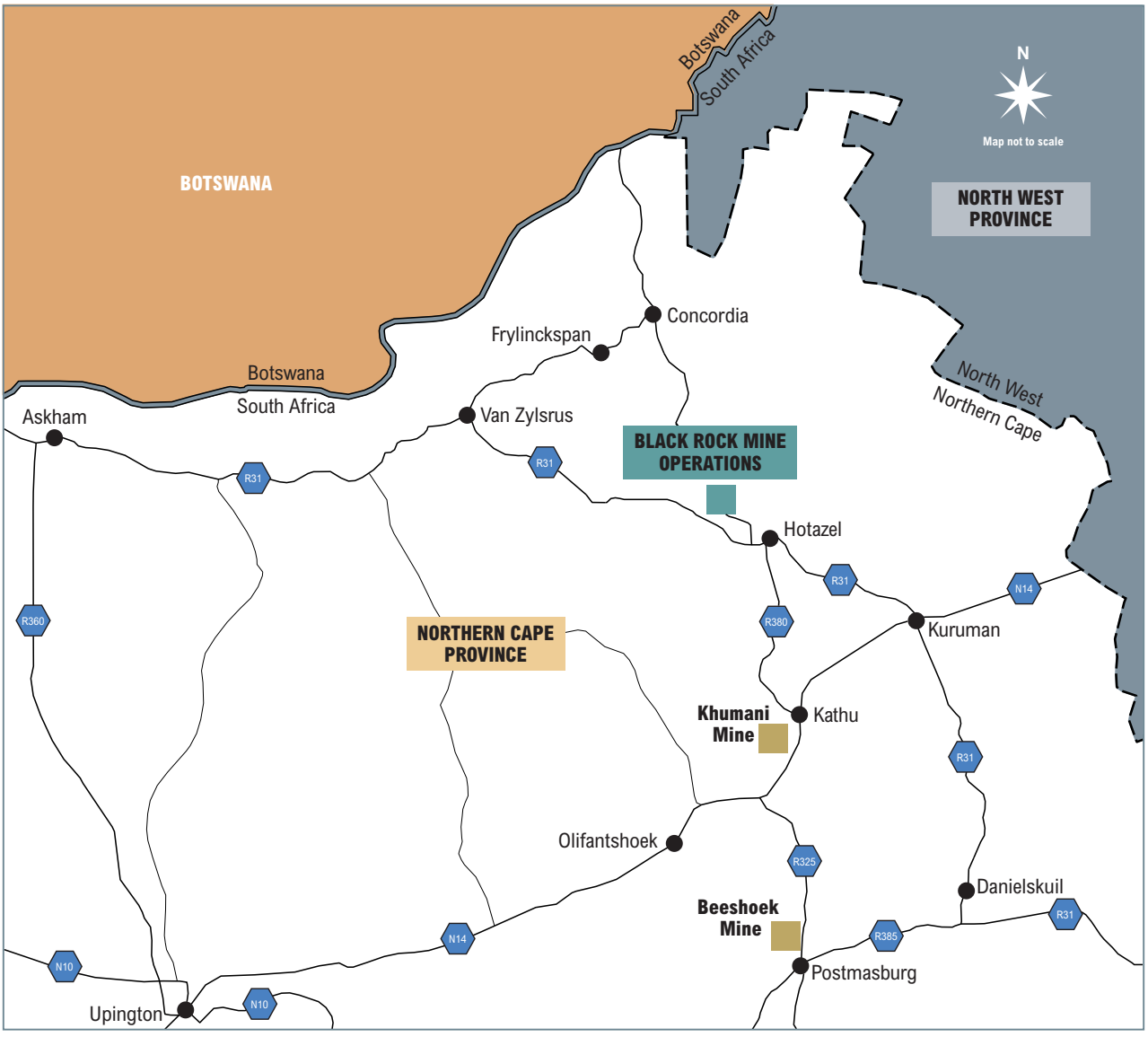
Nchwaning 3 and Nchwaning 2 (including Graben area) shafts are situated on portions of Nchwaning 267, Belgravia 264 and Santoy 230 farms while Gloria Mine is on Portion 1 of Gloria 266. The Nchwaning and the adjoining Gloria Mining Rights are bounded by the farms Wessels 227, Dibiaghomo 226 and Dikgathlong 268 in the north, Rhodes 269, East 270 and Kipling 271 in the east, Umtu 281 and Mukulu 265 to the south.

ARM Ferrous continued

History

In 1940, Assmang acquired a manganese ore outcrop on a small hillock known as Black Rock. Several large properties underlain by ore were subsequently found and acquired. Today, the Black Rock area is considered to be one of the largest and richest manganese deposits in the world. Manganese mining operations were extended and today include the Gloria and Nchwaning underground mines. Manganese ore is supplied locally to the Assmang-owned Cato Ridge Smelter, and is exported through Port Elizabeth and Saldanha ports.

Locality map of Black Rock Mine



ARM Ferrous continued

Competence

The following Competent Persons were involved in the estimation of Black Rock Mineral Resources and Mineral Reserves. They are employed by Assmang.

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
B Ruzive (Mineral Resources)	SACNASP	400238/07	BSc, BSc Hons (Geology), MSc (Exploration Geology), MBA	22 years
K Masikhwa (Mineral Reserves)	SACNASP	400044/11	BSc, BSc Hons (Geology), GDE (Mining Engineering), MBA	16 years

Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Right NC 30/5/1/2/2/203 MRC	Manganese ore	None	30 years: 13 July 2011 to 12 July 2041	None

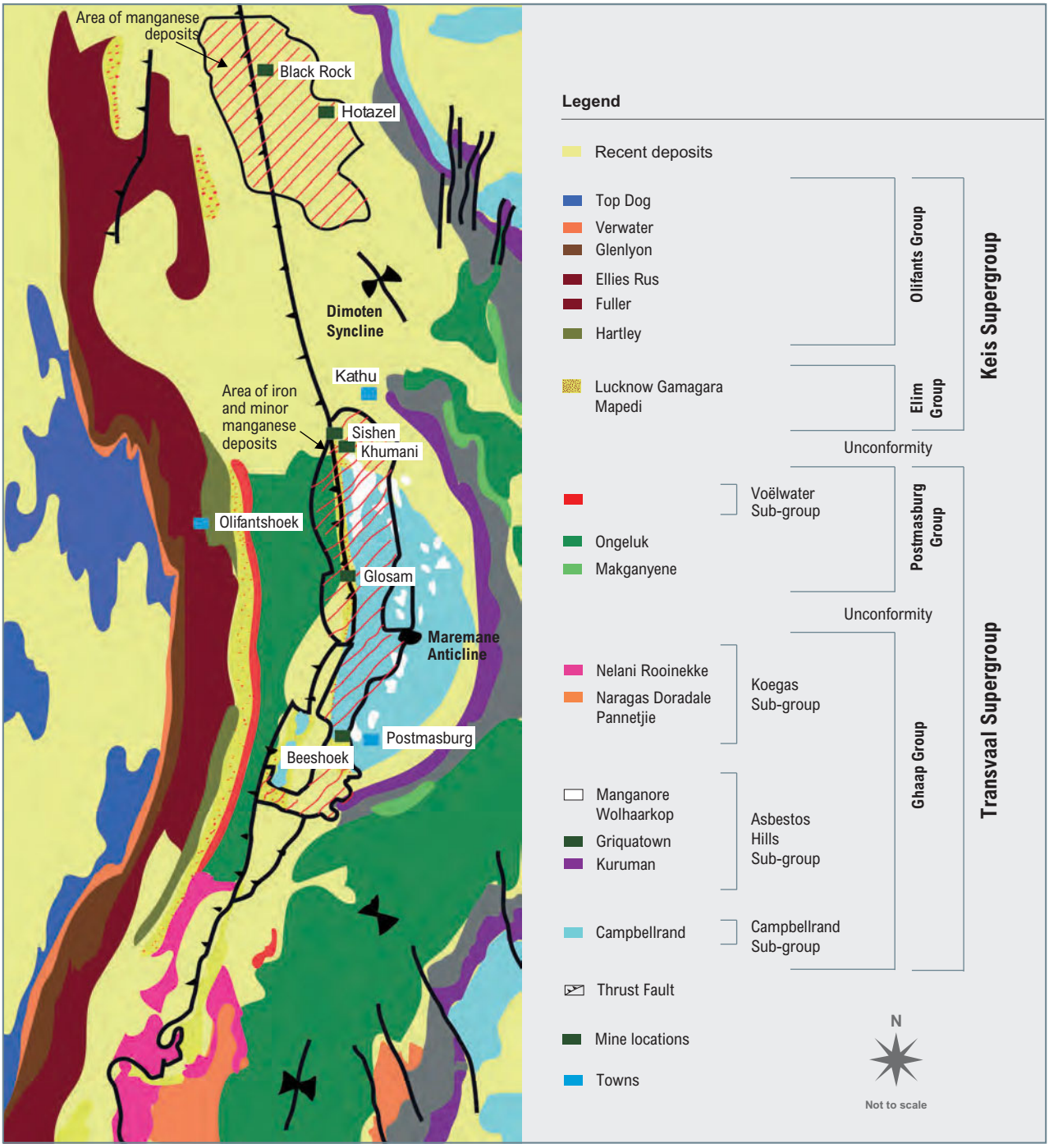
Geology

The manganese ores of the Kalahari Manganese Field are contained within sediments of the Hotazel Formation in the Postmasburg Group of the Griqualand West Sequence, a sub-division of the Proterozoic Transvaal Supergroup. The Griqualand West Sequence comprises a basal dolomite and banded ironstones dominating the Ghaap, Postmasburg and the Olifantshoek Groups. The Postmasburg Group consists of basal basaltic andesites of the Ongeluk lava and banded ironstone and manganese of the Hotazel Formation.

Black Rock Mine.

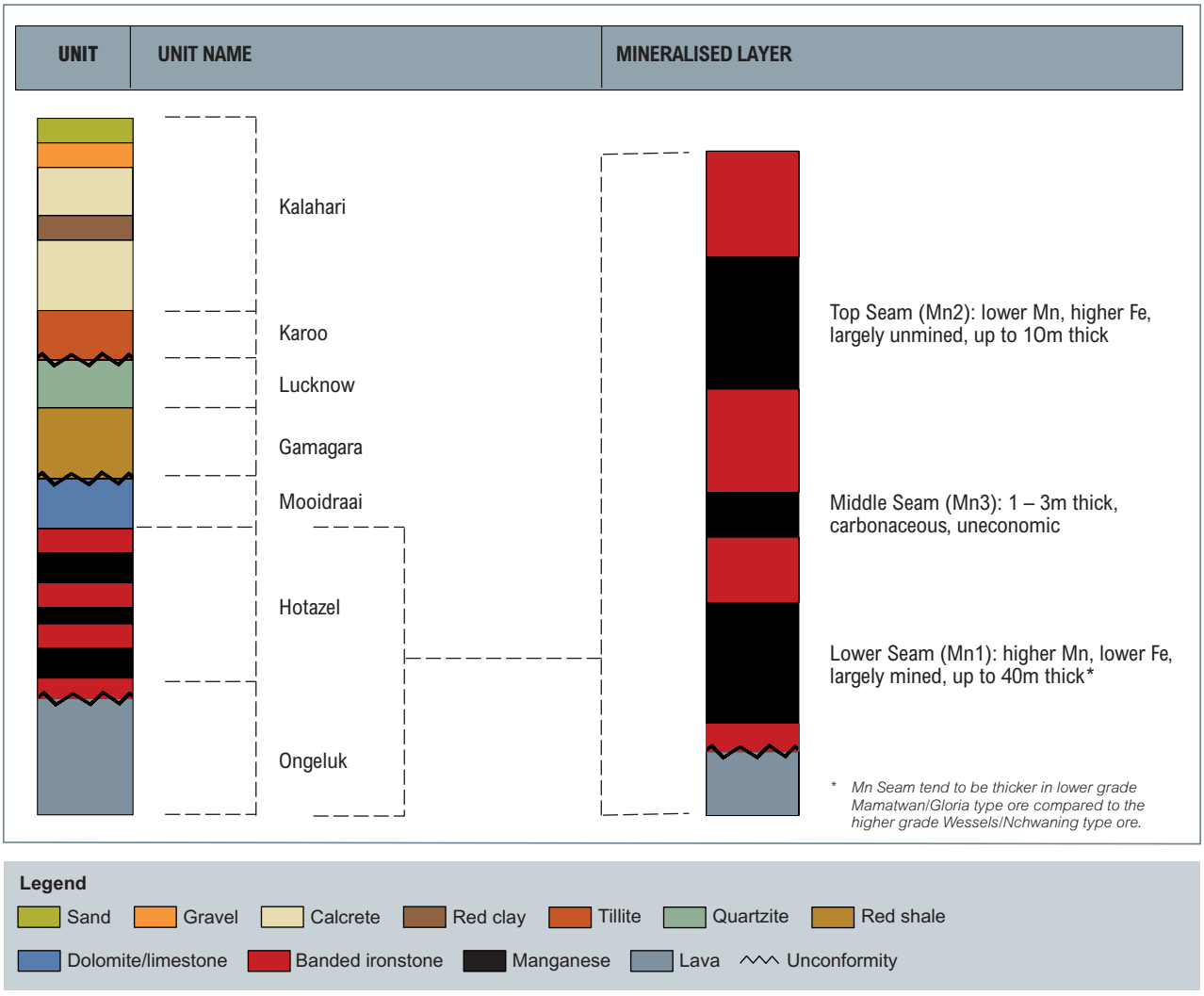
ARM Ferrous continued

Regional geological map



On Belgravia, Santoy and Nchwaning farms the Hotazel Formation and overlying Mapedi shales and Lucknow quartzite sequences have been duplicated by thrusting. The thrusted orebodies were mined from surface at the Kalahari Manganese Field discovery outcrop, the Black Rock Koppie and at two other down dip interconnected Belgravia 1 and Belgravia 2 shafts. Mining reached depths of approximately 200 metres. The manganese resources hosted in the thrusted orebodies are reported, collectively, under Black Rock (Koppie area) orebodies. The average thickness of the Hotazel Formation is approximately 75 metres, with the banded iron formation (BIF) hosted manganese orebodies occurring as three stratabound and stratiform units of variable thickness. The lowermost orebody (Seam 1) is of a higher grade in comparison to the topmost orebody (Seam 2). Seam 3, which occurs in between Seams 1 and 2, is thin and uneconomic.

Black Rock stratigraphy of the Kalahari Manganese Field and three BIF-hosted Mn Seams



The manganese orebodies exhibit a complex mineralogy and more than 200 ore and gangue mineral species have been identified. Hydrothermal upgrading has resulted in zoning of the orebody adjacent to fault positions in most instances. Distal areas exhibit more original and low-grade kutnohorite and braunite assemblages, while areas immediately adjacent to faults typically exhibit high-grade hausmannite rich ore. The intermediate areas exhibit mineralogy which includes bixbyite, braunite and jacobsite among a host of other manganese-bearing minerals. Similar zonation also exists in the vertical sense.

At the top and bottom contacts it is common to have high iron (Fe) and low manganese (Mn) contents while the reverse is true towards the centre of the seam. This vertical zoning has given rise to a mining practice where only the 4.0 to 5.0-metre-high centre portion of the seam is being mined.

Exploration activities

Black Rock exploration programme is split into two projects, Nchwaning and Gloria projects, which are executed concurrently but managed on separate capital votes. Exploration boreholes are planned with the aim to gaining geological insight in areas covered by the one to five years' production plan footprint and areas with structural complexities. Drilling occurs in stages and involves two distinct drilling techniques, percussion and diamond drilling, which take effect in direct succession of each other. Percussion drilling is utilised in piloting holes through the thick unconsolidated sediments of the Kalahari Sequence and parts of the Dwyka tillites. Diamond drilling succeeds percussion drilling and is limited to drilling through solid formations of the Transvaal Supergroup. The three-year exploration project commenced near

ARM Ferrous continued

the end of the F2019 financial year and was concluded before end of the F2022 financial year.

Nchwaning drilling comprised 13 boreholes drilled in the Graben area and one borehole drilled in Nchwaning 3 southwest area. Piloting of 11 boreholes was completed in F2021 with the remaining three boreholes being piloted in F2022. Drilling was completed on all 14 boreholes within F2022. Three of the completed boreholes have intersected the Hotazel Formation with no manganese recovered. The position of the manganese is replaced by clast supported breccia comprising an assemblage of hematite and banded iron formation clasts. The Hotazel Formation in one of the three boreholes is strongly ferruginised from the unconformity to the bottom contact with the Ongeluk lavas. In total 5 397 metres were drilled in F2022 at a cost of R6.02 million.

Gloria drilling comprised 21 shallow boreholes at depths less than 140 metres deep drilled as part of the Gloria NE open-pit pre-feasibility study. All planned boreholes were completed within F2022. Nineteen boreholes have intersected variable thicknesses of the Hotazel Formation. Seam 1 was not preserved in two of the boreholes wherein the Hotazel Formation was eroded and the Kalahari Sequence rest unconformably on top of the Ongeluk lava. Two boreholes drilled outside the resource boundary intersected remnant slivers of manganese marking the transition towards the basal contact of Seam 1. The preserved manganese shows evidence of (meteoric) fluid-rock interaction with calcretisation forming along manganese lamellae and joints. The majority of the preserved manganese appears leached, dull grey with visibly increased porosity. A total of 1 945 metres was drilled for F2022 at a cost of R3.67 million.

Mining methods and infrastructure

Trackless mechanised equipment is used in the bord and pillar mining method. Two manganese seams are mined. The lowermost (Seam 1) at Nchwaning 3 is up to 6 metres thick, of which up to 5 metres is mined. There is, therefore, minimum dilution. Mining of Nchwaning Seam 2 has also been done on an optimum cut of 4.0 metres. Gloria Seam 1 is approximately 14 metres thick, but only an optimum cut of 4.2 metres is mined. No mining has been undertaken to date on Gloria Seam 2.

Nchwaning Mine Mineral Resources

Nchwaning Mine was diamond drilled from surface at 330 metre grid centres and the data was captured in a Geological Database Management System (GDMS) developed by Datamine. The core is logged and 0.5 metre-long, half-core, diamond-saw cut samples are submitted to Assmang's laboratory at Black Rock for X-ray fluorescence (XRF) analyses. Mn and Fe values are checked by Wet Chemical analyses. Several standards are used to calibrate the XRF equipment, and results are compared with other laboratories on a regular basis.

At Nchwaning, boreholes and underground sample sections were considered in the geological modelling and grade estimation for Nchwaning Seams 1 and 2. The geological modelling and the grade estimation was undertaken using Datamine Studio 3 and Datamine Strat 3D software. The resource models were built on 50 metre x 50 metre x optimal mineable cut. The optimal mineable cuts were approximately 4 to 5 metres for Nchwaning seams. The blocks were sub-split in the X and Y directions to accurately follow the geological boundaries.

Statistical and geostatistical analysis was done on the following variables: Mn, Fe, Al_2O_3, BaO, CaO, K_2O, MgO, Na_2O, P, S and SiO_2. Ordinary Kriging interpolation within Datamine Studio 3 was used to estimate the grade of each block. Borehole and/or underground sample data composited to the optimal mineable cut was used in the estimation of grades.

The density of the Nchwaning manganese Seams 1 and 2 was determined by measurements taken from borehole core samples using Archimedes principles. The collected density data has been used to do density estimates in the block models with the following being the averages for the Nchwaning seams:

- Nchwaning Seam 1 (high-grade domain) in Nchwaning 3 area: 4.3 t/m³
- Nchwaning Seam 1 (high-grade domain) in Nchwaning 2 area: 4.4 t/m³
- Nchwaning Seam 1 (low-grade domain) in Nchwaning 3 area: 3.7 t/m³
- Nchwaning Seam 1 (low-grade domain) in Nchwaning 2 area: 3.7 t/m³
- Nchwaning Seam 2: 4.4 t/m³.

Mineral Resource classification at Nchwaning Mine is based on a number of parameters: Kriging variance, Kriging efficiency, regression slope, geological continuity of the manganese seams, geological structures and quality of assay data. Each of these parameters contributes to the overall classification. Measured and Indicated Resources have been declared for Nchwaning.

The Mineral Resources declared have reasonable prospects for eventual economic extraction having considered the following:

- Location, quality, grade and geological continuity which are known and are supported by drilling information which includes sampling

- Only manganese seams greater than 2 metres thick with a grade of approximately 30% Mn and above are considered as Mineral Resources
- Mining and processing methods are well established at the operation and are currently used to exploit the orebody
- All other factors such as legal, infrastructural, environmental, marketing, social and economic factors are covered as part of the mining plan for the operation.

Nchwaning Mine Mineral Reserves

Conversion of the Mineral Resources to Mineral Reserves is done for the Measured and Indicated Mineral Resources. The main modifying factors for the conversion are: plant recovery factor, manganese prices, rand to US dollar exchange rate and mining extraction factors. Details of these factors are listed below the Mineral Reserves tables.

It is important to note that the Mineral Reserve estimation is a dynamic process and can therefore vary from year to year. Updated geological and geotechnical information or a change of data interpretation is considered as the main driver for these variations. Market conditions (normally considered over a five-year period), can furthermore influence the Mineral Reserve estimations.

The life-of-mine (LoM) design process started in April 2022 and used production forecast to establish a mining footprint as at 30 June 2022. The Mineral Reserve statement is stated as at 30 June 2022, and excludes the Black Rock (Koppie) as well as Gloria Seam 2.

Mining in the eastern extremity of Nchwaning occurs at a depth of 200 metres, while the deepest (current) excavations are 570 metres below surface. Ore from Nchwaning No 2 Mine is crushed underground before being hoisted to a surface stockpile via a vertical shaft. Similarly, ore from the Nchwaning No 3 Mine is crushed underground before being conveyed to a surface stockpile via a decline conveyor system. Ore is withdrawn from the surface stockpile and undergoes two stages of crushing, dry screening and wet screening to yield lumpy and fine products.

At the plant, the finer fractions are stockpiled while the coarser fractions are extracted from the respective product boxes into road haulers, sampled, weighed and stored on stacks ahead of dispatch. Samples from each stack are analysed for chemical content and size distribution. This ensures good quality control and enables the ore control department to blend various stacks according to customer requirements.

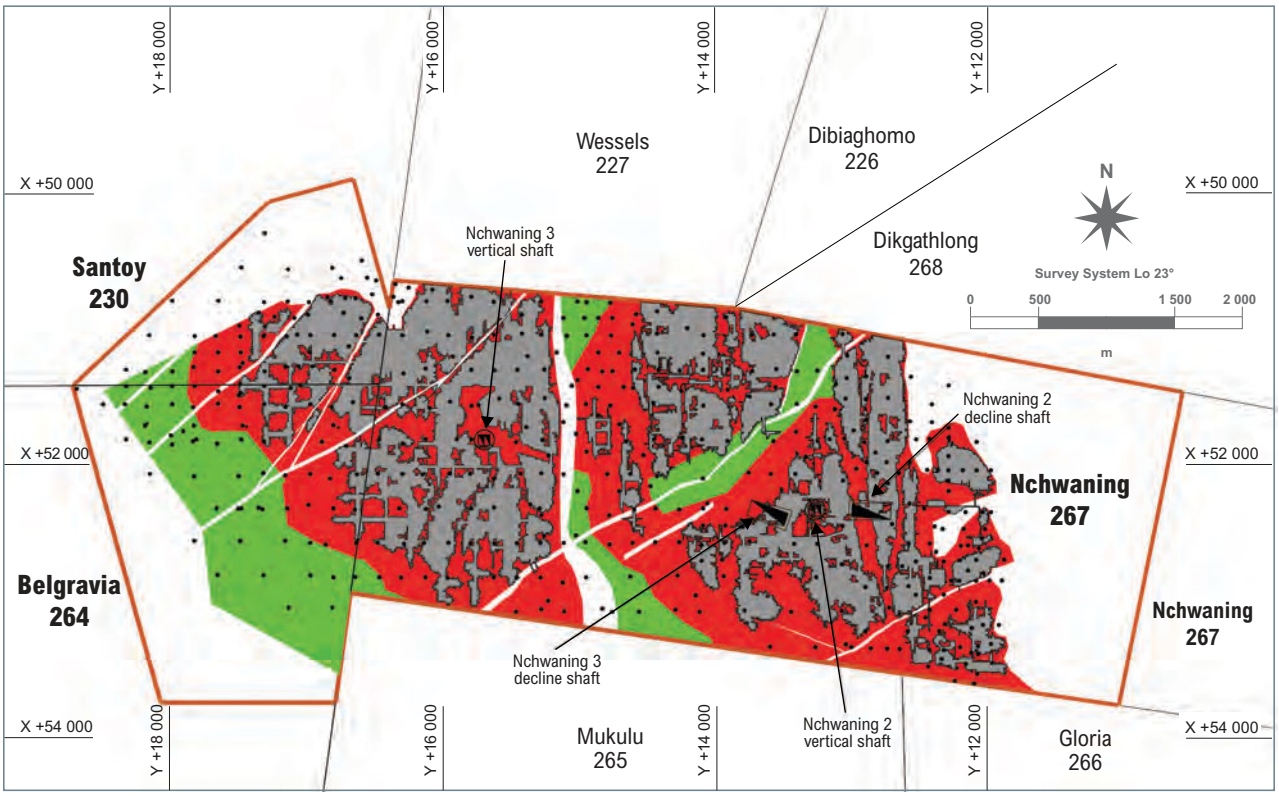
Nchwaning Mine: Seam 1 manganese Mineral Resources and Mineral Reserves estimates as at 30 June 2022

	MINERAL RESOURCES				MINERAL RESERVES		
Mineral Resources and Mineral Reserves are reported on a 100% basis*	Mt	Mn%	Fe%		Mt	Mn%	Fe%
Measured	94.14	45.27	9.13	Proved	31.43	45.41	8.98
Indicated	39.69	39.68	7.63	Probable	23.01	42.35	7.72
Total Measured and Indicated (Seam 1) 2022	**133.83**	**43.61**	**8.68**	**Total Reserves (Seam 1) 2022**	**54.44**	**44.12**	**8.45**
Total Measured and Indicated (Seam 1) 2021	118.75	43.47	8.51	Total Reserves (Seam 1) 2021	62.39	43.38	8.41

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
Key assumptions for Mineral Resources:
True thickness cut-off: 4.0 metres to 5.1 metres.
Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:
Cut-off grade: 35% Mn.
Tramming loss factor: 1%.
Plant recovery: 88% to 91%.
Mine extraction factor: 72% to 78%.
Price ranges: Based on market-related long-term view.
Exchange rate used: Market related.
Life-of-mine: >30 years.
**** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).***

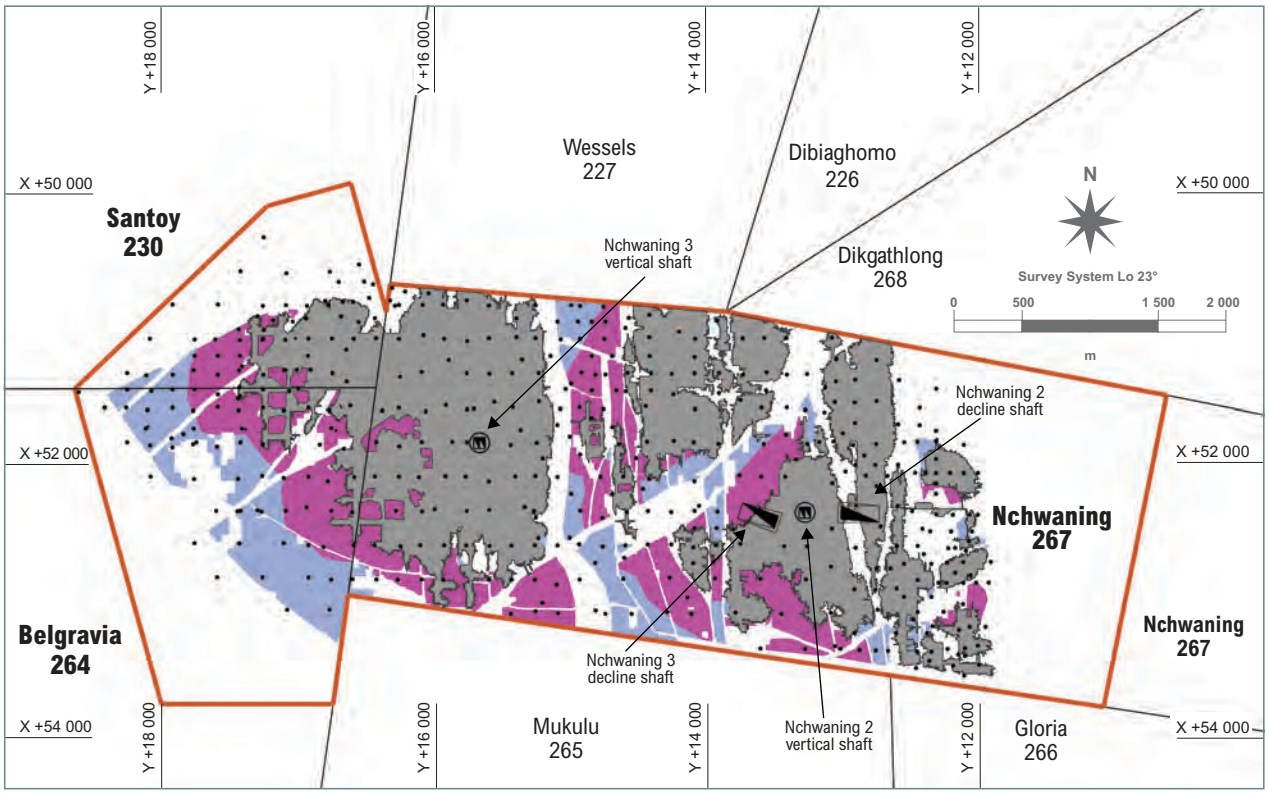
ARM Ferrous continued

Nchwaning manganese Seam 1 Mineral Resources classification



Black Rock Mine.

Nchwaning manganese Seam 1 Mineral Reserves classification



Black Rock Mine.

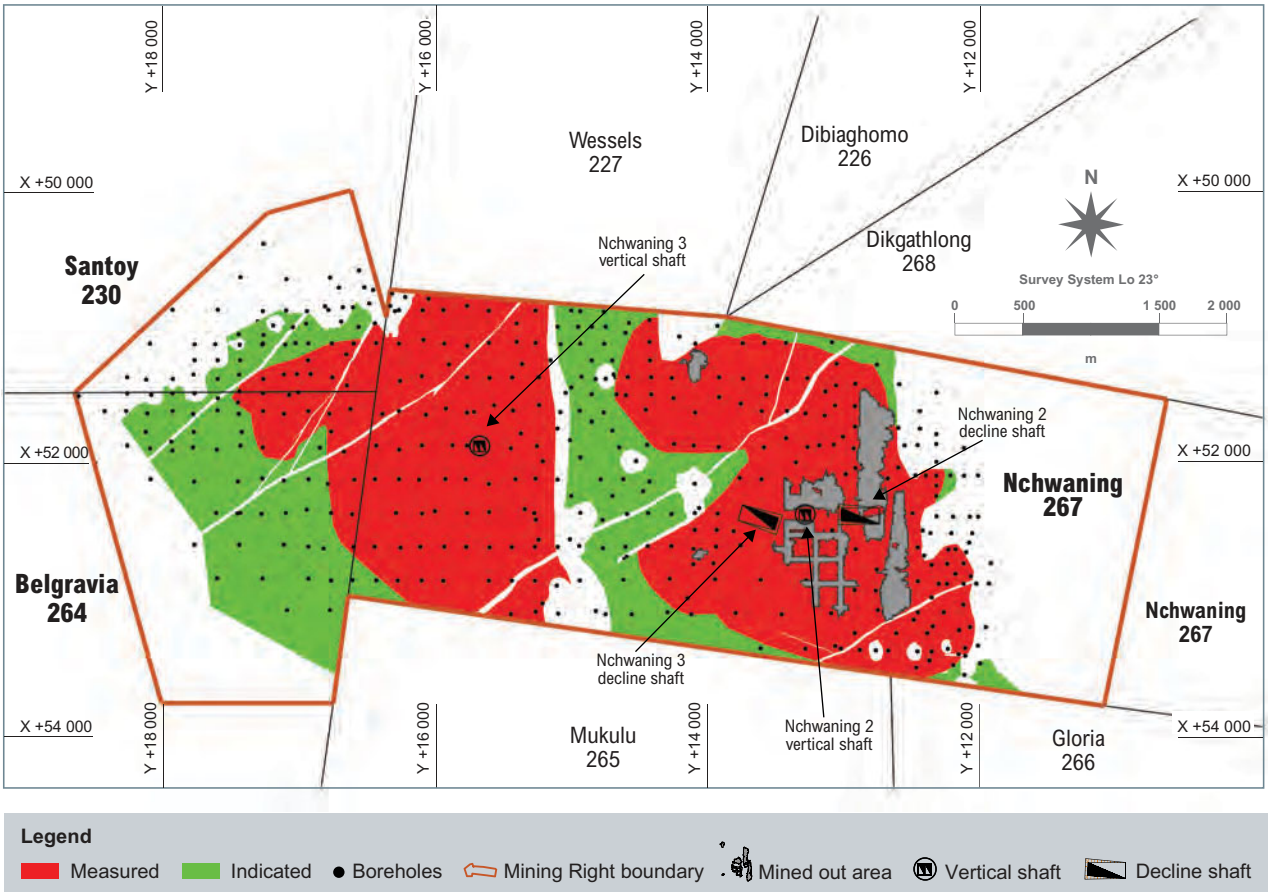
ARM Ferrous continued

Nchwaning Mine: Seam 2 manganese Mineral Resources and Mineral Reserves estimates as at 30 June 2022

Mineral Resources and Mineral Reserves are reported on a 100% basis*	MINERAL RESOURCES Mt	Mn%	Fe%		MINERAL RESERVES Mt	Mn%	Fe%
Measured	118.62	42.63	15.59	Proved	74.35	42.53	15.63
Indicated	59.51	41.95	14.83	Probable	27.66	42.67	15.20
Total Measured and Indicated (Seam 2) 2022	**178.13**	**42.40**	**15.33**	**Total Reserves (Seam 2) 2022**	**102.00**	**42.57**	**15.51**
Total Measured and Indicated (Seam 2) 2021	174.91	42.57	15.28	Total Reserves (Seam 2) 2021	106.01	42.61	15.45

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
Key assumptions for Mineral Resources:
True thickness cut-off: 4.0 metres to 5.0 metres.
Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:
Cut-off grade: 38% Mn.
Tramming loss factor: 1%.
Plant recovery: 91%.
Mine extraction factor: 72%-78%.
Price ranges: Based on market-related long-term view.
Exchange rate used: Market related.
Life-of-mine: >30 years.
**** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).***

Nchwaning manganese Seam 2 Mineral Resources classification



Nchwaning manganese Seam 2 Mineral Reserves classification

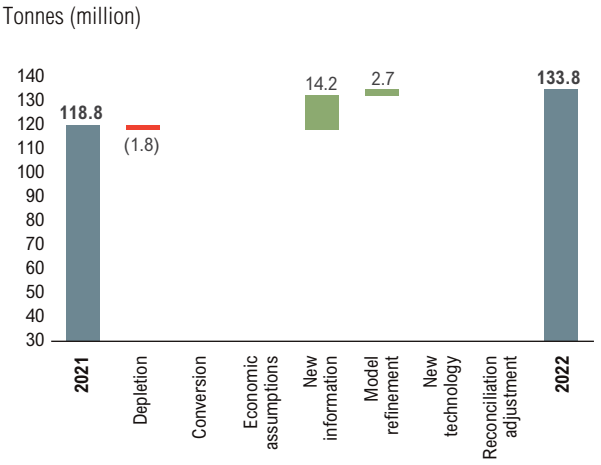
Nchwaning year-on-year change

The Measured and Indicated Mineral Resources for Nchwaning Seam 1 increased by 13% from 118.75 million tonnes at 43.47% Mn to 133.82 million tonnes at 43.61% Mn due to inclusion of remnant blocks historically not declared and model refinement with resource model width increasing from 4 to 4.5 metres in Nchwaning 2 area. Nchwaning Seam 1 Mineral Reserves marginally decreased by 13% from 62.39 million tonnes at 43.38% Mn to 54.44 million tonnes at 44.12% Mn due to a reduction in R5 product Mineral Reserve and mining production.

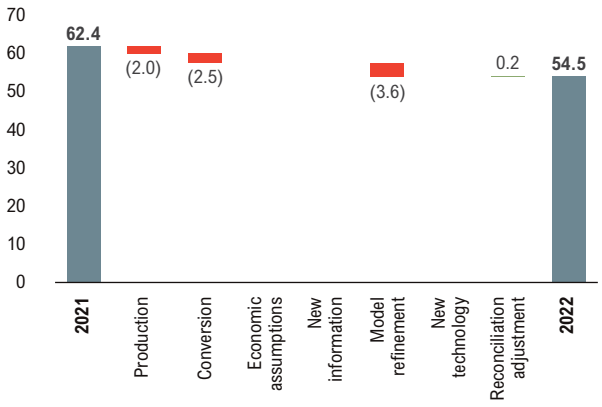
ARM Ferrous continued

Nchwaning Mine Seam 1

Nchwaning Seam 1 year-on-year reconciliation Mineral Resources*



Nchwaning Seam 1 year-on-year reconciliation Mineral Reserves

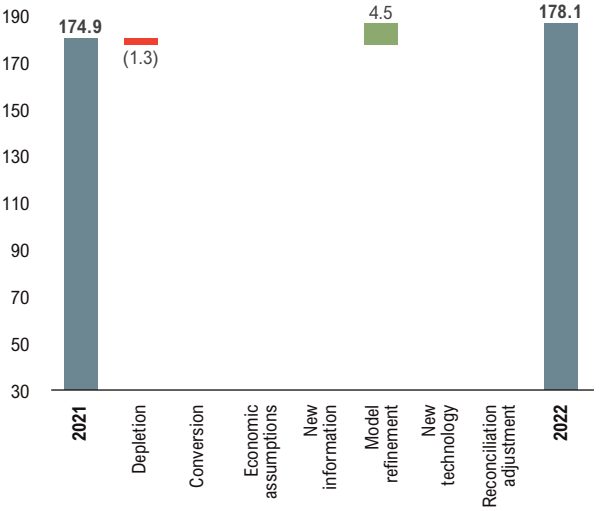


* *Mineral Resources represent Measured and Indicated only.*

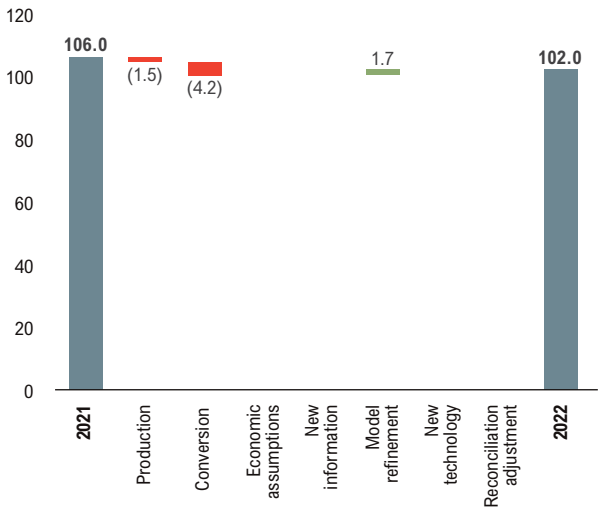
The Measured and Indicated Mineral Resources for Nchwaning Seam 2 increased by 2% from 174.91 million tonnes at 42.57% Mn to 178.13 million tonnes at 42.40% Mn due to model refinement on Nchwaning 3 Seam 2 Mineral Resource. Mineral Reserves for Seam 2 decreased by 4% from 106.01 million tonnes at 42.61% Mn to 102 million tonnes at 42.57% Mn mainly due to mining production and conversion.

Nchwaning Mine Seam 2

Nchwaning Mine Seam 2 year-on-year reconciliation Mineral Resources*



Nchwaning Mine Seam 2 year-on-year reconciliation Mineral Reserves



* *Mineral Resources represent Measured and Indicated only.*

ARM Ferrous continued

Historical manganese production at Nchwaning Mine (Seam 1 and 2)

	ROM	Saleable
Financial year	Mt	Mt
2017/2018	3.45	3.00
2018/2019	3.29	2.99
2019/2020	3.15	2.90
2020/2021	3.46	3.24
2021/2022	**3.50**	**3.17**

IAR Additional information on production figures can be found in the ARM Ferrous operational review of the 2022 ARM integrated annual report which can be found at **www.arm.co.za**.

Black Rock Koppie Mineral Resources

The Black Rock orebodies occur in the Black Rock Koppie, Belgravia 1 and Belgravia 2 areas. They are all part of a large thrust complex. Modelling of these orebodies was undertaken using 151 Nchwaning boreholes that intersected the thrust complex and 174 Black Rock infill boreholes. During 2020, the Black Rock Koppie Mineral Resource model was updated.

A 30% Mn cut-off was used in the modelling. Seams 1 and 2 were modelled at variable thicknesses. Surface exploration borehole data, underground geological mapping, mine survey plans and peg data sets were utilised in the geological modelling of the Black Rock orebodies. A total of 22 structurally discrete orebodies were identified and grouped into Seam 1 and Seam 2 based on stratigraphic positioning and grades. The relative density applied for both seams is 4.0 t/m^3.

No mining is currently being done at Black Rock Koppie. The RPEEE factors considered for Nchwaning are applicable for Black Rock Koppie.

Black Rock (Koppie area): Seam 1 manganese Mineral Resources estimates as at 30 June 2022

	MINERAL RESOURCES		
Mineral Resources are reported on a 100% basis*	Mt	Mn%	Fe%
Measured	15.80	40.0	19.0
Indicated	23.00	39.3	18.2
Total Resources (Seam 1) 2022	**38.80**	**39.6**	**18.5**
Total Resources (Seam 1) 2021	38.80	39.6	18.5
Inferred (Seam 1) 2022	**25.20**	**41.1**	**18.3**
Inferred (Seam 1) 2021	25.20	41.1	18.3

Totals are rounded off.
Key assumptions for Mineral Resources:
Cut-off: 30% Mn.
Density: 4.0 t/m^3.
**** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).***

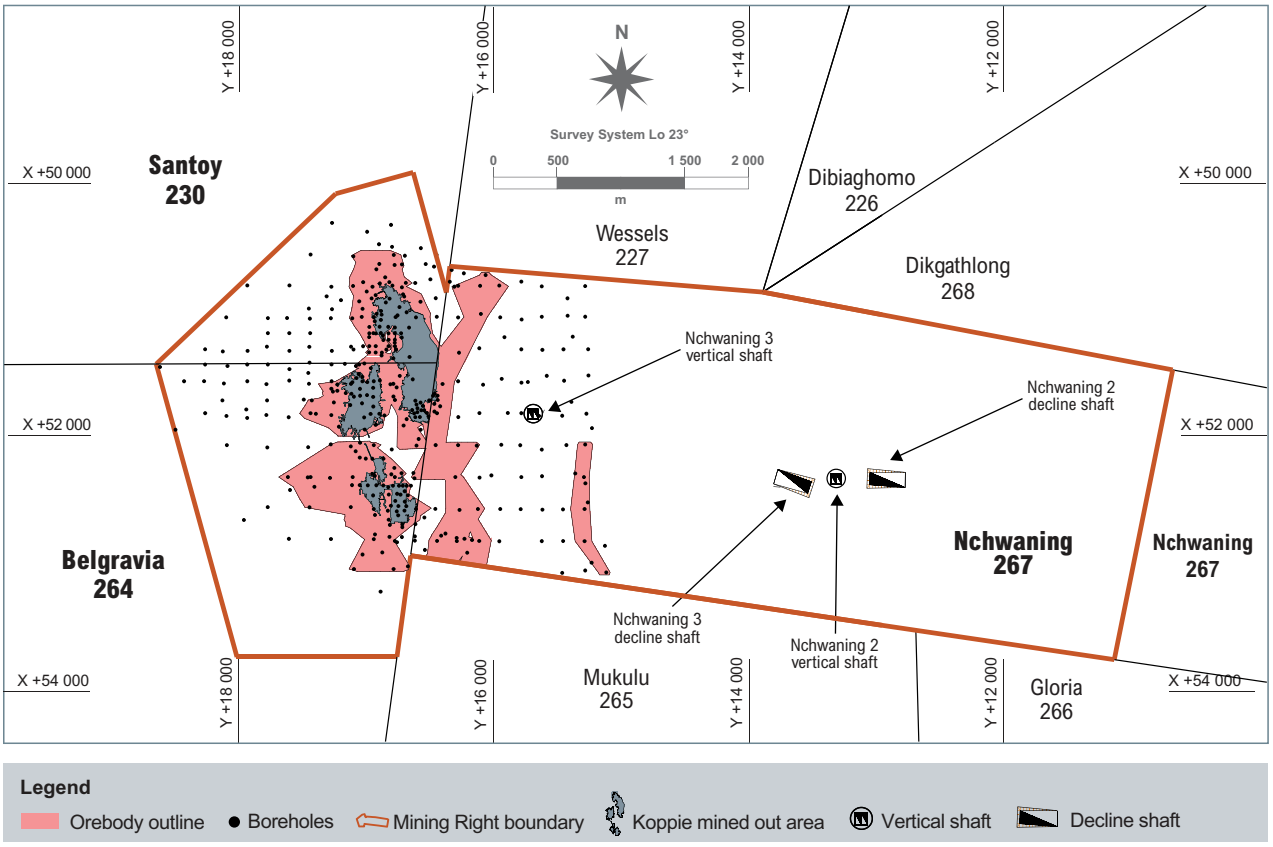
ARM Ferrous continued

Black Rock (Koppie area): Seam 2 manganese Mineral Resources estimates as at 30 June 2022

	MINERAL RESOURCES		
Mineral Resources are reported on a 100% basis*	Mt	Mn%	Fe%
Measured	7.30	39.1	19.3
Indicated	8.00	35.8	21.6
Total Resources (Seam 2) 2022	**15.30**	**37.4**	**20.5**
Total Resources (Seam 2) 2021	15.30	37.4	20.5
Inferred (Seam 2) 2022	**18.70**	**38.2**	**19.7**
Inferred (Seam 2) 2021	18.70	38.2	19.7

Totals are rounded off.
Key assumptions for Mineral Resources:
Cut-off: 30% Mn.
Density: 4.0 t/m³.
**** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).***

Black Rock Koppie orebody locality map



Black Rock Koppie year-on-year change

Measured, Indicated and Inferred Mineral Resources for Black Rock Koppie Seam 1 and Seam 2 remained unchanged.

Gloria Mine Mineral Resources

Procedures for drilling and assaying at Gloria Mine are the same as at Nchwaning. Both boreholes and underground sample sections were considered in the evaluation of Gloria Seam 1 and Seam 2. Gloria was modelled similarly to Nchwaning using Datamine Studio 3 and Datamine Strat 3D software for the geological modelling and for the grade estimation respectively. The geological block model was created for an optimum cut of 4.5 metres for Seams 1 and 4.0 metres for Seam 2. Block sizes in the X and Y directions were 50 x 50 metres allowing for sub-splitting. The relative density has been determined using Archimedes methods. The available density data collected was used to estimate density for all the blocks in the model. The average densities in the models were:

- Gloria Seam 1 density: 3.7 t/m³
- Gloria Seam 2 density: 3.5 t/m³.

Statistical and geostatistical analysis for the following variables: Mn, Fe, Al_2O_3, BaO, CaO, K_2O, MgO, Na_2O, P, S and SiO_2 was undertaken. Ordinary Kriging interpolation within Studio 3 was used to estimate the grade in the 50 x 50 x 4.5 metre blocks using borehole and/or underground sample data. Mineral Resource classification methods were similar to those applied at Nchwaning Mine.

The RPEEE factors considered for Nchwaning are applicable for Gloria Mine.

Gloria Mine Mineral Reserves

Conversion of the Gloria Seam 1 Mineral Resources to Mineral Reserves is done for Measured and Indicated Mineral Resources. The main modifying factors for the conversion are: plant recovery factor, manganese prices and mining extraction factors. Details of these factors are listed below the Mineral Reserves tables.

Manganese is extracted at depths that vary between 180 to 250 metres. Ore is crushed underground before being conveyed to a surface stockpile via a decline shaft. Ore is withdrawn from the surface stockpile and forwarded to two stages of crushing, dry screening, and wet screening to yield lumpy and fine products. At the plant, the ore is processed similarly to Nchwaning run-of-mine ore.

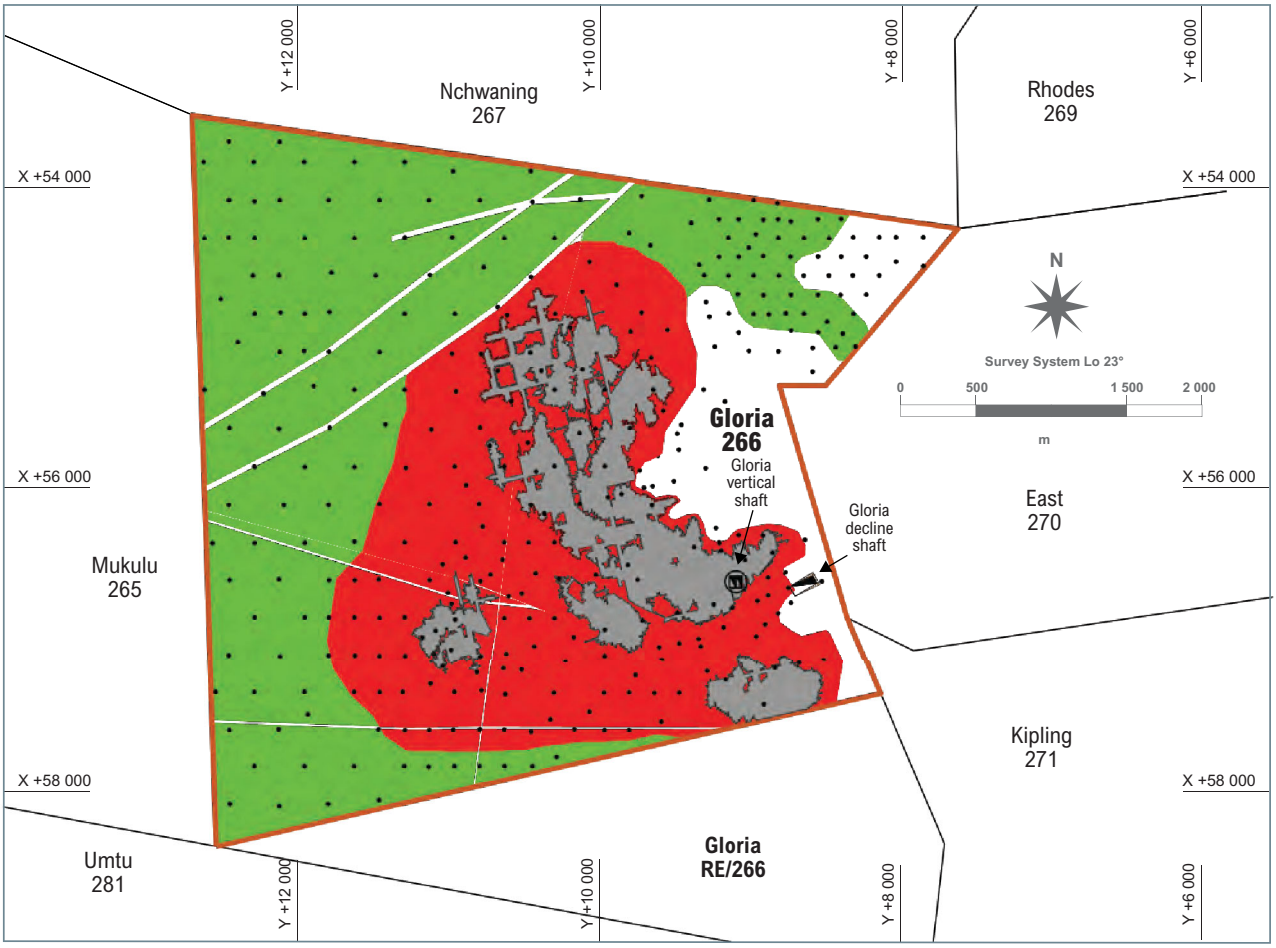
Gloria Mine: Seam 1 manganese Mineral Resources and Mineral Reserves estimates as at 30 June 2022

	MINERAL RESOURCES				MINERAL RESERVES		
Mineral Resources and Mineral Reserves are reported on a 100% basis*	Mt	Mn%	Fe%		Mt	Mn%	Fe%
Measured	80.56	37.25	4.80	Proved	42.79	37.10	4.78
Indicated	122.30	36.97	4.94	Probable	82.72	36.79	4.88
Total Measured and Indicated (Seam 1) 2022	**202.86**	**37.08**	**4.88**	**Total Reserves (Seam 1) 2022**	**125.51**	**36.90**	**4.85**
Total Measured and Indicated (Seam 1) 2021	167.52	37.40	4.84	Total Reserves (Seam 1) 2021	105.70	37.25	4.79

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
Key assumptions for Mineral Resources:
True thickness cut-off: 4.5 metres.
Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:
Cut-off grade: 35% Mn.
Tramming loss factor: 1%.
Plant recovery: 92%.
Mine extraction factor: 82%.
Price ranges: Based on market-related long-term view.
Exchange rate used: Market related.
Life-of-mine: >30 years.
**** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).***

ARM Ferrous continued

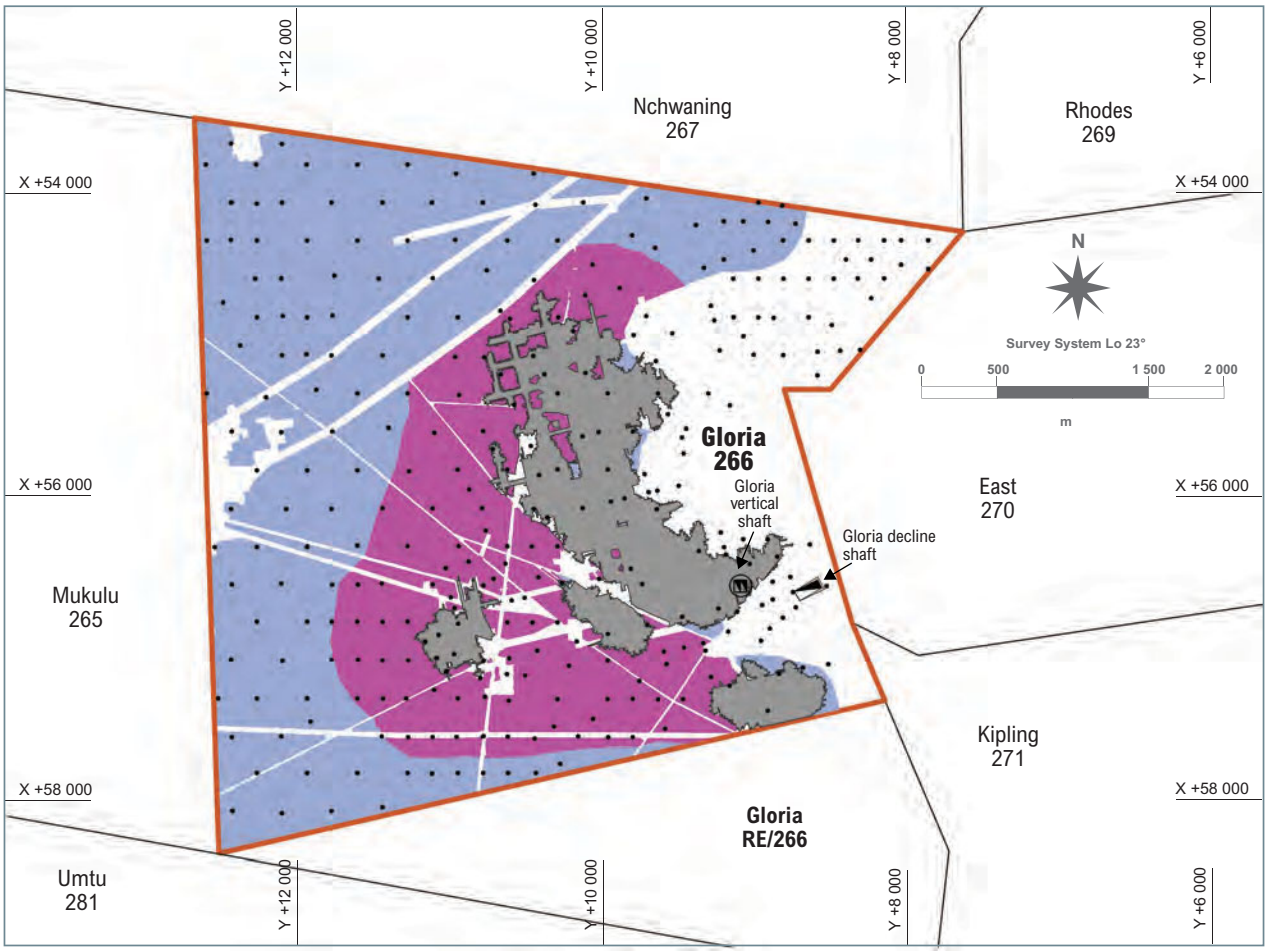
Gloria manganese Seam 1 Mineral Resources classification



Legend

Measured | Indicated | Boreholes | Mining Right boundary | Mined out area | Vertical shaft | Decline shaft

Gloria manganese Seam 1 Mineral Reserves classification



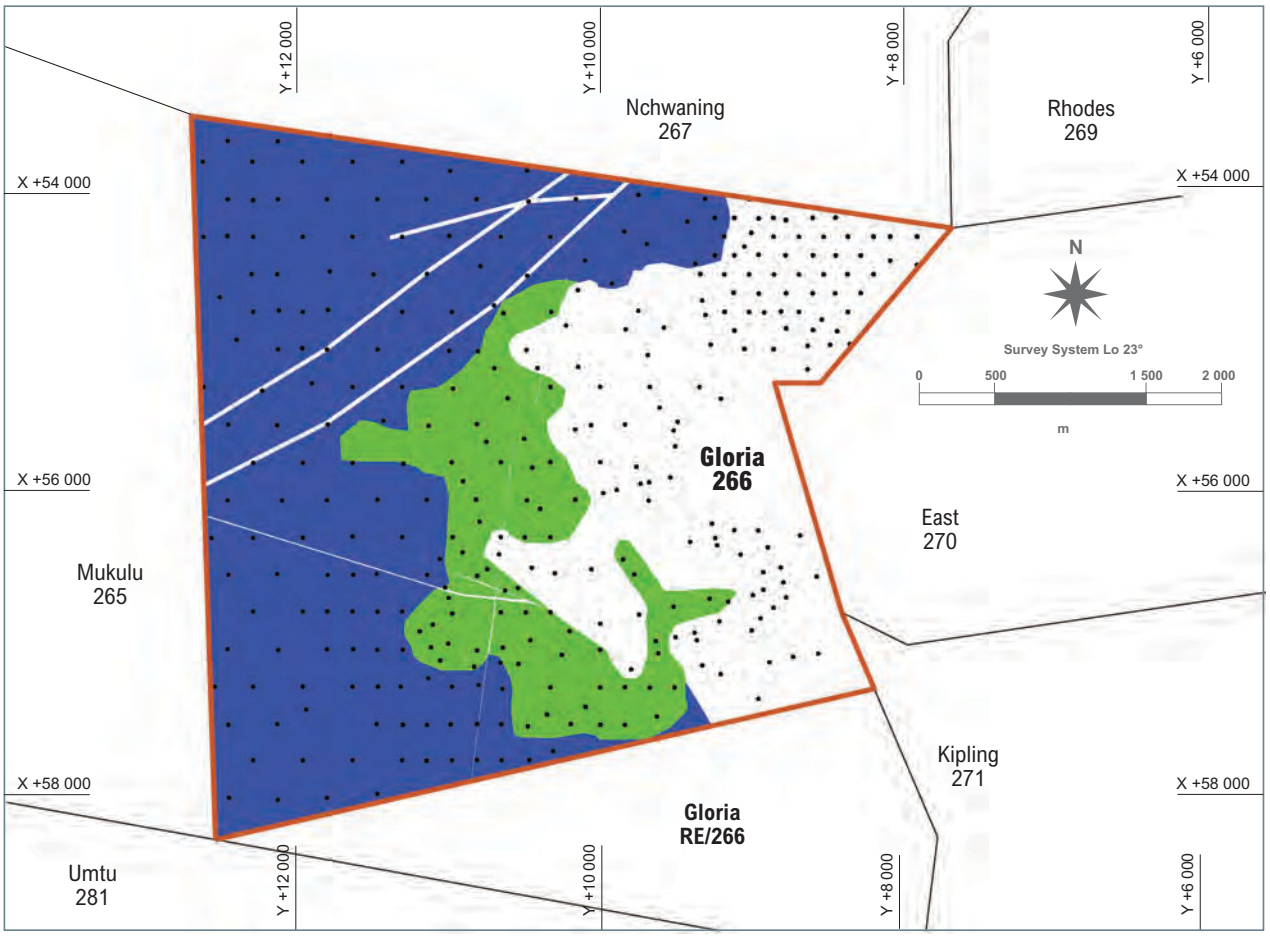
Gloria Mine: Seam 2 manganese Mineral Resources estimates as at 30 June 2022

	MINERAL RESOURCES		
Mineral Resources are reported on a 100% basis*	Mt	Mn%	Fe%
Measured			
Indicated	31.06	28.46	9.56
Total Measured and Indicated (Seam 2) 2022	**31.06**	**28.46**	**9.56**
Total Measured and Indicated (Seam 2) 2021	30.97	28.35	9.35
Inferred 2022 (Seam 2)	**109.04**	**29.65**	**9.66**
Inferred 2021 (Seam 2)	121.28	30.00	9.60

Totals are rounded off.
Key assumptions for Mineral Resources:
True thickness cut-off: 4.0 metres.
**** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).***

ARM Ferrous continued

Gloria manganese Seam 2 Mineral Resources classification



Legend

Indicated Inferred ● Boreholes Mining Right boundary

Gloria Mine year-on-year change

Gloria Mine Seam 1 Measured and Indicated Mineral Resources increased by 21% from 167.52 million tonnes at 37.40% Mn to 202.86 million tonnes at 37.08% Mn mainly due to inclusion of blocks previously declared as Inferred Mineral Resources which have now been upgraded to Indicated Mineral Resources after incorporating new infill drilling information.

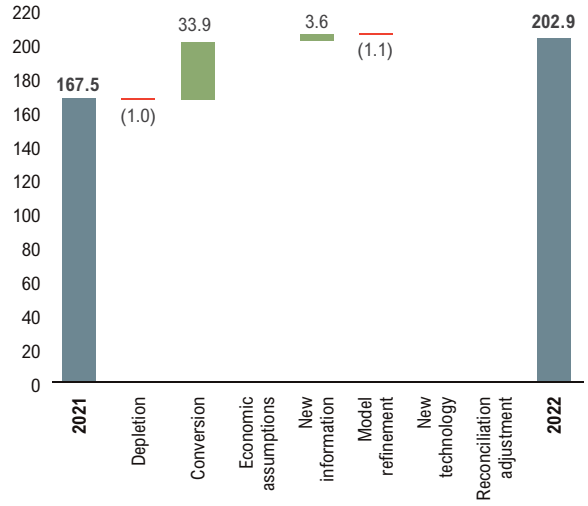
Mineral Reserves for Seam 1 increased by 19% to 125.51 million tonnes at 36.90% Mn due to the significant increase in Indicated Mineral Resources from which the additional Mineral Reserves have been converted.

ARM Ferrous continued

Gloria Mine Seam 1

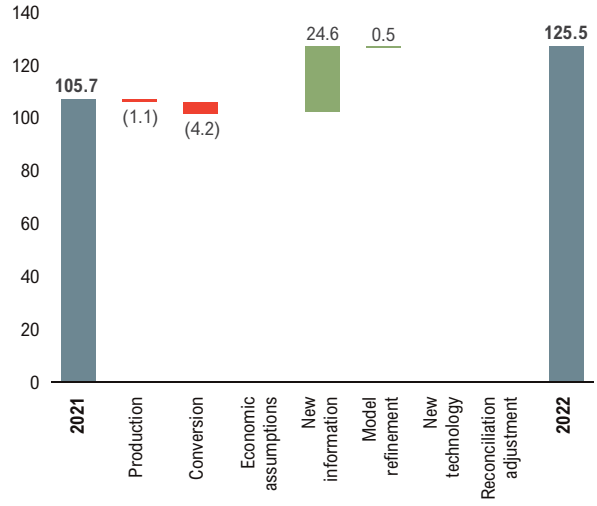
Gloria Seam 1 year-on-year reconciliation Mineral Resources*

Tonnes (million)



Gloria Seam 1 year-on-year reconciliation Mineral Reserves

Tonnes (million)



* *Mineral Resources represent Measured and Indicated only.*

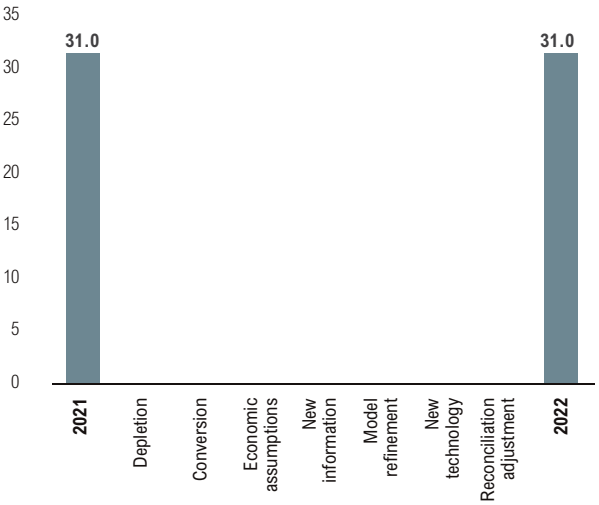
Indicated Mineral Resources for Gloria Seam 2 remained unchanged.

The Gloria Seam 2 Inferred Mineral Resources decreased due to model refinements from 121.28 million tonnes at 30% Mn to 109.04 million tonnes at 29.65% Mn.

Gloria Mine Seam 2

Gloria Seam 2 year-on-year reconciliation Mineral Resources*

Tonnes (million)



* *Mineral Resources represent Measured and Indicated only.*

Historical manganese production at Gloria Mine (Seam 1)

	ROM	Saleable
Financial year	Mt	Mt
2017/2018	0.67	0.71
2018/2019	0.45	0.42
2019/2020	0.70	0.72
2020/2021	0.80	0.80
2021/2022	**1.06**	**0.98**

IAR Additional information on production figures can be found in the ARM Ferrous operational review of the 2022 ARM integrated annual report which can be found at **www.arm.co.za**.

ARM Ferrous continued

BEESHOEK IRON ORE MINE

Locality

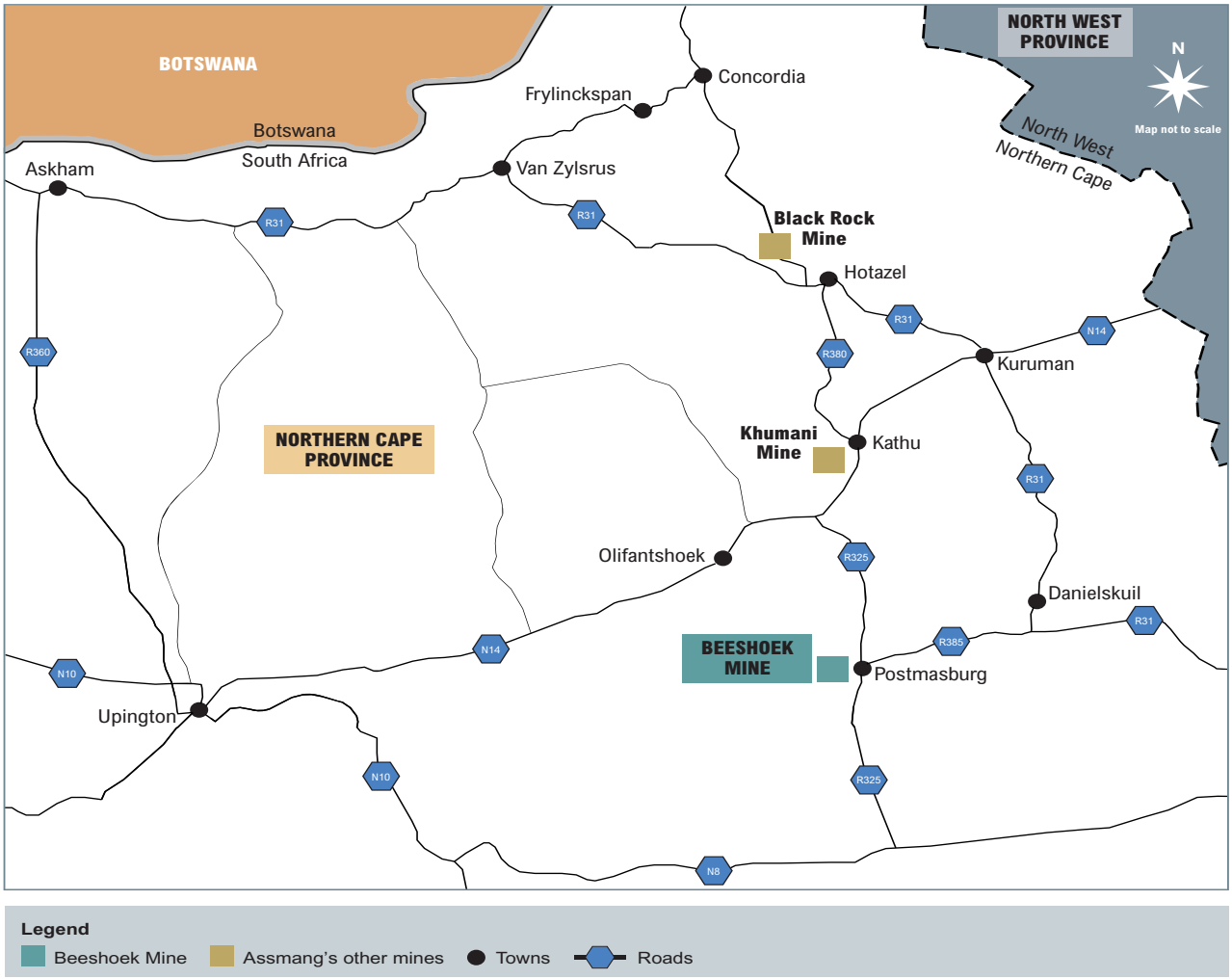
Beeshoek Mine is located on the farms Beesthoek 448 and Olyn Fontein 475, situated approximately 200 kilometres west of Kimberley in the Northern Cape province. The Beeshoek open-pit operations are situated 7 kilometres west of Postmasburg located at latitude 28°30'00"S and longitude 23°01'00"E.

History

Mining of iron ore (mainly specularite) was undertaken as early as 40 000 BC on the farm Doornfontein which is due north of Beeshoek. The potential of iron ore in this region was discovered in 1909, but, due to lack of demand and limited infrastructure, this commodity was given little attention. In 1929, the railway line was extended from Koopmansfontein (near Kimberley) to service a manganese mine at Beeshoek. In 1935, the Associated Manganese Mines of South Africa Limited (Assmang) was formed. In 1964, Beeshoek Iron Ore Mine was established, with a basic hand-sorting operation. In 1975, a full washing and screening plant was installed at Beeshoek Mine.

ARM Ferrous continued

Locality map of Beeshoek Mine



Competence

The following Competent Persons were involved in the estimation of Beeshoek Mineral Resources and Mineral Reserves. R Jooste is employed by ARM, while A Burger is employed by Assmang.

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
R Jooste (Mineral Resources)	SACNASP	400163/05	BSc, BSc Hons (Geology), MEng (Mining Engineering)	21 years
A Burger (Mineral Reserves)	SACNASP	400233/08	BSc (Geology), BSc Hons (Geology), GDE (Mining Engineering)	21 years

ARM Ferrous continued

Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Right NC 30/5/1/2/2/223 MRC	Iron ore	None	30 years: 16 March 2012 to 15 March 2042	None

Geology

Beeshoek is situated within a sequence of early Proterozoic sediments of the Transvaal Supergroup. It is located on the Maremane Anticline in the Griqualand West Sequence of the Transvaal Supergroup, as well as the Elim Group of the Keis Supergroup. Refer to the regional geological map on page 51.

In general, two ore types are present: laminated hematite ore, forming part of the Manganore Iron Formation, and conglomerate ore, belonging to the Doornfontein Conglomerate Member at the base of the Gamagara Formation. The laminated ore types occur in the upper portion of the Manganore Iron Formation as enriched high-grade hematite bodies.

The boundaries of high-grade hematite orebodies cross-cut primary sedimentary bedding, indicating that secondary hematitisation of the iron formation took place. In all of these, some of the stratigraphic and sedimentological features of the original iron formation are preserved.

The conglomeratic ore found in the Doornfontein Conglomerate Member of the Gamagara Formation, is lenticular but not consistently developed along strike. It consists of stacked, upward fining conglomerate-gritstone-shale sedimentary cycles. The lowest conglomerates and gritstones tend to be rich in subrounded to rounded hematite ore pebbles and granules and form the largest part of the resource. The amount of iron ore pebbles decreases upwards in the sequence so that upper conglomerates normally consist of poorly sorted, angular to rounded chert and banded iron formation pebbles. Hematite is the predominant ore mineral, but limonite and specularite also occur.

Numerous deep iron ore extensions occur into the basins due to karst development. A prominent north-south strike of the orebodies dipping to the west is notable. The southern Beeshoek orebodies were exposed to more erosion and hence are more localised and smaller. Outcrops are limited to the higher topography on the eastern side of the properties. Down-dip to the west, the ore is thin and deep.

Beeshoek Mine.

Exploration activities

Exploration activities carried out over the past year, F2022, focused on the south-west of West Pit, south of East Pit and around the Village Pit area. A total number of 56 boreholes were drilled. The total number of metres drilled for the period July 2021 to June 2022 was 5 155 metres (diamond drilling: 2 654 metres and percussion drilling: 2 501 metres). Twenty-two boreholes intersected Fe mineralisation around West Pit and have the potential to increase the current West Pit Mineral Resource. Apart from drilling, geophysical gravity surveys were done on the south, south-east and eastern part of the mining property. The total amount spent on exploration activities was approximately R12.20 million which included diamond and percussion drilling as well as the geophysical gravity surveys.

For the next financial year, F2023, exploration drilling activities will continue at West Pit, south of East Pit and drilling around HL Pit. Further geophysical gravity surveys are planned east of East Pit and on the northern area of the mine property.

Mining methods and infrastructure

Mining operations are all open-pit, based on the conventional drill-and-blast, truck-and-shovel operations. Run-of-mine ore is crushed and stored as “on-grade” or “off-grade” on blending stockpiles. Ore from the stockpiles is either sent to the wash-and-screen plants or, if “off-grade”, to the beneficiation plants. The washing and screening plants consist primarily of tertiary crushing, washing, screening and conveying to three product stockpiles (Lumpy, DR Lumpy and Fines).

The beneficiation plants consist of tertiary crushers, coarse and fine jigs with lumpy and fines product stockpiles. All plant product stockpiles are loaded through a loading box on trains or hauled out for road transport on trucks. No chemicals are being used in any of the processing plants.

Mineral Resources

The methodology followed to identify exploration targets is initiated with geological mapping, followed by geophysics (gravity). Numerous exploration programmes have been completed in the past. Percussion drilling is used to pilot holes through overlying waste rock down to the iron orebodies. Diamond drilling is the next phase, which is usually on a 200 x 200 metre grid. Further infill drilling is carried out at spacing ranging from 100 x 100 metres to 25 x 25 metres, depending on the complexity of the orebody and geological structures.

Core samples are logged and split by means of a diamond saw and the half-core is sampled at 0.5 metre intervals. The half-cores are split, crushed, pulverised and submitted to the owner-managed laboratory for assaying. All exploration boreholes in mineralisation are sampled and analysed for Fe, K_2O, Na_2O, SiO_2, Al_2O_3, P, S, CaO, MgO, Mn and BaO. The analytical technique for elemental analyses is XRF spectroscopy. All validated borehole data is kept in a Microsoft Access database. Beeshoek plans to move its geological data to a secure and complete geological data management solution.

The geological model is built on Surpac modelling software using a 3D display of all borehole information as well as available surface and geophysical information. Within the host stratigraphic units, Doornfontein (conglomeritic mineralisation) and Manganore (laminated mineralisation) outlines for mineralisation above a cut-off of 60% Fe are interpreted and solid wireframes created. Any lower-grade samples inside the orebody are defined as internal waste and modelled separately.

Ordinary Kriging interpolation within Datamine Studio RM is used to estimate the grade of each 25 x 25 x 10 metre block generated within the geological model for the following separate units: mineralised envelopes (Fe of 60% and above), and the internal shales and banded iron stone. Densities in the resource model are calculated using a polynomial fit applied to the estimated Fe grade. Mineral Resource classification is based on both geostatistical parameters as well as the geological continuity of the mineralisation. The geostatistical parameters that are considered are: Kriging variance, number of samples, search volume and regression slope. The final assessment of the classification is done by the lead Competent Person who may adjust as necessary.

The Mineral Resources declared have reasonable prospects for eventual economic extraction on consideration of the following:

- Location, quality, grade and geological continuity are known and are supported by drilling information which includes sampling
- Iron ore bodies with greater than 2 metre thicknesses with grades above 60% Fe and close to surface for open-pit mining are considered as Mineral Resources
- Mining and processing methods are well-established at the operation and are currently used to exploit the orebody
- All other factors such as legal, infrastructural, environmental, marketing, social and economic factors are covered as part of the mining plan for the operation.

ARM Ferrous continued

Mineral Reserves

Only Measured and Indicated Mineral Resources are converted to Proved and Probable Mineral Reserves respectively. Modifying factors are applied to these Mineral Resources and are financially optimised. The financial parameters are used to define the optimal pit outline. The pit designs are based on mining and geotechnical parameters, mining fleet and selective mining unit (SMU). Beeshoek Mine creates a dilution model where the hangingwall and footwall contamination zones that affect the contact ore are defined and used in the conversion from Mineral Resources to Mineral Reserves.

The Mineral Resources within this mining constraint ie optimised pit-shell with grades of 54% Fe and above are defined as Mineral Reserves. These are categorised into different product types, destined for the different plant processes, and then scheduled for mining. The average Fe, K_2O, Al_2O_3, Mn and SiO_2 grades of the SMUs are used to define "on-grade" (wash and screen) feed as well as "off-grade" (jig) feed.

In 2021 Beeshoek completed a full mineral asset optimisation study. The key outcomes of the study were:

- Develop new economic pit perimeters for each of the modelled deposits
- Test the best possible economic extraction for all the potential ore sources
- Develop a robust and comprehensive economic model.

The outcome of the 2021 study resulted in a life-of-mine extension from six to 14 years.

Beeshoek Iron Ore Mine: Mineral Resources and Mineral Reserves estimates as at 30 June 2022

	MINERAL RESOURCES								MINERAL RESERVES					
Mineral Resources and Mineral Reserves are reported on a 100% basis*	**Measured Resources**		**Indicated Resources**		**Total Measured and Indicated Resources**		**Inferred Resources**		**Proved Reserves**		**Probable Reserves**		**Total Reserves**	
	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
Pit/Area														
BN Pit	6.35	63.13			6.35	63.13			3.61	63.05	0.36	55.92	3.97	62.40
HF/HB Pit	11.64	64.99			11.64	64.99			10.48	64.54	0.16	56.11	10.64	63.21
BF Pit	5.27	63.89	0.11	62.78	5.38	63.87			1.25	63.15	0.05	63.43	1.30	63.16
East Pit	2.69	65.11	0.02	64.53	2.71	65.11			0.87	65.95			0.87	65.95
Village Pit	42.45	64.30	8.29	63.13	50.74	64.11			25.74	64.11	5.21	60.48	30.95	63.21
GF Pit	2.95	64.59			2.95	64.59								
HH Ext Pit	0.29	65.19			0.29	65.19								
HL Pit	2.40	64.87	0.03	65.19	2.43	64.87			1.87	65.07			1.87	65.07
West Pit	8.82	63.70	0.47	62.70	9.29	63.65			8.19	63.69	0.34	62.54	8.53	63.64
Oppikoppie	1.59	65.54	0.08	65.77	1.67	65.55								
Detrital**							2.50	60.00						
Total 2022	**84.45**	**64.30**	**9.00**	**63.14**	**93.45**	**64.19**	**2.50**	**60.00**	**52.01**	**64.10**	**6.12**	**60.24**	**58.13**	**63.32**
Total 2021	80.99	64.18	5.46	63.37	86.45	64.13	5.49	62.70	55.50	64.17	6.19	60.20	61.69	63.77

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
*** Detrital is loose fragmented material occurring in various areas at Beeshoek Mine.*
Key assumptions for Mineral Resources:
Grade cut-off: 60% Fe.
Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:
Grade cut-off: 54% Fe.
Mining loss: 2%.
Plant yield: On-grade (85%).
Jig yield: Off-grade (depending on material type): 45%.
Price used for iron ore (US$/t): Based on market-related long-term view and customer contracts.
Exchange rate used: Market related.
Life-of-mine: 13 years.
**** Beeshoek Iron Ore Mine attributable interests (ARM 50%; Assore 50%).***

ARM Ferrous continued

Beeshoek Iron Ore Mine: Stockpiles Mineral Reserves estimates as at 30 June 2022

Mineral Resources and Mineral Reserves are reported on a 100% basis*	MINERAL RESERVES					
	Proved Reserves		Probable Reserves		Total Reserves	
	Mt	Fe%	Mt	Fe%	Mt	Fe%
Area						
North Mine (ROM on-grade*)			0.01	64.00	0.01	64.00
North Mine (B ROM off-grade*)			0.04	55.00	0.04	55.00
North Mine HF Pit (ROM on-grade)			0.07	64.00	0.07	64.00
North Mine HF Pit (B ROM off-grade*)			0.37	55.00	0.37	55.00
South Mine Village Pit (on-grade)			0.05	64.00	0.05	64.00
South Mine Village Pit (off-grade)			0.07	55.00	0.07	55.00
South Mine East Pit (ROM on-grade)			0.02	64.00	0.02	64.00
South Mine East Pit (B ROM off-grade)			0.02	55.00	0.02	55.00
Total 2022 stockpiles**			**0.64**	**57.09**	**0.64**	**57.09**
Total 2021 stockpiles			1.37	58.45	1.37	58.45

Totals are rounded off.
*** ROM off-grade ore is beneficiated to produce a saleable product.*
**** Beeshoek Iron Ore Mine attributable interests (ARM 50%; Assore 50%).***

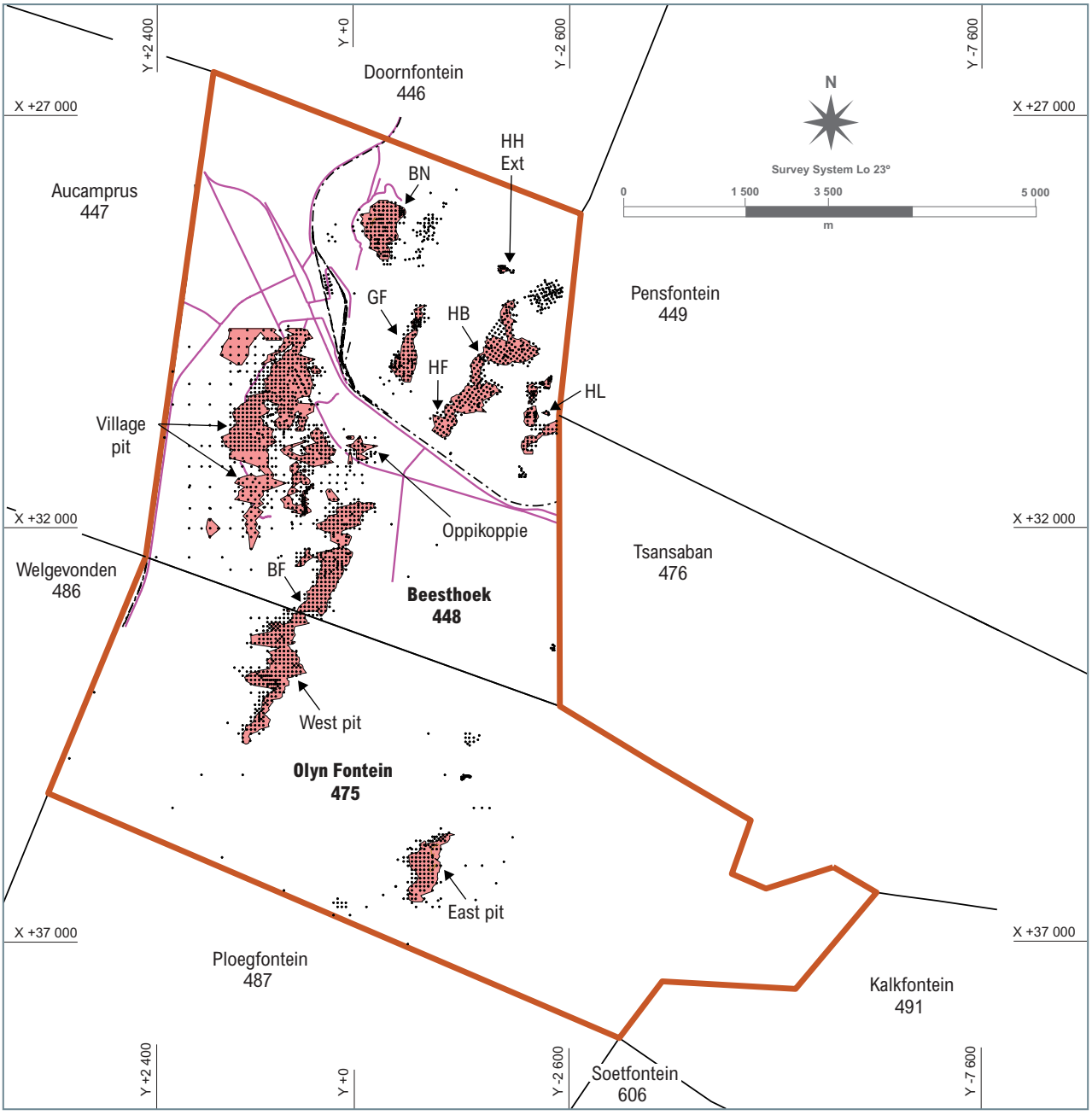
Beeshoek Iron Ore Mine: Low-grade stockpiles Mineral Resources as at 30 June 2022

Mineral Resources are reported on a 100% basis*	Measured Resources		Indicated Resources		Total Measured and Indicated Resources		Inferred Resources	
	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
Stockpile								
Tailings stockpile	2.41	56.46	0.04	54.52	2.45	56.43		
Jig stockpile			14.60	52.72	14.60	52.72		
Total 2022	**2.41**	**56.46**	**14.64**	**52.72**	**17.05**	**53.25**		
Total 2021	2.41	56.46	14.64	52.72	17.05	53.25		

Totals are rounded off.
Key assumptions for Mineral Resources:
Jig stockpile cut-off grade: 45% Fe.
**** Beeshoek Iron Ore Mine attributable interests (ARM 50%; Assore 50%).***

ARM Ferrous continued

Locality map of Beeshoek Mine orebody

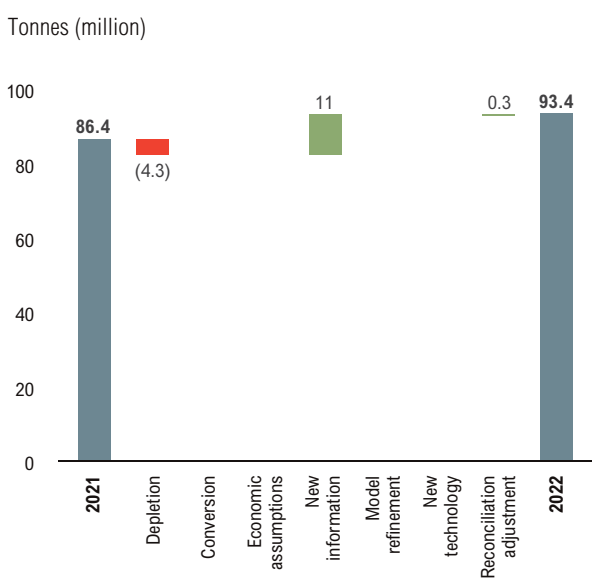


Beeshoek Mine year-on-year change

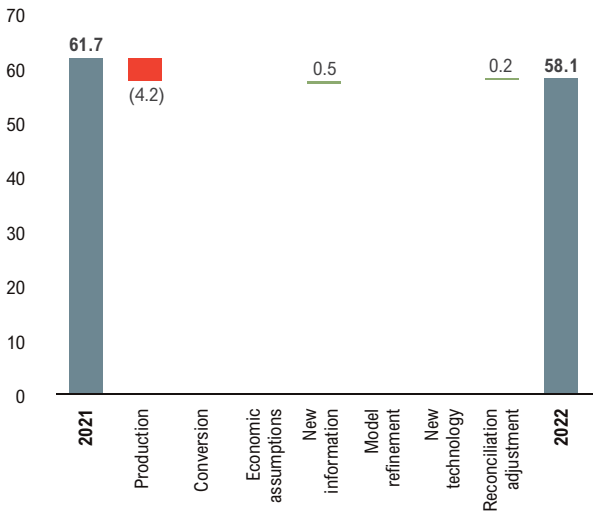
Measured and Indicated Mineral Resources increased from 86.45 million tonnes at 64.13% Fe to 93.45 million tonnes at 64.19% Fe. The increase is mainly due to the increase in Mineral Resources for Village Pit and Oppikoppie after the completion of model updates. Mineral Reserves decreased from 61.69 million tonnes at 63.77% Fe to 58.13 million tonnes at 63.32% Fe due to mining production.

Beeshoek Mine all pits

Beeshoek Mine year-on-year reconciliation Mineral Resources*



Beeshoek Mine year-on-year reconciliation Mineral Reserves



* *Mineral Resources represent Measured and Indicated only.*

Stockpile Mineral Reserves decreased from 1.37 million tonnes at 58.45% Fe to 0.64 million tonnes at 57.09% Fe due to stockpile reclaiming.

The tailings and jig stockpile Mineral Resources are unchanged at 17.05 million tonnes at 53.25% Fe. An updated jig stockpile Mineral Resource will be reported in F2023.

Historical at Beeshoek Mine

	ROM	Saleable
Financial year	Mt	Mt
2017/2018	4.17	3.88
2018/2019	4.44	3.64
2019/2020	4.26	2.99
2020/2021	5.52	3.25
2021/2022	**4.45**	**3.13**

IAR Additional information on production figures can be found in the ARM Ferrous operational review of the 2022 ARM integrated annual report which can be found at **www.arm.co.za**.

ARM Ferrous continued

KHUMANI IRON ORE MINE

Locality

Khumani Iron Ore Mine is owned by Assmang Limited, which is equally shared by African Rainbow Minerals Limited (ARM) and Assore Limited. Khumani Mine is located on either side of the N14 approximately 20 kilometres south of the town of Kathu. Khumani Mine is situated on the farms Bruce 544, King 561 and Mokaning 560. Khumani is approximately 200 kilometres west of Kimberley in the Northern Cape. The Khumani open-pits are adjacent to, and south-east of, Kumba Iron Ore's Sishen Mine. Khumani mine is located at latitude 27°45'00"S and longitude 23°00'00"E.

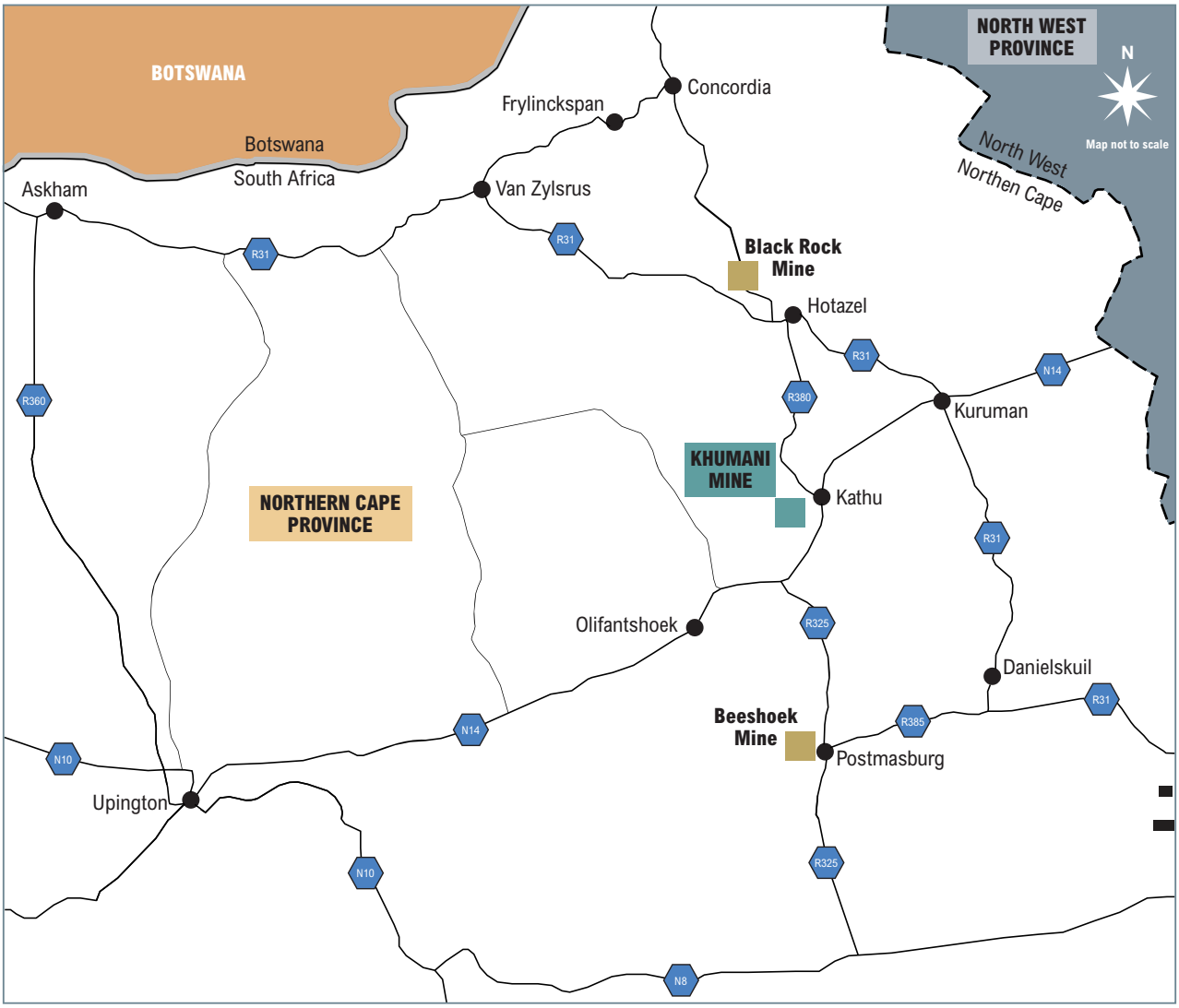
History

The first venture into mining was as early as 1926 by Union Manganese Mines and Minerals Limited (later Manganese Corporation Limited) to extract manganese ore on Bruce and King. Mining of manganese ore on Bruce, King, Mokaning and McCarthy continued in 1935 by Associated Manganese Mines of South Africa Limited. Exploration for iron ore commenced in 1975, which included mapping, drilling and bulk sampling by the US Steel Corporation on mainly Bruce and King. In 1980 to 1987, Iscor expanded the exploration drilling and mined iron ore on Bruce as per agreement with Assmang.

Since then, exploration was at a low level until the 1990s to early 2000 when various drilling campaigns were completed. In this period, an expanded ground gravity survey on the farms Bruce, King and Mokaning (BKM) was completed and the drilling of the subsequent gravity anomalies on a 200 metre grid contributed to the growth of the resource. Concurrently the infill drilling on the iron ore outcrops advanced significantly, which served as the foundation for the feasibility study for the BKM Project in 2005.

Khumani's official mining commenced in 2007 with ore extraction on Bruce. Since 2008 exploration expanded considerably, which initially focused on infill drilling at King, but the necessity for detailed infill and grade-control drilling on both Bruce and King warranted an extensive drilling programme for the ensuing years. That included grid space drilling down to 50 metres and even 25 metres within the active mining areas. In the last few years, the emphasis was to continue the infill drilling as well as to expand the exploration towards the southern and eastern parts of Mokaning.

Locality map of Khumani Mine



Competence

The following Competent Persons were involved in the estimation of Mineral Resources and Mineral Reserves for Khumani Mine. All the Competent Persons are employed by Assmang.

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
I van Niekerk (Mineral Resources)	SACNASP	400006/94	BSc Hons (Geology)	32 years
B Nel (Mineral Resources)	SACNASP	1530329	MSc Hons (Geology)	14 years
B Muzima (Mineral Reserves)	SACNASP	707708	BTech (Mining Engineering)	15 years

ARM Ferrous continued

Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Right NC 50/5/1/2/2/70 MR	Iron ore	None	30 years: 25 January 2007 to 24 January 2037	None

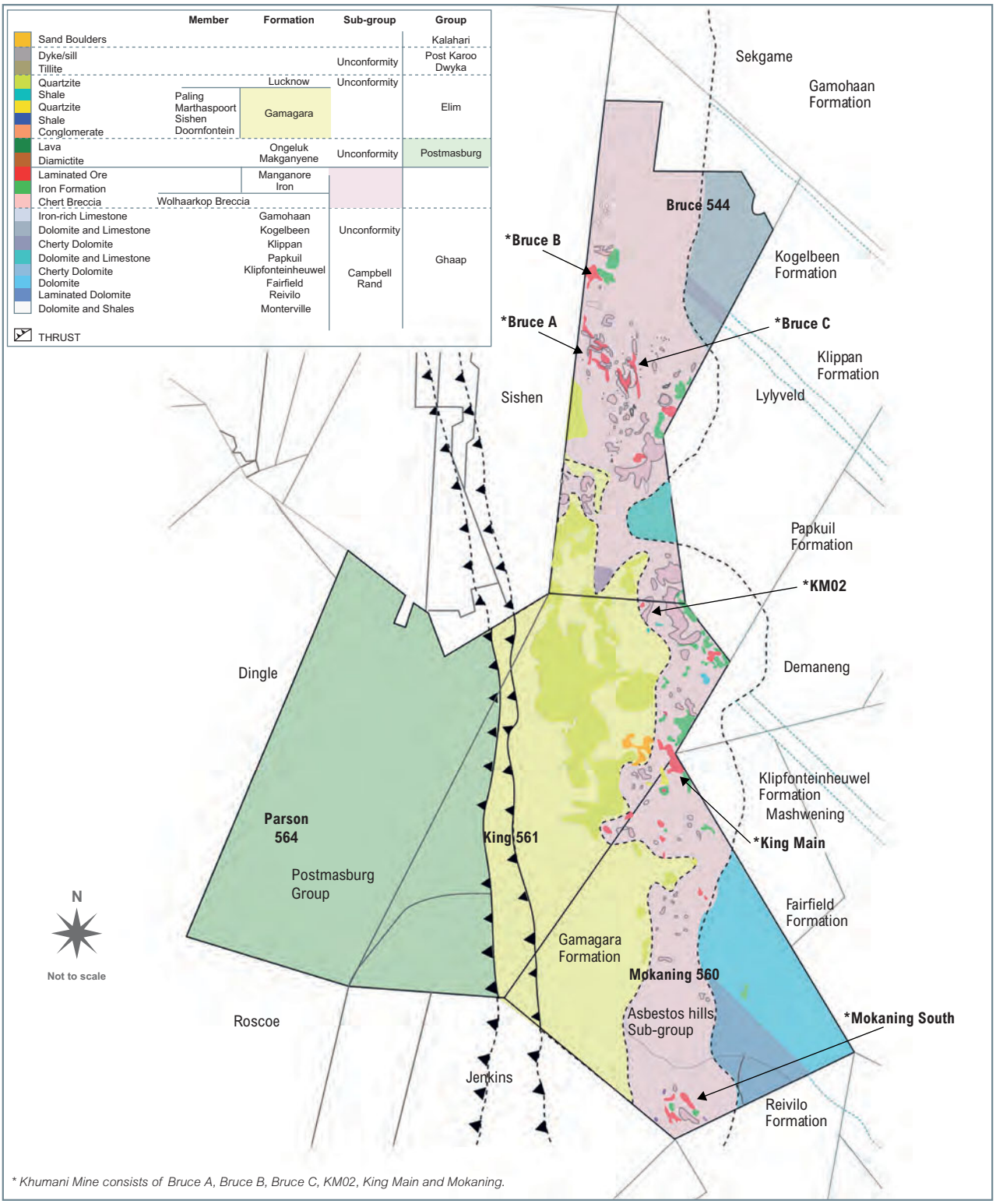
Geology

Khumani mine is situated within a sequence of early Proterozoic sediments of the Transvaal Supergroup. It is located on the Maremane Anticline in the Griqualand West Sequence of the Transvaal Supergroup, as well as the Elim Group of the Keis Supergroup. Refer to the regional geological map on page 51.

In general, two ore types are present: laminated hematite ore, forming part of the Manganore Iron Formation, and conglomerate ore, belonging to the Doornfontein Conglomerate Member at the base of the Gamagara Formation. The laminated ore types occur in the upper portion of the Manganore Iron Formation as enriched high-grade hematite bodies. The boundaries of high-grade hematite orebodies cross-cut primary sedimentary bedding, indicating that secondary hematisation of the iron formation took place. In all of these, some of the stratigraphic and sedimentological features of the original iron formation are preserved. The conglomeratic ore found in the Doornfontein Conglomerate Member of the Gamagara Formation, is lenticular but not consistently developed along strike. It consists of stacked, upward fining conglomerate-gritstone-shale sedimentary cycles.

Khumani Mine.

Khumani surface geology map



** Khumani Mine consists of Bruce A, Bruce B, Bruce C, KM02, King Main and Mokaning.*

The lowest conglomerates and gritstones tend to be rich in subrounded to rounded hematite ore pebbles and granules and form the largest part of the resource. The amount of iron ore pebbles decreases upwards in the sequence so that upper conglomerates normally consist of poorly sorted, angular to rounded chert and banded iron formation pebbles. Hematite is the predominant ore mineral, but limonite and specularite also occur.

ARM Ferrous continued

Exploration activities

The Exploration for F2022 at Khumani Mine was concentrated in three areas: Bruce, King and Mokaning. The Assmang-owned reverse circulation (RC) drill rigs were fully utilised in the active pits on Bruce and King. These rigs assisted with rapid infill drilling within the pits close to active mining faces. A fleet of diamond drill rigs has been deployed away from any mining activities: three at King and three at Mokaning. One percussion drill rig fulfilled exploration drilling on Bruce, and one on King. One additional percussion rig focused on dolomite cover drilling and large diameter drilling for geotechnical purposes at King. The main purpose for exploration was to upgrade the confidence in the models by means of infill drilling and to collect samples and accurate stratigraphic data. This resulted in improved mine planning and accurate grade control. The Mokaning drilling contributed to an increase in the Mineral Resource. A total of 25 031 metres was drilled as follows: 7 862 metres reverse circulation, 11 893 metres percussion and 5 276 metres diamond drilling. The cost of percussion and diamond drilling was R19.9 million, while the RC drilling cost was covered by working cost.

Mining methods and infrastructure

Mining operations are all open-pit, based on the conventional drill-and-blast, truck-and-shovel operations. Run-of-mine ore is crushed and stored as “on-” or “off-grade” on blending stockpiles. Ore from the stockpiles is either sent to the wash-and-screen plants or, if “off-grade”, to the beneficiation plants. The washing and screening plants consist of primarily and tertiary crushing, washing, screening, conveying and stacking equipment. The beneficiation plants consist of tertiary crushers; scrubbers; coarse and fine jigs; lumpy and fines product stockpiles; and a rapid load-out facility. No chemicals are being used in any of the processing plants.

Mineral Resources

The methodology followed to identify exploration targets is initiated with geological mapping, followed by geophysics (ground magnetics and gravity). Numerous exploration programmes have been completed in the past. Percussion drilling is used to pilot holes through overlying waste rock down to the iron orebodies. Diamond drilling is the next phase, which is usually on a 200 x 200 metre grid. Further infill drilling is carried out at spacing ranging from 100 x 100 metres to 25 x 25 metres, depending on the complexity of the geological structures. Core samples are logged and split by means of a diamond saw and the half-core is sampled at 0.5 metre intervals. The half-cores are crushed, split and pulverised and submitted to the owner-managed laboratory for assaying. All holes and blast holes in mineralisation are sampled and analysed for Fe, K_2O, Na_2O, SiO_2, Al_2O_3, P, S, CaO, MgO, Mn, Ti and Ba. The analytical technique for elemental analyses is XRF spectroscopy. Volumetric titration is used as verification method for the determination of total iron in the ore. International standards (eg, SARM11) and in-house iron standards are used for the calibration of the XRF spectrometer. The Khumani laboratory undertakes stringent quality control and assurance methods, including “round robin” analysis with 11 laboratories for verification of assay results. A Datamine “fusion” database with all the borehole data has been established at Khumani.

The Khumani Mine geological model is built with Datamine’s Strat 3D modelling functionality to create a 3D representation of the stratigraphy using all validated borehole information. The stratigraphy is modelled from the surface geology to the stratigraphic unit below the lowest mineralised zone. Within the host stratigraphic units, Doornfontein (conglomeritic mineralisation) and Manganore (laminated mineralisation) outlines for mineralisation above a cut-off of 55% Fe are interpreted and solid wireframes created. Any lower-grade samples inside the orebody are defined as internal waste and modelled separately. Ordinary Kriging interpolation within Datamine Studio RM is used to estimate the grade of each 25 x 25 x 10 metre block generated within the geological model for the following separate units: mineralised envelopes (Fe of 55% and above), and the internal shales and banded iron stone. Densities in the Mineral Resource model are calculated using a polynomial fit applied to the estimated Fe grade. Mineral Resource classification is based on both geostatistical parameters as well as the geological continuity of the mineralisation. The geostatistical parameters that are considered are: Kriging efficiency, Kriging variance, number of samples, search volume and regression slope. The final assessment of the classification is done by the lead Competent Person who may adjust as necessary.

ARM Ferrous continued

The Mineral Resources declared have reasonable prospects for eventual economic extraction on consideration of the following:

- Location, quality, grade, and geological continuity are known and are supported by drilling information which includes sampling
- Only iron ore bodies greater than 2 metres in thickness with a grade of 55% Fe and above
- Mining and processing methods are well established at the operation and are currently used to exploit the orebody
- All other factors such as legal, infrastructural, environmental, marketing, social and economic factors are covered as part of the mining plan for the operation.

Mineral Reserves

Only Measured and Indicated Mineral Resources are converted to Proven and Probable Mineral Reserves respectively. Modifying factors are applied to these Mineral Resources and are financially optimised. The financial parameters are used to define the optimal pit outline. The pit designs are based on mining and geotechnical parameters, mining fleet and selective mining unit (SMU). Some of these parameters are listed below the Mineral Reserves tabulations. The combined waste and mineralisation models are reblocked at 6.25 x 6.25 x 10 metre blocks. The Mineral Resources within this mining constraint (optimised pit-design) with grades of 54% Fe and above are defined as Mineral Reserves. These are categorised into different product types, destined for the different plant processes and then scheduled for mining. The average Fe, K_2O, Al_2O_3, Mn and SiO_2 grades of the SMUs are used to define "on-grade" (wash and screen) feed as well as "off-grade" (jig) feed.

Khumani Iron Ore Mine: Mineral Resources and Mineral Reserves estimates as at 30 June 2022

	MINERAL RESOURCES								MINERAL RESERVES					
Mineral Resources and Reserves are reported on a 100% basis*	Measured Resources		Indicated Resources		Total Measured and Indicated Resources		Inferred Resources		Proved Reserves		Probable Reserves		Total Reserves	
	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
Pit/Area														
Bruce A	97.04	63.54	12.48	62.16	109.52	63.38			87.52	62.51	9.91	61.28	97.43	62.38
Bruce B	70.81	61.98	2.48	61.03	73.29	61.95			50.68	61.02	0.69	59.87	51.37	61.00
Bruce C	8.48	64.12	2.85	62.98	11.33	63.83	0.11	59.54	4.85	63.34	0.75	61.14	5.60	63.05
Total for Bruce Pits	**176.33**	**62.94**	**17.81**	**62.13**	**194.14**	**62.87**	**0.11**	**59.54**	**143.05**	**62.01**	**11.35**	**61.19**	**154.40**	**61.95**
King Main	293.63	63.01	19.97	61.13	313.60	62.89	6.41	62.84	203.57	62.45	0.84	60.74	204.41	62.44
Mokaning South	37.93	63.11	7.54	62.87	45.47	63.07	0.68	62.20	23.05	62.48	3.26	61.90	26.31	62.41
Mokaning East	3.96	64.66	13.29	64.06	17.25	64.20			2.05	63.83	7.92	63.86	9.97	63.85
Total King/Mokaning	**335.52**	**63.04**	**40.80**	**62.41**	**376.32**	**62.97**	**7.09**	**62.78**	**228.67**	**62.47**	**12.02**	**63.11**	**240.69**	**62.50**
Total 2022	**511.85**	**63.01**	**58.61**	**62.32**	**570.46**	**62.94**	**7.20**	**62.73**	**371.72**	**62.29**	**23.37**	**62.18**	**395.09**	**62.28**
Total 2021	507.49	62.91	76.31	62.53	583.80	62.86	10.53	59.96	380.70	62.29	33.46	61.97	414.16	62.27

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves. Totals are rounded off.

Key assumptions for Mineral Resources:

Grade cut-off: 55% Fe.

Modifying factors for the conversion of Mineral Resources to Mineral Reserves include:

Mining loss factor: 2%.

Wash and screen recovery: 84% (on-grade). Jig yield: 63% (off-grade).

Grade cut-off: 54% Fe.

Price used for iron ore (US$/t): Based on market-related long-term view and customer contracts. Exchange rate used: Market related.

Life-of-mine: 24 years.

**** Khumani Iron Ore mine attributable interests (ARM 50%; Assore 50%).***

ARM Ferrous continued

Khumani Iron Ore Mine: Stockpiles Mineral Reserves estimates as at 30 June 2022

Mineral Reserves are reported on a 100% basis*	Proved Reserves		Probable Reserves		Total Reserves	
	Mt	Fe%	Mt	Fe%	Mt	Fe%
Area						
Bruce			4.68	58.71	4.68	58.71
King			1.68	61.63	1.68	61.63
Total 2022 stockpiles**			**6.36**	**59.48**	**6.36**	**59.48**
Total 2021 stockpiles			6.02	59.59	6.02	55.59

Totals are rounded off.
*** Stockpiles are beneficiated to produce a saleable product.*
**** Khumani Iron Ore Mine attributable interests (ARM 50% ; Assore 50%).***

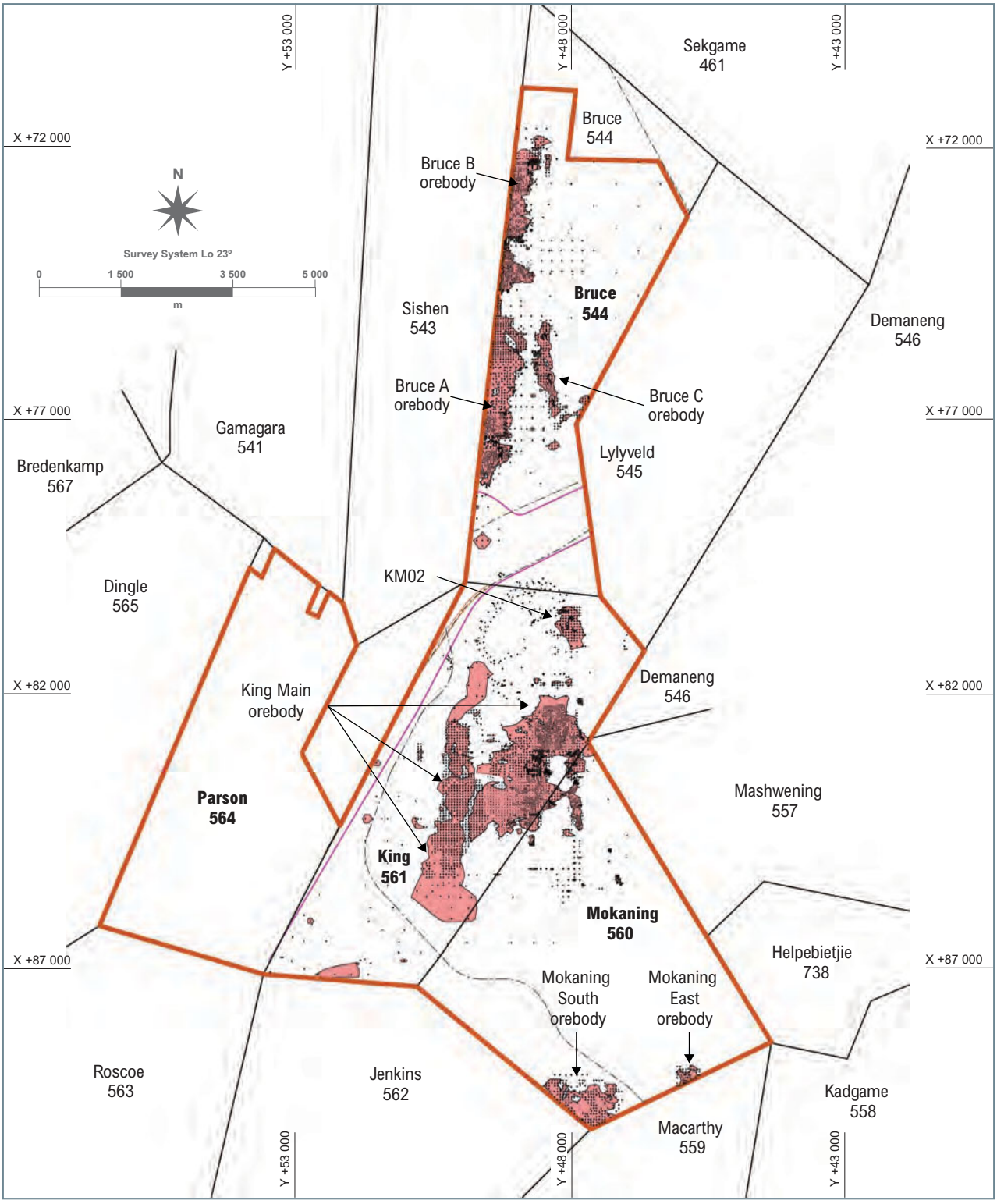
Khumani Iron Ore Mine: Low-grade stockpiles Mineral Resources estimates as at 30 June 2022

Mineral Resources are reported on a 100% basis*	Measured Resources		Indicated Resources		Total Measured and Indicated Resources		Inferred Resources	
	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
Pit/Area								
Jig stockpile			23.26	54.22	23.26	54.22		
Total 2022			**23.26**	**54.22**	**23.26**	**54.22**		
Total 2021			20.76	54.29	20.76	54.29		

Totals are rounded off.
Key assumptions for Mineral Resources:
Jig stockpile cut-off grade: 45% Fe.
**** Khumani Iron Ore Mine attributable interests (ARM 50%; Assore 50%).***

Khumani Mine.

Locality map of Khumani Mine orebody



Legend

Orebody outlines · Boreholes · Mining Right boundary · Railway line · Farm boundary · Roads

ARM Ferrous continued

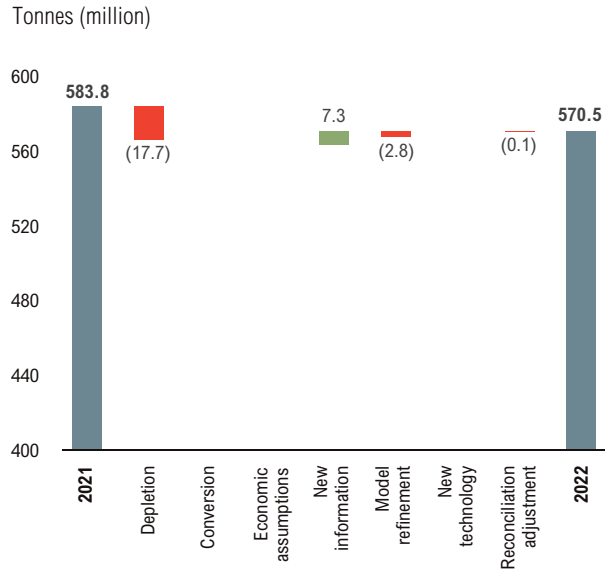
Khumani Mine year-on-year change

The Measured and Indicated Mineral Resources decreased from 583.80 million tonnes at 62.86% Fe to 570.46 million tonnes at 62.94% Fe mainly due to mining depletion.

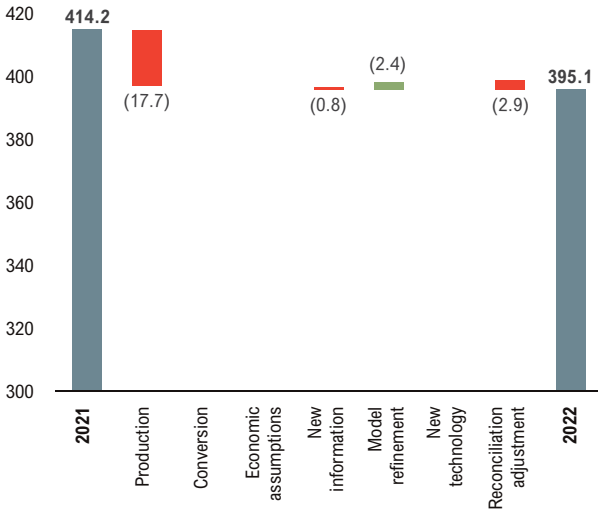
Khumani Mine Mineral Reserves decreased from 414.16 million tonnes at 62.27% Fe to 395.09 million tonnes at 62.28% Fe, mainly due to mining production as well as consideration of pillar constraints at Mokaning.

Khumani Mine all pits

Khumani Mine year-on-year reconciliation Mineral Resources*



Khumani Mine year-on-year reconciliation Mineral Reserves



* *Mineral Resources represent Measured and Indicated only.*

Stockpile Mineral Reserves increased from 6.02 million tonnes at 59.59% Fe to 6.36 million tonnes at 59.48% Fe as slightly more material was added to the stockpile.

Khumani low-grade jig stockpile increased from 20.76 million tonnes at 54.29% Fe of Indicated Mineral Resource to a total of 23.26 million tonnes at 54.22% Fe Indicated Mineral Resource due to continued feed from the jig plant.

Historical production at Khumani Mine

	ROM	Saleable
Financial year	Mt	Mt
2017/2018	22.00	14.69
2018/2019	20.11	14.15
2019/2020	19.32	13.10
2020/2021	19.27	12.67
2021/2022	**19.63**	**13.07**

IAR Additional information on production figures can be found in the ARM Ferrous operational review of the 2022 ARM integrated annual report which can be found at **www.arm.co.za**.

Coal

GOEDGEVONDEN COAL MINE

ARM's attributable beneficial interest in Goedgevonden's operations is 26%. The other 74% is held by Glencore Operations South Africa.

The JV with Glencore also includes other coal operations in South Africa, Participative Coal Business (PCB), in which ARM has an economic interest of 20.2%.

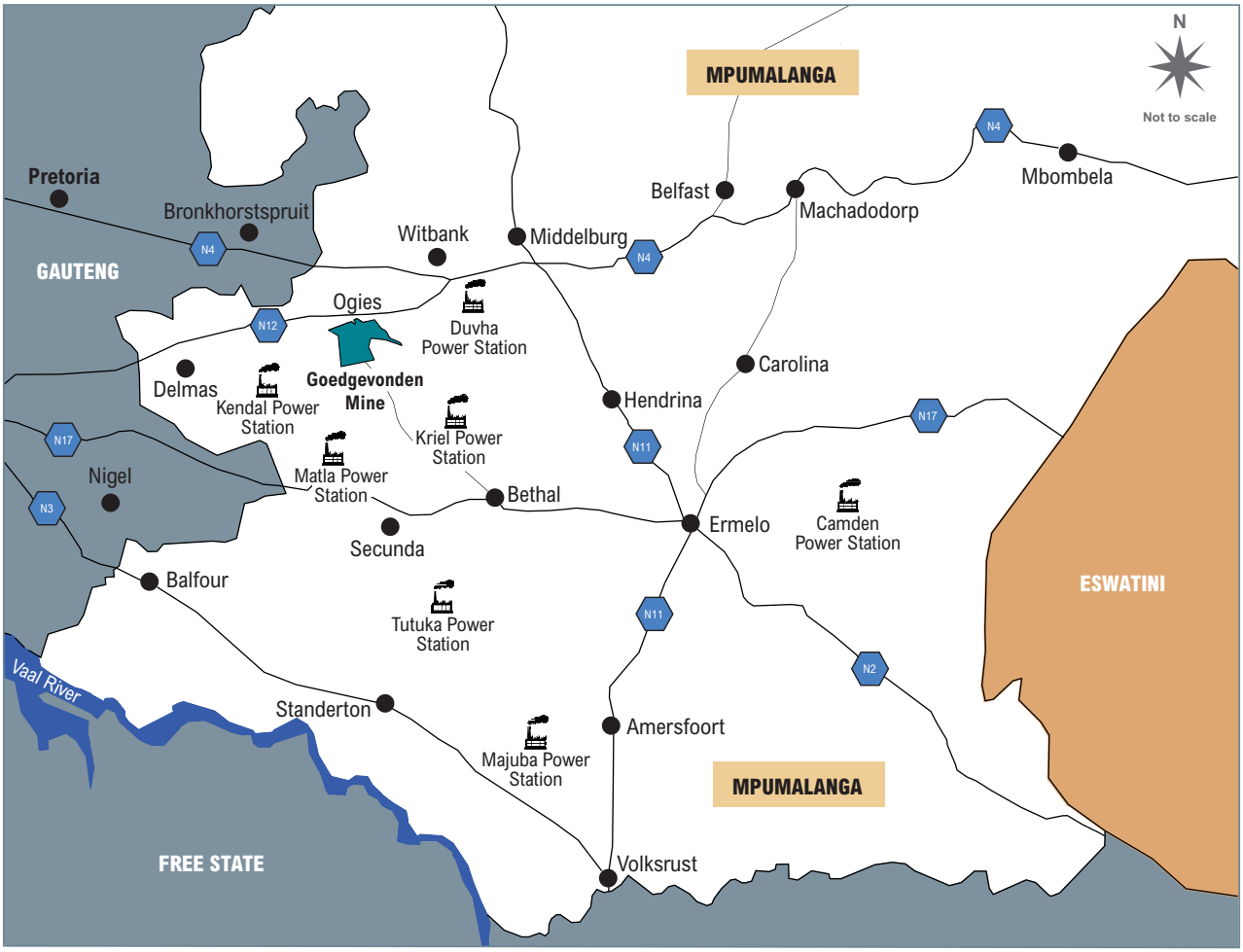
PCB Coal Resources and Coal Reserves are not included in this report but are published in the Glencore report which can be found at www.glencore.com.

Locality

Goedgevonden Mine (GGV) is situated in the Witbank Coalfield about 7 kilometres south of the town of Ogies in Mpumalanga province in South Africa.

ARM Coal continued

Locality map of Goedgevonden Coal Mine



History

A total of 548 surface diamond boreholes were drilled during 1964 to 2004 by Duiker Mining and Xstrata SA.

Anglo Coal drilled an additional 102 boreholes for the Zaaiwater area. Most boreholes were drilled down to basement to define the seam locality and basement topography. Owing to the different campaigns, the database had to be validated to produce a consistent set of data.

Competence

The following Competent Person was involved in the reporting of Goedgevonden Coal Resources and Coal Reserves, he is employed by Glencore.

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
M Smith (Coal Resources and Coal Reserves)	SACNASP	400075/03	BSc Hons (Geology), MBA	30 years

ARM Coal continued

Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Right MP 169 MR	Coal	None	30 years: 13 November 2013 to 12 November 2043	None

Geology

The Goedgevonden Coal Resource area is situated along the southern margin of the central portion of the Witbank Coal Field. The stratigraphy of the Witbank Coal Field consists of five bituminous coal seams within the 70-metre thick succession of the Vryheid formation of the Ecca Group, consisting predominantly of sandstone with subordinate siltstone and mudstone. The seams are numbered from oldest to youngest: No 1 to No 5 Seam with the No 5 Seam at the top. The seams vary in thickness from less than 0.5 metres to over 6 metres and do not exceed 300 metres in depth from surface. The coal seams dip at less than 5°. However, coal seam morphology and qualities may be locally influenced by basement topography, surface weathering and intrusion of dolerite dykes and sills. The coal qualities vary both within and between individual coal seams.

The low-quality coals, suitable for the local steam coal market, have a calorific value of between 18 to 22 MJ/kg, whereas the high-quality export steam coal has a calorific value of greater than 27 MJ/kg. All five coal seams are developed on Goedgevonden. The No 1 Seam is of low quality, thin and only developed in paleo-low areas. The No 2 Seam is extensively developed and is of good quality and is, on average, 6 metres thick. The No 3 Seam is of good quality but, with an average thickness of only 0.3 metres, is uneconomic. The No 4 Seam, being closer to surface and although of the same thickness as the No 2 Seam, is influenced by weathering and is not as extensively developed. The No 5 Seam is of good quality, but is preserved as erosional remnants on the high ground only and thus not extensively developed over the area. No major faults, structural disturbances or intrusives were observed in the boreholes drilled to date.

Opencast dragline mining operations in the area are extracting the No 2, No 4 and No 5 Seams. The open-cut mine produces both export and domestic thermal coal.

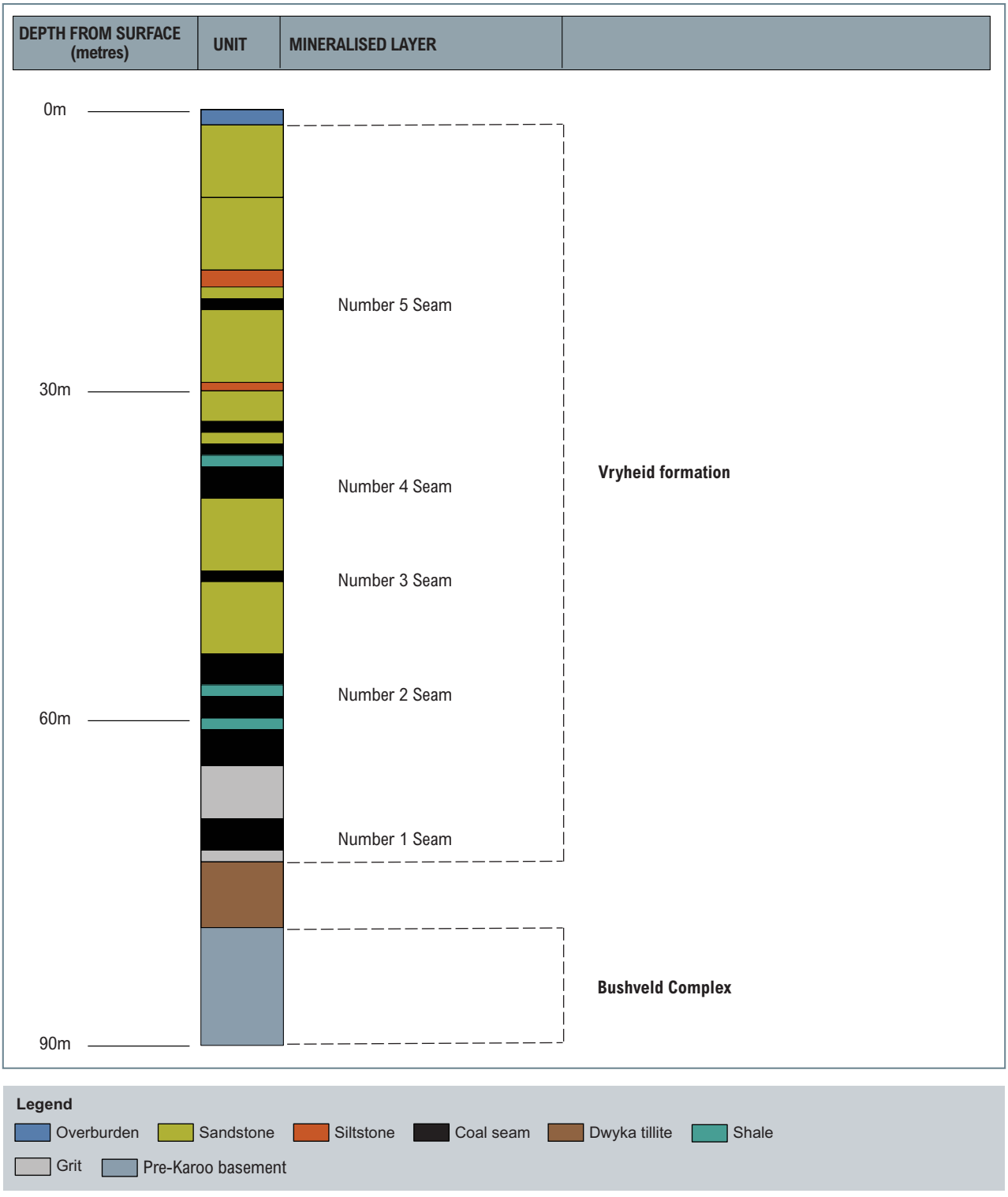
Coal extracted at Goedgevonden is primarily beneficiated to produce high-grade export products, with low-grade secondary products. Exceptions to beneficiating for primary high-grade products are made in instances where the inherent quality of the coal seam (notably the No 4 Seam, to a lesser extent the No 2 Seam), warrants the production of a primary low-grade product only.

The northern part of Goedgevonden Coal Resource area is adjacent to the Ogies dyke which plays a role in geological structures and features encountered within the area.

Goedgevonden Coal Mine.

ARM Coal continued

Goedgevonden complex stratigraphy



ARM Coal continued

Exploration activities

The 2021 budgeted exploration was a continuation of the 2020 programme and was concluded by the end of March 2021.

All exploration boreholes were drilled by Bokamoso Exploration Drilling and were logged and sampled on site by the resident geologist. The samples were sent to the SGS laboratory.

The SGS Trichardt facility is accredited through the SANAS and ISO/IEC 17025:2005 for the relevant coal analytical techniques.

Boreholes were drilled to the Pre Karoo and most boreholes intercepted all the seams developed at GGV (5, 4, 3, and 2 Seam). Full washability was conducted at an RD of 1.35 to 1.80 at 0.5 intervals. Proximate, as well as CV and sulphur analyses were conducted on all the floats and the sink fraction.

The boreholes drilled during 2020 and 2021 were incorporated into the 2021 Goedgevonden complex Coal Resource Model.

Drilling conducted during 2021, included six boreholes drilled ahead of the mining face in South Pit, and a further 17 holes drilled in Zaaiwater.

The total drilling costs for 2021 was R2.5 million which included drilling, site establishment and laboratory analyses.

The 2022 exploration programme was planned to take part in two parts: The first part commenced on 22 March 2022, running until 9 June 2022. The second part of the 2022 exploration is planned to commence in September 2022, with a further 600m of drilling planned. The 2022 exploration programme is focused on the 3 – 5-year mining window ahead of the current workings in North Pit, South Pit and Zaaiwater. The drilling and analyses spend for 2022 year-to-date is R1.91 million.

Mining methods and infrastructure

Open-cut mining methods are utilised at Goedgevonden Coal Mine.

Coal Resources

Borehole data for the mine is captured into the Geobank database. Minex provides the geological and mine planning software solution for the mine. Two-dimensional resource models are generated with block sizes of 50 x 50 metres. All estimations of the individual blocks are done using inverse distance cubed with an isotropic search. Other software packages used in the evaluation are “Washproduct” and “Xpac”.

The Coal Resources declared have reasonable prospects for eventual economic extraction on consideration of the following:

- Location, quality, grade and geological continuity which are known and are supported by drilling information, which includes sampling
- Only coal in seams of specific thicknesses with coal qualities as specified under the Coal Resources table are declared as they meet customer requirements
- Mining and processing methods are well-established at the operation and are currently used to exploit the orebody
- All other factors such as legal, infrastructural, environmental, marketing, social and economic factors are covered as part of the mining plan for the operation.

Coal Reserves

Measured and Indicated Coal Resources are converted to Coal Reserves by applying the modifying factors such as mining losses, mining dilution, coal quality requirements, and seam thickness cut-offs. Details of these parameters are provided in the footnotes on the Coal Reserves tables.

The following tables show the Goedgevonden Coal Resources and Coal Reserves obtained from Glencore, reflecting the status as at **31 December 2021**. Coal Resources and Coal Reserves of the Glencore mines are the responsibility of the Glencore Coal Resources and Coal Reserves team.

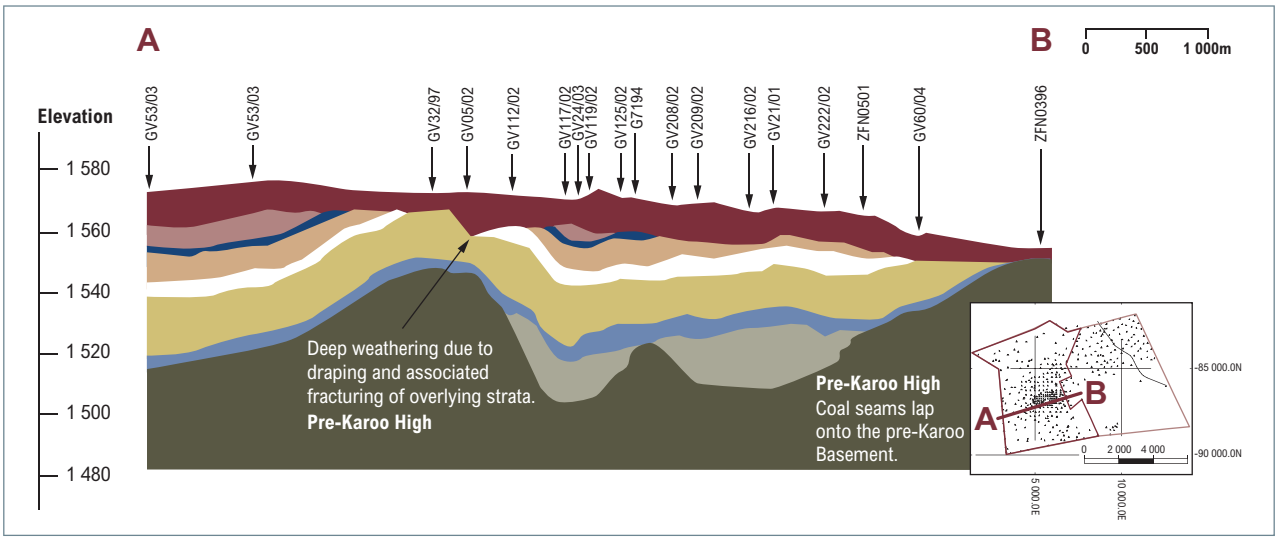
ARM Coal continued

Goedgevonden Coal Mine: Coal Resources estimates as at 31 December 2021^

		COAL RESOURCES			
Coal Resources are reported on a 100% basis*	**Coal type and qualities**	**Measured MTIS******	**Indicated MTIS**	**Total Measured and Indicated MTIS**	**Inferred MTIS**
Total 2022	**Thermal coal (Mt)**	**460**	**10**	**470**	
	CV (MJ/kg)	**19.76**	**18.28**	**19.73**	**16.72**
	Ash (%)	**32.47**	**34.67**	**32.52**	**40.91**
	VM (%)	**21.82**	**21.29**	**21.81**	**18.96**
	S (%)	**1.17**	**1.07**	**1.17**	**0.85**
Total 2021	Thermal coal (Mt)	480	7	487	1
	CV (MJ/kg)	19.76	18.28	19.74	16.72
	Ash (%)	32.47	34.67	32.50	40.91
	VM (%)	21.82	21.29	21.81	18.96
	S (%)	1.17	1.07	1.17	0.85

^ Glencore's financial year end is 31 December. Coal Resources and Coal Reserves figures reported by ARM for its financial year end are based on Glencore's December report.
Coal Resources are inclusive of those modified to produce Coal Reserves.
***** MTIS – Mineable tonnes in situ Coal Resources are now reported as per SAMREC Code, 2016 edition requirements.*
Mining method is open-cut.
CV – calorific value; VM – volatile matter; S – sulphur.
Totals are rounded off.
Key assumptions for Coal Resources:
Coal Resources qualities are reported on an air-dried moisture basis.
Geological loss: 6%.
Density ranges: 1.3 t/m³ to 1.8 t/m³.
Seam thickness cut-off: 1 metre (combined Seams 2 and 4); 0.5 metres (Seams 1 and 5).
Qualities cut-off: Ash: 50%; VM: 20%; S: 3%.
**** Goedgevonden Coal Mine attributable interests (ARM 26%; Glencore Operations 74%).***

Section showing Goedgevonden coal seams



Legend

Pre-Karoo basement | No 2 Seam | No 4 Seam | No 5 Seam | Weathered zone | Dwyka
2-4 Interburden | 4-5 Interburden | 5 Seam overburden

Goedgevonden Coal Mine: Coal Reserves estimates as at 31 December 2021^

Coal Reserves are reported on a 100% basis*	Coal type and qualities	COAL RESERVES (ROM) Proved	Probable	Total Reserves	Coal type and qualities	COAL RESERVES (Saleable) Proved	Probable	Total Reserves
Total 2022	**Thermal coal (Mt)**	**260**		**260**	**Thermal coal (Mt)**	**168**		**168**
	CV (MJ/kg)	**19.57**		**19.57**				
	Ash (%)	**33.73**		**33.73**	**HG export (Mt)**			**68**
	VM (%)	**20.71**		**20.71**	**Export CV (Kcal/kg)**			**6 000**
	S (%)	**1.03**		**1.03**	**LG export (Mt)**			**99**
					LG export CV (MJ/kg)			**21.50**
Total 2021	Thermal coal (Mt)	270		270	Thermal coal (Mt)	167		167
	CV (MJ/kg)	19.57		19.57				
	Ash (%)	33.73		33.73	Export (Mt)			71
	VM (%)	20.71		20.71	Export CV (Kcal/kg)			6 000
	S (%)	1.03		1.03	Domestic (Mt)			96
					Domestic CV (MJ/kg)			21.50

^ Glencore's financial year end is 31 December. Coal Resources and Coal Reserves figures reported by ARM for its financial year end are based on Glencore's December report.
Coal Reserves qualities are reported on an air-dried moisture basis.
Totals are rounded off.
Mining method is open-cut.
CV – calorific value; VM – volatile matter; S – sulphur.
Modifying factors for the conversion of coal Resources to coal Reserves include:
Plant yields: Export – 15%; Domestic – 37%.
Price used: Short-term – based on the API4; Long term – based on market-related long-term view and customer contracts. Exchange rate (R/US$): Market-related.
Seam thickness cut-off: 1 metre (combined Seams 2 and 4); 0.5 metres (Seam 5).
Qualities cut-off: Domestic: CV: 18 MJ/kg; Ash: 35%; VM: 20%; S: 1.5%. Export: All coal beneficiated.
Life-of-mine: 24 years.
**** Goedgevonden Coal Mine attributable interests (ARM 26%; Glencore Operations 74%).***

Goedgevonden Coal Mine.

ARM Coal continued

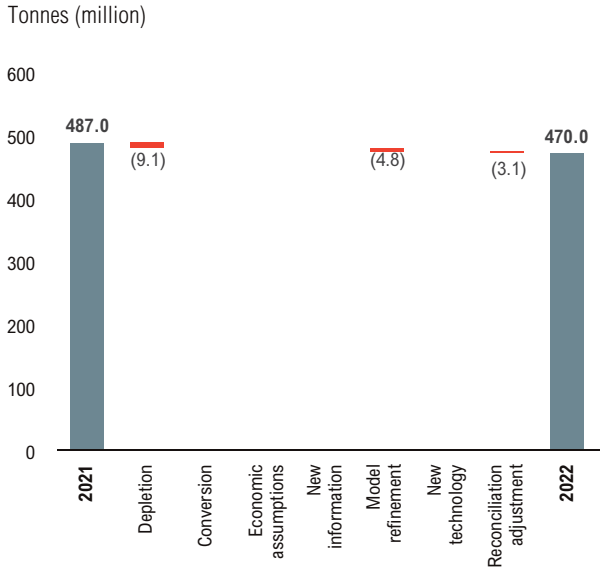
Goedgevonden year-on-year change

Coal Measured and Indicated Resources decreased to 470 million tonnes from 487 million tonnes due to depletion by mining was 9.1 million tonnes and changes related to a revision of the geological interpretation and the resource model limits. This caused a reclassification from Measured to Indicated Coal Resources resulting in a resource reduction of 4.8 million tonnes.

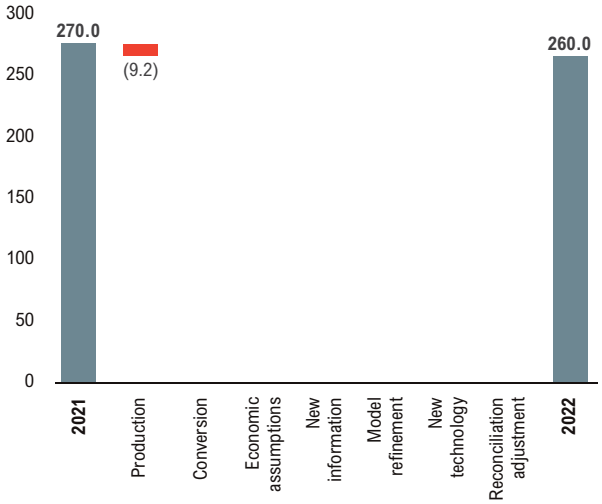
Coal Reserves depletion due to mining was 9.2 million tonnes. Changes in Coal Resource model based on infill drilling resulted in an increase in number 2 and 5 seams Coal Reserves of 1.3 million tonnes while a yield increase based on an adjustment to assumptions resulted in an increase of 6.1 million tonnes. These changes resulted in an overall reduction of Coal Reserves (ROM) from 270 million tonnes to 260 million tonnes.

Goedgevonden Coal Mine

Goedgevonden Mine year-on-year reconciliation Coal Resources*



Goedgevonden Mine year-on-year reconciliation Coal Reserves (ROM)



* *Coal Resources represent Measured and Indicated only.*

Historical production at Goedgevonden Coal Mine

Financial year	ROM Mt	Saleable Mt
2017/2018	9.6	6.0
2018/2019	11.4	7.0
2019/2020	10.9	6.8
2020/2021	9.2	5.8
2021/2022	**8.8**	**6.3**

IAR Additional information on production figures can be found in the ARM Coal operational review of the 2022 ARM integrated annual report which can be found at **www.arm.co.za**.

Harmony Gold

HARMONY GOLD MINING COMPANY LIMITED (HARMONY)

ARM owns 12.11% of Harmony's issued share capital. Harmony is separately run by its own management team. Mineral Resources and Mineral Reserves of the Harmony mines are the responsibility of the Harmony team and are published in Harmony's annual report.

Mponeng Mine.

Moab Khotsong Mine.

Reconciliation graphs – category definitions

Opening balance	as at 30 June 2022 unless otherwise stated.
Production (from Reserve model)	The amount of material (expressed in terms of tonnage and content) removed by planned mining from the Mineral Reserves, ie the areas actually mined during the reporting period, which are removed from the Mineral Reserve model as below.
Depletion (from Resource model)	The amount of material (expressed in terms of tonnage and content) removed by planned mining from the Mineral Resources, ie the areas actually mined during the reporting period, which are removed from the Mineral Resource model(s).
Conversion	The effect of applying updated "modifying factors" to Mineral Reserves and Mineral Resources which include the consideration of mining, metallurgical, processing, infrastructural, economic, marketing, legal environmental, social and governmental factors.
Economic assumptions	The effect of RPEEE assumptions.
New information	The effect of additional Mineral Resource definition information which initiates an update to the geological model(s) and results in an updated classified Mineral Resource model.
Model refinement	No additional drilling has been undertaken but the interpretation of the orebody has been refined or change as a result of new geological losses. These also include change in the mine design.
New technology	Changes to Mineral Resources or Mineral Reserves in response to the application of new or improved mining and/or processing methods.
Reconciliation adjustment	Changes which cannot be allocated to a defined category or an adjustment necessary to mitigate inaccurate production/depletion estimates. This is limited to a minimum.
Closing balance	as at 30 June 2022 unless otherwise stated.

Two Rivers Mine.

Glossary of terms

Abbreviations within the report

ARM	African Rainbow Minerals Limited
ASSMANG	Assmang Proprietary Limited
IAR	Integrated annual report
JSE	Johannesburg Stock Exchange
QAQC	Quality Assurance Quality Control
RPEEE	Reasonable prospects for eventual economic extraction
API4	Benchmark price reference for coal exported from South Africa's Richards Bay terminal
ICP-MS	Inductively coupled plasma mass spectrometry
OES	Optical emission spectrometry

Professional organisations

ECSA	Engineering Council of South Africa
GSSA	Geological Society of South Africa
IMSSA	The Institute of Mine Surveyors of South Africa
SACNASP	South African Council for Natural Scientific Professions
SAIMM	South African Institute of Mining and Metallurgy

Mass units

tonnes	metric system unit of mass equal to 1 000 kilograms
Mt	million tonne; metric system unit of mass equal to 1 000 000 metric tonnes
Moz	million troy ounces
MTIS	Mineable tonnes in situ, adjusted for geological losses

Grade units and other abbreviations

4E	The sum of platinum, palladium, rhodium and gold grades in grams per tonne (g/t)		
6E	The sum of platinum, palladium, rhodium, ruthenium, iridium and gold in grams per tonne (g/t)		
g/t	grams per tonne	**Al_2O_3**	Aluminium oxide
Pt	Platinum	**SiO_2**	Silica
Pd	Palladium	**BaO**	Barium oxide
Rh	Rhodium	**CaO**	Calcium oxide
Au	Gold	**K_2O**	Potassium oxide
Ru	Ruthenium	**NaO**	Sodium oxide
Ir	Iridium	**P**	Phosphorus
Cu	Copper	**% Fe**	weight percent iron
Co	Cobalt	**% Mn**	weight percent manganese
Ni	Nickel	**% Ni**	weight percent nickel
Mn	Manganese	**% Cu**	weight percent copper
Fe	Iron	**% Co**	weight percent cobalt
PGM	Platinum Group Metals	**CV**	Calorific value
Cr_2O_3	Chrome oxide	**kcal/kg**	kilocalories per kilogram
MgO	Magnesium oxide	**MJ/kg**	megajoules per kilogram
S	Sulphur		

Contact details

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A2X share code: ARI
ISIN: ZAE000054045

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FirstRand Bank Limited
The Standard Bank of South Africa Limited
Nedbank Limited

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MP Schmidt (chief executive officer)
F Abbott*
M Arnold**
TA Boardman*
AD Botha*
JA Chissano (Mozambican)*
WM Gule*
B Kennedy*
AK Maditsi*
J Magagula
TTA Mhlanga (finance director)
HL Mkatshana
PJ Mnisi*
DC Noko*
B Nqwababa*
Dr RV Simelane*
JC Steenkamp*

* *Independent non-executive.*
** *Non-executive.*

Forward-looking statements

Certain statements in this document constitute forward-looking statements that are neither reported financial results nor other historical information. They include statements that predict or indicate future earnings, savings, synergies, events, trends, plans or objectives. Such forward-looking statements may or may not take into account and may or may not be affected by known and unknown risks, uncertainties and other important factors that could cause actual results, performance or achievements of the company to be materially different from future results, performance or achievements expressed or implied by such forward-looking statements. Such risks, uncertainties and other important factors include: economic, business and political conditions in South Africa; decreases in the market price of commodities; hazards associated with underground and surface mining; labour disruptions; changes in government regulations, particularly environmental, health and safety and tax regulations; changes in exchange rates; currency devaluations; inflation and other macro-economic factors; electricity supply disruptions, constraints and cost increases; supply chain shortages and increases in the price of production inputs; the unavailability of mining and processing equipment or transportation infrastructure; the impact of the Covid-19 pandemic; and the impact of tuberculosis. The forward-looking statements apply only as of the date of publication of these pages. The company undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of publication of these pages or to reflect any unanticipated events.

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