EX-96.4 4 exhibit964sswkroondaltrs.htm EX-96.4

Exhibit 96.4

TECHNICAL REPORT SUMMARY ON THE MATERIAL ASSETS OF THE

KROONDAL OPERATIONS

Situated near Rustenburg, North West Province, South Africa

31 December 2021

Prepared by:

Qualified Persons from Sibanye-Stillwater, PGM Operations

COMMITMENT ACCOUNTABILITY RESPECT ENABLING SAFETY

Important Notices

Mineral Resources and Mineral Reserves are declared as attributable to Sibanye-Stillwater Ltd (registrant). Sibanye-Stillwater operates the Kroondal Operations and as such may accrue benefits in addition to the income from the attributable portions of the Mineral Reserves. For the purposes of *transparency and because it is not possible to accurately separate out the non-attributable interests in these models, the Life-of-Mine plan and financial analyses are given for the full Mineral Reserve.*

Wherever mention is made of "Kroondal Operations", for the purposes of this Technical Report Summary, Kroondal Operations refers to a 50 - 50 Pool and Share Agreement between Sibanye Stillwater and Anglo American Platinum to mine the Mineral Reserves under an exclusive agreement. Sibanye-Stillwater manages the operation.

In this document, a point is used as the decimal marker and the comma is used for the thousands separator (for numbers larger than 999) in the text. In other words, 10,148.32 denotes ten thousand one hundred and forty-eight point three two.

The word 'tonnes' denotes a metric tonne (1,000 kg). The abbreviation "lb" denotes the weight pounds in the sense understood in the USA.

The Platinum, Palladium, Rhodium and Gold **(4E)** prices are quoted in US dollars per troy ounce (USD/oz.) or South African Rand per kilogram (ZAR/kg).

6E denotes a basket of PGM's Platinum, Palladium, Rhodium, Gold, Iridium and Ruthenium.

Chrome refers to Chromium Oxide Cr_2O_3.

The **paylimit** (cm.g/t or g/t) of an operation is the average value or grade for that operation which includes all direct and indirect costs i.e., the value at which it is estimated that ore can be mined without profit or loss.

The **cut-off grade** (cm.g/t or g/t) of an operation is the minimum value or grade at which an area can be mined to maintain an average value in line with the paylimit. The cut-off is unique to the orebody being mined and is dependent on maintaining a mining mix that follows the orebody's value distribution.

NOTE: The Merensky and UG2 Reefs at the Kroondal Operations and the contiguous Sibanye-Stillwater owned Rustenburg Operations are single orebodies and are estimated as single geological units across the two properties. A portion of the Rustenburg Mineral Reserves will be accessed through the Kroondal Infrastructure and this tonnage is reflected in the Kroondal Life-of-Mine Schedule and financial model and not Rustenburg. However, Mineral Resources and Mineral Reserves are divided and reported within their respective mineral rights boundaries.

Trademarks. Certain software and methodologies may be proprietary. Where proprietary names are mentioned TM or © are omitted for readability.

This report contains statements of a forward-looking nature which are subject to a number of known and unknown risks, uncertainties and other factors that may cause the results to differ materially from those anticipated in this report.

we are one Sibanye Stillwater

Date and Signature Page

Qualified Persons	Position	Signature	Signature Date
Andrew Brown	Vice President: Mine Technical Services	/s/ Andrew Brown	14 April 2022
Manie Keyser	Senior Manager Mine Planning and Resource Management	/s/ Manie Keyser	14 April 2022
Nicole Wansbury	Unit Manager Geology Mineral Resources	Nicole Wansbury	14 April 2022
Brian Smith	Unit Manager Survey	/s/ Brian Smith	14 April 2022
Stephan Botes	Unit Manager – Surface and Mineral Rights	/s/ Stephan Botes	14 April 2022
Mandy Jubileus	Environmental Manager	/s/ Mandy Jubileus	14 April 2022
Dewald Cloete	SVP Processing	Dewald Cloete	14 April 2022

Roderick Mugovhani	SVP Finance	/s/ Roderick Mugovhani	14 April 2022

1 Executive Summary

1.1 Introduction

Sibanye-Stillwater is an independent international precious metals mining company with a diverse mineral asset portfolio comprising platinum group metals (PGMs) operations in the United States and Southern Africa, gold operations and projects in South Africa, and copper, gold and PGM exploration properties in North and South America. It is domiciled in South Africa and listed on both the Johannesburg Stock Exchange (JSE or JSE Limited) and New York Stock Exchange (NYSE). This Technical Report Summary (TRS) covers Kroondal Operations. The Kroondal Operations are managed by Sibanye-Stillwater under a 50 – 50 Pool and Share Agreement (PSA) with Anglo American Platinum (AAP). The Kroondal Operations fall under the PGM Operations of the Southern African Region of Sibanye Platinum Proprietary Limited, trading as Sibanye–Stillwater Group (Sibanye-Stillwater). The Kroondal Operations include shafts, processing facilities and associated infrastructure (the Material Assets) located in the North West Province, South Africa.

This report is the first Technical Report Summary for the Kroondal Operations and supports the disclosure of the Mineral Resource and Mineral Reserve as at 31 December 2021. The Mineral Resource and Mineral Reserve were prepared and reported according to the United States Securities and Exchange

Commission's (SEC's) Subpart 1300 of Regulation S-K.

There has been no material change to the information between the effective date and the signature date of the Report. The effective date of the Mineral Resource and Mineral Reserve is 31 December 2021 and the Report date is 14 April 2022.

1.2 Property Description, Mineral Rights and Ownership

The Kroondal Operations are ongoing, established mines and ore processing plants extracting the UG2 Reef to produce PGMs and base metals. These are in the North West Province, east of the towns of Rustenburg and Kroondal at latitude 25°42'S and longitude 27°20'E. Kroondal Operations are 123km west of Pretoria and 126km northwest of Johannesburg. The most direct routes to Kroondal Operations include the N4 (dual carriage tarred road) from Pretoria or the R512 (regional dual carriage tarred road) from Johannesburg, which intersects with the N4.

Kroondal Operations refer to a 50 - 50 Pool and Share Agreement between Sibanye-Stillwater and AAP to mine the Mineral Reserves under an exclusive agreement. Sibanye-Stillwater manages the operation.

Kroondal Operations have six Mining Rights ('MR') valid from 5 March 2012 to 4 March 2042 totalling approximately 8,148 hectares in the Magisterial Districts of Rustenburg in the North West Province.

There are no material legal proceedings in relation to the Kroondal Operations.

The Mining Rights referred to in this document are issued in terms of the Mineral and Petroleum Resources Development Act 28 of 2002 in South Africa. The principal terms and conditions are not materially different from other similar operations in South Africa.

1.3 Geology and Mineralisation

The Bushveld Complex is approximately 2,060 million years old and is a mafic to ultramafic rock sequence. The Rustenburg Layered Suite (RLS) is the world's largest known mafic igneous layered intrusion. The RLS contains about 80% of the world's known reserves of Platinum Group Metals (Crowson,2001 quoted in Cawthorn, 2010). In addition to PGM's, extensive deposits of iron, tin, chromium, titanium, vanadium, copper, nickel, and cobalt also occur. The Bushveld Complex extends approximately 450 km east to west and approximately 250 km north to south. It underlies an area of some 67,000km², spanning parts of Limpopo, North West, Gauteng, and Mpumalanga Provinces.

Interlayered in the Upper Critical Zone of the RLS, the Merensky and Upper Group No.2 Chromitite (UG2) Reefs are preserved as narrow tabular structures. The Kroondal Operations are situated on the western limb of the Bushveld Complex and produce the PGMs and associated Base Metals from the mining and processing of the UG2 Reef.

1.4 Exploration Status, Development, Operations and Mineral Resource Estimates

The discovery and development of the reefs in the Rustenburg area can be traced back to 1925. After intense exploration in the Rustenburg area, the first vertical shaft (West vertical) was commissioned in 1928. The Klipfontein Plant (Phase 1) was constructed in 1928.

The Kroondal Operations have been extensively evaluated by surface and underground exploration drilling, geophysical surveys (airborne magnetic), trenching and geological mapping over a period of more than 55 years. This intensive exploration has proven the extension of the Merensky and UG2 Reefs to the north-northeast.

Initial geological understanding of the area was developed from observations made from the surface and underground mapping, combined with exploration drill hole information and extrapolations of features observed in other platinum mines in the south-western Bushveld Complex. Current interpretations of the geological and structural framework applicable to the UG2 Reef have evolved as new and more detailed geological information and datasets were obtained.

There has been a significant decline in surface exploration drilling over the past five years with a limited amount of surface exploration conducted.

amount of surface exploration conducted.

The Mineral Resource estimation process used at the Kroondal Operations is based on surface and underground drill holes as well as underground channel samples.

The most fundamental control of the PGM mineralization is rock chemistry. PGMs are associated with thin (1-5m) chromitite layers and base metals sulphides. These layers are distinct and consistent over large distances.

The Mineral Resources declared are estimated based on the geological facies and constrained by appropriate geostatistical techniques, using Ordinary Kriging for areas with sufficient data and ID^2 (Inverse distance to the power of two) estimates for areas with limited data. The Mineral Resource classification follows geostatistical and geological guidelines. The Mineral Resources are declared inside the structural blocks and outside of the mined-out areas. All Mineral Resources reported are considered

to be of sufficient quality to justify a reasonable potential for potential economic extraction. The underlying grade control and reconciliation processes are considered appropriate. The facies and structural models that form the basis of this report have evolved.

The Mineral Resources are *in-situ* estimates of tonnage and grades reported at a minimum mining width of 200cm, with applicable mechanised bord and pillar mining methods as employed at the Operation.

Table 1: Attributable Mineral Resource Exclusive of Mineral Reserves as at 31 December 2021

Classification – 3PGE+AU	Tonnes (Mt)		4E Grade (g/t)		4E (Moz)		2021						
	Dec 21	Dec 20	Dec 21	Dec 20	Dec 21	Dec 20	Pt (g/t)	Pd (g/t)	Rh (g/t)	Au (g/t)	Pt (Moz)	Pd (Moz)	(M
Underground													
Measured (AI)	15.8	17.0	3.4	3.4	1.7	1.9	15.8	17.0	3.4	3.4	1.7	1.9	1

Classification	Tonnes (Mt) Dec 21	Tonnes (Mt) Dec 20	4E Grade (g/t) Dec 21	4E Grade (g/t) Dec 20	4E (Moz) Dec 21	4E (Moz) Dec 20	Pt (g/t)	Pd (g/t)	Rh (g/t)	Au (g/t)	Pt (Moz)	Pd (Moz)
Measured (AI)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Measured (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Indicated (AI)	4.8	4.7	3.8	3.8	0.6	0.6	4.8	4.7	3.8	3.8	0.6	0.6
Indicated (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Measured and Indicated	**20.5**	**21.8**	**3.5**	**3.5**	**2.3**	**2.4**	**20.5**	**21.8**	**3.5**	**3.5**	**2.3**	**2.4**
Inferred (AI)	2.5	2.5	3.0	3.0	0.2	0.2	2.5	2.5	3.0	3.0	0.2	0.2
Inferred (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**23.0**	**24.2**	**3.4**	**3.4**	**2.5**	**2.7**	**23.0**	**24.2**	**3.4**	**3.4**	**2.5**	**2.7**
Total (AI)	23.0	24.2	3.4	3.4	2.5	2.7	23.0	24.2	3.4	3.4	2.5	2.7
Total (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Tailings Facility												
Measured Open-pit[7]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Surface	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total Resource	**23.0**	**24.2**	**3.4**	**3.4**	**2.5**	**2.7**	**23.0**	**24.2**	**3.4**	**3.4**	**2.5**	**2.7**

1. Mineral Resources are not Mineral Reserves.
2. Mineral Resources have been reported in accordance with the classification criteria of Subpart 1300 of Regulation S-K.
3. Attributable Mineral Resources is 50.00% of the total Mineral Resource.
4. Mineral Resource is calculated on available blocks. Due to non-selective mining, no cut-off grade is applied.
5. AI = Above Infrastructure; BI = Below Infrastructure
6. Mineral Resources Reported after the removal of Geological losses.
7. Quantities and grades have been rounded to one decimal place; therefore minor computational errors may occur. Values<0.05Moz report as zer rounding.

Table 2: Attributable Mineral Resource Inclusive of Mineral Reserves as at 31 December 2021

Classification – 4E	Tonnes (Mt)		4E Grade (g/t)		4E (Moz)		2021					
	Dec 21	Dec 20	Dec 21	Dec 20	Dec 21	Dec 20	Pt (g/t)	Pd (g/t)	Rh (g/t)	Au (g/t)	Pt (Moz)	Pd (Moz)
Underground												
Measured (AI)	26.8	30.7	3.3	3.3	2.8	3.3	26.8	30.7	3.3	3.3	2.8	3.3
Measured (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Indicated (AI)	4.8	4.7	3.8	3.8	0.6	0.6	4.8	4.7	3.8	3.8	0.6	0.6
Indicated (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Measured and Indicated	**31.6**	**35.5**	**3.4**	**3.4**	**3.4**	**3.8**	**31.6**	**35.5**	**3.4**	**3.4**	**3.4**	**3.8**
Inferred (AI)	2.5	2.5	3.0	3.0	0.2	0.2	2.5	2.5	3.0	3.0	0.2	0.2
Inferred (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**34.0**	**37.9**	**3.3**	**3.3**	**3.7**	**4.1**	**34.0**	**37.9**	**3.3**	**3.3**	**3.7**	**4.1**
Total (AI)	34.0	37.9	3.3	3.3	3.7	4.1	34.0	37.9	3.3	3.3	3.7	4.1
Total (BI)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Open Cast												
Measured Open -Pit7	1.0	1.3	4.3	3.7	0.1	0.2	1.0	1.3	4.3	3.7	0.1	0.2
Total Surface	**1.0**	**1.3**	**4.3**	**3.7**	**0.1**	**0.2**	**1.0**	**1.3**	**4.3**	**3.7**	**0.1**	**0.2**
Total Resource	**35.0**	**39.3**	**3.4**	**3.3**	**3.8**	**4.2**	**35.0**	**39.3**	**3.4**	**3.3**	**3.8**	**4.2**

1. Mineral Resources are not Mineral Reserves.
2. Mineral Resources have been reported in accordance with the classification criteria of Subpart 1300 of Regulation S-K.
3. Attributable Mineral Resources is 50.00% of the total Mineral Resource.
4. Mineral Resource is calculated on available blocks. Due to non-selective mining, no cut-off grade is applied.
5. AI = Above Infrastructure; BI = Below Infrastructure
6. Mineral Resources Reported after the removal of Geological losses.
7. Quantities and grades have been rounded to one decimal place; therefore minor computational errors may occur. Values<0.05Moz report as zer rounding.

1.5 Mining Methods, Ore Processing, Infrastructure and Mineral Reserves

Kroondal Operations are large, established shallow level mechanised PGM mines in the Bushveld Complex accessed from surface utilizing decline systems. There are five access tunnels with the same decline systems. The mining method applied at all Kroondal Operations is mechanised bord and pillar. There are however a few sections where handheld drill and blast operations take place.

All the permanent infrastructure required to access and mine is already established and in use. Detailed LoM plans for every shaft complex at Kroondal support the Mineral Reserve presented in Table 3

All mine designs, as well as strategic planning and major design issues, such as shaft pillar extraction, are done in conjunction with input from qualified rock engineers. The mining methods employed are designed based on geotechnical engineering inputs bearing in mind the mining width, depth of mining and geology. Mine design is done in line with the mine and stability pillar design applicable to the area. Payability, stability pillars and geological features determine the extraction ratio, which will vary with depth across the mine.

The LoM production plans for Kroondal Operations were developed through a Mineral Resource to Mineral Reserve conversion process that utilised dilution factors and mining (stoping and development) parameters as well as other modifying factors, informed by historical reconciliation results and performance. The use of factors aligned to historical performance enhances the likely achievability of the plans.

Economic viability testing of the LoM plans demonstrated that extraction of the scheduled Indicated and Measured Mineral Resources is economically justified, and the declaration of Mineral Reserves is appropriate.

All fresh ore from the Kroondal shafts are delivered to a dense media separation (DMS) plant which is designed to remove excess waste material through a density flotation process, before being treated by the mineral processing facilities at the Kroondal Operations, which are located at two sites, K1 concentrator adjacent to Kopaneng shaft and K2, adjacent to Bambanani shaft. Both mineral processing plants are operated and maintained under contract by Minopex, a contract processing firm. K1 Plant was commissioned in October 1999 and K2 was commissioned in April 2005. Both plants are still in good condition. As the production profile declines, the plant will be scaled down in line with the expected fresh ore supply.

There is adequate storage capacity for the tailings resulting from ore processing at the processing facility, and the Tailings Storage Facilities are in good condition.

Table 3: Attributable Mineral Reserve as at 31 December 2021

							2021					
Classification - 4E PGM	Tonnes (Mt)		4E Grade (g/t)		4E PGM (Moz)		Pt	Pd	Rh	Au	Pt	Pd
	Dec 21	Dec 20	Dec 21	Dec 20	Dec 21	Dec 20	(g/t)	(g/t)	(g/t)	(g/t)	(Moz)	(Moz)
Underground												
Proved	9.6	12.0	2.5	2.6	0.8	1.0	1.5	0.8	0.3	0.0	0.5	0.2
Probable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**9.6**	**12.0**	**2.5**	**2.6**	**0.8**	**1.0**	**1.5**	**0.8**	**0.3**	**0.0**	**0.5**	**0.2**
Surface Stockpiles												
Proved Open-pit	0.8	0.8	3.3	3.3	0.1	0.1	1.9	1.0	0.3	0.0	0.1	0.0
Probable Open-pit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Surface	**0.8**	**0.8**	**3.3**	**3.3**	**0.1**	**0.1**	**1.9**	**1.0**	**0.3**	**0.0**	**0.1**	**0.0**
Total Proved	10.4	12.9	2.6	2.6	0.9	1.1	1.5	0.8	0.3	0.0	0.5	0.3
Total Probable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Reserve	**10.4**	**12.9**	**2.6**	**2.6**	**0.9**	**1.1**	**1.5**	**0.8**	**0.3**	**0.0**	**0.5**	**0.3**

1. Mineral Reserve was reported in accordance with the classification criteria of Regulation S-K 1300.
2. Mineral Reserve was estimated on all available blocks and no cut-off grade was applied.
3. Attributable Mineral Reserve is 50.00%.
4. Where Au grade is less than 0.05g/t the value will reflect as zero(0) in the table
5. Values<0.05Moz report as zero due to rounding.
6. Mineral Reserves are estimated using the prices in Section 16.4.
7. The average recovery factor for the UG2 is 83%.

1.6 Capital and Operating Cost Estimates and Economic Analysis

The LoM plans for Kroondal provide for appropriate Capital Expenditure budgets to cater for the sustainability of the operation. Sustaining capital costs are benchmarked to historical Capital Expenditure. The forecast Operating Costs included in the LoM plans are based on historical experience at the operations and a price risk of +/- 10% of the Basket price. All Capital Expenditure and Operating Cost estimates have been estimated to a maximum of +/-20% accuracy. Contingency for Operating Costs is 4%.

The budgeted Capital Expenditure and Operating Costs forecast metal prices and other economic assumptions utilised for economic viability testing of the LoM plans are reasonable. The post-tax flows for Kroondal derive the Discounted cash-flow (DCF), which results in the Net Present Values (NPVs)of the LoM plan contained in Table 4 at Discount Rate as at 31 December 2021, of 5%. The table also indicates the sensitivity of the NPV to the long-term 4E PGM commodity price.

Table 4: NPV (Post-tax) Relative to ZAR/4Eoz PGM Basket Prices at 5% Discount Rate

Long Term Price (ZAR/4Eoz) (ZARm)	Sensitivity Range						
	-20%	-10%	-5%	29,746	5%	10%	20%
NPV@ the base case Discount Rate 5% (ZARm)	4,746	11,145	14,344	17,543	20,742	23,941	30,340

Table 5 shows two-variable sensitivity analysis of the NPV Post-Tax to variance in Capital costs at the 5% Discount Rate.

Table 6 shows two-variable sensitivity analysis of the NPV Post-Tax to variance in Revenue and in Operating cost at the 5% Discount Rate. This demonstrates sensitivity to the increase in operating costs and the leverage potential to higher 4E PGM prices.

Table 5: Twin Parameter NPV (Post-Tax) Sensitivity at 5% Discount Rate (Capital Costs)

Post-Tax NPV@5% (ZARm)		Revenue Sensitivity Range						
		-20%	-10%	-5%	0%	5%	10%	20%
Total Capital Cost Sensitivity Range	-20%	4,999	11,398	14,597	17,796	20,996	24,195	30,593
	-10%	4,873	11,271	14,470	17,670	20,869	24,068	30,466
	-5%	4,809	11,208	14,407	17,606	20,806	24,005	30,403
	0%	4,746	11,145	14,344	17,543	20,742	23,941	30,340
	5%	4,683	11,081	14,280	17,480	20,679	23,878	30,276
	10%	4,619	11,018	14,217	17,416	20,615	23,815	30,213
	20%	4,493	10,891	14,090	17,290	20,489	23,688	30,086

Table 6: Twin Parameter NPV (Post-Tax) Sensitivity at 5% Discount Rate (Revenue, Operating Costs)

Post-Tax NPV@5% (ZARm)		Revenue Sensitivity Range						
		-20%	-10%	-5%	0%	5%	10%	20%
Total Operating Cost Sensitivity Range	-20%	12,483	18,881	22,081	25,280	28,479	31,678	38,077
	-10%	8,615	15,013	18,212	21,411	24,611	27,810	34,208
	-5%	6,680	13,079	16,278	19,477	22,676	25,876	32,274
	0%	4,746	11,145	14,344	17,543	20,742	23,941	30,340
	5%	2,812	9,210	12,409	15,609	18,808	22,007	28,406
	10%	878	7,276	10,475	13,674	16,874	20,073	26,471
	20%	(2,991)	3,408	6,607	9,806	13,005	16,204	22,603

While the profitability of the entire operation is tested on a total cost basis, the point at which each individual shaft closure is determined, is after direct operational cost. As soon as a shaft does not contribute to its own mining and operational cost, it is closed. The direct allocated costs include the overheads specific to the operation while indirect allocated costs refer to those items which belong to the entire group, and which are allocated back to each operation based on a formula.

1.7 Permitting Requirements

The Kroondal Operations have all the necessary rights and approvals in place to operate, e.g., mining, processing, TSFs, and ancillary facilities associated with the operations.

Any permit and license infringements are corrected as they occur, and environmental impacts are managed in close consultation with the appropriate departments. The operator's tenure to operate on these premises is secure for the foreseeable future unless terminated by regulatory authorities for legally justified reasons. Furthermore, based on the assessment of the current permits, technical submittals, regulatory requirements and compliance history, continued acquisition of permit approvals should be possible and there is a low risk of rejections of permit applications by the regulator for the foreseeable future.

1.8 Conclusions and Recommendations

The Qualified Persons have conducted a comprehensive review and assessment of all material issues likely to influence the future activities of Kroondal Operations based on information available up to 31 December 2021.

There is a comprehensive Risk Register that is reviewed quarterly. All the risks have detailed mitigation plans designed to reduce the risk to a manageable level. The Qualified Persons could not identify any unmanaged material risks that would affect the Mineral Resources and Mineral Reserves reported for Kroondal Operations.

The views expressed in this report were based on the fundamental assumption that the required management resources and proactive management skills will be focused on meeting the LoM plans and production targets.

There are no recommendations for additional work or changes.

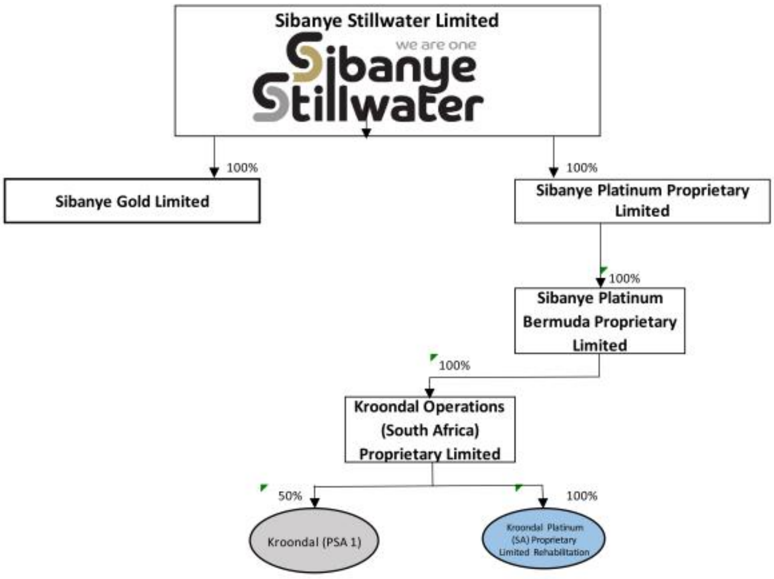
2 Introduction

2.1 Registrant

Sibanye-Stillwater Limited is an independent international precious metals mining company with a diverse mineral asset portfolio comprising platinum group metal (PGM) operations in the United States and Southern Africa, gold operations and projects in South Africa, and copper, gold and PGM exploration properties in North and South America. It is domiciled in South Africa and listed on both the Johannesburg Stock Exchange (JSE or JSE Limited) and New York Stock Exchange (NYSE). This Technical Report Summary covers Kroondal Operations. The Kroondal Operations are managed by Sibanye-Stillwater under a 50 – 50 Pool and Share Agreement (PSA) with Anglo American Platinum(AAP). The Kroondal Operations fall under the PGM Operations of the Southern African Region of Sibanye Platinum Proprietary Limited, which is a wholly-owned subsidiary of Sibanye–Stillwater Group (Sibanye-Stillwater) (Figure 1).

The Kroondal Operations include shafts, processing facilities and associated infrastructure (the Material Assets) located in the North West Province, South Africa.

Figure 1: Ownership and Company Structure for the Kroondal Operations



2.2 Compliance

Sibanye-Stillwater is listed on the NYSE (Code SBSW) and JSE (Code SSW). Mineral Resources and Mineral Reserves contained in this Technical Report Summary were compiled and reported following the United

States Securities and Exchange Commission's (SEC's) Subpart 1300 of Regulation S-K.

2.3 Terms of Reference and Purpose of the Technical Report Summary

This Technical Report Summary reports the Mineral Resources and Mineral Reserves for Sibanye-Stillwater's Kroondal Operations as at 31 December 2021. The Kroondal Operations are an ongoing, established mine extracting platinum group metals (PGM) from the Upper Group No. 2 Chromitite Seam (UG2 Reef) of the Bushveld Complex. It also extracts chrome and base metals (Ni and Cu) as a by-product. The ore produced is processed onsite and produces concentrate. The concentrate is further beneficiated by AAP, a refinery in Rustenburg.

This report is the first Technical Report Summary for the Sibanye-Stillwater Kroondal Operations prepared under the SEC's Subpart 1300 of Regulation S-K disclosure requirements.

The PGM-rich layers mined are well known from extensive mining which has taken place, at Rustenburg and the greater Bushveld Complex, over the last 90 years. The Mineral Resource for Kroondal Operations contained in this Technical Report Summary is estimated from the extensive surface and underground drill hole database and signed-off by internal Qualified Persons (QPs). These Mineral Resources are the basis for the Mineral Reserve estimates reported for the operation. Furthermore, the Mineral Reserve estimates are based on detailed Life of Mine (LoM) plans and technical studies (at least to a Prefeasibility Study level) completed internally by Sibanye-Stillwater personnel utilizing modifying factors and Capital and Operating Costs informed by the historical performance at the operations.

This Technical Report Summary was compiled by in-house QPs for Mineral Resources and Mineral Reserves appointed by Sibanye-Stillwater (Table 7). The QPs are Technical Experts/Specialists registered with professional bodies that have enforceable codes of conduct. A list of the QPs, their role, Qualifications and sections which they have prepared is given in Table 7.

Table 7: Details of QPs Appointed by Sibanye-Stillwater

Name	Position	Area of Responsibility	Academic and Professional Qualifications	Section Sign-off
Andrew Brown	Vice President: Mine Technical Services	Qualified Person, Mineral Resources and Mineral Reserves – SA PGM Operations	MSc Mining Engineering; FSANIRE F037 MSAIMM 705060	1-6, 15
Manie Keyser	Senior Manager Mine Planning and Resource Management	Qualified Person, Mineral Resources and Mineral Reserves – SA PGM Operations	MEng Mining Engineering, GDE, NHD MRM, ND Survey SACNASP 400284/06	13,16, 17.1-17.4, , 20-25
Nicole Wansbury	Unit Manager Geology Mineral Resources	Qualified Person Mineral Resources – SA PGM Operations	MSc Geology SACNASP 400060/11 GSSA No 965108	1.4,7-11
Brian Smith	Unit Manager Survey	Qualified Person Mineral Reserves – SA PGM Operations	MEng MRM SAGC GPr MS 0218	1.5, 12
	Unit Manager – Surface		LLB, LLM, Postgraduate Certificate in Prospecting and Mining	

Stephan Botes	Unit Manager – Surface and Mineral Rights	Mineral Title	Prospecting and Mining Law, Postgraduate Certificate in Company Law I, Admitted Attorney of the High Court of RSA	1.7, 3.2,3.4
Mandy Jubileus	Environmental Manager	SA PGM Environmental Compliance	MSc Environmental Management and Sciences , SACNASP 118956, SAATCA ISO14001 Lead Auditor E2167	17.5
Dewald Cloete	SVP Processing	Mineral Processing	ND , NHD Extractive Metallurgy, HD0968 SAIMM	14
Roderick Mugovhani	SVP Finance	Financial Evaluation	B,Comm Accounting, Post Graduate Diploma in Acc Education, MBA, Executive Management Programme, Certified Professional Accountant(SA. Management Development Programme (MDP)	1.6, 18, 19
SAIMM - South African Institute of Mining and Metallurgy **SACNASP – South Africa Council for Natural Scientific Professions** **SAGC – South African Geomatics Council** **GSSA – Geological Society of South Africa** **SAATCA – South African Auditor and Training Certification Authority**				

2.4 Sources of Information

Sibanye-Stillwater Kroondal Operations and Sibanye-Stillwater (the registrant) provided most of the technical information utilised to prepare this report. This information is contained in various technical studies undertaken in support of the current and planned operations, historical geological work and production performance at the Kroondal Operations and forecast economic parameters and assumptions. Other supplementary information was sourced from the public domain and these sources are acknowledged in the body of the report and listed in the References Section (Section 25).

2.5 Site Inspection by QPs

The QPs for Mineral Resources and Mineral Reserves who authored this Technical Report Summary and the supporting Technical Experts/Specialists are all employees of Sibanye-Stillwater working at the Kroondal Operations. By virtue of their employment, the QPs visit the Kroondal Operations regularly while carrying out their normal duties.

2.6 Units, Currencies and Survey Coordinate System

In the Republic of South Africa (RSA), metric units are used for all measurements and, therefore, the reporting of quantities is in metric units unless otherwise stated.

All the metal prices and costs are quoted in US Dollars (USD) or South Africa Rand (ZAR). An exchange rate of 15.00ZAR/USD is used in this document.

The coordinate system employed for most of the surface and underground surveys and maps shown in this report is based on the Gauss Conform Projection (UTM), Hartebeeshoek 94 Datum, Ellipsoid WGS84, Central Meridian WG27 (Y +0; X+2,800,000). Some regional-scale maps in this report may be referenced with Latitude and Longitude coordinates for ease of reading.

Units of measurement used in this report are described in Table 8.

Table 8: Units Definitions

Units	Description
cm	centimetre(s)

g	gram(s), measure of mass
g/cm^3	density - grams per cubic centimetre
g/t	grade grams per tonne
ha	hectares = 100m x 100m
kg	kilograms = 1000 grams, measure of mass
km	kilometre(s) = 1000 metres
km^2	square kilometres, measure of area
Koz/kozt	kilo ounces= 1000 ounces (troy)
kt	kilotonnes
ktpm	kilotonnes per month

Units	Description
litre	Metric unit of volume = 1000cm3
m	metre(s)
m^2	square metres
m^3/a	cubic metres per annum
mamsl	elevation metres above mean seal level
metre	metric unit of distance
mm	millimetre(s) = metre/1000
Moz	Million ounces (troy), measure of weight
Mt	Million metric tonnes
Mtpa	Million tonnes per annum
MVA	Million Volt-Amps(Watts)
MW	Megawatts
oz	Troy ounces = 31.1034768 grams
ppb	parts per billion
ppm	parts per million (grams/metric tonne)
sec	second
t	metric tonne = 1000 kilograms = 1.10231131 short ton
tonnes	metric tonnes = 1000 kilograms = 1.10231131 short ton
USD	United States Dollars
4Eoz	troy ounces of Platinum, Palladium, Rhodium and Gold combined.
lb	pound USA = measure of weight
WGS84	World Geographic System 1984- map projection system
wt%	weight percent
ZAR	South African Rand
ZARm	Million Rand

2.7 Reliance on Information Provided by Other Experts

The QPs for Mineral Resources and Mineral Reserves have sought input from in-house Technical Experts/Specialists on aspects of the modifying factors for the disciplines outside their expertise. Kroondal is a large operation, and it is not possible for any one person to have the required expertise to comment on all aspects of the operation and inputs to the Mineral Resources and Mineral Reserves. Kroondal and Sibanye-Stillwater employ a large team of Technical Experts and Services Specialists. The QPs consider it reasonable to rely upon the information provided by these experts by virtue of their role in the

company. A list of the in-house Technical Experts/Experts and their areas of competency are summarized in Table 9.

Table 9: Technical Experts/Specialists Supporting the QPs

Name	Position	Area of Competency	Academic Qualifications

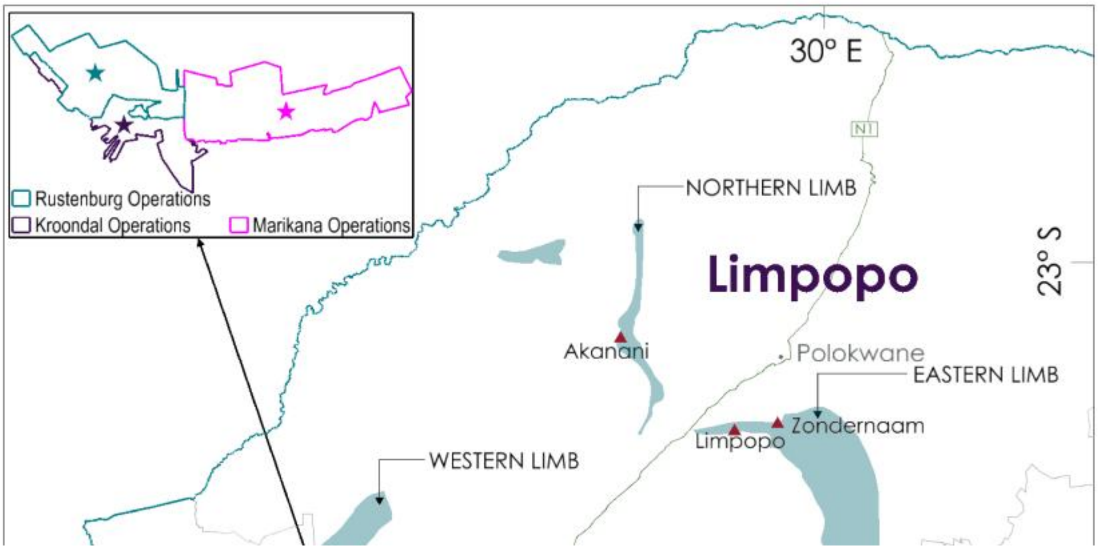
R Craill	Vice President: Engineering	Infrastructure	B. Eng Mechanical. Pr Eng
R Cooper	Vice President Tailings Engineering	Tailings	BSc Civil Engineering, GDE (Civil), Pr Eng
S Durapraj	Manager: Rock Engineering	Rock Engineering	B.A, MSc Mining Engineering, MSANIRE, AREC, COMRMC
L Koorsse	Unit Manager Survey	Survey, Reporting and Historical Mining Factors	MSCC, NHD MRM, ND Survey IMSSA PMS0134
G Mackenzie	Manager: Human Resources	Human Resources Management	Nat Dipl. HRM. Adv. IR
E Malherbe	Superintendent Geology	Mineral Resource Estimation	BSc (Hons) (Geology) SACNASP 400131/08
T Naude	Unit Manager: Environment	Rehabilitation and closure costs	BA Geography and Environmental Studies
M Neveling	Senior Manager: Health and Safety	Safety	MO COC, MMDP, Ncert Safety
H Olivier	Manager Asset Management	Equipment	B. Eng. Mechanical (Hons), GCC: Mines & Works (5999)
K Pillay	EVP: Sales and Marketing	Metal sales and Marketing	BSc Eng (Chem), MSc Eng (Chem), MBA.
T Phumo	Executive Vice President (EVP): Stakeholder Relations (SA)	Social and Labour	BA Hons (Corp Comm), APR Diploma Project Management
S Swanepoel	Manager Occupational Hygiene and Ventilation	Occupational Hygiene, Ventilation	BSc (Hons), MSc, MEC, NDSM, SAIOH (0309)

3 Property Description

3.1 Location and Operations Overview

The Kroondal Operations are located in the North West Province, east of the towns of Rustenburg and Kroondal at latitude 25°42'S and longitude 27°20'E. Kroondal Operations are 123 km west of Pretoria and 126 km northwest of Johannesburg (Figure 2).

Figure 2: General Location of the Material Assets



Rustenburg town is surrounded by agricultural land. The Kroondal Operations are situated to the southeast of Rustenburg town. Various mines owned by Impala Platinum, Glencore and Royal Bafokeng are also located in and around Rustenburg. Refer to Figure 3 for maps providing additional location details of the Kroondal Operations.

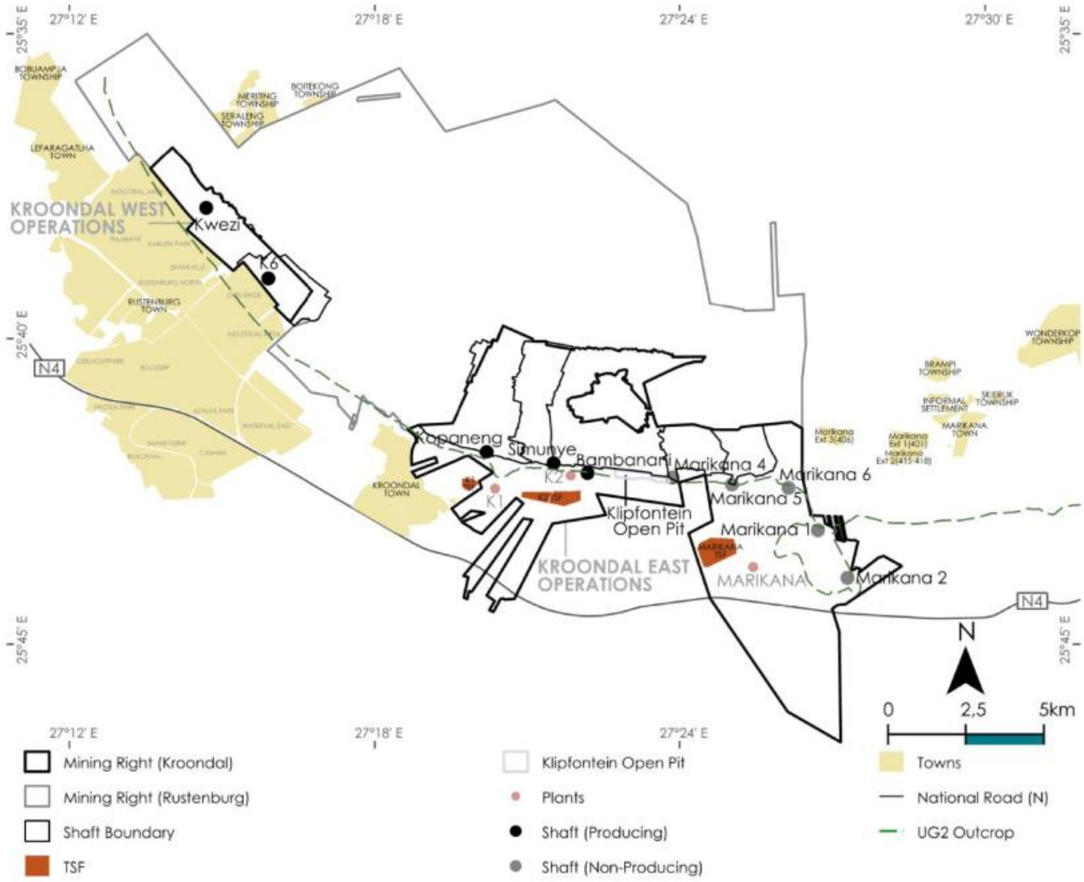
The Kroondal Operations include shafts Figure 3, integrated processing facilities (Figure 4) and associated infrastructure (the "Material Assets") located in the Northwest Province, South Africa. This TRS for the Kroondal Operations reports the Mineral Resources and Mineral Reserves as at 31 December 2020.

Kroondal Operations include

- Mining units utilising five operating shafts and an open-pit operation:
  - Kwezi Shaft and K6 Shaft (Kroondal West),
  - Simunye Shaft, Bambanani Shaft and Kopaneng Shaft (Kroondal East), and
  - An open-pit operation – Klipfontein, adjacent to the Kroondal East complex.
- Two Mineral Processing Plants:
  - K1 Plant and
  - K2 Plant.
- Other infrastructure is necessary for the production of saleable products and for compliance with environmental, health, safety, and social laws and regulations.

The Mineral Resource is accessed from the surface using decline systems and bord and pillar mining method. The average mining depths at Kwezi and K6 Shafts are 300m and 250m below surface, respectively. At Simunye Shaft, the lowest mining level is currently 550 m below surface and at Bambanani Shaft, the current lowest mining level is 450 m below surface, whilst at Kopaneng Shaft, it is 500 m below surface. The location of the shafts is shown in Figure 3.

Figure 3: Kroondal Operations



3.2 Mineral Title

The Mining and Prospecting rights referred to in this document are issued in terms of the Mineral and Petroleum Resources Development Act 28 of 2002 in South Africa. The principal terms and conditions are not materially different to other similar rights within South Africa. Mining Rights for the Kroondal Operations are held by Rustenburg Platinum Mines Ltd and Kroondal Operations (Pty) Ltd, as shown in

Table 10.

The Mining Rights held by Kroondal Operations (Pty) Ltd and Rustenburg Platinum Mines Ltd authorizes Kroondal to mine Platinum Group Metals and, in the case of NW30/5/1/2/2/113 MR, Chrome, Copper, Nickel and Gold in addition to PGM's. A summary of the Mining Rights for Kroondal is given in Table 10.

A list of farms comprising the Mineral Rights is given in Table 11. Surface rights have various owners. The Kroondal Operations have sufficient rights and access to land to conduct operations.

The details of the Mining Rights are in Figure 4.

Kroondal Operations (Pty) Ltd holds one New Order Mining Right and 4 Converted Mining Rights in terms of the provisions of the MPRDA, whereas Rustenburg Platinum Mines Ltd is the holder of one converted Mining Right. Each of the rights has its own commencement and expiry dates (Table 10).

Table 10: Kroondal Mining Right Status

Right Holder	Right Number/s	Size (ha)	Minerals	Key Permit Conditions	Expiry date	Future Requirements	Future Intentions
Kroondal Operations (Pty) Ltd	NW30/5/1/2/2/104MR	1,722.20	PGMs	See the summary of permit conditions, general EMP regulatory reporting requirements and SLP regulatory reporting requirements.	06-Oct-22	Renewal application to be submitted.	To apply for a renewal of the MR.
Kroondal Operations (Pty) Ltd	NW30/5/1/2/2/113MR	2,508.00	PGMs, (Gold, Nickel, Copper, Chrome in UG2)	See the summary of permit conditions, general EMP regulatory reporting requirements and SLP regulatory reporting requirements.	06-Oct-22	Renewal application to be submitted.	To apply for a renewal of the MR.
Kroondal Operations (Pty) Ltd	NW30/5/1/2/2/368MR	265.92		See the summary of permit conditions, general EMP regulatory reporting requirements	04-Mar-42	Submit application in terms of section 102 for ministerial consent to	To include area into a single consolidated mining right

			PGMs	and SLP regulatory reporting requirements.		incorporate the area into SRPM Mining Right.	together with the rest of the Kroondal MRs and SRPM MR

Right Holder	Right Number/s	Size (ha)	Minerals	Key Permit Conditions	Expiry date	Future Requirements	Future Intentions
Kroondal Operations (Pty) Ltd	NW30/5/1/2/2/369MR	409.21	PGMs	See the summary of permit conditions, general EMP regulatory reporting requirements and SLP regulatory reporting requirements.	04-Mar-42	Submit application in terms of section 102 for consent to incorporate area into SRPM Mining Right.	To include area into a single consolidated mining right together with the rest of the Kroondal MRs and SRPM MR.
Kroondal Operations (Pty) Ltd	NW30/5/1/2/2/370MR	32.55	PGMs	See the summary of permit conditions, general EMP regulatory reporting requirements and SLP regulatory reporting requirements.	11-Mar-42	Submit application in terms of section 102 for consent to incorporate area into SRPM Mining Right.	To combine into a bigger mining right with the rest of the Kroondal MRs and SRPM
Rustenburg Platinum Mines (Anglo owned) PSA Mining Area	NW30/5/1/2/2/80 MR	3,212.93	PGMs and associated minerals	See the summary of permit conditions, general EMP regulatory reporting requirements and SLP regulatory reporting requirements.	28-Jul-40	Is there any outstanding regulatory aspects that need to be addressed in relation to the right. For example: outstanding applications at the DMRE, registration of amendments at the MPTRO, amendment of EA's, water use licenses etc.	

Key permit conditions are given below;

1. Mining right renewal applications to be submitted 60 working days prior to the date of expiry of the right.
2. Holder of MR must continue with mining operations, failing which the right may be suspended or cancelled.
3. The terms of the right may not be varied or amended without the consent of the Minister of Mineral Resources and Energy.
4. The Holder shall be entitled to abandon or relinquish the right or the area covered by the right entirely or in part. Upon abandonment or relinquishment, the Holder must:
    - 4.1. Furnish the Regional Manager with all prospecting and/or mining results and/or information, as well as the general evaluation of the geological, geophysical and borehole data in respect of such abandoned area; and
    - 4.2. Apply for a closure certificate in terms of section 43(3) of the MPRDA.
5. The holder shall pay royalties to the State in accordance with section 25(2)g of the MPRDA throughout the duration of the mining right.
6. Mining Operations must be conducted in accordance with the Mining Work Programme and any amendment to the MWP and an approved EMP.
7. The holder shall not trespass or enter into any homestead, house or its curtilage nor interfere with or prejudice the interests of the occupiers and/or owners of the surface of the Mining Area except to the extent to which such interference or prejudice is necessary for the purposes of t enabling the Holder to properly exercise the Holder's rights under the mining right.
8. The holder must dispose of all minerals derived from mining at competitive market prices which shall mean in all cases, non-discriminatory prices or non-export parity prices.
9. A shareholding, an equity, an interest or participation in the mining right or joint venture, or a controlling interest in a company/JV may not be encumbered, ceded, transferred, mortgaged, let, sublet, assigned, alienated or otherwise disposed of without the written consent of the Minister, except in the case of a change of controlling interest in listed companies.
10. All boreholes, shafts, adits, excavations and openings created by the holder shall be sealed, closed, fenced and made safe in accordance with the approved Environmental Management Programme and the Mine Health and Safety Act.
11. The holder of the mining right, while carrying out mining operations should safeguard and protect the environment, the mining area and any person using to entitled to use the surface of the mining area for possible damage or injury.

12. The Minister or a person authorized by the Minister shall be entitled to inspect the Mining Area and the execution of the approved mining right conditions.
13. A mining right may be cancelled or suspended subject to S47 of the MPRDA if the holder:
    - 13.1. Submits inaccurate, incorrect and/or misleading information in connection with any

matter required to be submitted under this Act;

13.2. Fails to honour or carry out any agreement, arrangement or undertaking, including the undertaking made by the Holder in terms of the Broad-Based Socio-Economic Empowerment Charter and Social and Labour Plan;

13.3. Breaches any material term and condition of the mining right;

13.4. Conducts mining in contravention of the MPRDA;

13.5. Contravenes the requirements of the approved Environmental Management Programme;

13.6. Contravenes any provisions of this Act in any other manner.

14. The holder shall submit monthly returns contemplated in S 28 (2) A of the MPRDA no later than the 15th of every month and maintain all such books, plans and records in regard to mining on the mining area as may be required by the Act.
15. The Holder shall, at the end of each year, following commencement of this mining right, inform the Regional Manager in writing of any new developments and of the future mining activities planned in connection with the exploitation/mining of the minerals in the mining area.
16. Provisions relating to section 2(d) and section 2(f) of the MPRDA, relating to the Broad-Based Socio-Economic Empowerment Charter, differs in each mining right.
17. The Mining right does not exempt the holder from complying with the MHSA or any Act in South Africa.
18. Annually, no later than three months before financial year end, submit a detailed implementation plan to give effect to Regulation 46(e)(i), (ii) and (iii) in line with the Social and Labour Plan.
19. Annually, no later than three months after the finalization of its audited annual report submit a detailed report on the implementation previous year's SLP.

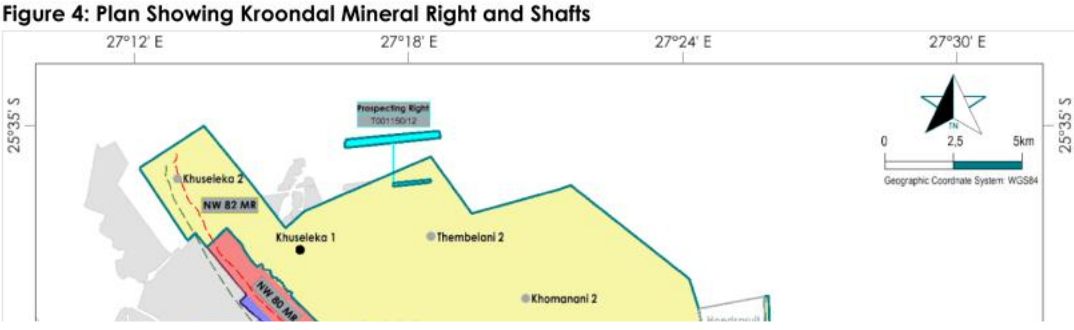
SLP COMPLIANCE REQUIREMENTS

20. New Social and Labour Plan to be submitted and reviewed every 5 years.
21. Social and Labour Plan Implementation Plans to be submitted annually.
22. Social and Labour Plan Annual Report to be submitted annually.

ENVIRONMENTAL MANAGEMENT COMPLIANCE REQUIREMENTS

23. Performance assessment relating to Environmental Management Programme to be conducted Bi-annually.
24. Performance assessment relating to Water Use License to be conducted annually.
25. Performance assessment relating to Atmospheric Emission License to be conducted annually.

Figure 4: Plan Showing Kroondal Mineral Right and Shafts



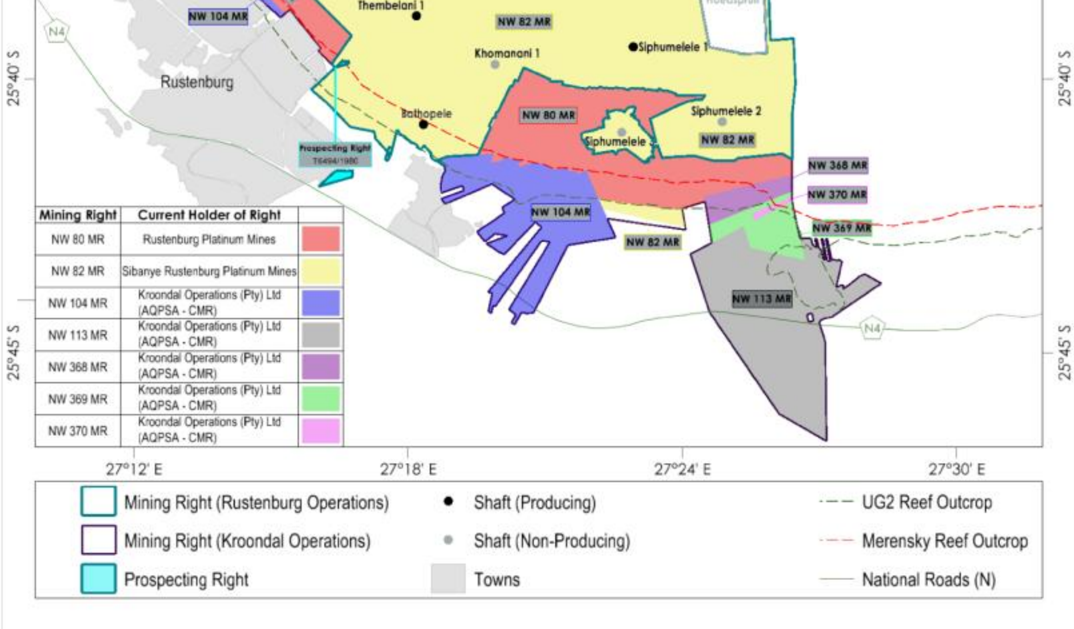


Table 11: Mining Rights Status for the Kroondal Operations (NW 104, 113, 368, 369, 370, 80)

Farm Name	Farm Portion	Magisterial District
Kroondal 304	Portions 2,4,6,8,9,10,22,23,24,25,25,21, Portion 83 Portion 84 RE Portion 85 Portion 99 Portion 85 Portion 95 Portion 93 Portion 91 RE Portion 92 RE Portion 94 Portion 151 (a Portion of Portion 94) Portion 158 Portion 129 (a Portion of Portion 85) Portion 157 (a Portion of Portion 85) Portion 52	Rustenburg

3.3 Royalties

Sibanye-Stillwater Kroondal Operations is not a royalty company nor receives royalties from any other operation.

3.4 Legal Proceedings and Significant Encumbrances to the Property

The QPs have been advised by Sibanye-Stillwater that there are no material legal proceedings in relation to the Kroondal Operations. It should, however, be noted that Sibanye-Stillwater may be involved in various non-material legal matters such as employment claims, third-party subpoenas and collection matters on an ongoing basis, which are not material to the Mineral Resources and Mineral Reserves for the Kroondal Operations reported in this Technical Report Summary.

From the documentation reviewed and input by the relevant Technical Specialists and Experts, the QPs could not identify any significant factors or risks with regards to the title permitting, surface ownership, environmental and community factors that would prevent the mining and the declaration and disclosure of the Mineral Resources and Mineral Reserves for the Kroondal Operations. The Kroondal Operations comply with all title and environmental permitting requirements of the RSA.

4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Topography, Elevation and Vegetation

The Rustenburg area within which the Kroondal Operations are situated is characterised by undulating terrain, varying between 1,050m above mean sea level (mamsl) and 1,180 mamsl. The topography to the north, west and east of Kroondal Operations is dominated by well-established non-perennial watercourses. The topography for the mine area is relatively flat, with sporadic hillocks and rocky outcrops. To the south of the mine area is the Magalies mountain range and to the east is a number of small hills.

The major rivers in the Kroondal Operations area include the Hex River bisecting through the western and central sections of the licence area and the Sterkstroom River on the eastern perimeter.

The natural vegetation comprises open grasslands and shrubs, but most of the area surrounding Rustenburg has been and is to a certain extent still used for agriculture developments, in particular sunflowers and tobacco. With the growth in the mining sector due to extensive platinum and chrome deposits in the region, agriculture is on the decline. Urban development has taken place mainly in the town of Rustenburg, but informal settlements also exist, including in the Rustenburg Operations Lease Area.

The licence area comprises two primary vegetation types, namely:

- Clay Thorn bushveld/ Other Turf Thornveld
    - This veld type occurs on the black vertic clay soils of the flat plains of the North West and Northern Provinces. Acacia tortilis, Acacia karroo and Acacia nilotica dominate the tree layer within this vegetation type. The Clay Thorn Bushveld is the main veld type found within the Rustenburg Operations area.

- Mixed Bushveld
    - This veld type is very variable depending on soil type, soil depth and aspect, and is represented by many different plant communities and habitat types. It occurs mainly on the undulating to flat plains of the Northern and North-West Provinces. The soil is mostly shallow, sandy, sometimes coarse and gravelly, overlying granite, quartzite, sandstone or shale. The

vegetation may vary from short, dense, sometimes shrubby bushveld to tall, open tree savanna. Mixed Bushveld occurs in small parts of the Rustenburg Operations licence area.

4.2 Access, Towns and Regional Infrastructure

The Kroondal Operations are situated near Rustenburg town in the North West Province of South Africa. The site is accessed via the multiple networks of well-maintained tarred roads. From Pretoria, the operations are accessed via N4 highway into Rustenburg town, then the R104 to the Operations. From Johannesburg, Rustenburg town is accessed via R24 road passing through Magaliesburg or the R512 (regional dual carriage tarred road) from Johannesburg, which intersects with the N4. Refer to Sections 4.4 and 15 and Figure 2 for details on Infrastructure.

4.3 Climate

Rainfall occurs throughout the year, but predominantly between November and March, mainly as thunderstorms. Annual rainfall averages approximately 650 mm. The wettest month of the year is January, with an average monthly total rainfall of 132 mm. The driest month is July, with an average monthly total rainfall of approximately 2 mm.

Mean annual air temperatures range from 11.8°C in June/July to 23.8°C in January. Average daily maxima range from 20.4°C to 30.3°C, and minima from 2.8°C to 17.2°C.

Winds are mainly light to moderate and blow from the north-easterly sector, except for short periods during thunderstorms or weather changes when they have a southerly component.

The lightning ground flash density in the area is a moderate risk to the concentrators with between 5 to 7 strikes/km^2/year (on a scale of 0 to 19).

No severe climatic effects influence the mining and ore processing operations at the Kroondal Operations proceed all year round.

4.4 Infrastructure and Bulk Service Supplies

The Kroondal Operations have been operational for decades. The regional and onsite infrastructure for mining and ore processing is well established. There is a good supply chain for all required consumables and equipment in or near the mine site. The Kroondal Operations, through Sibanye-Stillwater, is well connected to the international supply markets for any materials and equipment not available locally.

The Kroondal Operations are supplied with bulk electricity from the regional grid owned and operated by the state-owned company, Eskom. Details for Power supplies are supplied in Section 15.3 and for Water supplies in Section 17.5.6.

Rustenburg Municipality and the neighbouring Madibeng Municipality host a combined population of greater than 1.2m people and most services needed are found in the surrounding towns and cities.

4.5 Personnel Sources

The Kroondal Operations have specific policies, procedures and practices in place, which address, on an integrated basis, its human resource requirements. Recruitment is informed in the main by the operational requirements of the Kroondal Operations for specific skills, by the extent of labour turnover levels and by relevant legislation.

The organisational structure currently in place, together with operational management, will remain until such time as planned shaft closures occur, following which downsizing will be assessed. Organisational structures and staffing requirements (Table 12) are by and large determined by operational requirements and the production profile of the operation. The economic climate, cost infrastructure and Mineral Reserve profile also influence the organisation structures and required labour complement.

Table 12: Number of Employees

	2018	2019	2020	2021
No. of Employees	5,847	5,724	5,489	5,397

Manpower is sourced from different areas of South Africa and beyond, although preference is given to manpower from local communities within the Northwest Province in support of local economic development. Table 13 provides a breakdown of the origin of employees as per province, including beyond the border of South Africa. Many of the Kroondal Operations' employees live in Rustenburg and neighbouring towns.

Table 13: Origin of Employees

Province	Number of Permanent Employees	Number of Contractors	Percentage
Eastern Cape	789	614	16.44%
Free State	248	125	4.37%
Gauteng	320	211	6.22%
KwaZulu-Natal	68	99	1.96%
Limpopo	374	380	8.83%
Mpumalanga	198	120	3.73%
North West	2,134	1,456	42.06%
Northern Cape	55	35	1.05%
Western Cape	5	3	0.09%
Non-South Africans	1,206	96	15.25%
Total	**5,397**	**3,139**	**100.00%**

5 History

5.1 Ownership History

Operations were started in 1996 by Aquarius Platinum Limited until the acquisition by Sibanye-Stillwater in 2016.

The historical development of the Kroondal Operations is summarised in Table 14.

Table 14: Historical Development

Company / Ownership/ Operator	Date	Activity
Aquarius Platinum Limited	1996	A pre-feasibility study on the Kroondal Platinum Project was completed.
Aquarius Platinum Limited	1997	The bankable feasibility study of the Kroondal Platinum Project was completed and confirmed a Mineral Resource of 25Mt at a cut-off grade of 5.4g/t
Aquarius Platinum Limited	1998	Mine development began and an initial off-take agreement was signed with Implats that continues until 2008
Aquarius Platinum Limited	1999	Mining via two decline shafts (originally the Central and East shafts, now Kopaneng and Simunye) began in March and by year-end, full production was achieved, and the initial plant commissioned
Aquarius Platinum Limited	2000	Aquarius increased its stake in Kroondal to 94.57% and then to 100%
Aquarius Platinum Limited	2001	Initial joint venture (50:50) agreement entered into with Rustenburg Platinum Mines, a subsidiary of Anglo American Platinum that was effective 1 July 2001 and included a second concentrator plant
Aquarius Platinum Limited	2003	Aquarius enters into a 50:50 pool and share agreement with Anglo American Platinum aimed at doubling output. This agreement was effective November 2003 and included an off-take agreement with Anglo Platinum for the Mineral Resources covered by the agreement
Aquarius Platinum Limited	2005	Second concentrator plant commissioned
Aquarius Platinum Limited	2006	Construction of fourth shaft, Kwezi (K5), begins, Marikana 6 Shaft placed on Care and Maintenance
Aquarius Platinum Limited	2008	Production ramp-up at Kwezi began and continued into the following year with a total of four decline shafts in production.
Aquarius Platinum Limited	2011	Development of a fifth shaft, K6, was started.
Aquarius Platinum Limited	2012	Marikana 4,5 shafts placed on care and maintenance
Aquarius Platinum Limited	2013	The extent of the resource included in the PSA agreement was extended, thus further prolonging Kroondal's life-of-mine
Aquarius Platinum Limited	2015	Production ramp-up at K6 completed.
Aquarius Platinum Limited/ Sibanye-Stillwater	2016	Sibanye acquired a 50% stake in Kroondal following the acquisition in full of Aquarius Platinum Limited on 12 April 2016.
Sibanye-Stillwater	2017	The full operational period under Sibanye-Stillwater. Delivered highest 4Eoz output in history
Sibanye-Stillwater	2020	The Covid-19 Pandemic and the associated national lockdown affected all production from April 2020 to the middle of May 2020, at which point a gradual build-up in production was initiated with a return of employees continuing right up into December 2020 in line with regulatory requirements.
Sibanye-Stillwater	2021	Optimisation of mine boundaries between Bathopele (SRPM), K6 and Kopaneng (Kroondal) and deepening of the Kroondal East complex (Kopaneng and Bambanani) into Siphumelele ground resulted in an extended LoM for Kroondal as part of the new agreement between AAP and SSW.

5.2 Previous Exploration and Mine Development

5.2.1 Previous Exploration

The Kroondal Operations have been intensively explored by surface and underground exploration drilling, geophysical surveys (airborne magnetics), trenching and geological mapping carried out over a period of more than 55 years by previous owners including AAP and Aquarius. This intensive exploration has proven the extension at depth of the UG2 Reefs to the north-northeast.

Initial geological understanding of the area was developed from observations made from the surface and underground mapping, combined with exploration drill hole information and extrapolations of features observed in other platinum mines in the south-western Bushveld Complex. Current interpretations of the geological and structural framework applicable to the Merensky Reef and the UG2 Reef have evolved as new and more detailed geological information and datasets were obtained.

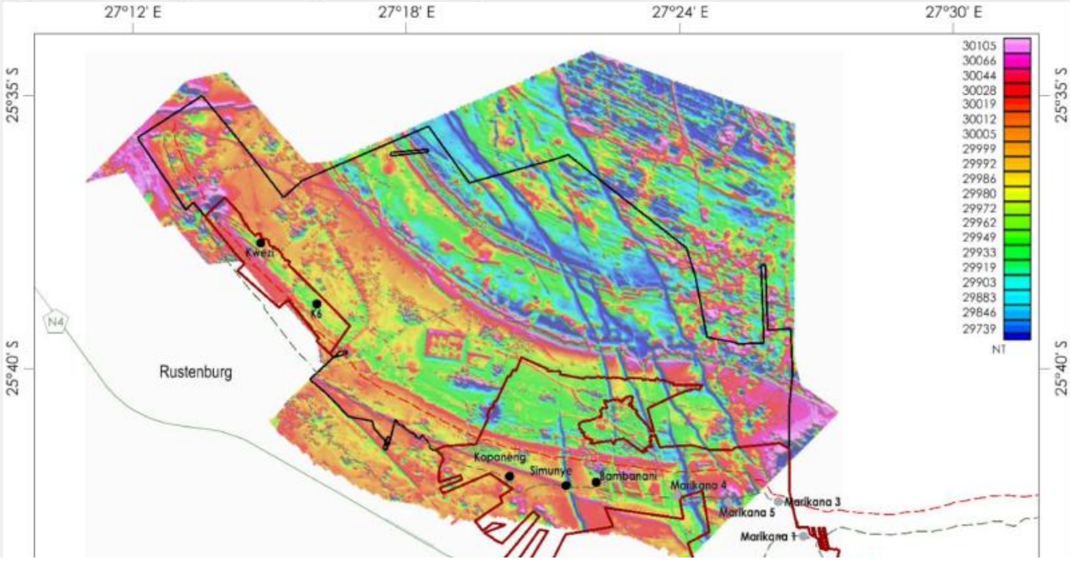
There has been a significant decline in surface exploration drilling over the past five years, with a limited amount of surface exploration conducted at the Bambanani Shaft by Sibanye-Stillwater during 2019.

However, exploratory visits are conducted in previously mined areas to confirm structure and facies.

5.2.1.1 Aeromagnetic Surveys

The entire Kroondal Operations area has been covered by a high-resolution helicopter-borne aeromagnetic ('AM') and radiometric survey, carried out in late 2002 and early 2003 by Fugro Airborne Surveys, on behalf of Anglo-American Platinum, at a line spacing of 50m and a sensor clearance of 20m with results shown in Figure 5. Various image processing techniques were used to enhance and aid interpretation of this data and this allowed interpretation of major northwest-southeast structural trends and east-west striking faults. In addition, two dominant trends of magnetically susceptible dykes have been recognised; the northwest-southeast striking positively and negatively magnetised dolerite dykes as well as the east-west trending dolerite dykes. The AM data has also assisted with the identification of dunite pipes as well as potential Iron-rich replacement pegmatites (IRUP) areas. The QPs' experience at the Kroondal Operations has however shown that the dimensions of actual IRUPs at the Merensky Reef and UG2 Reef elevations are commonly smaller than the dimensions of the associated magnetic anomaly. Consequently, the actual IRUPs have a smaller impact on geological losses than suggested by the AM data. Also apparent is the magmatic layering of Bushveld stratigraphy as an indication of the strike of the orebody.

Figure 5: Aeromagnetic Survey for Kroondal Operations



5.2.1.2 3D Seismics

There are no known seismic surveys over the area. Seismics are only done over the areas with Merensky Reef.

5.2.2 Previous Development

Refer to Table 15 for details of the historical production and financial parameters in calendar years (C) from 2017 to 2021.

Table 15: Historical Production and Financial Parameters

		Unit	Financial Years				
			C2017*	C2018*	C2019	C2020	C2021
Main development (1)	Advanced	(km)	15	12	12	8	8.5
Area mined (1)		('000m²)	840	957	983	733	884
Tonnes milled (2)	Underground	('000)	7 556	7 730	8 120	5 994	7 050
	Surface	('000)					
	Total	('000)	7 556	7 730	8 120	5 994	7 050
BUHG (3)	Underground	(g/t)	2.42	2.48	2.46	2.46	2.40
	Surface	(g/t)					
	Combined	(g/t)	2.42	2.48	2.46	2.46	2.4
4E produced @ 100%	Underground	(Moz)	0.482	0.510	0.530	0.394	0.453
	Surface	(Moz)					
	Total	(Moz)	0.482	0.510	0.530	0.394	0.453
Operating Costs(4)	Underground	(ZAR/t)	634	676	709	883	896
	Surface	(ZAR/t)					
	Total	(ZAR/t)	634	676	709	883	896
Operating Costs		(USD/oz)	747	773	751	817	943
		(ZAR/oz)	9 932	10 238	10 862	13 440	13 941
All in cost(6)		(USD/oz)	765	744	745	821	875
		(ZAR/oz)	10 176	9 849	10 768	13 512	12 943
Capital Expenditure		(ZARm)	381	283	426	376	536

*Management of Kroondal Operations was taken over in mid-2016. Prior to C2018, the reporting KPI's were different and this information is not available.

1. Main development and area mined comes from Kwezi Shaft and K6 Shaft (Kroondal West); Simunye Shaft and Bambanani Shaft, Kopaneng Shaft (Kroondal East)

2. Tonnes Milled are from all operating shafts and open-pit operations operational at the time of reporting
3. Built-up head grade (BUHG) is in 4E
4. Cost data indicated from 2018 to the year 2021
5. Production data is for the period Jan to Dec
6. Ounces and kilograms are based on 4E

6 Geological Setting, Mineralization and Deposit

6.1 Regional Geology

The Bushveld Complex (Figure 6) is approximately 2,060 million years old. Its mafic to ultramafic rock sequence, the Rustenburg Layered Suite (RLS), is the world's largest known mafic igneous layered intrusion containing about 80% of the world's known Mineral Reserves of PGMs (Crowson,2001 quoted in Cawthorn, 2010). In addition to PGMs, extensive deposits of iron, tin, chromium, titanium, vanadium,

copper, nickel, and cobalt also occur. The Bushveld Complex extends approximately 450 km east to west and approximately 250km north to south. It underlies an area of some 67,000km², spanning parts of Limpopo, North West, Gauteng, and Mpumalanga Provinces in South Africa.

The RLS which was derived from differential crystallisation of multiple magma injections occurs geographically as five discrete compartments termed 'limbs', three of which are being exploited for PGMs. These are the Western, Eastern, and Northern Limbs. The Kroondal Operations are on Western Limb (Figure 7). The RLS comprises rocks ranging from dunite and pyroxenite through norite, gabbro and anorthosite to magnetite- and apatite-rich diorite, subdivided in terms of a mineralogically based zonal stratigraphy into five principal zones.

Figure 6: Geology of the Bushveld Complex, South Africa

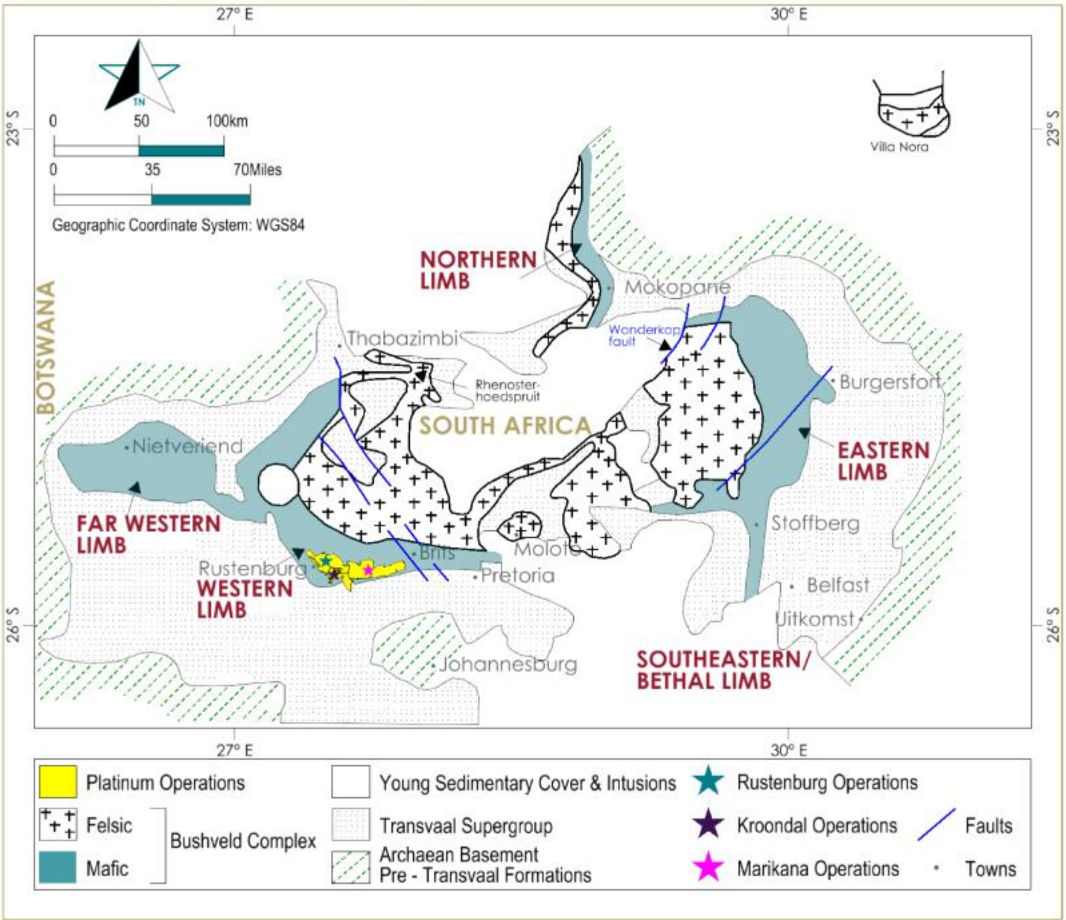
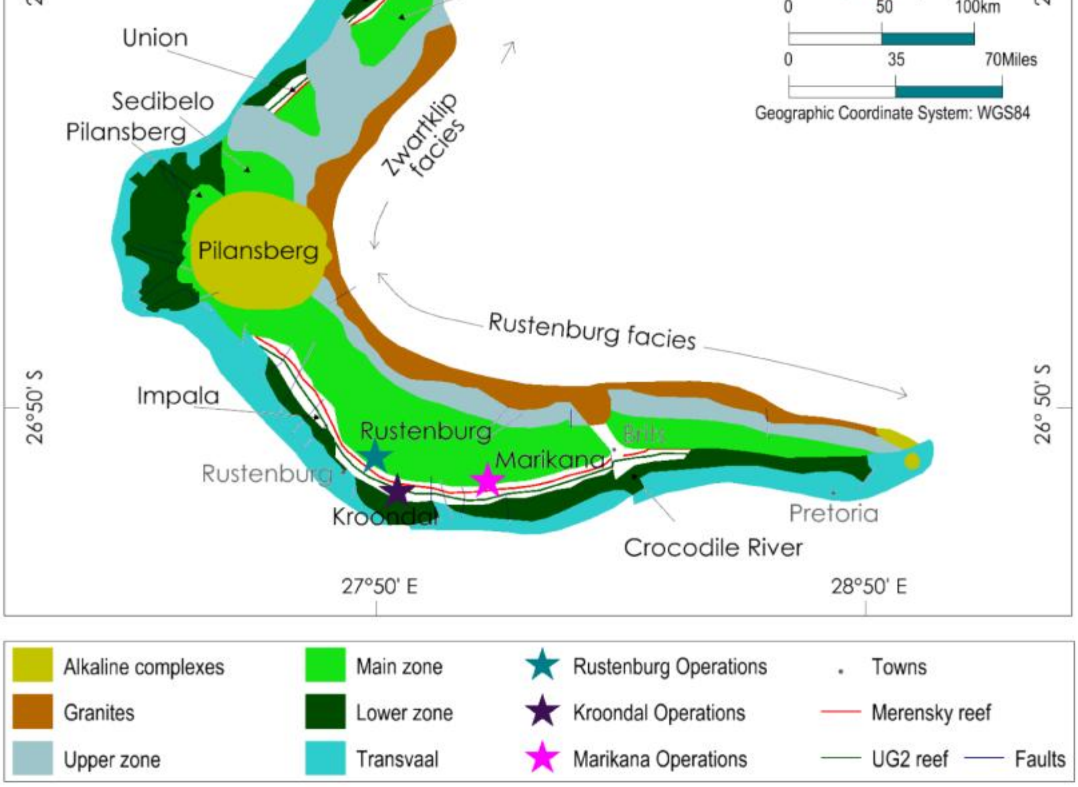


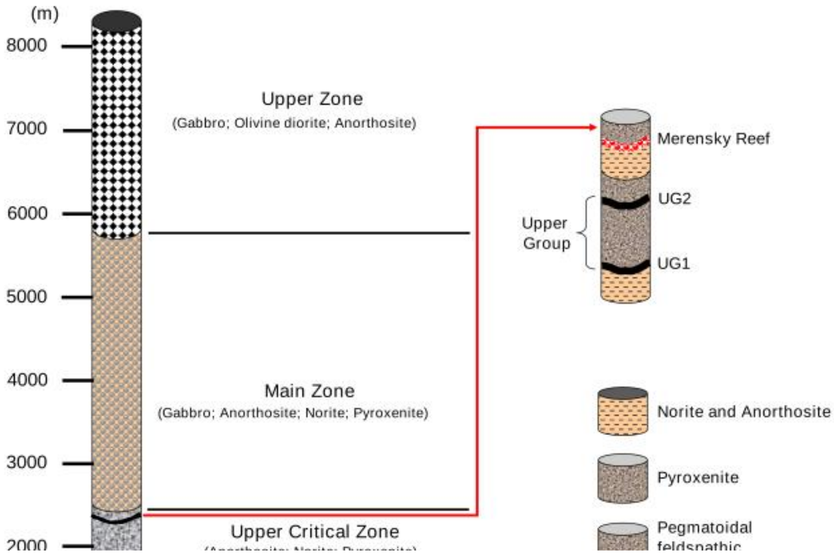
Figure 7: Geology of the Western Limb of the Bushveld Complex, South Africa

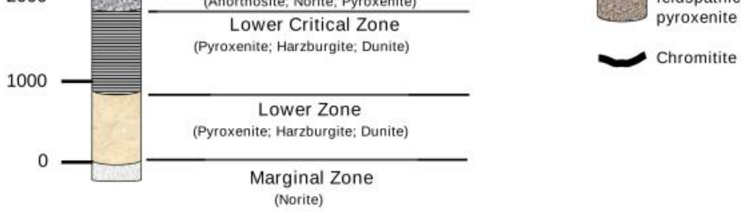


From the bottom to the top (Figure 8), these are the 1) Marginal Zone, 2) ultramafic-rich Lower Zone, 3) mafic-rich Critical Zone which hosts multiple chromitite and PGM layers, 4) a mafic-rich Main Zone consisting mostly of gabbro-norites and norites, 5) and the final Upper Zone derived from the crystallisation of iron-rich residual fluids.

The RLS varies in vertical thickness, reaching up to 8km in places with some individual layers traceable for over 150km. However, the PGM-bearing reefs are typically only 0.3m to 15m thick, although much greater thicknesses are recorded in the Platreef of the Northern Limb. In the Eastern and Western Limbs, the Critical Zone contains the two principal PGM-bearing reefs: the Merensky Reef and the UG2 Reef. The Merensky Reef at the Kroondal Operations is mined out and the UG2 Reef accounts for all Mineral Resources and Mineral Reserves reported for the operations.

Figure 8: Regional Stratigraphic Column of the Rustenburg Layered Suite





6.2 Deposit Type

6.2.1 Formation of Deposit

PGM reef-type deposits are deposits where the PGM are the main products and Ni and Cu are the by-products (e.g., the UG-2 and Merensky reefs of the Bushveld Complex, or the J-M reef of the Stillwater Complex, Montana and the MSZ of the Great Dyke of Zimbabwe). The deposits generally contain less than 1-2% sulphide minerals and tend to form laterally relatively persistent stratiform horizons in large layered intrusions that are often relatively easy to trace once they have been intersected.

Most mineral deposits can be classified into specific groups or types and exhibit common features and mineralogical associations which relate to the geological processes that ultimately formed them. Ni-Cu-PGM deposits can be found in a variety of deposit types including: (a) magmatic, (b) hydrothermal, (c) sedimentary/placer, and (d) residual/laterites; however, they are almost exclusively dominated by magmatic processes. Magmatic Ni-Cu-PGM deposits have been some of the most sought after and important deposits in the world. At a basic level, the formation of these deposits relies on magma generated from the Earth's mantle, which then intrudes its way into the crust, often melting and

incorporating the surrounding rocks causing 'contamination' within the original magma. Slow cooling of these magmas generates immiscibility between sulphur and silicate liquids, ultimately leading to the formation of Ni-Cu-PGM enriched sulphide rocks embedded within mafic and ultramafic igneous rocks. Many of these deposits around the world have been identified and are well documented in the literature, including the largest one, Stillwater Complex (United States of America), Norilsk (Russia), Sudbury Complex (Canada) and Great Dyke (Zimbabwe) as well as the Bushveld Complex (South Africa). Ni-Cu-PGM deposits are associated with mafic-ultramafic magmatism with a few key differences to mention between these deposits.

6.2.2 Stillwater Complex

The Stillwater Complex is the world's fourth largest PGM deposit known today and comprises a large irregular sheet-like ultramafic intrusion. The intrusion can be divided into Ultramafic Basal Series, Lower Banded, Middle Banded and Upper Banded series, which show evidence for multiple injections of magma.

The most economically important series is the Lower Banded series, which contains a broadly continuous zone of PGM-rich olivine units known as the J-M Reef (McCallum, 1996). The J-M Reef is hosted within a sequence of harzburgitic and troctolitic rocks and can be traced along strike for approximately 36km with an average thickness of 2m (McCallum, 1996). The reef contains 1-2% disseminated sulphides at 20-25ppm Pt + Pd with 3.6 times the Palladium to Platinum content. Due to the steeply dipping nature of this reef, underground mining methods have had to be implemented.

6.2.3 Norilsk Province

Norilsk is the third-largest Ni-Cu-PGM deposit in the world. The Norilsk Province represents a large extrusive or volcanic sequence of basaltic lavas with rare komatiite lavas intruded by isolated layered ultramafic magmas. Like the Stillwater Complex, the Ni-Cu-PGM deposits within the Norilsk Province are associated with these layered ultramafic intrusions. Unlike Stillwater, the sulphides within this province are found ranging from massive, veinlet-disseminated to disseminated ore bodies at varying intervals throughout the layered intrusives. The mineralised zones within the layered intrusives are complex and variable in size and shape, therefore emphasis has only been placed upon the massive ore bodies. The massive ore bodies are by far the most economical in value, which are recorded to reach hundreds of metres in lateral extent ranging from centimetres to 45m in thickness (Krivolutskaya et al., 2014). Ni content is extremely high with these massive ores, up to 3.21 wt %, with Ni/Cu ratios ranging from 0.23 to 0.45. PGM contents within these zones reach 1.5 – 2.0 ppm Pt and 7.0 – 9.0 ppm Pd, mostly confined to the margins of the massive ore bodies (Krivolutskaya et al., 2014).

6.2.4 Sudbury Complex

The Sudbury Basin is a unique type of Ni-Cu-PGM deposit, as it is the only deposit that is related to a meteorite impact as well as the world's largest Ni deposits. The complex has been suggested to have formed by impact melting of originally mafic rock types, which have generated a magmatic body consisting of a lower melanocratic norite overlain by leucocratic norite. Then lower norite unit is recorded to have elevated Ni (40 – 1000 ppm), Cu (40 – 1140 ppm), and Pt + Pd (3.7 – 15.1 ppb) with the upper more felsic norite being only somewhat enriched in these elements (Keays & Lightfoot, 2004). Due to the complicated relationship of this deposit with the meteorite impact, several types of

mineralised zones have been described, which includes a contact layer, footwall breccias, large radial structured dykes and vein-like deposits (up to 1,000m from the centre of the impact structure). The impact structure itself has been measured up to 200km in diameter, displaying an oblate-like shape. The deposits found within the Sudbury Complex are mainly confined to the margins of the magmatic body and are relatively scattered throughout. The average grade of the deposits been mined show roughly 1.2 wt% Ni, 1.1 wt% Cu, and 0.8 g/t Pt + Pd, and therefore, have been targeted mainly for their Ni and Cu contents with PGM mainly as a by-product (Keays & Lightfoot, 2004).

6.2.5 The Great Dyke

The Great Dyke is a linear intrusion that trends north-south that cuts across the Archaean granites and greenstone belts of the Zimbabwe craton consisting of layered mafic and ultramafic rocks (Chaumba and Musa, 2020; Wilson and Prendergast, 2001). The length of the Great Dyke is 550 km, and its thickness varies between 4 km and 11 km in width. The Great Dyke acts as host to the second-largest resource of PGMs in the world (Wilson and Prendergast, 2001). Four sub-chambers make up the Great Dyke, namely Musengezi, Darwendale, Sebakwe and Wedza sub-chambers (Wilson and Prendergast, 2001). Two economically viable zones have been identified: the Main Sulphide Zone (MSZ) which is the most economically viable and the thicker, but lower grade, and the Lower Sulphide Zone (LSZ) that contains much less sulphides. The Main Sulphide zone is 1 to 15m thick, and the Lower Sulphide Zone is 30 to 80m thick. Both the MSZ and LSZ occur within pyroxenite of the uppermost ultramafic cyclic unit (Wilson, 1996; Wilson and Prendergast, 2001). The average grades reported from mining operations at Ngezi, Unki and Mimosa have shown roughly 3.86 g/t 6E.

6.2.6 The Bushveld Complex

The Bushveld Complex comprises several intrusive and extrusive bodies, including the RLS, the Lebowa Granite Suite, the Rashoop Granophyre Suite, and the Rooiberg Group Volcanics. The RLS comprises many layers grouped into stratigraphic units from base to roof: Marginal Zone, Lower Zone, Critical Zone, Main Zone and Upper Zone, which are distinguished on geological maps or cross-sections. These stratigraphic units show evidence for repeated injections of magma and the changes in mineral composition with stratigraphic position show trends and patterns consistent with the expected crystallisation pattern of mafic magma. The Bushveld Complex is a remarkably well preserved, extremely large mid-Proterozoic intrusion that has escaped regional metamorphism and extensive deformation.

The most economically important stratigraphic unit within the RLS is the Critical Zone, which hosts the world greatest chromite and platinum deposits. These deposits are usually situated in successive well-defined layers and are locally termed 'reefs'. The PGM deposits occur within the well-defined Merensky and UG2 Reefs. The Merensky and UG2 Reefs are Cu-Ni-PGM-enriched contact-type and stratiform chromitite deposits respectively, with low sulphur content. The PGM mineralised layers are typically in stratigraphic intervals that mark a major lithologic and petrologic change in the layered igneous intrusion.

6.3 Local and Property Geology

6.3.1 Stratigraphy

The recognised stratigraphy underlying the Kroondal Operations comprises the Main and Critical Zones of the RLS. The stratigraphy of the RLS as formalised by the South African Committee for Stratigraphy

(SACS, 1980) is used in this report. The Main Zone predominantly comprises gabbro–norite and norite rock types, whereas, in the Upper Critical Zone, pyroxenite, norite, anorthosite, and chromitite lithologies are found.

The Upper Critical Zone stratigraphy of the RLS, which contains the units of economic interest, the Merensky and UG2 Reefs, comprises well-developed cyclic units divided into six sub-units as follows (Figure 9):

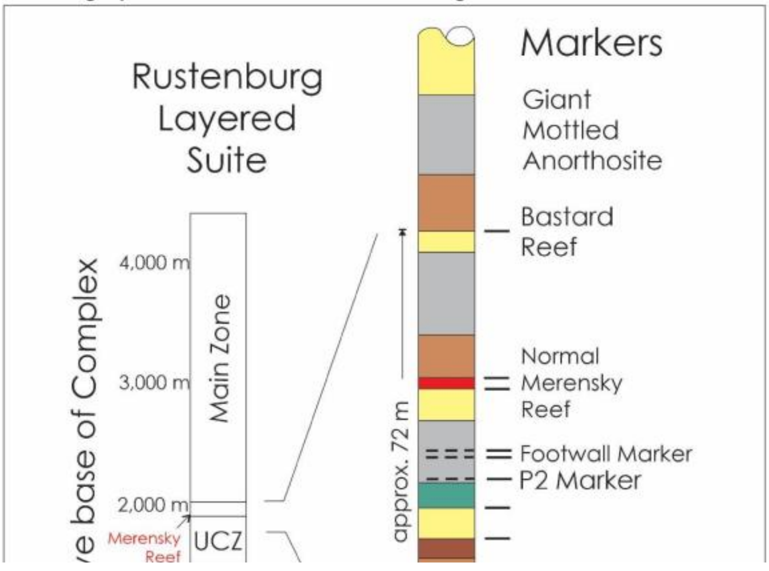
- Bastard Pyroxenite
- Merensky Reef
- Merensky Footwall
- UG2 Hangingwall
- UG2 Chromitite Layer/Reef
- UG1 Chromitite Layer

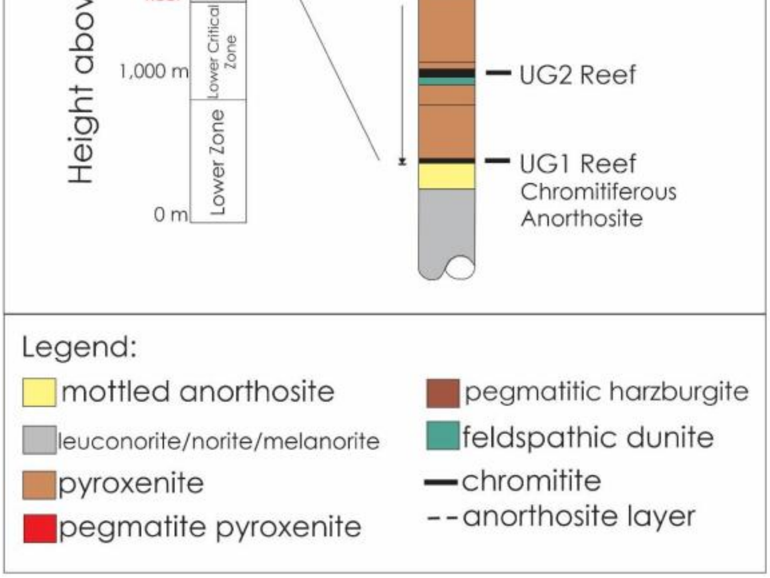
Figure 11 shows the dip cross-section through the reefs. In Kroondal Operations, there are local variations in thicknesses of individual stratigraphic units.

The Giant Poikilitic Anorthosite (GPA) generally defines the start of the Critical Zone, which normally occurs 5m to 10m above Bastard Pyroxenite and approximately 20m to 25m above Merensky Reef. The GPA is normally about 7m to 10m in thickness.

The Merensky Reef at the Kroondal Operations is mined out and will not be discussed further.

Figure 9: General Stratigraphic Column of the Local Geological Succession





After Smith et al (2004)

6.3.2 Ore bodies

6.3.2.1 UG2 Reef

The UG2 Reef consists of the Main Seam chromitite. Overlying the UG2 Main Seam is an unmineralized pyroxenite layer, locally termed the pyroxenite parting or simply parting (UG2P). Above the pyroxenite parting (UG2P) another chromite layer, the UG2L, locally referred to as the Leader Seam, is the topmost mining mineralised lithological unit.

It is these three units which form the mineable reef portion at Kroondal Operations. The thickness of the Main Seam ranges from 65cm to 80cm, whilst the pyroxenite parting varies from 10cm to 4m, and the Leader Seam thickness varies from 12cm to 25cm. In areas where the pyroxenite parting is too wide, (greater than 250cm), then only the Main Seam is exploited. The UG2 and UGL display a mottled appearance due to the presence of large bronzite crystals within the chromite.

UG2 Main Seam

The UG2 Main Seam is chromitite rich, but lower in gold, copper, and nickel values compared to Merensky Reef. It is consistently developed in the RLS, occurring vertically between 90m to 150m below the Merensky Reef in the Kroondal Operations. The UG2 Reef dips in a northerly direction.

The hangingwall to the UG2 Reef is a 6m to 7m thick feldspathic pyroxenite interlayered by a succession of multiple chromitite layers that are referred to as Leader Seam and triplets layers.

The Leader Seam

The Leader Seam is a chromitite band that is approximately 15cm thick. The stratigraphic separation between the Main Seam and the Leader Seam is a feldspathic pyroxenite with a vertical thickness ranging between 20cm to 250cm.

The Triplet Chromitite Layers

These chromitite layers are interlayered with the feldspathic pyroxenite. This succession is between 30cm to 70cm thick. The triplets are found between 2m to 10m above the UG2 Main Seam.

The variation in the separation between chromitite layers and the UG2 Main Seam affects the mining of the UG2 Reef. The UG2 Main Seam, Leader Seam and triplets layers are variably separated in thicknesses which result in thinning and thickening of the stratigraphic package. The geotechnical consideration is where the separation distance between the Leader Seam and the Main Seam is less than 30cm. The geotechnical beam for a stable hangingwall to the mining excavation is required to be greater than 30cm thick.

Underlying the UG2 Main Seam is the pegmatoidal feldspathic pyroxenite which varies in thickness from a few centimetres up to 2m. The normal footwall stratigraphy comprises pegmatoidal pyroxenite, which is in turn underlain by a succession of norite, pyroxenite, and anorthosite. The UG2 Main Seam is occasionally unconformably underlain by norite footwall.

For the UG2 Reef package, the number and position of the chromitite layers associated with the pyroxenite hangingwall stratigraphy determine the geozone definition. In-situ mineralisation of the UG2 Reefs is captured by the definition of geozones (see Section 11.1.2 and Figure 24).

6.3.3 Structure

The UG2 and Merensky Reefs form an east-west trending open arc, with a strike varying between 90° in the east to 145° in the west. The general dip of the reef is 9° to 10°. The middling between UG2 and Merensky Reefs varies between 120m to 140 m. The dip of the encompassing regional stratigraphy also varies between 9° and 10° with a general east-west strike direction. Other dip decreases locally between 1° to 5° and increases to between 15° to 30° along a monocline trending east-west at depth. The dip decreases from 3° to 7° across the farms of Klipgat and Turffontein, also roughly striking east-west.

Localised geological discontinuities associated with the Merensky and UG2 Reefs include potholes, faults, joints, shears zones, dykes and IRUP bodies. The structure map is shown in Figure 10. Figure 11 shows a typical cross-section of the reefs in the Kroondal area.

Figure 10: Structural Interpretation

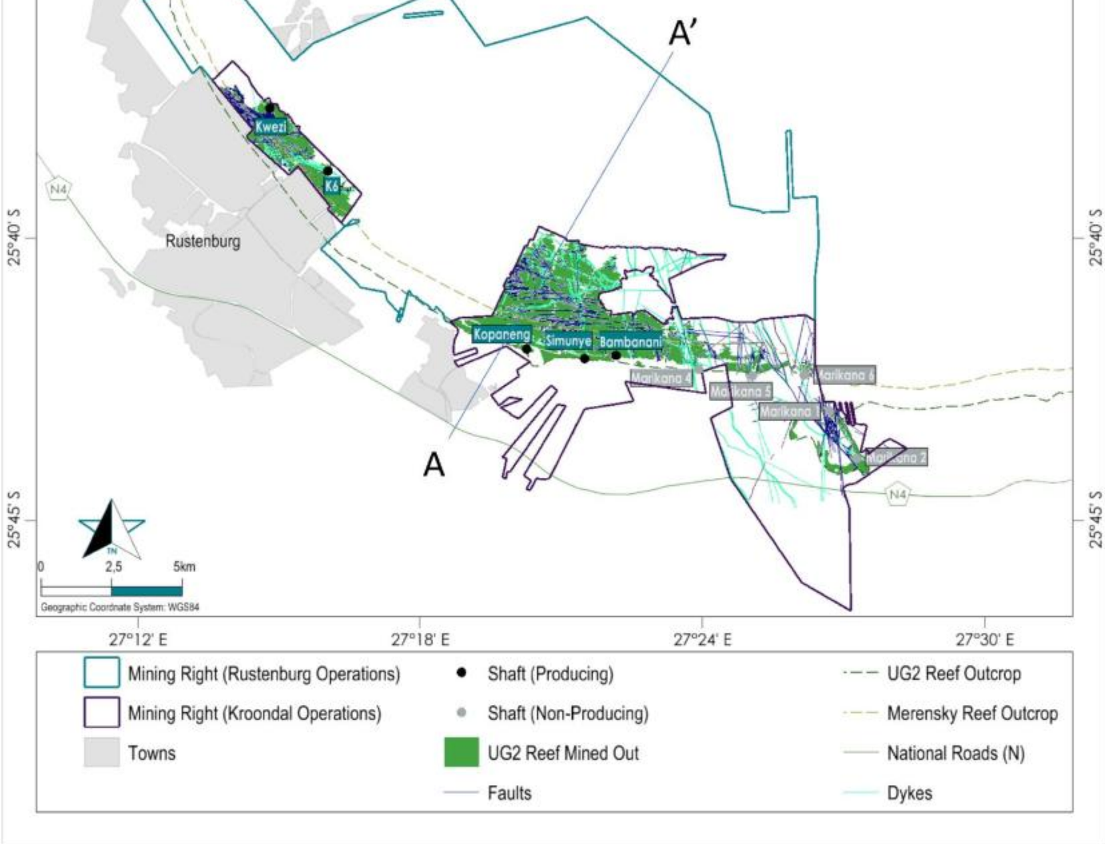
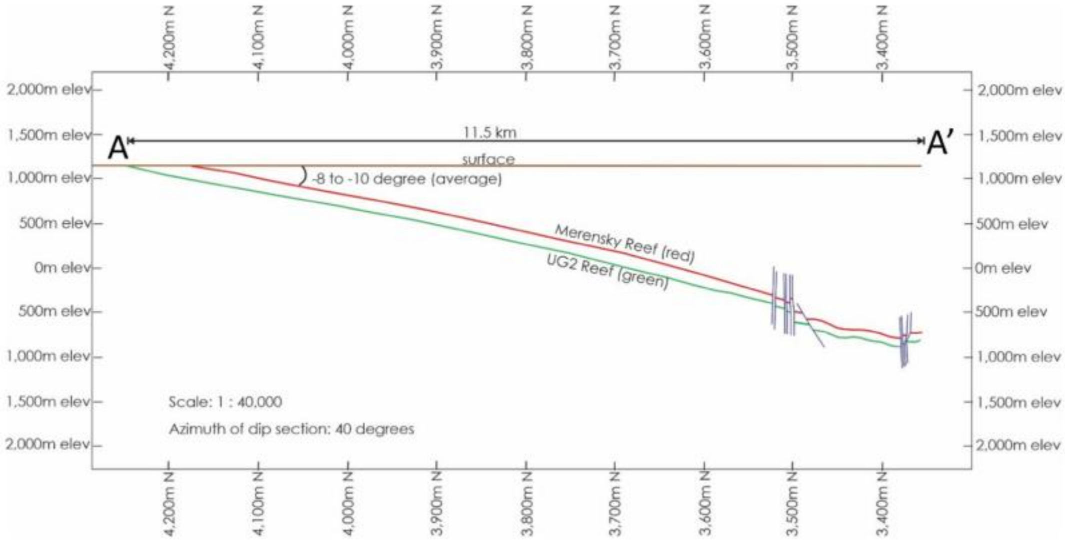


Figure 11: Typical Cross-Section



6.3.3.1 Faults

The Qualified Person has defined faults that transect the mining operation. Low angle faults exist with very small displacements but are very important to understand to ensure correct hanging wall support recommendations. At depth, the farms of Klipgat and Turffontein have various strike-orientated faults trending in a west-northwest to east-southeast direction with varying throws. The F-series faults are boundary faults: The Turfontein shear cuts across the eastern Kroondal Operations and is a fault zone with multiple faults of various throws with both strike and dip displacements.

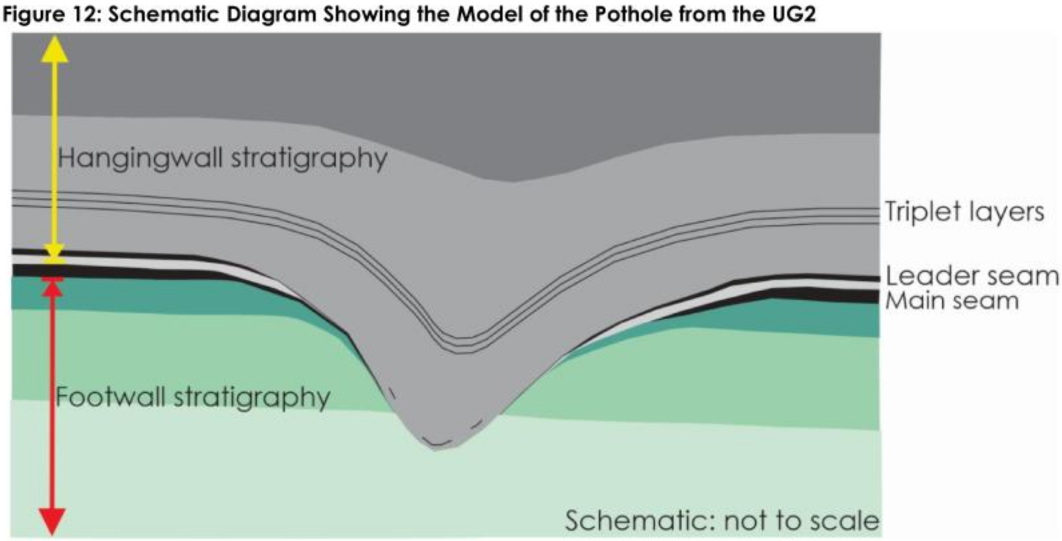
6.3.3.2 Dykes

Post mineralisation dykes of various scales are prominent across the property. These structures typically define strike mining limits as well as influence reef continuity. Dyke occurrences are between 1cm and 30 meters wide. They have steep dips varying between 70° and 90°. Dykes may be water-bearing.

6.3.3.3 Potholes and slumps

Potholes associated with the UG2 Reefs are generally observed as semi-circular features at the Kroondal Operations. They vary in size from a few meters to hundreds of metres in diameter. The depth of the potholes is highly variable. There is no definitive relationship between the depth and the size of potholes. To a certain degree, the following relationship between the dip and size of potholes has been observed by the QP: the steeper the dip of the pothole, the smaller the size. Potholes and certain steep dipping roll structures in the reef result in geological losses. The schematic section in Figure 12 describes the type of potholing of the UG2 Reef.

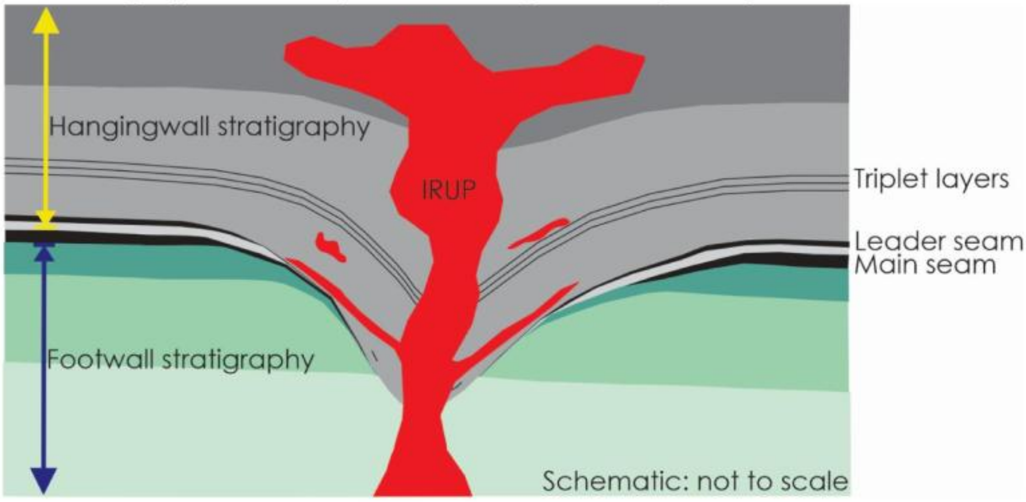
Figure 12: Schematic Diagram Showing the Model of the Pothole from the UG2



6.3.3.4 Iron-rich replacement pegmatites (IRUP)

The IRUP comprises a suite of coarse crystalline and unconformable bodies, which occur throughout the Bushveld Complex (Figure 13). They range from small, irregular, and vein-like features to large sheet-like bodies up to hundreds of meters across and pipe-like plugs up to 1.5km wide. Close to the IRUPs, the UG2 Reef is mostly partially replaced and thus recognizable, or even not replaced at all where the IRUPs are situated either in the hangingwall or footwall stratigraphy. However, the mineralogy of the reefs is changed due to the high temperature, high pressure, and volatiles associated with the replacement process that reduces plant recoveries of the PGM assemblage.

Figure 13: IRUP(red) unconformably cut across the layered lithological sequence.



6.3.4 Mineralogy

UG2 Reef

The UG2 consists predominantly of chromite (60 to 90% by volume) with lesser silicate minerals 5 to 30% pyroxene and 1 to 10% plagioclase. Other minerals, present in minor concentrations, can include the silicates: phlogopite and biotite, the oxides: ilmenite, rutile and magnetite, and base metal sulphides. Secondary minerals include quartz, serpentine and talc. The Cr_2O_3 content of the UG2 Reef varies from 30 to 35%. The PGMs present in the UG2 Reef are highly variable, but generally, the UG2 is characterised by the presence of various PGM sulphides, comprising predominantly laurite (RuOsIr sulphide), cuperite (PtS), braggite (Pt, Pd, NiS), and an unnamed PtRhCuS. The PGMs only reach an average size of approximately 12µm, with particles larger than 30µm being extremely rare.

Most of the PGMs occur in association with the base metal sulphides and silicates. It is only the mineral laurite that exhibits a preferred association with the chromite grains. Both the grain size and associations are extremely important as these affect the metallurgical behaviour during subsequent processing. The major base metal sulphides constitute chalcopyrite, pentlandite and pyrrhotite. The base metal sulphides occur almost entirely within the interstitial silicate and are only very rarely enclosed within the chromite particles. The grain size of the base metal sulphides rarely exceeds 30µm.

The distribution of grades within the layer is not uniform. However, PGMs are generally concentrated at the upper and lower contacts of the main chromitite seam, with lesser concentrations in the Leader seams. The highest PGM concentration is generally recorded at the base of the UG2 Reef chromitite.

In the UG2 Reef, Cu, Ni and Sulphur values are extremely low.

7 Exploration

There is no current exploration on this property. Any drilling, including surface drilling is related to mine planning. There are no exploration results to report. Information below on surface holes is given to illustrate the type of data that was collected in the past.

7.1 Exploration Data

Kroondal Operations are established mining operations in a mature mining district. There are no greenfields exploration programs associated with this operation. However, underground (brownfield) evaluation drilling and adhoc surface definition drilling continue.

The property is an established mine and the extent of the mineralization is well defined. Non drilling exploration is not relevant to the property at this stage of development.

7.2 Geophysical Surveys

No geophysical surveys have been flown over the property recently. A brief description of historical aeromagnetic surveys is given in Section 5.2.1.

7.3 Topographic Surveys

The topography in the lease areas is well mapped from historical surveys and any recent changes to the surface topography will not affect the geological interpretation or infrastructure. There have been no new surveys related to exploration recently.

7.4 Exploration and Mineral Resource Evaluation Drilling

7.4.1 Overview

Geological models are based on all available information comprising diamond drilling and underground channel sample data, underground mapping as well as remote geophysical and remote sensing data (including Aeromagnetic and Wireline surveys). This information is available for the entire Kroondal Operations area.

Surface diamond drill holes (DDH) were generally drilled on irregular grid intervals of 150m-1,000m, depending on historical exploration strategy, depth of the mineralised horizons and geological uncertainty.

Underground Drilling

At all Kroondal Operations, mining takes place on the plane of the reef, so the only underground drilling that takes place is to delineate geological structures, especially potholes, for geological modelling purposes but not for Mineral Resource estimation. Historically, several drill holes targeting the UG2 Reef were collared at the Merensky Reef elevation from underground excavations resulting from the mining of the Merensky Reef.

Surface Drilling

The Kroondal Operations were drilled extensively by the previous owners resulting in most areas classified as Measured Mineral Resources. Therefore, surface drilling is undertaken on an ad-hoc basis when there is a need to firm up geological grade models and investigation of the UG2 Reef behaviour where underground drilling is not suitable because of the general orientation of reef relative to mine infrastructure. The core is halved using a diamond saw, with one half retained for records and the other half assayed.

Sample sections are captured directly into the SABLE database, where the spatial validity is checked. Planned and unplanned task observations are some of the quality control procedures used to ensure sampling protocol is maintained. The final submission of each sample into the Sibanye-Stillwater SABLE database is only completed following a series of checks and approvals. Kroondal Operations rely on Quality Laboratory Services, a South African National Accreditation System (SANAS) accredited laboratory for geochemical analysis of the samples.

Kroondal Operations Drillhole Inventory

A total of 1,394 drillhole intersections are included in the drillhole dataset. These can be divided as follows:

- 899 drillholes (including deflections) are derived from surface drilling campaigns up to 2020.
- 495 drillholes are derived from underground drilling collared at the Merensky Reef elevation and the UG2 Reef intersections were sampled and assayed.
- 276 drillholes were removed due to geological disturbances i.e. potholes, faults, IRUP etc.
- 79 drillholes were removed due to specific validation errors detailed in the data processing macros.
- 118 drillholes were removed due to other reasons e.g., cover holes or flat dipping holes < less 60 degrees that could not be accurately corrected for length compositing.
- 32 drillholes were excluded from Mineral Resource estimation due to historical problems.
- 889 drillholes (including deflections) in the SABLE database are authorised and validated for Mineral Resource estimation:

Changes in the drillhole inventory in 2021 are shown in Figure 14 and Figure 15. A single surface hole may have several deflections. Each deflection/intersection is counted as a "drillhole" for the purposes of reconciliation.

Figure 14: Reconciliation of Drillhole Data

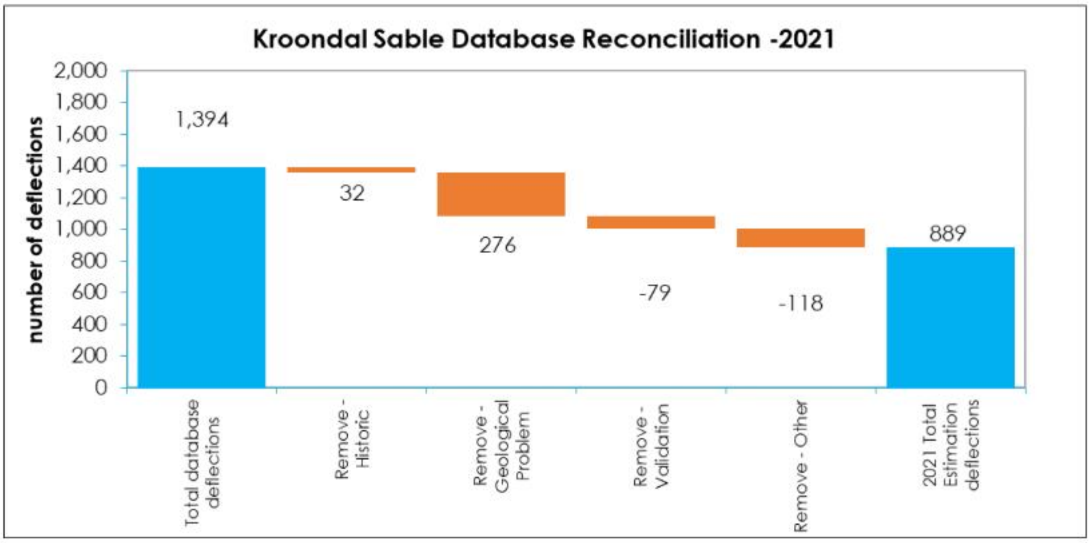
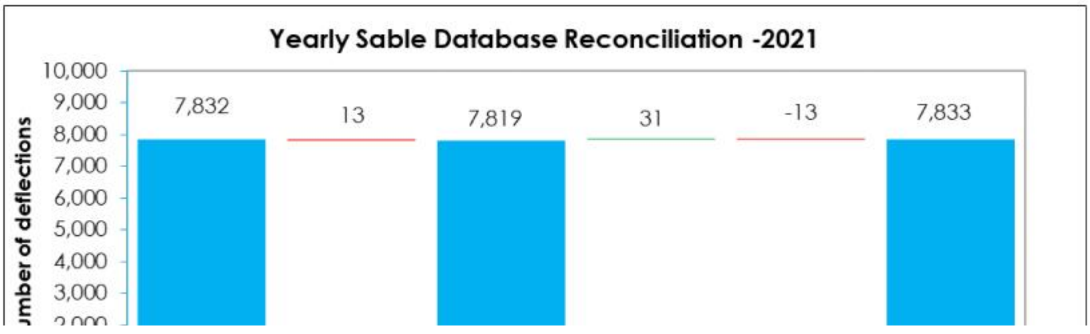


Figure 15 Reconciliation of Historic Drillhole Data



7.4.2 Planned Evaluation Drilling for 2022

Table 16 represents the drilling that was carried out at Kroondal Operations in 2021, planned drilling for 2022 compared to the actual drilling results of 2021, 2020 and 2019.

Table 16: Kroondal Operations Evaluation Drilling Costs

Exploration (WC & Capital All Reefs)	C2022 Plan		C2021 Actual		C2020 Actual		C2019 Actual	
	Meters Planned	ZAR Million	Meters Drilled	ZAR Million	Meters Drilled	ZAR Million	Meters Drilled	ZAR Million
Kwezi UG	2,100	1.82	1,118	0.92	1,797	1.31	1,201	0.92
Kwezi Surface	2,488	4.45	-	-	-	-	-	-
K6 UG	1,000	0.72	336	0.24	913	0.64	415	0.28
K6 Surface	1,020	1.55	-	-				
Kopaneng UG	1,397	1.02	1,555	0.91	1,178	0.97	319	0.21
Kopaneng Surface	632	0.90	-	-	-	-	-	-
Simunye UG	640	0.48	1,370	1.03	1,134	0.92	1,163	0.77
Bambanani UG	2,880	2.16	1,726	1.49	961	0.7	655	0.42
Bambanani Surface	6,837	9.92	1,181	1.27	0	0	2,756	4.13
MK5 and Klipfontein Surface	2,875	4.20	21	0.02	-	-	756.00	1.04
Total	**21,869**	**27.23**	**7,308**	**5.89**	**5,983**	**4.54**	**7,265**	**7.77**

An overview of the drilling is provided in Figure 16. The target areas and activities identified are four specific areas or shafts being Kwezi, Bambanani, Kopaneng and Marikana 5(MK5).

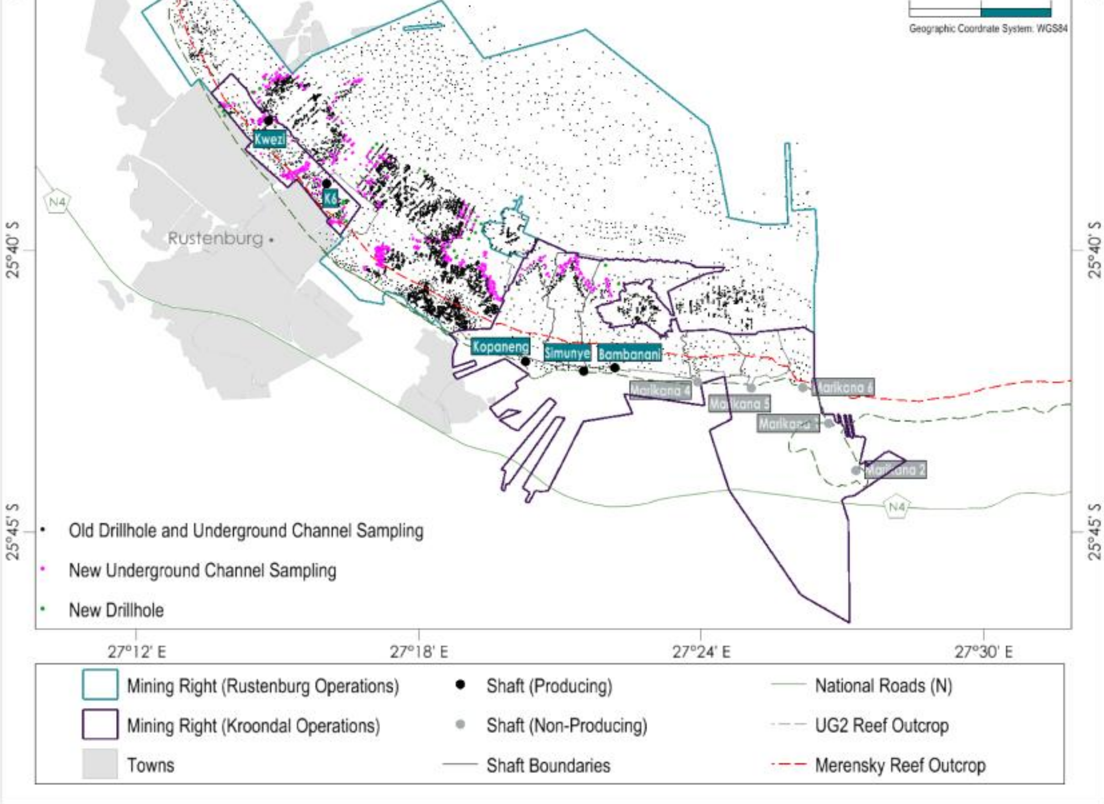
For the Kwezi Shaft area, drilling is planned to investigate the IRUP extent and improve the block models. The IRUP is accounted for as 100% geological loss as it replaces the reef or negatively impacts metallurgical recoveries. These drillholes will also assist in interpreting geological structures, especially faults that are prominent at this shaft.

At Kopaneng Shaft, drilling is planned as infill drilling due to the sparsity of drilling data.

At Bambanani, drilling is planned to improve the block models as there are areas where the drilling spacing is too wide. Drilling will also assist in structural investigations of the area.

MK5 is a project area that is under review. Mining in this area was done some years back and the plan is to revisit this area. The area is structurally complex. The area has higher grade blocks generally from the narrower pyroxenite internal waste than other areas.

Figure 16: Overview of Drilled Boreholes Kroondal and Rustenburg

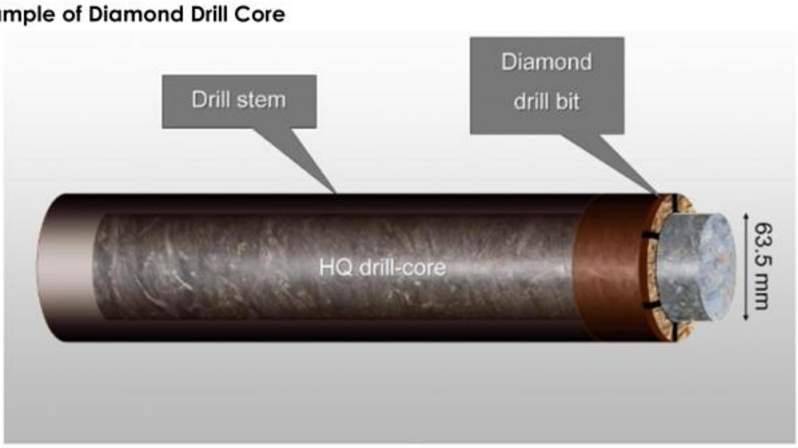


7.4.3 Drilling Methods

7.4.3.1 Surface

Diamond drill coring is the preferred method of drilling at the Kroondal Operations. Figure 17 shows a typical diamond drill core with the machine diamond drilling bit.

Figure 17: Example of Diamond Drill Core



HQ drill-core with drill bit and stem

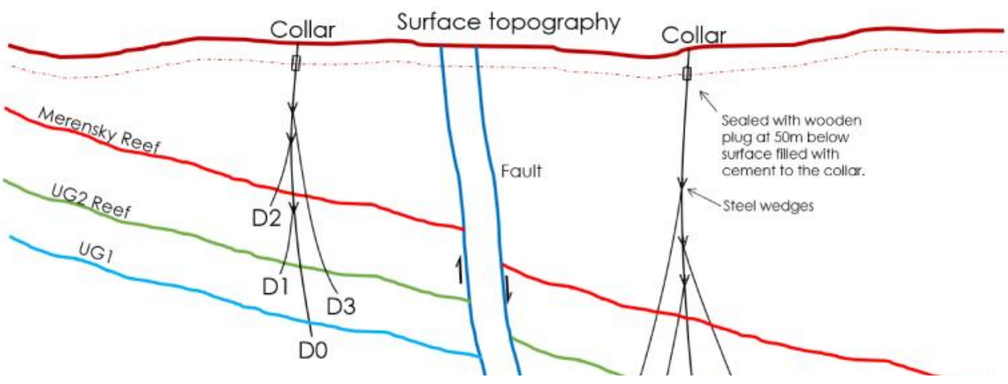
(https://www.geologyforinvestors.com/diamond-drillhole-drilling/ accessed 23/09/20)

The typical steps followed would have been:

- In a case where Sibanye-Stillwater does not own the surface rights, permission from the land owner is obtained.
- A drillhole start note is compiled, which displays the drillhole identification, location of the collar, the planned depth and a plan showing any possible underground workings that could be intersected. The drillhole is to be sited by the responsible geologist using a GPS.
- The drill rig supervisor will establish the drill site using a minimum footprint and will comply with good housekeeping and approved standards and procedures.
- The drill site will be clearly demarcated by use of the appropriate materials and open sumps should be contained within a secured or permanently manned area.
- Drilling begins with a large diameter 'open hole' (open hole means non-coring and only chips are recovered). The diameter of this hole can be 200 to 250mm (8 to 10 inches). The depth of this hole also varies as it is usually drilled to solid bedrock, through soils and oxidized rock. The diameter of the hole reduces in various steps, at differing depths down the hole, to reach typically BQ size hole (75mm hole size and 50mm core).
- Hole collar is surveyed using land surveying methods to give x, y, and z positions or coordinates.
- Drilling continues until one or both reefs are intersected, or in the case of an unsuccessful hole the hole is abandoned. Once the reef is intersected, an additional 50m is drilled and the 'Mother hole' as it is then known as complete.
- Once the mother hole is complete, a down hole survey is performed (and any other geophysical surveys as required), so that the inclination and direction of the hole can be recorded. (Section 7.6).

- Typically (but not always), additional intersections (or runs) of the target reef are obtained by 'wedging'. A steel wedge is inserted above the reef and locked into place, this can be directional i.e., surveyed in place or non-directional meaning the direction of the resulting deflection is not prescribed. The wedge acts as a guide to deflect the drill string off to one side of the hole so that additional reef intersection can be obtained.
- This is repeated as often as needed to get representative reef intersections, with the wedges being set higher and higher up the hole, and denoted by the identification of the drillhole ID _D1 to drillhole ID _Dn. Under normal reef conditions, four (4) deflections are planned per reef intersection.
- All reef runs are drilled TBW core size.
- A diagram of a set of deflections from its motherhole is known as a dendrogram and is shown in Figure 18
- Once the drillhole is completed, rods are removed, the upper part of the hole is cemented or plugged and any recoverable casings are removed.
- Whole site is rehabilitated and a cap or marker is placed on the remaining casing to the requirements of the landowner.

Figure 18: Schematic Vertical Section of a Typical Surface Drillhole



Schematic: not to scale

7.4.3.2 Underground Drilling

At Kroondal Operations prospect and cover drilling take place underground.

The prospect drilling is designed to investigate geological structures like potholes, faults and dykes which are common within these operations. This helps delineate the reef's behaviour.

Cover drilling refers to the drilling of generally flat or slightly inclined holes ahead of mining to detect the presence of water and flammable gasses, which could potentially result in injury, fatalities and property damage.

A digital plan depicting all the development ends per shaft is constructed annually and submitted to the Department of Mineral Resources and Energy (DMRE). The shafts are divided into different hydrological or risk areas based on the geology and historic water intersections. The type of water/flammable gas cover required for each area is clearly shown by this plan.

The following types of cover are specified on the Water Plan:

- Single Cover – A single set of staggered 120m cover holes with no less than a 15m overlap (Figure 19).
- Double Cover – A double set of 120m staggered cover holes with a 60m overlap (Figure 20)
    - **Note:** Start of cross cuts, tramming loops, lay-bys and any excavation that is within 30m of haulage excavation are deemed to be in cover.

The following risk areas are specified per shaft per area on the Water Plan:

Level 1 Risk Area

- All known major geological disturbances (inclusive of all dykes of more than 10m thickness, faults of more than 10m displacement and major shear zones) as indicated on the structural plan (Aeromagnetic study, surface mapping, original surface drilling and from historic underground mapping) will be cover drilled within a 150m envelope on either side of these known structures. These areas will include all historically recorded geological features associated with very poor ground conditions or water intersections greater than 5000 litres per hour or flammable gas intersections. The cover drilling design will be based on a single cover hole pattern with a 15m overlap portion in consecutive holes. Double cover may be recommended by a geologist for areas advancing through fissure zones known to have poor ground conditions.

Level 2 Risk Area

- These areas will be delineated around projected problematic geological structures that were intersected previously along dip or strike. These structures will be cover drilled on discretion through a documented decision taken during water board planning meetings.

Level 3 Risk Area

- These areas pertain to localities on the mine property where no high volumes of water and/or flammable gas are expected from surrounding geotechnical observations. The development ends will be covered by the drilling of pilot holes as per mining standard for development ends. Every development end shall, before drilling blast holes, drill two pilot holes in opposing corners to prevent the uncontrolled intersection of water or flammable gas. Corners should be alternated between blasts. Pilot holes are under no condition a replacement for cover holes. The requirement for geological cover drilling over and above the pilot holes in an area will be revised during water board planning meetings and the area will be elevated to a Level 2 or Level 1 Risk Area and cover drilled accordingly.

Mining within 60m depth below major rivers (mechanised mines)

- An area that will be undermining a river will be cover drilled within a 150m envelope on either side of the river. The cover drilling design will be based on a double cover hole pattern with a 60m overlap portion in consecutive holes.

Inclined Shafts (Decline)

- All inclined shafts will at least be covered with a single series of overlapping cover holes drilled parallel to the dip of the excavation being developed. Inclined shafts are to be cover drilled with 120m inclined holes with 15m overlap.

Figure 19: Configurations for Cover Drilling - Single Cover Drilling Layout (plan view one-sided).

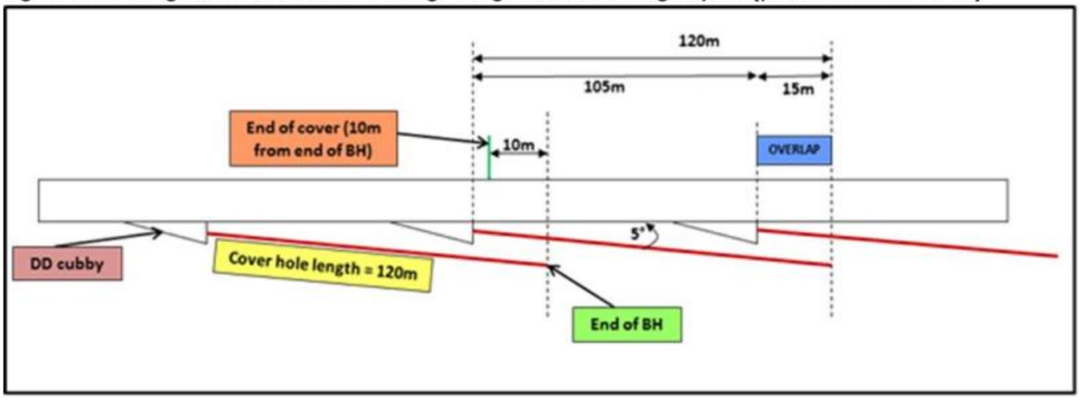
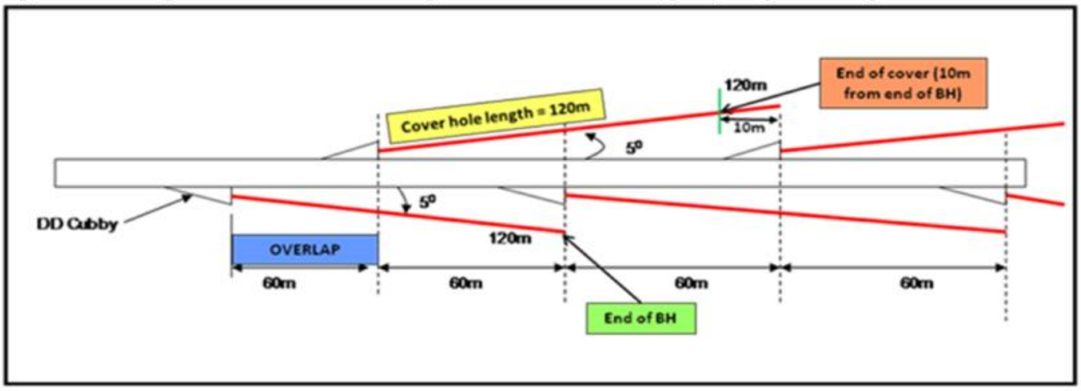


Figure 20: Configurations for Cover Drilling - Double Cover Drilling Layout (Plan view).



7.4.4 Core Logging and Reef Delineation

For both drillhole and underground diamond saw-cut channel samples, Kroondal Operations have a comprehensive standard defining the specific methodology for sampling, which is designed to ensure as far as possible unbiased and representative samples as well as to ensure the consistency of the sampling.

7.4.4.1 Surface

The following is a brief description of the procedures in place for diamond core processing of surface drilling.

All drillhole core, whether from surface or underground, is logged the same way, whereas sampling is only done for surface drilling core.

The core is obtained from the core barrel, once the driller has completed a drill run, or preferably daily and emptied into a suitably sized (Core sizes AX, BQ, HQ, etc.) core tray.

This tray is transported to the coreyard of the operation where the core is cleaned and marked with the depths of the run, the drillhole name and meter marks. Any losses are identified, and core loss amount noted. This mark-up is completed by the drill contractor.

The core is then transferred into a differing 'permanent' core tray so that the transporting tray can return to the drill site.

The geologist then observes the core and immediately checks for stratigraphic correctness.

The following is an extract from Sibanye-Stillwater's geological logging and sampling procedure which details the process:

- Check that the core is clean, fits together and is orientated correctly per core box
- Core boxes are laid out from shallowest to deepest, with ends of core in each box clearly marked
- Determine core loss (or gain) and note position

- Any changes in lithology without faulting are noted and the core checked to see if it fits together on either side
- Any discrepancies identified above are discussed and resolved with the Diamond Drill Foreman
- Before logging in detail determines the major stratigraphic units and forms general impression of the hole
- Mark reef and major lithological contacts with a permanent marker
- Logging recorded in on logging sheet with all the required fields captured
- Description of the reef as per standard
- Layering and fault dips are measured parallel to the core axis and recorded and
- Safety precautions.

7.4.4.2 Underground Channel Sampling

Within underground workings, exposures of the reef have channel samples taken. Individual channels are cut using a diamond saw cutter, generally on the pillars left from the bord and pillar mining method or on the face of the mining panels. A detailed sampling record is kept showing the reef geometry at each section. Sampling intervals are generally at 40m spacings. Channels are defined perpendicular to the reef plane and each section's position is fixed by offsetting from survey pegs. The reef is segregated into lithological units and is correlated between sample sections, and individual samples of 15cm – 25cm in length are taken to reflect the internal geometry of the reef, with not less than a 10cm sample being taken on contact. The sample mass taken is in the order of 300g to 500g. Adjacent samples spanning the hanging wall or footwall contact may be taken to increase the sample volume in the contact area.

Capture - Underground Sampling

All underground channel samples are captured in the MRM database. This database is linked to Sable Database for sample submission to the laboratory and QAQC.

Capture – Drillhole Data

- Logging and sampling are captured and uploaded into the SABLE Database
- All quality control analysis on logging and assays is carried out via standard routines in SABLE and
- Once authorised, drillhole data is safely stored in the SABLE database.

7.4.4.3 Quality Control in Drilling.

Quality control in drilling has been practiced over many decades and was a standard feature of drilling procedures both historic and current. Table 17 shows the typical quality control measures adopted for drilling.

Table 17: Quality Control Drilling

Risk/Mistake	Cause	Mitigation/Remedial Action
Mixed core	Dropped core tray	Ensure pieces lock & stratigraphy lithology 'flows'
	Mixed on transfer box to box	
	Transfer core barrel to tray	
	Core tray to sample bag	
Ground core	Core left in core barrel too long	Core loss should indicate how much ground away, stick up required
	Friable ground	Cement and redrill
Core loss	Ground core	Cement and redrill
	Friable / void ground	
Depth markings	Driller's rule / tape incorrect	Get correct length instrument & remark
	Incorrect from - to recorded	Regular reviews by the responsible person
	Differing core barrel lengths or incorrect lengths used	Increased supervision of drillers
	Incorrect from - to recorded	Regular reviews by the responsible person
	Differing core barrel lengths or incorrect lengths used	Increased supervision of drillers

The QPs are satisfied with the core logging and reef delineation carried out at Kroondal Operations. These activities are performed by trained geologists who are supervised by experienced geologists. The use of a common manual for core logging and reef delineation and marking ensures consistent core logging and sampling at Kroondal Operations, which facilitates the integration of the datasets during interpretation.

7.5 Survey Data

Typically, two survey types are required for each drillhole:

- Collar survey and
- Downhole survey.

Collar surveys for surface holes are usually carried out by a qualified land surveyor, either using trigonometric beacons (historical practice) and triangulation or latterly, by using a differential GPS System. Accuracy is within the 10cm range.

Collar surveys for underground holes are usually taken from the nearest survey underground peg and measured using tapes and a clinorule. Accuracy is of the order of 20cm.

Downhole surveys typically for surface holes have evolved since the start of exploration. Currently, professional surveyors are contracted to carry out downhole surveys.

Photographic Downhole Survey -1930's to 1990's (Leutert, Sperry Sun)

The magnetic single-shot survey uses a small camera mounted to the drill string which takes photographs of a compass card, and plumb bob which indicates the dip and dip direction of the hole at a particular depth.

As only a single shot is taken, the survey must be run several times to get an overall trajectory of the hole

As only a single shot is taken, the survey must be run several times to get an overall trajectory of the hole. Later developments along the same theme were the magnetic multishot surveys where the film was captured on a roll.

See: https://www.drillingmanual.com/2017/12/directional-drilling-surveying-magnetic.html for details.

Gyroscope survey

Gyroscope surveys were utilised for some of the last surface drillholes to be drilled, around the early to late 2000's. For a complete description of the method a good reference can be found at: https://www.drillingmanual.com/2017/12/directional-drilling-surveying-gyro.html.

Multishot Surveys

More recently surveys use Electronic Multishot Surveys which use accelerometers to measure gravity, and therefore inclination, and magnetometers to measure the Earth's magnetic field at the survey point, and thus declination of the drillhole.

Underground Surveys

Most of the underground holes are short and are thus not surveyed on the assumption that they do not deviate significantly over short distances. Should a downhole survey be required, a contractor is engaged for this.

The QPs are satisfied with the surveying methodology at the Kroondal Operations. These activities are performed by trained surveyors who have sufficient experience with this type of orebody and mining method. The surveys are deemed to be of sufficient quality for use in the Mineral Resource estimation.

7.6 Density Determination

All surface exploration holes and underground diamond saw cut channels reef intersections densities are determined in the laboratory using a gas pycnometer. Every sample assayed has density measurement taken. The QPs are aware of the potential overestimation of tonnage and metal content by up to 3% due to the use of the pycnometer density.

The defaults were determined by carrying out a classical statistical analysis per stratigraphic unit (length and density weighted). The following default mean densities were applied:

- UG2 Leader Seam 3.60 t/m^3
- UG2 Leader Seam Parting 3.10 t/m^3
- UG2 Main Seam 3.99 t/m^3
- UG2 Footwall 3.36 t/m^3
- UG2 Norite 2.80 t/m^3

7.7 Underground Mapping

The principal objectives of underground mapping are to:

- Identify and record the positions of faults, dykes and any other geological disturbances in a working place so that projections can be made ahead of the face and/or up to reef plane.
- Record the thickness and nature of the reef to delineate facies and later reconcile with sampling data.
- Record and bring to the attention of the Mining Department any areas where reef remains in the hanging or footwall of the stope and/or new geological structures identified.

Mapping is carried out on a routine basis, using a set of documented procedures, and plans updated as data is collected.

7.8 Hydrological Drilling and Testwork

Refer to Section 17.5.6 for information on hydrology.

7.9 Geotechnical Data, Testing and Analysis

7.9.1 Data Collection

Rock engineering and support designs have been developed using a combination of geotechnical drill core logging and underground mapping data. Geotechnical drill core logging is the primary method of gathering rock strength and quality parameters. Geotechnical logging is completed by sufficiently trained Geologists on drill cores recovered from surface exploration and underground cover and diamond drilling. All geotechnical drilling and logging follow standard procedures inclusive of quality checks and signed off by the respective rock engineers.

Geotechnical core logging entails the collection of structural information from the cores. There are many parameters that are recorded during geotechnical core logging, but the following are the main ones.

- Depth defining the start of each geotechnical unit
- Depth representing the end of each geotechnical unit
- Unique identification of each geotechnical unit
- Detailed description of the geotechnical feature (type, of plane, number of discontinuities, angle of discontinuity, infill type and integrity, thickness of infill, small scale and large-scale roughness, alteration type).

Underground mapping includes scanline mapping techniques, rock mass classification (RMC) data collection techniques and data collected using borehole cameras, Ground Penetrating Radars (GPRs) and Sub-Surface Profilers (SSPs). Rock mass classification data is collected regularly during routine inspections. Scanline mapping and geotechnical core logs by rock engineering personnel are done on an ad-hoc basis.

Various tests are then commissioned based on the data obtained from drill core runs and the information derived. Samples from drill cores are sent to the laboratory to determine the properties of intact rock and joint walls. Data is collected from laboratories approved by the International Society for Rock Mechanics (ISRM), South African National Bureau of Standards (SANBS) using ISRM testing techniques.

In addition, data is also collected and reviewed from various other sources, including academic research institutions, as well as various internal and external research projects and underground mapping where excavations exist.

7.9.2 Testing Methods

There are various methods available to test the material strength of rocks. Two of the most valid, reliable, cost effective and easy to use methods are Rock Quality Designation (RQD) and Point Load Index (PLI). The former provides an estimation of rockmass properties and the latter is designed to give specific rock properties. These are typically conducted as routine tests on site and are performed by site rock engineering and/or geotechnical staff.

Where required, International Society for Rock Mechanics and Rock Engineering (ISRM) testing methods are used to assess rock properties at accredited rock testing laboratories in South Africa. These are significantly more expensive than the tests conducted on site and are performed on an adhoc basis. Typically during a feasibility study, and/or where the rock engineer is unsure of specific rock strength or stress data for mine design purposes, will these tests be commissioned. Intact core samples are usually required for such tests and should be handled as per the ISRM sample collection and preparation methods.

As the rockmass is not homogeneous, a number of samples are usually submitted for testing and these generate a range of values. The laboratory data is then downgraded (according to specific criteria) for underground in-situ representation for mine design purposes. The information is used to calibrate numerical models for the mine design. As the mine design is being executed, monitoring of the excavations is conducted and the data is used to provide a back analysis of the numerical models. Further optimisation can then be done based on the outcomes of these numerical models.

This process is used by all rock engineers in the South African Mining Industry.

7.9.2.1 Rock Quality Designation

Rock Quality Designation (RQD) is a standard technique in the Mining and Engineering Industries for the qualitative and quantitative assessment of rock quality using the degree of jointing, fracturing, and shearing in a rock mass. RQD is defined as the percentage of intact drill core pieces recovered that are >10cm for a single core run. It is therefore indicative of a measure of strength of the rockmass and are used for preliminary macro designs.

Therefore, low RQDs will indicate low-quality rockmasses which will require additional geotechnical work to understand the rockmass further before any design work continues. Contrary to popular belief, high RQD rockmasses will also generate similar needs for design work as the geophysical and geomechanical properties of rocks and rockmasses are not uniform.

The general equation for RQD is expressed as:

RQD index (%) = 100 × Σ (Length of core pieces ≥ 0.10 m)/(Total length of core run)

7.9.2.2 Point Load Index (PLI) Summary

Point Load (PL) is a test that aims at characterizing intact rock strengths. It is an index test, meaning that it can be performed relatively quickly and without the necessity of sophisticated equipment to provide important data on the mechanical properties of rocks. Many more tests can be conducted in this way, as it does not need a laboratory or perfect rock specimens to perform the tests.

The test apparatus consists of a rigid loading frame, a loading measuring system and a simple system of measuring the distance between the two platens. Rock samples are compressed between the platens, which is usually about 1.5-10cms apart so that various sizes of similar rock materials can be tested.

The point load index (I s) is the force needed to fracture a sample of rock between conical points:

I s = P/D2, where P is force and D is the distance between the points, both at failure.

I s is related to uniaxial compressive strength (approximately equal to I s × 24). As such, this test can be used crudely to infer the rock UCS strength value. This technique is not widely used.

7.9.3 Geotechnical Rockmass Characterisation

The main aim of geotechnical characterization is to employ the best possible mine design and support rationale to cater for the varying rockmass conditions. Therefore, the appropriate characterization of the rockmass is imperative. The Sibanye-Stillwater Platinum Operations' Mechanized Operations: MANDATORY CODE OF PRACTICE (MCOP) to combat Rockfall and Rockburst Accidents, the MCOP, adopts a geotechnical Ground Control District (GCD) methodology to classify areas of the mine plan with different geotechnical parameters. Typically these would consider, depth, type of reef, thickness of the seams and the relative position thereof, hangingwall types and distances to unstable and less cohesive partings; driving forces from joints, major fault zones and shear zones, minor shears and faults, domes, dykes, IRUP, water, pegmatite intrusions, variations in middling between chromitite layers as a result of rolling reefs and potholes, etc. In some cases, strain release and/or rock bursting may be considered.

In the Bord and Pillar operations, the UG2 chromitite Main Seam and the overlying chromitite Leader seam, together with the intervening waste parting, form the mineable reef horizon. The thickness of the Main Seam, the waste parting and the Leader Seam varies across the entire property and in most instances the Leader Seam is mined simultaneously with the Main Seam; however, if the width of the feldspathic pyroxenite parting becomes excessive only the Main Seam is mined, in which case, mining is done along the LT Geotech chromitite parting.

The thicknesses of the individual seams that make up the Doublets are also highly variable, as is the distance between the bands forming the Doublets/ triplets horizon. Where the Doublets are situated less than 0.4 m above the top of the Leader Seam, it is mined out, to avoid falls-of-ground.

Merensky Reef is not discussed here as none of the Kroondal Operations mined this type of reef during 2021.

The majority of the joints are steep dipping. Contributors to major collapses are shallow dipping structures, parting planes and major fault zones. Water generally acts as an accelerator for deterioration

in the jointed rock mass. The operations mine through dykes and fault zones that outcrop, with some operations in close proximity to the Hex River. Major geological structures such as the Turfontein shear traverse several operations and ground conditions are challenging characterized by blocky and friable rock mass. Cover holes are drilled in all declines to check for ground water and/or gas. These cover holes are coverage ahead of the advancing excavations. Cover drilling is also done in sections mining towards or through major structures and large potholes.

towards or through major structures and large potholes.

Methods employed to monitor the middling between the various chromitite partings include borehole inspections using borehole cameras, GPRs and SSPs).

Current mining depth ranges from 75mbs to 650mbs, which is technically considered ultra-shallow to a shallow depth. At such depth, strategies are aimed at controlling the tensile zone on a regional basis to prevent large scale rock failure and immediate stope hangingwall to prevent local FOGs in the working area. Stress levels are low at shallow depth however, undermining of surface structures is a concern. As such, pillars are designed to support the overburden up to the surface.

Kroondal Operations use the Institute of Mine Seismology (IMS) Vantage program to monitor pillar compliance. Reports on Average Pillar Stresses and pillar factors of Safety are generated on a monthly basis and areas of concern are addressed accordingly.

Seismicity is not a concern for bord and pillar operations.

A tributary of the Hex River, known as the Kroondal tributary, drains to the west across the Kroondal property; however it is seasonal and a minor contributor to the flow of the Hex River. No adverse interactions between the mine workings and the Kroondal tributary have been experienced or are expected.

Previous hydrogeological investigations have indicated that there are two main aquifer systems present in the Kroondal orebody: a shallow weathered aquifer between depths of 14 m and 22 m below surface and a deeper, confined weathered and/or rock aquifer at depths ranging from 24 m to 29 m below surface. However, mining currently does not extend to 29 m below surface at Kroondal Operations. Underground working intersects water only in areas mining through major geological structures.

7.9.4 Geotechnical Results and Interpretation

Using widely used empirical techniques (Bieniawski's RMR and Barton's Q rating), rockmasses are classified and included into the GCDs. Both scanline mapping and RMC data are conducted using industry best practices. The appointed rock engineer is responsible for overseeing the collection and capturing of the data. Instrumentation data collection is done according to the OEM provided training that supplies the equipment.

In addition, parameters are assimilated and used to assess the mine design using established, approved and recognized numerical modelling techniques.

The visual evidence of hand samples, observations made underground, the results of selective laboratory testing and data from geotechnical instrumentation, show that the dominant hanging wall and footwall rocks to be typical of the Critical Zone rocks found across the western Bushveld summarizes their average material properties. The UCS values summarized in Table 18 show that the rocks are of moderate to high strength as per the ISRM grading.

Table 18: Summary of the material properties of the dominant hanging wall and footwall rock types

Sample position	Triaxial compressive strength	UCS Tests			
	Density	Strength UCS	Tangent elastic modulus @ 50% UCS	Poisson's ratio @50%UCS	Brazilian tensile strength
	g/cm³	MPa	GPa	GPa	MPa
Reef - UG2	4.16	136.9	133.3	0.32	5.3
Hangingwall - Feldspathic pyroxenite	3.26	156.4	159.0	0.24	18.9
Footwall - Pegmatoidal pyroxenite	3.31	121.9	152.3	0.27	14.8

As we have established, general rockmass conditions are catered for with the use of GCDs. However, in some cases, variations in the middling between the chromitite layers may exist, and data is then collected from surface and underground additional core drilling. This is confirmed using geotechnical instrumentation specific to the investigation required. In the instance of variable stable beam thickness, data from instrumentation is used to refine the original geology isopachs that were historically data from instrumentation is used to refine the original geology isopachs that were historically constructed using surface and underground core drilling.

In addition, using underground observations and drill core results, RMR and Q are calculated. Kroondal RMR values range between 50 and 70 (fair to good rockmasses) for the majority of the mining areas. E Anomalies exist closer to major geological intersections where RMR values may be <35. These areas are treated as Special Areas as per the requirements contained in the MCOP. In general, joint properties are generally dry, planar, smooth/rough and with little to no infill for higher RMR values, and for lower RMR values, discontinuities are damp, smooth, planar/undulating and with thick infill as shown in Table 19.

Table 19: Rock mass classes determined from RMR total ratings and meaning

RMR Ratings	**81-100**	**61-80**	**41-60**	**21-40**	**<20**
Rock Mass Class	A	B	C	D	E
Description	very good rock	good rock	fair rock	poor rock	very poor rock

8 Sample Preparation, Analyses and Security

8.1 Sampling Governance and Quality Assurance

The QPs are satisfied with the standard procedures, which prescribe methods aligned to industry norms. The governance system at the Kroondal Operations relies on directive control measures and makes use of internal manuals (standard procedures) to govern and standardize data collection, validation and storage. Furthermore, the standard procedures are mandatory instructions that prescribe acceptable methods and steps for executing various tasks relating to the ongoing gathering, validation, processing, approval and storage of geological data, which is utilised for Mineral Resource estimation. In addition

to internal standard procedures, Sibanye-Stillwater implements an analytical quality control protocol that assesses the extent of contamination and analytical precision at the laboratory. Batches of samples sent to the laboratory include routine "blank" samples (Magaliesburg quartzite) and certified reference material (CRM). Results of the analytical quality control are discussed in Section 8.5.2.

The governance system also emphasises training to achieve the level of competence required to perform specific functions in data gathering, validation and storage. Lithological data is acquired through the logging of the drill core recovered from the surface and underground drilling. The logging is undertaken by trained geologists, who are familiar with the various reefs, footwall and hanging wall stratigraphy and rock types. The core logging is also guided by existing drillhole information from previous core logging. Routine validations are undertaken by the experienced geologists at various stage gate points in the data collection process flows, with the ultimate validation performed by the QP.

Another aspect of the governance system is the documentation of the geological data gathering process flow (i.e., data collection, processing and validation). The QPs acknowledge that this documentation facilitates the auditability of the process flow activities and outcomes as well as the measures undertaken to rectify anomalous or spurious data.

Historic surface core is stored at a Central Facility in the Waterval Core yard, near Rustenburg. Storage facilities are secured to prevent unauthorised entry, with limited access.

8.2 Reef Sampling – Surface

The surface drilling core is sampled using a comprehensive standard procedure which entails comprehensive QAQC procedures in the process. The core is split in half where one half is retained for reference, whereas the other half is sent to the laboratory for analysis. Samples include bottom and top contacts together with 2cm of footwall and a minimum of 2cm of hangingwall, with the contact samples being no less than 10cm. In addition, at least one sample of unmineralized footwall and hangingwall is included. Samples are broken into individual pieces no less than 20cm for BQ core size to ensure enough material is available for analysis. Furthermore, for BQ size core, the entire drill core sample is submitted to the analytical laboratory and no core splitting is performed.

The samples are assigned unique sample identification numbers and tags before the Evaluation Team Leader transports them to the laboratory. In addition, the samples for each drillhole and the associated quality control samples (CRM and blanks) are submitted to the laboratory. The Geologists prepare sample submission sheets that accompany the samples. Records of the sample data are captured in the SABLE database.

8.3 Reef Sampling – Underground

8.3.1 Channel Sampling

The data is stored in one database but linked to the assay laboratory automatically via a second system. The following capture process is followed:

The sampling data is captured in MRM System which is linked to Sable Database. Sable is used to submitting samples to the laboratory via an automated process. The laboratory uses Laboratory

Information Management System (LIMS), which then reports the results automatically back into Sable where QAQC is done. Once QAQC is completed, the information is relayed back into the MRM system. At the Operations, the MRM data is authorised before it is used for evaluation.

8.4 Sample Preparation and Analysis

8.4.1 Laboratory

The surface and underground sampling assays are analysed by various ISO-accredited laboratories for the Kroondal Operations. The following International Organisation for Standardisation (ISO) accredited laboratories have been utilised since January 2010:

- Anglo American Research Laboratory ('AARL'),
- Genalysis Laboratory Services (SA) (Pty) Limited ('Genalysis'),
- SGS South Africa (Pty) Ltd ('SGS'),
- Mintek (Pty) Limited ('Mintek'),
- SetPoint Industrial Technology (Pty) Limited ('Setpoint') and
- Quality Laboratory Services Limited (QLS).

All current Kroondal samples are analysed at Quality Laboratory Services, an independent South African National Accreditation System (SANAS) accredited laboratory (SANAS17025) for geochemical analysis (4E, 6E plus Ni and Cu).

The laboratory has facilities for sample preparation, chemical analysis (via fire assay and instrumental techniques) and is equipped with the LIMS software, which facilitates effective and efficient management of samples and associated data. It handles geological drilling and grade control samples as well as samples from the concentrators.

8.4.2 Sample Preparation and Analysis

Samples received at the laboratory are labelled with a unique laboratory identifier and logged. The samples are then emptied into a drying pan and dried to a constant mass in drying ovens at 105°C. After drying, the sample is pulverised to a 95% pass rate on a -75µm and emptied into a labelled sample bag for further processing.

Samples are assayed for 6E (i.e. Pt, Pd, Rh, Au, Ru and Ir), Cu, Ni and density. PGMs contained in concentrate samples are collected in a single fusion step, using nickel sulphide (NiS). The resulting NiS buttons are subjected to leaching and filtration processes to separate the PGMs. The PGMs are dissolved using aqua regia. The resulting solutions are analysed by Inductively Coupled Plasma (ICP) to determine the concentrations of Pt, Pd, Rh, Ir, Ru and Au contained in a sample. Cu and Ni are analysed using a sodium peroxide and sodium carbonate fusion to decompose the sample. Nitric acid is added to dissolve the fused sample. The cooled solutions are transferred into labelled 250ml volumetric flasks and send to the ICP for analysis. The determination of density (SG) is achieved by using the AccuPyc 1340 Pycnometer which is a fully automated gas displacement pycnometer. Density and volume are determined by pressure change of helium within calibrated volumes.

Assays, including the results from laboratory internal standards, are reported within one to three months turn-around time.

QLS has in place quality assurance and control procedures for the analysis and handling of the samples. An overall high level of cleanliness is maintained to minimize contamination. Furthermore, the laboratory also included standards and blanks in each sample batch and any anomaly identified in the quality control samples is addressed as required.

The QAQC procedures include regular audits, Proficiency Testing Schemes, round-robin benchmarking, as well as the submission of blanks and standards to the laboratory.

8.4.3 QP Opinion

The QPs are satisfied with the sample preparation, analytical methods, accuracy and precision and the level of cleanliness at the analytical laboratory. The analytical methods employed are suited to the mineralisation style and grades. Accordingly, the analytical data from the laboratory is suitable input for grade estimation.

Note on historical assays: Fire assay is a well-established procedure and has been used in South African mines for many decades. The procedure has not changed in ways that significantly affect the accuracy and comparability over the life of the mine.

8.5 Analytical Quality Control

8.5.1 Nature and Extent of the Quality Control Procedures

Sibanye-Stillwater implements analytical quality control protocol requiring ongoing monitoring of the laboratory performance. Adhoc and unannounced visits are done to the laboratory to check all the processes taking place at the laboratory.

8.5.2 Quality Control Results

Analytical results for the blank and standards are analysed graphically on control charts to facilitate the identification of anomalous data points. Where the standard result is reported outside three standard deviations of certificate value – re-assay is requested for the whole batch from the laboratory. A sufficient number of standards and blanks are inserted into the sample stream (equivalent to between 5% and 15% of all samples). Standards consist of in-house standards as well as external "AMIS" CRMs. All in-house standards have been South African Bureau of Standards ("SABS") certified using a round-robin process.

The blank material utilised has no certified value, and the blank sample data is analysed visually on plots to identify anomalous values that may suggest overwhelming contamination or sample swapping. Blank samples are accepted to 0.25g/t, after which re-assay is requested.

Figure 21 and Figure 22 show the typical control plots of a CRM and a blank used to assess the quality of assay results.

Figure 21: Example of CRM Result Monitoring 2020/2021

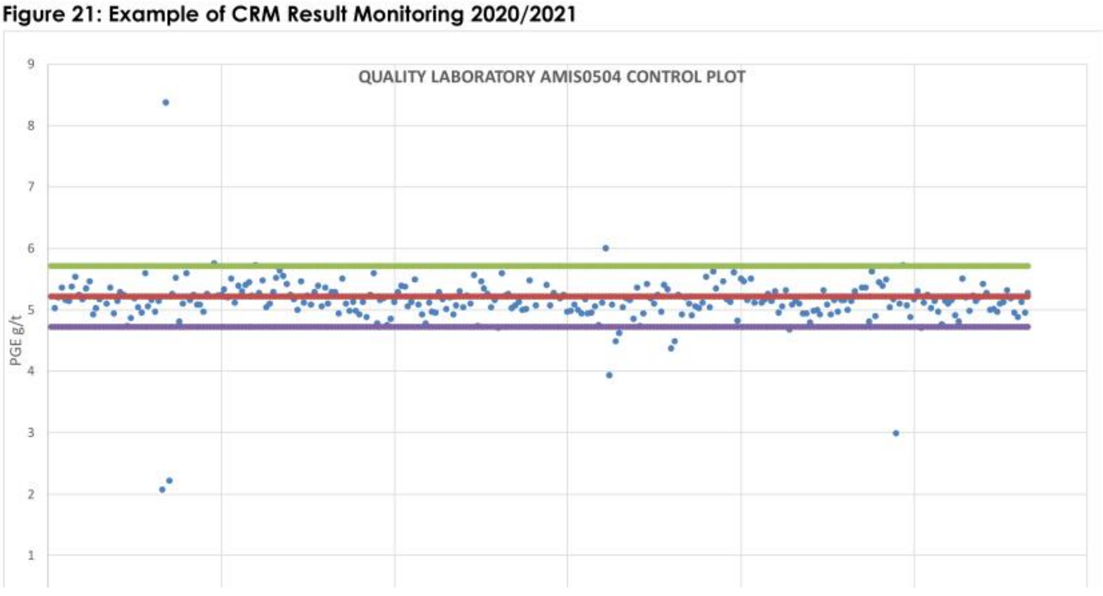
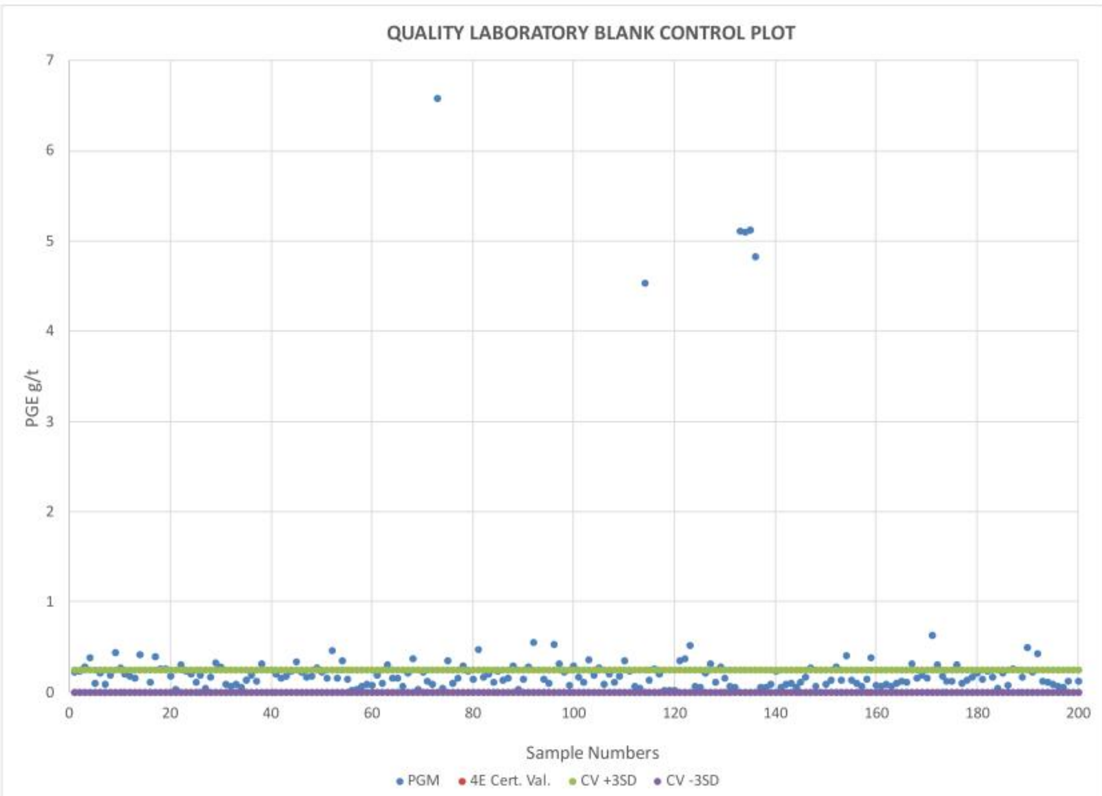


Figure 22: Example of Blank Result Monitoring



8.5.3 QP Opinion

Based on the foregoing, the QP concluded that the laboratory's analytical data shows overall acceptable precision and accuracy, and no evidence of overwhelming contamination by the laboratory that would affect the integrity of the data. As a result, the analytical data from the laboratories is of acceptable integrity and can be relied upon for Mineral Resource estimation.

9 Data Verification

9.1 Data Storage and Database Management

Procedures are in place to ensure the accuracy and security of the databases. All the Kroondal surface diamond drilling and underground channel sampling data is stored using SABLE Data Warehouse software where QAQC data analysis is also carried out. The SABLE database administrator oversees data management procedures while the database manager on-site oversees exploration drillhole data.

Data capture is continuous, regularly monitored and validated. Information stored in the database includes collar coordinates, dates of completion of each stage, survey data, lithological logging, alteration logging, structural logging, mineralisation, core size, sampling, CRM information and assay data. The SABLE database is stored on the central IT server, where it is backed up and has rigorous controls (e.g. password protection and access restrictions) to ensure the security and integrity of the data.

The QPs are satisfied with data storage and validation as well as database management practices, which are all aligned to industry practice. There are sufficient provisions to ensure the security and integrity of the data stored in the SABLE database.

9.2 Database Verification

Internally generated channel samples, surface diamond drilling and mapping data is the primary data utilised for geological interpretation and Mineral Resource estimation. This data has been generated over a lengthy period of time. The imports into the database and validations are performed by experienced personnel. The QPs did not perform independent verifications of the data collected but relied on the rigorous validations performed during data collection and processing to which they participated.

The Mineral Resource estimates for the Kroondal Operations are mainly based on validated drillhole and channel data, which is stored in the SABLE database.

For the 2021 Mineral Resource estimation at Kroondal Operations, data pertaining to 14,818 data points were used for the UG2 model.

9.2.1 Mapping

Mapping is checked underground by the responsible geologist when conducting start-up assessments. The responsible geologist will print a plan when proceeding underground and will ensure that the geological mapping is correct and that all features are recorded. All underground mapping information is captured in the Microstation system.

9.2.2 Drillholes

The validation of drillhole data is a continuous process completed at various stages during data collection, before and after import into the SABLE database and during geological interpretation and Mineral Resource estimation. As the QPs are full-time employees of Sibanye-Stillwater working at the Kroondal Operations, they either performed or supervised the validation of the drillhole data after which they approved and signed-off the validated data used for Mineral Resource estimation.

The logging is guided by a standard procedure, which standardises data gathering, and the type of detail required for each drillhole log, and any deviations or anomalous entries are flagged by the inbuilt validations tools available in the SABLE database.

Geologists validate the survey data by comparing it against planned coordinates and through visual checks in the Datamine environment.

9.2.3 Channel Sampling

The validation of face samples is a continuous process completed at various stages during data collection. Unique barcoded sample numbers are generated and printed on the surface, preventing duplicate ticket numbers. Samples are captured into the SABLE database with controls in place, which includes drawing of sections and validation of location and geology by experienced full-time employees.

Planned Task Observations are conducted quarterly in order to ensure sampling procedures are followed correctly.

Planned Task Observations (PTOs) are conducted regularly in order to ensure sampling procedures are followed correctly.

9.3 QP Opinion

The QPs acknowledge the rigorous validation of the extensive database utilised for surface drilling and underground evaluation and, ultimately, Mineral Resource estimation at the Kroondal Operations. The data was validated continuously at critical points during collection, in the SABLE database and during geological interpretation and Mineral Resource estimation. For the recent data, the QPs either participated in or supervised the validations which were performed by suitably trained personnel and approved the use of the validated and signed-off data for Mineral Resource estimation. Similar practices which were inherited by Sibanye-Stillwater were in use by the previous owners for the collection historical data. The QPs have assessed the historical data and concluded that it is suitable for Mineral Resource estimation. In general, the data validations are consistent with industry practice and the quantity and type of data are appropriate for the nature and style of the mineralisation.

10 Mineral Processing and Metallurgical Testwork

The plant is well established and no changes are planned. Accordingly, there has not been any recent testwork completed for the purposes of process design and metallurgical amenability assessment as these are unnecessary for operating plants. The type of ore material is consistent with historical processing, and any metallurgical testwork conducted is to support short term operational issues. The plant recovery factors are benchmarked to actual recoveries achieved by the plant and there is no material risk to the planned plant recovery factors.

There is no metallurgical testwork that is material to the operational this stage of operation.

Concentrator Samples are sent to an external laboratory for testing. Refer to Section 8.4.1 for laboratory and analysis details.

For mineral processing refer to Section 14 and ongoing sampling in the plant, refer to Section 14.3.

11 Mineral Resource Estimates

The following describes the evaluation of the Mineral Resource of the Kroondal Operations which were derived from the underground and surface sources. As the Merensky Reef is mined out, only the UG2 Reef was modelled.

NOTE: An integrated Mineral Resource model is constructed combining the UG2 Reef at both the Rustenburg and Kroondal Operations. Mineral Resources are divided and reported within their respective boundaries.

11.1 Estimation Domains

Geological interpretations based on structural, thickness and grade data are used to construct the estimation domains (geozones) (Section 6).

11.1.1 Compositing

Selection criteria for composites is based on a minimum mining width of 200cm, a well-defined marker horizon(s) in the economic zones and geotechnical requirements of the hangingwall. There is no maximum mining width. While no cut-off grade is used, the areas with variable width are composited to include as much of the mineralized material as possible within the geotechnical constraints. Where the chromitites are less than the minimum mining width the additional thickness is taken in the footwall. For an explanation of why no cut-off grade is used see Section 11.3.2.2

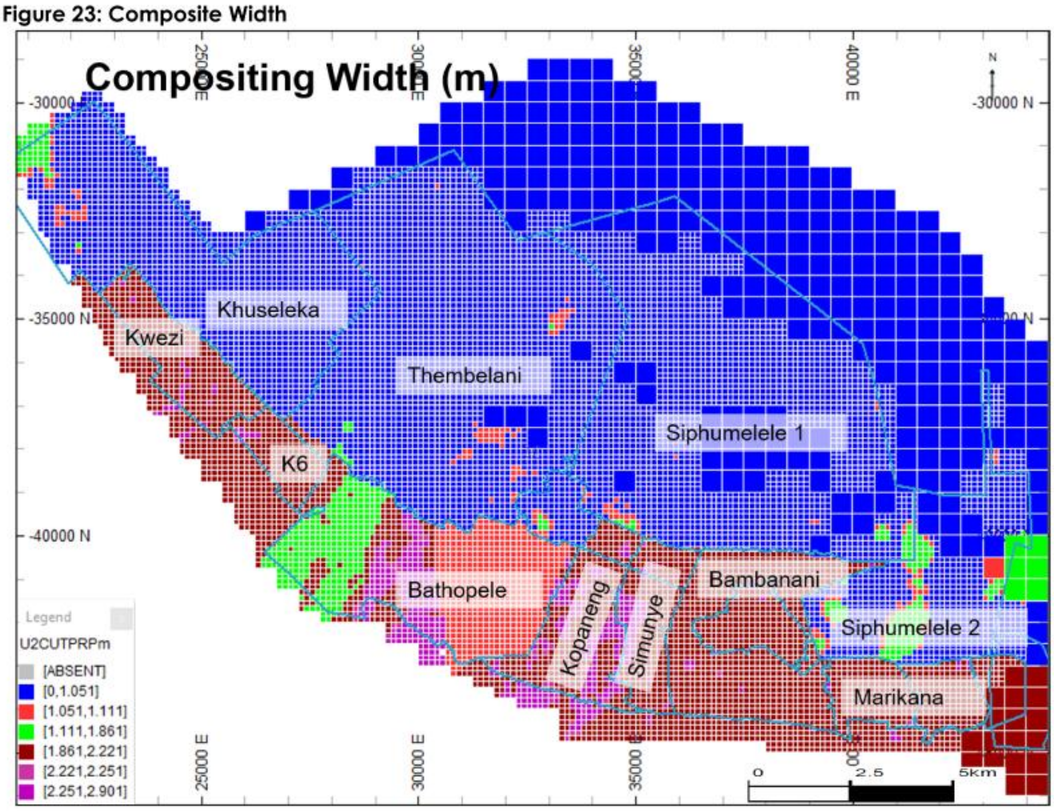
Composites per lithological unit (i.e., drillhole and channel sample data composted by lithology) are used to inform the Mineral Resource model. Composite boundaries are determined by geological contacts and grade distribution for the following five primary UG2 Reef components:

contacts and grade distribution for the following five primary UG2 Reef components.

- Leader Component
- Parting Width Component (internal Waste)
- Geotech Component – Chromitite Layers- not always developed
- Main Seam
- Footwall Unit

A minimum thickness of 200cm is modelled for the Kroondal Operations where a high-profile mechanized mining method is applied. The Mineral Resource width for this mining method scenario includes the Main Seam, 10cm (minimum) Footwall Pegmatoid, Leader Seam and parting width between the Main Seam and Leader Seam. Where the entire composite width is less than 200cm, the additional width is made up of incorporating additional material from the Footwall unit. The spatial distribution of the total composite width is shown in Figure 23. In areas where the width exceeds 2.5m the Leader Seam and Leader parting width is removed from the composites and a 2m cut is modelled.

Figure 23: Composite Width



11.1.2 Estimation Domains

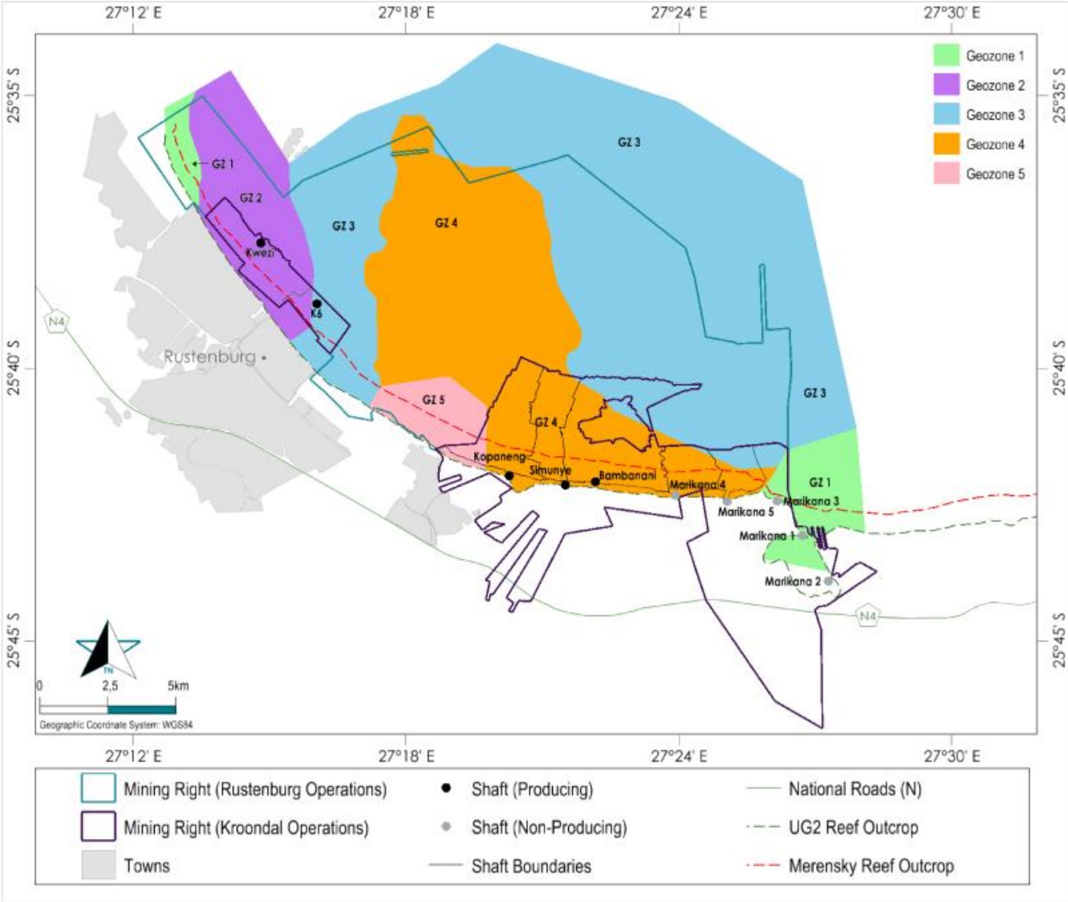
Geological interpretations based on grade and structural data were used to construct the estimation domains (geozones) (Figure 24).

The UG2 geozones definition is based on a combination of thickness and the PGM value distribution.

The thickness of the UG2 Main Seam between the geozones varies from 71cm to 85cm. A minimum 200cm thick composite was modelled for the mechanised mines where a high-profile mechanized mining method is applied. The variable mining cut includes UG2 main seam, 10cm (minimum) Footwall Pegmatoid, Leader Seam and parting width between the UG2 and Leader.

The area of the Mineral Resource blocks was corrected for the dip and discounted for geological losses based on the 3-D structural interpretation. From the resultant dip, corrected area, thickness and density data, volume and tonnage are calculated. Estimation domains were used as hard (constrained) boundaries in the estimation for the 125m by 125m and 500m by 500m blocks.

Figure 24: UG2 Geozones



11.2 Estimation Techniques

11.2.1 Grade and Tonnage Estimation

11.2.1.1 Statistics and Capping

The primary software used was Datamine Studio RM for estimation and Snowden Supervisor for statistics and variogram modelling.

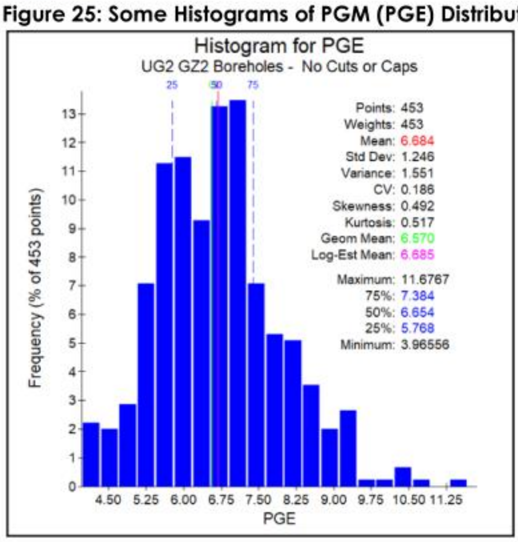
Based on the width/grade characteristics, the Mineral Resource was divided into various estimation domains (Section 0). Detailed exploratory data analysis included sample verification, histogram and cumulative distribution plots were done per domain.

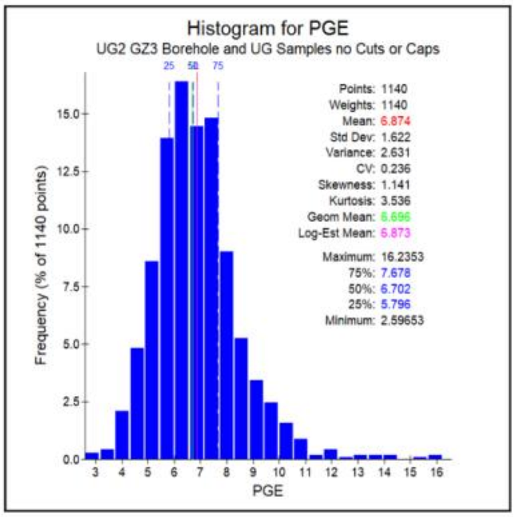
For the UG2 Reef, the main seam, hangingwall and footwall components were composited and modelled individually. These modelled units were then combined to a minimum mining width of 200cm for mechanized bord and pillar Mining method.

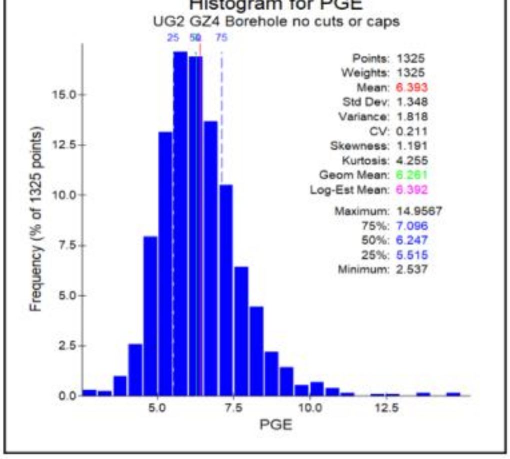
No declustering was applied for variography given the relatively even data point distribution across the operations.

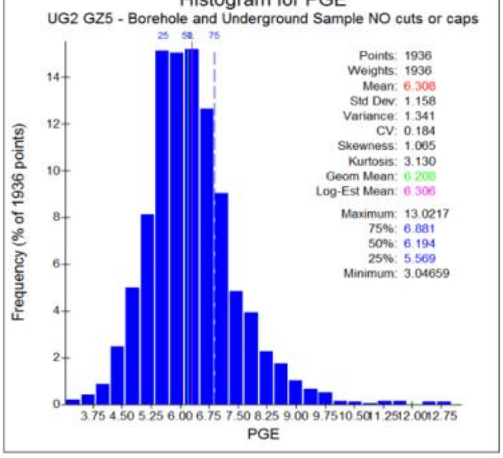
No cutting or capping was applied for the Main Seam grade (4E PGM) and width models because there are no extreme values in the distributions (Figure 25). Capping was only applied for the Prill Element (Pt+Pd+Rh+AU) and Base Metal (Cu+Ni) from the lithological units above and below the Main Seam. Capping was generally applied at the 99th percentile per domain to reduce the effects of extreme high grades on each estimated block.

Figure 25: Some Histograms of PGM (PGE) Distributions









11.2.1.2 Variogram Modelling and Estimation Parameter Selection

The variography analyses for all components (4E, Prill grades, Ni and Cu) of the individual geozones were conducted using the validated composites for the combined underground channel and surface drillhole data.

No transformation of the data was applied to the variograms as the data distribution approaches a normal distribution for thickness and grade where there are sufficient composites.

To determine the orientation of the mineralisation for individual domains, variogram maps were created. The variograms were treated as isotropic as there are no trends similar to that extensively done for the

PGM reefs within the Bushveld Complex. No convincing anisotropy effect was noticed. Search distances for grade and width estimation were based on variogram ranges for each element (4E, Prill grades, Ni and Cu). Variogram parameters used for kriging are available in Table 20.

Search distances for grade and width estimation were based on variogram ranges for each element.

Figure 26: Example of a Variogram Map

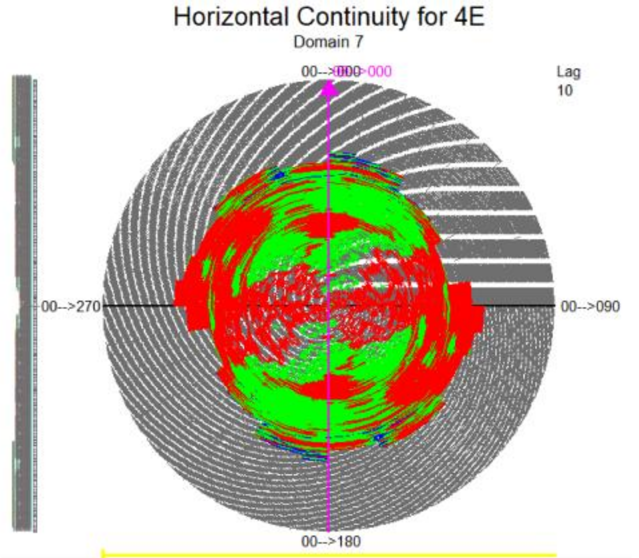


Figure 27: Example of Variogram for 4E Grade for Different Geozones

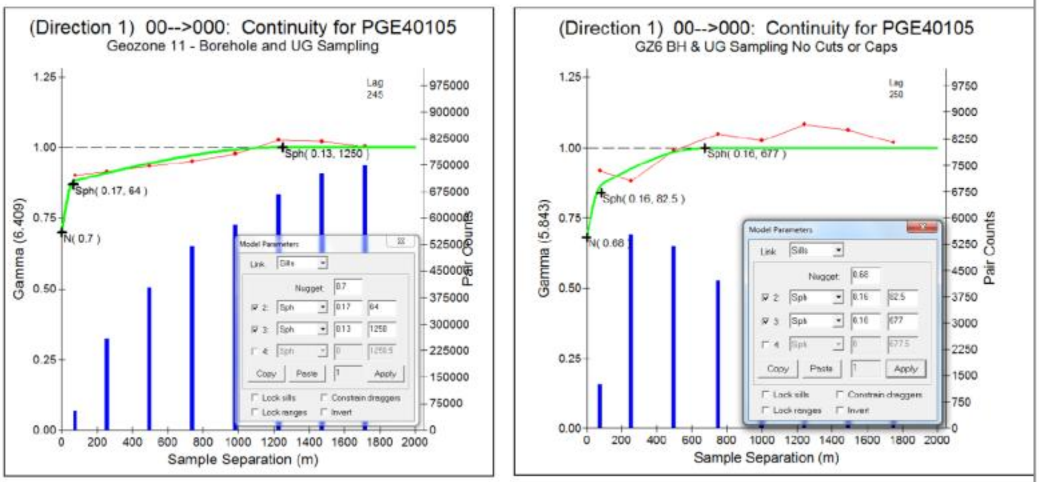


Table 20: Summary of Variogram Model Parameters for all the UG2 Geozones

PARAMETER	FACIES	VREFNUM	VANGLE1	NUGGET	ST1PAR1	ST1PAR2	ST2PAR1	ST2PAR2	ST3PAR1	ST3PAR2
PGE (g/t)	1	1	-90	0.59	8	8	245.5	245.5	808.5	808.5
PERPLENG (m)	1	2	-90	0.2	61	61	349	349	654.5	654.5
PT (g/t)	1	4	-90	0.71	133	133	467	467		
PD (g/t)	1	5	-90	0.55	33.5	33.5	325.5	325.5		
RH (g/t)	1	6	-90	0.62	96.5	96.5	583.5	583.5		
AU (g/t)	1	7	-90	0.47	34.5	34.5	355.5	355.5		
CU (%)	1	8	-90	0.23	70.5	70.5	650.5	650.5		
NI (%)	1	9	-90	0.06	88.5	88.5	650.5	650.5		
PGE (g/t)	2	11	-90	0.45	37.5	37.5	402	402	729	729
PERPLENG (m)	2	12	-90	0.37	22.5	22.5	83.5	83.5	1273.5	1273.5
PT (g/t)	2	14	-90	0.44	80	80	860.5	860.5		
PD (g/t)	2	15	-90	0.57	13.5	13.5	164	164	683	683
RH (g/t)	2	16	-90	0.29	64	64	1488	1488		
AU (g/t)	2	17	-90	0.31	113.5	113.5	951	951		

PARAMETER	FACIES	VREFNUM	VANGLE1	NUGGET	ST1PAR1	ST1PAR2	ST2PAR1	ST2PAR2	ST3PAR1	ST3PAR2
CU (%)	2	18	-90	0.22	96	96	1765.5	1765.5		
NI (%)	2	19	-90	0.16	129	129	917	917		
PGE (g/t)	3	21	-90	0.57	0.15	0.15	207.5	207.5	1837	1837

PERPLENG (m)	3	22	-90	0.38	37.5	37.5	298.5	398.5	1553	1553
PT (g/t)	3	24	-90	0.36	39	39	316.5	316.5	2266.5	2266.5
PD (g/t)	3	25	-90	0.54	28.5	28.5	43	43	1393	1393
RH (g/t)	3	26	-90	0.31	80	80	423.5	423.5	1871	1871
AU (g/t)	3	27	-90	0.5	41.5	41.5	282.5	282.5	812.5	812.5
CU (%)	3	28	-90	0.3	64	64	719	719	2381.5	2381.5
NI (%)	3	29	-90	0.42	46	46	347.5	347.5	2171	2171
PGE (g/t)	4	31	-90	0.61	46.5	46.5	1744	1744		
PERPLENG (m)	4	32	-90	0.31	57	57	497.5	497.5	1285	1285
PT (g/t)	4	34	-90	0.4	46.5	46.5	1373	1373		
PD (g/t)	4	35	-90	0.52	642.5	642.5	1399	1399		
RH (g/t)	4	36	-90	0.32	52	52	321	321	2114	2114
AU (g/t)	4	37	-90	0.49	39.5	39.5	286	286	984.5	984.5
CU (%)	4	38	-90	0.28	44.5	44.5	276.5	276.5	977.5	977.5
NI (%)	4	39	-90	0.31	31	31	404	404	1185	1185
PGE (g/t)	5	41	-90	0.54	64	64	1204.5	1204.5		
PERPLENG (m)	5	42	-90	0.62	90.5	90.5	268.5	268.5	1191.5	1191.5
PT (g/t)	5	44	-90	0.61	52.5	52.5	283	283	1251.5	1251.5
PD (g/t)	5	45	-90	0.56	74	74	1088	1088		
RH (g/t)	5	46	-90	0.56	71.5	71.5	591	591	1372.5	1372.5
AU (g/t)	5	47	-90	0.39	49	49	1283.5	1283.5		
CU (%)	5	48	-90	0.54	52.5	52.5	335	335		
NI (%)	5	49	-90	0.48	45	45	1346.5	1346.5		

Kriging Neighbourhood Analysis (KNA) is a tool which assists in determining the appropriate estimation parameters as per the examples below. KNA provides appropriate block sizes of 125m x 125m and 500m x 500m blocks (Table 20)and (Table 21**)**. These have positive kriging efficiencies (KE) and slope of regression (SR). The QP decided to use 125m x 125m for the well-informed current mining areas and 500*500m for the deeper areas of the UG2.

The KNA for the number of samples for the 125m x 125m blocks provides the KE vs. SR relationship.

Table 21: Kriging Parameters

	Block Size	Minimum number of samples	Maximum number of samples	Search Volume No. 2	Minimum number of samples	Maximum number of samples	Search Volume No. 3	Minimum number of samples	Maximum number of samples
Point Data	125m x 125m	7	20	1.5	7	20	50	20	40
Point Data	500m x 500m	7	20	1.5	7	20	50	20	40

11.2.1.3 Interpolation Methods

Estimation by ordinary kriging was done for elements with sufficient data and ID (Inverse distance to the power of two) estimates for elements with limited data. No arithmetic mean values were applied to the model blocks. A 2D block modelling approach was used after converting the 3D geological interpretations to 2D. Because faulting is post mineralisation, the 2D estimation is preferred as this removes statistical discontinuities due to faulting. Smaller blocks of 125m by 125m were used in well-informed areas and bigger blocks of 500m by 500m were used in the deeper areas (poorly informed) based on a KNA Study.

based on a KNA Study.

The QP validated the block models on several levels, including visual checks comparing block grades to composite grades, section plots comparing model grades to actual sampling grades, as well as reconciliations comparing previous estimations to the current estimation. Section plots showing average data grades versus modelled grades are shown in Figure 28. In addition, block comparisons showing the previous vs new models were completed and are shown in Figure 29 and Figure 30.

Figure 28: Section Plot UG2 – Data versus Model

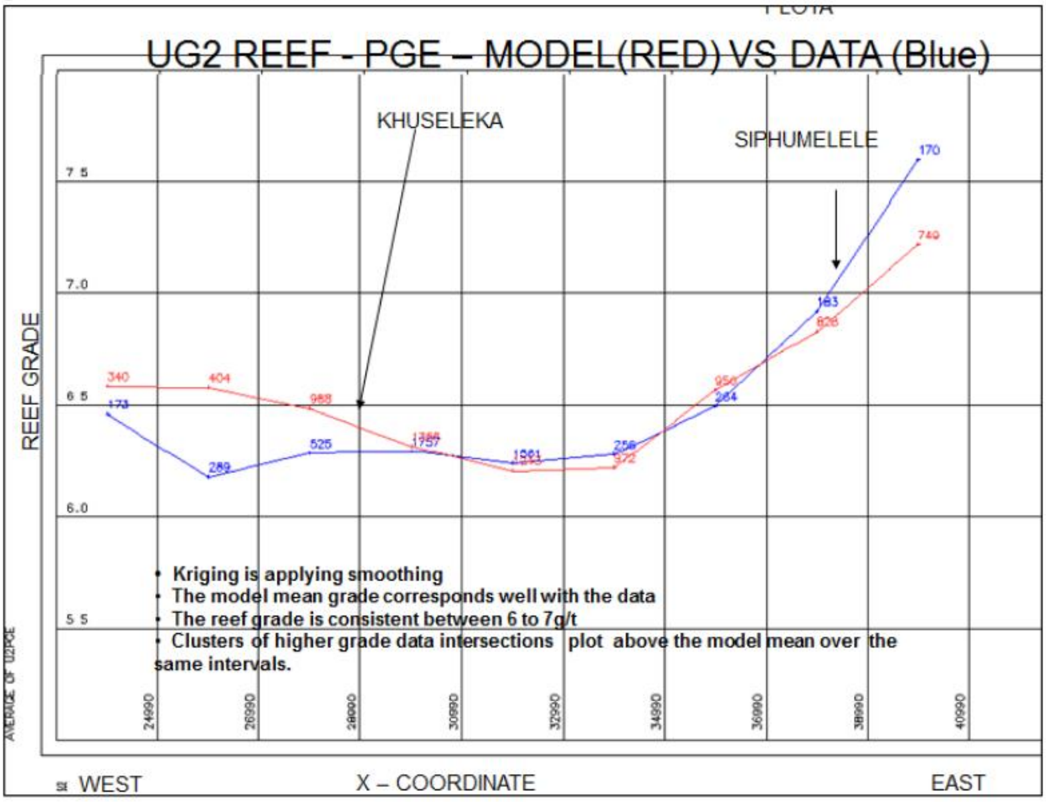


Figure 29: UG2 Reef Grade -4E –Data versus Model

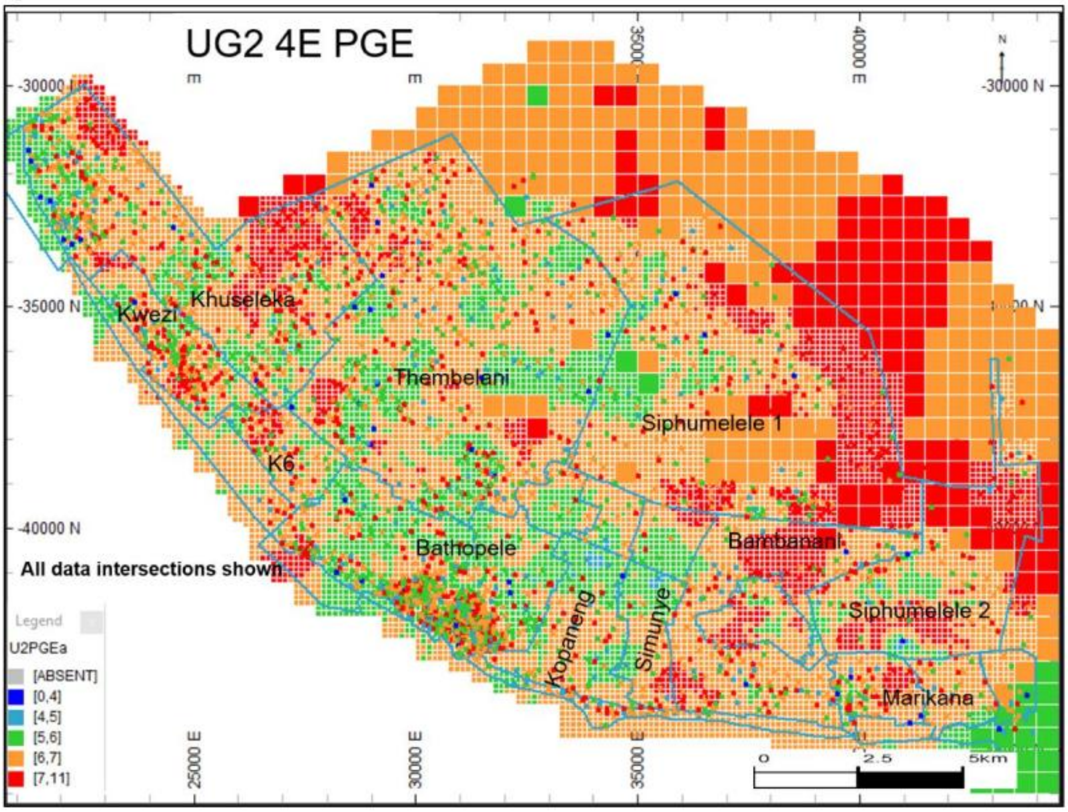
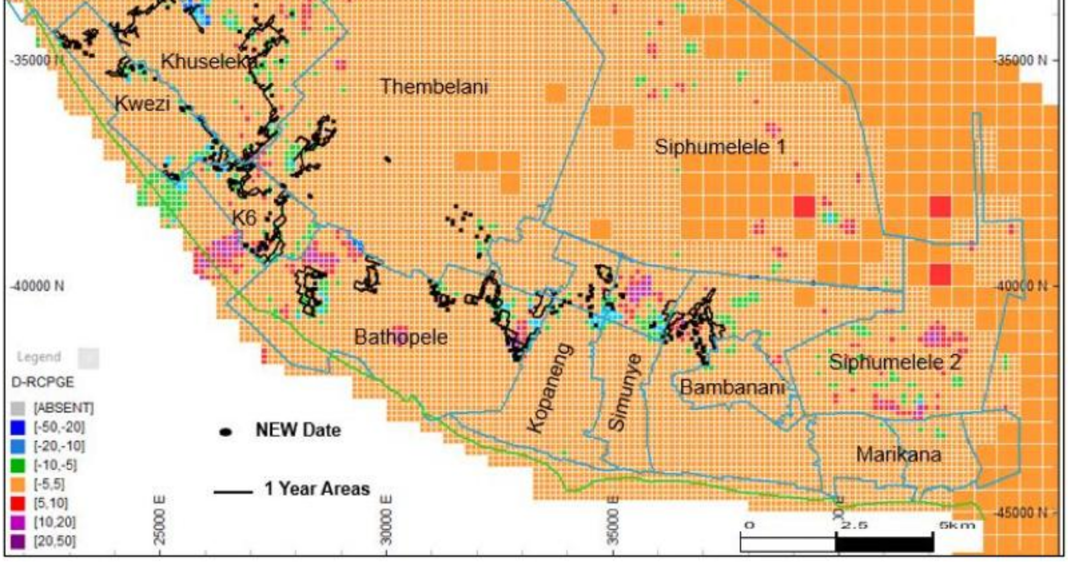


Figure 30: UG2 Reef Grade -4E – Old versus New Model



11.2.1.4 Grade Control and Reconciliation

Grade control and reconciliation practices follow similar procedures to those applied elsewhere within the Bushveld Complex platinum mining operations. The reefs, hanging wall and footwall lithologies are visually identifiable, and channel sampling ensures that the face grade is monitored accordingly. As part of the reconciliation exercises, physical factors, including Channel Width, Stoping Width, dilution, and Mine Call Factor ('MCF'), are monitored and recorded on a monthly basis. These results are used to reconcile Mineral Resource and Mineral Reserve estimates with actual mined tonnages and grades.

Monthly evaluation is carried out by means histograms drawn from the Mineral Resource model that evaluate the current mining block against the business plan. Histograms are updated periodically from the Mineral Resource models.

Stoping and development is measured monthly to provide an accurate broken ore tonnage and 4E PGM ounces estimate that is compared to the budgeted tonnes hoisted, trammed and milled on a monthly basis. The 4E PGM grade accounted for by the Plant is in turn compared to the Survey Called For grade to determine the Mine Call Factor ('MCF').

Belt sampling is performed daily at all shafts to verify underground grades.

The underlying grade control and reconciliation processes are considered appropriate by the QP.

11.3 Mineral Resource Classification

11.3.1 Classification Criteria

The Mineral Resource is reported as *an in-situ* Mineral Resource (reference point) inclusive and exclusive of Mineral Reserves.

The Mineral Resource is classified with varying levels of confidence ranging from Measured, high confidence, in current mining and sampling areas to Inferred, lower confidence, in areas further away from current workings whilst Indicated lies between these two categories. Table 22 shows several factors considered in applying confidence measurements to the Mineral Resource.

The Mineral Resource categorisation is based on the robustness of the various data sources available, confidence of the geological interpretation, variography and various estimation parameters (e.g., distance to data, number of data, maximum search radii etc.).

The Mineral Resource Classification is determined using the classification matrix method, which has been implemented across the PGM segments of Sibanye-Stillwater. It consists of various geological and statistical parameters. The following geological parameters are considered into the different frameworks.

Figure 31 depicts the Mineral Resource Classification for the UG2 Reef. There was no material change from the previous estimate. An extensive surface and underground exploration drilling programme completed previously resulted in more Measured Resource that is defined for the UG2 Reef beyond the current mining areas.

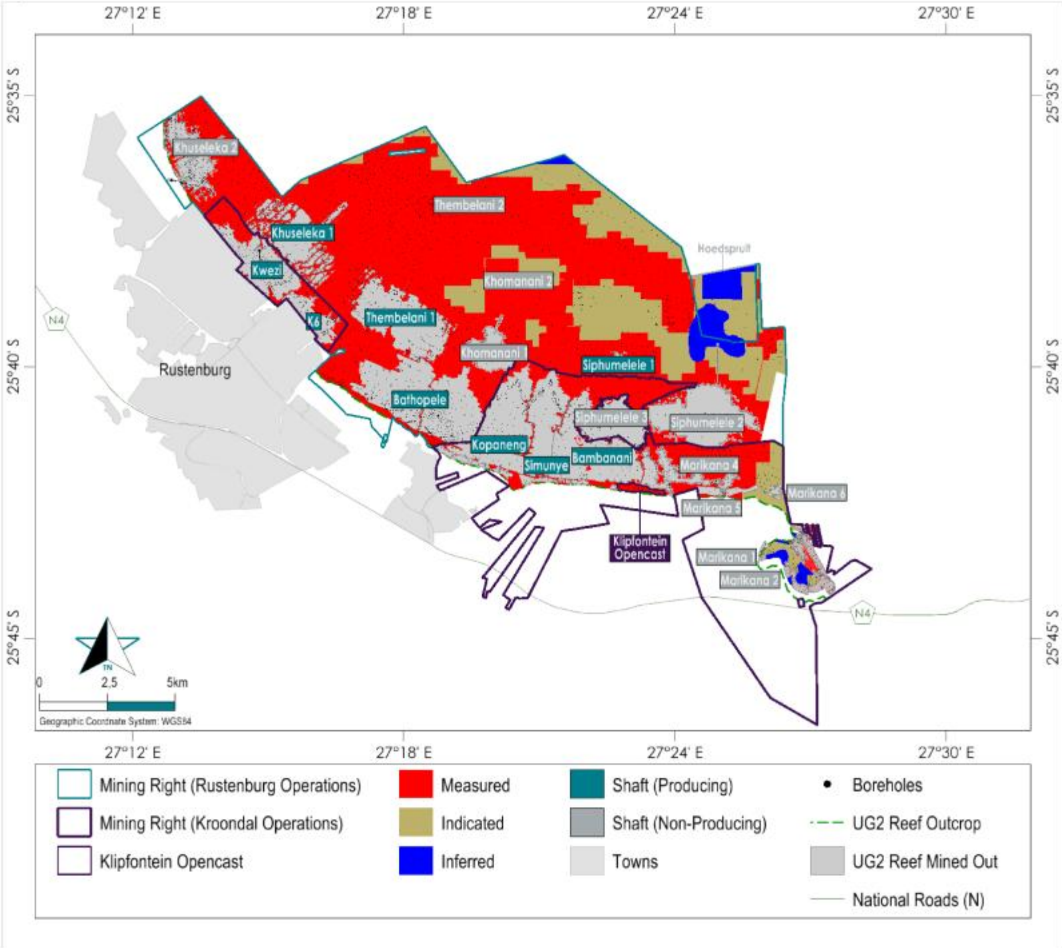
Mineral Resource blocks are estimated for 4E grade, thickness, accumulation (product of grade and thickness), density and in addition base metals; Cu and Ni, Cr and 6E prill splits (Pt, Pd, Rh, Ir, Ru and Au). Mineral Resource estimates are classified and reported for 4E, and 4E prill grades and tonnage. Several attributes, like classification and geological loss, are allocated to the Mineral Resource blocks.

The tables in this section summarize the Mineral Resources. The terms and definitions of Mineral Resources are those given by Subpart 1300 of Regulation S-K.

Table 22: Confidence Levels for Key Criteria for Mineral Resource Classification

Items	Discussion	Confidence
Aeromagnetic survey	Aeromagnetic data and interpretation are available and are of reasonable quality and has been derived from internationally recognised and procedures and techniques.	High
Seismic interpretation	Seismic data is available and data is of reasonable quality and has been derived from internationally recognised procedures and techniques.	High
Structural model	Stratigraphic definition and delineation are considered of reasonable quality. Major structures are identified.	High
Geozones interpretation	Geozones definition and delineation are considered of reasonable quality.	High
Historical data	Available historical data is of reasonable quality and has been derived from internationally recognised procedures and techniques.	High
Assay - QAQC	A comprehensive QAQC program was employed. QAQC monitoring is in place and regular follow-ups occur with the mine laboratory.	Moderate to High
Kriging variance	Parameter is based on the standardized kriging variances (KV). Ranked values assigned are where KV<0. 2, the ranked value is given a value of 1 (high confidence); where 0.2≤KV<0.4, a value of 2 is assigned; and where KV≥0.4, a value of 3 is applied (low confidence).	Moderate
Kriging efficiency	Ranked values for kriging efficiency assigned are where KE≥0.5, the ranked value is given a value of 1 (high confidence); where 0.3<KE<0.5, a value of 2 is assigned; and where KE≤ 0.3, a value of 3 is applied (low confidence).	Moderate
Search volume	Ranked values assignment are: first search radii = 1 (high confidence); second search radii = 2; third search radii = 3.	High
Number of samples	The range between the minimum and maximum number of samples is divided into three and assigned values of 1, 2 and 3 where 1 would represent the maximum number of samples interval.	High
Regression slope	Ranked values assigned are where RS≥0.6 the ranked value is given a value of 1 (high confidence); where 0.2<RS<0.6, a value of 2 is assigned; and where RS≤0.2 a value of 3 is applied (low confidence).	Moderate

Figure 31: Mineral Resource Classification for UG2



11.3.2 Mineral Resource Technical and Economic Factors

11.3.2.1 Mining Width and Paylimit

The minimum mining width, which represents the minimum practical selection unit, is dependent largely on the mining method and other mining constraints, including rock engineering.

The Mineral Resource tabulations are discounted for geological losses.

Geological losses can be segregated into known and unknown losses. Typically, faults and dykes, which have been positioned through various exploration/exposure methods, can be reasonably quantified as known losses and with high or medium degrees of confidence. Where the measurements become

conjectural, then these losses become low confidence and would then form part of the unknown loss quantification.

Geological losses for the Kroondal Operations UG2 were estimated and signed off by the QP with the assistance of respective Shaft Geologists and Central Geologists per structural domain for each shaft. Losses are estimated in the underground mining operations and are then projected into the future mining areas. Additional data sources that include aeromagnetic survey, seismic interpretation and borehole information are also used for the projected loss.

In summary, the UG2 total weighted average geological loss at the Kroondal Operations for the remnant Mineral Resource is 29.85% and represents a 0.2% increase from the previous year's geological losses.

11.3.2.2 Paylimits and Cut-off Grade

Historically, SSW has not applied cut-off grades in their Mineral Resource/Mineral Reserve declaration. No cut-off grade is applied to the Mineral Resources quoted due to there being no mining selectivity based on the grades being applied at any of the Shafts at Kroondal. The ore bodies are continuous and have persistent metal distribution profiles which has been used as the basis for reef identification, modelling and exploitation.

To illustrate the prospects of eventual economic extraction at the Mineral Resources cut-off grade, calculations were made based on economic, mining and processing assumptions. The metal prices assumed in the calculation are the long-term prices (as at 2022) in Table 23. See Section 16.4 for a discussion on price determination.

Table 23: Commodity Price and Exchange Rate Assumptions for Cut-off Calculations

6E Metals	Units	Long Term Prices 2022
Platinum	USD/oz	1,500
Palladium	USD/oz	1,500
Rhodium	USD/oz	10,000
Gold	USD/oz	1,800
Iridium	USD/oz	3,000
Ruthenium	USD/oz	350
ZAR/USD		15.00

A basket price for the 6E metals was calculated by weighting each price by the metal's contribution to the 6E value for each reef package per individual operation. The contribution of base metals was not considered. The prill splits used per operation are shown in Table 24.

Table 24: 6E Prill Split Percentages Applied per Reef

Kroondal	
	UG2 (Proportion)
Platinum	0.49
Palladium	0.26
Rhodium	0.08
Gold	0.01
Iridium	0.03
Ruthenium	0.13

Certain parameters were used in the cut-off calculations and include both mining and processing assumptions below and in Section 12.4. The first factor used is the Mineral Resource to Mineral Reserve factor and is calculated by factoring in the percentage of grade lost in the conversion from Mineral Resource to Mineral Reserve grade. Typically this would be due to dilution, Mine Call Factor and other modifying factors applied to the Mineral Resource. Concentrator recoveries used were based on 2022 budgeted figures per reef type, per operation and represent the average concentrator recovery for the total operation. Net smelter returns are assumed to be the same across the operations, although the material is processed at different facilities. The total mining cost applied per operation were the costs declared in the December 2021 Mineral Resource and Mineral Reserve declaration and were assumed to be the same for both reef types.

The parameters assumed for the cut-off calculation for the MR and UG2 packages are detailed in Table 25.

Table 25: Parameters used in the cut- off calculation for the MR and UG2 Reef

Operation	Parameters	Unit	UG2
Kroondal	Total Mining Cost	ZAR/t	896
	Mining Recovery	%	57
	Plant Recovery	%	83
	Net Smelter Return	%	99
	MCF	%	95

Based on the parameters assumed above for the cut-off calculation for the UG2 package, the following cut-off grade was calculated for the Kroondal Operations and these are detailed in Table 26. The 6E grades were used in the calculation and reported here as 4E.

Table 26: 4E Cut-off grades calculated for the UG2 Reef and surface operations

Kroondal			
	MER	UG2	Surface (TSF)
Cut-off grade (4E g/t))	-	1.68	-

The Mineral Resource tonnes and metals available at the cut-off grades calculated is no different from what is obtained using a 0 g/t cut-off grade. The UG2 Mineral Resources have no tonnes or metals below the cut-off. Due to this, all available blocks are reported to be available for mining.

11.4 Mineral Resource Statements

Mineral Resources are stated as both Exclusive (Table 28 and Table 29) and Inclusive of Mineral Reserves (Table 30 and Table 31). Mineral Resources are estimates of in-situ mineralisation (reference point) assessed to have reasonable prospects for economic extraction by the QP. These include Mineral Resources at the Klipfontein Open-Pit and underground Mineral Resources at the shafts.

The Mineral Resource as stated is not sensitive to changes in the PGM basket price, nor the ZAR/USD exchange rates. Therefore no sensitivity analysis has been completed for Mineral Resources.

The Prill Split for the Mineral Resources is given in Table 27.

Table 27: Prill Split of the area covered by Mineral Resource as at 31 December 2021

Reef	Pt %	Pd %	Rh %	Au %
UG2	57.84	31.37	10.08	0.71

Notes on the Mineral Resource Tabulations:

- Mineral Resources are not Mineral Reserves.
- Mineral Resources have been reported in accordance with the classification criteria of Subpart

1300 of Regulation S-K.

- Attributable Mineral Resources are 50%.
- Mineral Resource is calculated on available blocks. Due to non-selective mining, no cut-off grade is applied, no recovery is considered at this stage
- AI = Above Infrastructure; BI = Below Infrastructure
- Mineral Resources are reported after the removal of geological losses.
- Quantities and grades have been rounded to one decimal place; therefore minor computational errors may occur.
- Technical and economic factors are discussion in Section 11.3.2.
- Risks are discussed in Section 21.

Table 28: Mineral Resources Exclusive of Mineral Reserves at 100%

Classification – 4E	Tonnes (Mt)		4E Grade (g/t)		4E (Moz)	
	21-Dec	20-Dec	21-Dec	20-Dec	21-Dec	20-Dec
Underground						
Measured (AI)	31.5	34.1	3.4	3.4	3.4	3.7
Measured (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Indicated (AI)	9.5	9.5	3.8	3.8	1.2	1.2
Indicated (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Measured and Indicated	**41.1**	**43.5**	**3.5**	**3.5**	**4.6**	**4.9**
Inferred (AI)	4.9	4.9	3.0	3.0	0.5	0.5
Inferred (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**46.0**	**48.5**	**3.4**	**3.4**	**5.1**	**5.4**
Total (AI)	46.0	48.5	3.4	3.4	5.1	5.4
Total (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Surface						
Measured Open-pit	0.0	0.0	0.0	0.0	0.0	0.0
Total Surface	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total Resource	**46.0**	**48.5**	**3.4**	**3.4**	**5.1**	**5.4**

Table 29: Attributable Mineral Resource Exclusive of Mineral Reserves as at 31 December 2021

Classification – 4E	Tonnes (Mt)		4E Grade (g/t)		4E (Moz)	
	21-Dec	20-Dec	21-Dec	20-Dec	21-Dec	20-Dec
Underground						
Measured (AI)	15.8	17.0	3.4	3.4	1.7	1.9
Measured (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Indicated (AI)	4.8	4.7	3.8	3.8	0.6	0.6
Indicated (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Measured and Indicated	**20.5**	**21.8**	**3.5**	**3.5**	**2.3**	**2.4**
Inferred (AI)	2.5	2.5	3.0	3.0	0.2	0.2
Inferred (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**23.0**	**24.2**	**3.4**	**3.4**	**2.5**	**2.7**
Total (AI)	23.0	24.2	3.4	3.4	2.5	2.7
Total (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Surface						
Measured Open-pit	0.0	0.0	0.0	0.0	0.0	0.0
Total Surface	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total Resource	**23.0**	**24.2**	**3.4**	**3.4**	**2.5**	**2.7**

Table 30: Mineral Resources Inclusive of Mineral Reserves at 100%

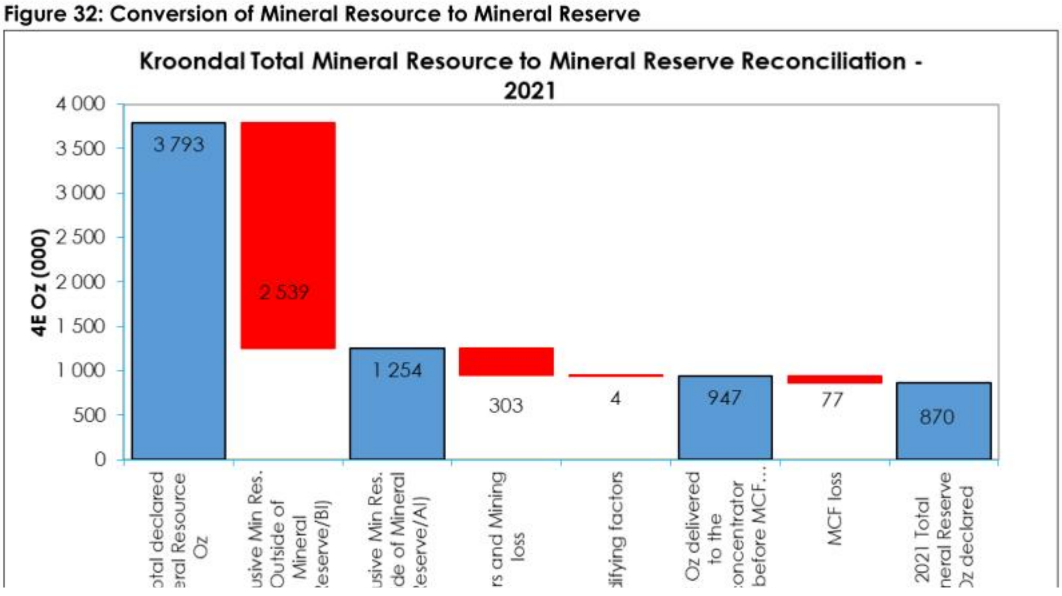
Classification – 4E	Tonnes (Mt)		4E Grade (g/t)		4E (Moz)	
	21-Dec	20-Dec	21-Dec	20-Dec	21-Dec	20-Dec
Underground						
Measured (AI)	53.6	61.5	3.3	3.3	5.7	6.5

Measured (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Indicated (AI)	9.5	9.5	3.8	3.8	1.2	1.2
Indicated (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Measured and Indicated	**63.1**	**70.9**	**3.4**	**3.4**	**6.8**	**7.7**
Inferred (AI)	4.9	4.9	3.0	3.0	0.5	0.5
Inferred (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**68.0**	**75.9**	**3.3**	**3.3**	**7.3**	**8.1**
Total (AI)	68.0	75.9	3.3	3.3	7.3	8.1
Total (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Surface						
Measured Open-pit	2.0	2.6	4.3	3.7	0.3	0.3
Total Surface	**2.0**	**2.6**	**4.3**	**3.7**	**0.3**	**0.3**
Total Resource	**70.0**	**78.5**	**3.4**	**3.3**	**7.6**	**8.5**

Table 31: Attributable Mineral Resource Inclusive of Mineral Reserves as at 31 December 2021

Classification – 4E	Tonnes (Mt)		4E Grade (g/t)		4E (Moz)	
	21-Dec	20-Dec	21-Dec	20-Dec	21-Dec	20-Dec
Underground						
Measured (AI)	26.8	30.7	3.3	3.3	2.8	3.3
Measured (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Indicated (AI)	4.8	4.7	3.8	3.8	0.6	0.6
Indicated (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Measured and Indicated	**31.6**	**35.5**	**3.4**	**3.4**	**3.4**	**3.8**
Inferred (AI)	2.5	2.5	3.0	3.0	0.2	0.2
Inferred (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**34.0**	**37.9**	**3.3**	**3.3**	**3.7**	**4.1**
Total (AI)	34.0	37.9	3.3	3.3	3.7	4.1
Total (BI)	0.0	0.0	0.0	0.0	0.0	0.0
Surface						
Measured Open-pit	1.0	1.3	4.3	3.7	0.1	0.2
Total Surface	**1.0**	**1.3**	**4.3**	**3.7**	**0.1**	**0.2**
Total Resource	**35.0**	**39.3**	**3.4**	**3.3**	**3.8**	**4.2**

Figure 32: Conversion of Mineral Resource to Mineral Reserve



For the Kroondal Operations Mineral Resource to Mineral Reserve Reconciliation(Figure 32), the starting point shows the total Attributable Mineral Resource for the Kroondal Operations (after removal of geological loss) and includes the Kroondal-Marikana Shafts on care and maintenance. The 2.5Moz removed are Mineral Resource areas on care and maintenance, future mining areas, and boundary pillars between shafts or areas removed due to adverse geological structure. The pillars component is based on an average calculation for designed pillars for all operating shafts. Modifying factors as discussed in Section 11, may be either a gain or loss of Mineral Resource and for summary purposes have been included into one item. The MCF at Kroondal averages 95% and makes up the total MCF loss in the reconciliation. Total Mineral Reserves declared are after removal of MCF losses.

11.4.1 Mineral Resources per Mining Area (Inclusive of Mineral Reserves)

Figure 33 shows the remaining Mineral Resources with respect to infrastructure. All mined out areas are shown in grey.

Refer to Table 32 for the Full Mineral Resource(100%) statements per mining area at 31 December 2021.

Figure 33: Rustenburg and Kroondal UG2 Reef Accessibility

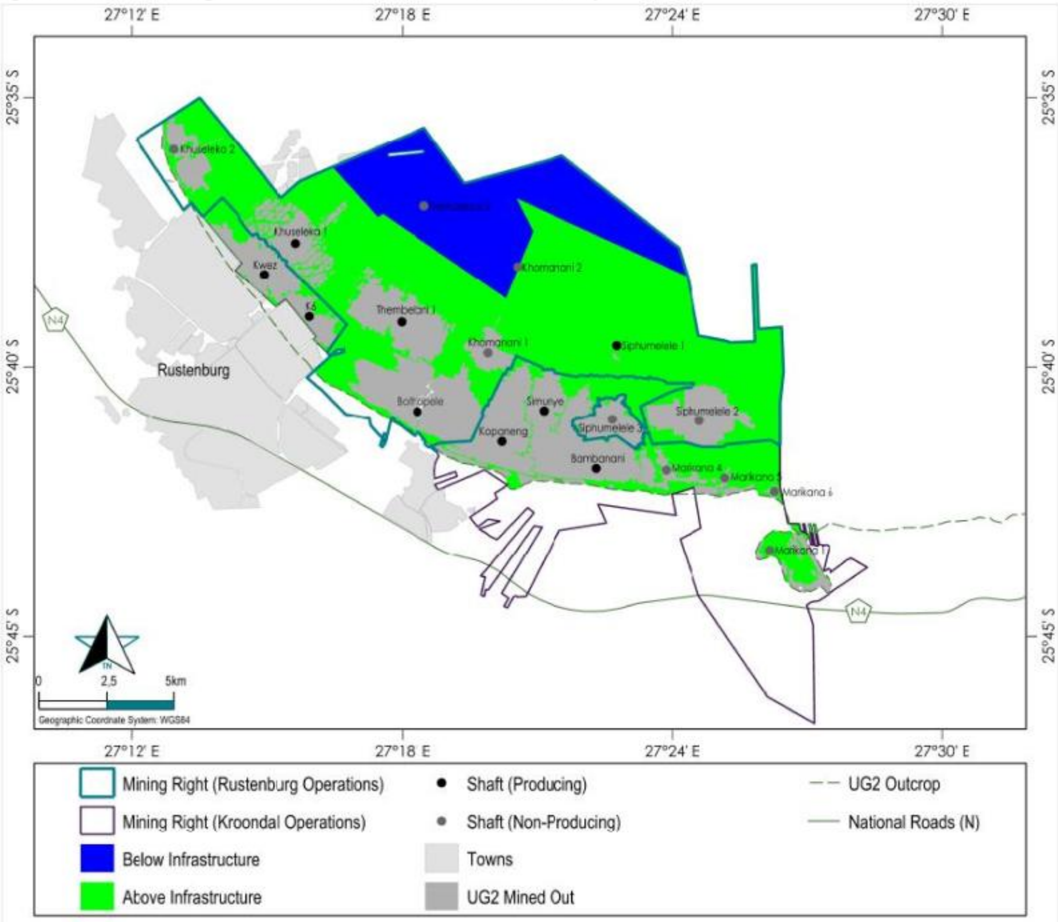


Table 32: Mineral Resource Inclusive of Mineral Reserves per Mining Area as at 31 December 2021 at 100%

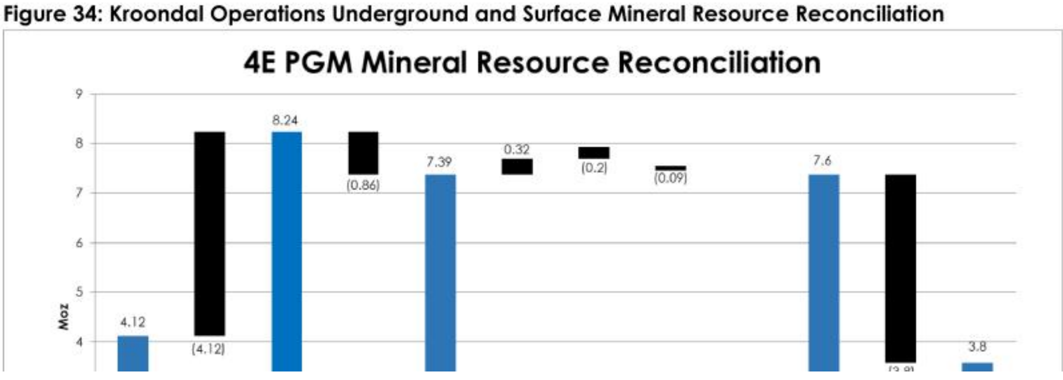
4E PGM per Mining Area	Measured			Indicated			Inferred		
	Tonnes (Mt)	4E Grade (g/t)	4E PGM (Moz)	Tonnes (Mt)	4E Grade (g/t)	4E PGM (Moz)	Tonnes (Mt)	4E Grade (g/t)	4E PGM (Moz)
Kwezi	6.1	3.2	0.6	0	0	0	0	0	0
K6	3.1	3.1	0.3	0	0	0	0	0	0
Kopaneng	1.9	2.9	0.2	0	0	0	0	0	0
Simunye	0.9	3.0	0.1	0	0	0	0	0	0
Bambanani	17.4	3.2	1.8	0	0	0	0	0	0
Marikana	24.2	3.4	2.7	9.5	3.8	1.2	4.9	3.0	0.5
Total Underground	**53.6**	**3.3**	**5.7**	**9.5**	**3.8**	**1.2**	**4.9**	**3.0**	**0.5**
Total: Surface Open-pit	**2.0**	**4.3**	**0.3**						
Grand Total (Underground and Surface)	**55.6**	**3.3**	**5.9**	**9.5**	**3.8**	**1.2**	**4.9**	**3.0**	**0.5**

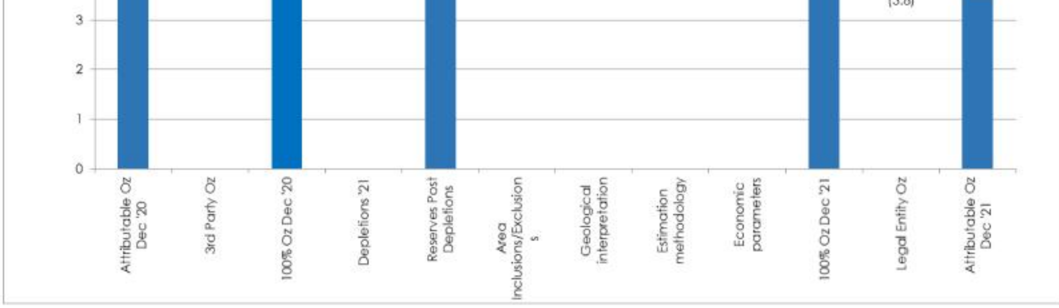
11.4.2 Changes in the Mineral Resources from Previous Estimates (Inclusive of Mineral Reserves)

The 2021 estimation varies from the 2020, as shown in the waterfall (Figure 34). Mineral Resource depletion due to mining is 0.86 Moz. Changes due to geological losses, new data and area exchange between mines resulted in a decrease of 0.07 Moz.

There were no material changes to the estimation or classification parameters between December 2020 and December 2021.

Figure 34: Kroondal Operations Underground and Surface Mineral Resource Reconciliation





11.5 QP Statement on the Mineral Resource Estimation and Classification

The Mineral Resources declared are estimated based on the geological facies (geozones) and constrained by appropriate geostatistical techniques, using Ordinary Kriging for elements with sufficient data and ID (Inverse distance to the power of two) estimates for elements with limited data. The Mineral Resource classification follows geostatistical and geological criteria developed by Sibanye-Stillwater for PGM Mineral Resource classification. The Mineral Resources are declared inside the structural blocks and outside of the mined-out areas. All Mineral Resources reported are considered to be of sufficient quality to justify a reasonable prospect for economic extraction. The underlying grade control and reconciliation processes are considered appropriate.

It is the QP's opinion that all issues relating to any technical or economic factors that would be likely to influence the condition of reasonable prospects for economic extraction are addressed or can be resolved with further work.

12 Mineral Reserve

12.1 Mineral Reserve Methodology

This section includes discussion and comments on the conversion of Mineral Resources to Mineral Reserves. Specifically, the comment is given on the modifying factors, specific inclusions and exclusions.

Section 12.4.2 and Table 35 provide details of the LoM plan from C2022 to C2041.

12.2 Mine Planning Process

The following planning process applies at the Kroondal Operations:

- Appoint and ensure competence in mine planning responsibilities per section
- Consider planning cycle for which plan is to be prepared
- Obtain an updated geological structural model for design purposes
- Obtain/determine future planning levels for the Operation. Identify output levels for the Operation (4E target/tonnage required, development targets)
- Break these down per individual operating level
- Liaise with all Senior Vice Presidents, Vice Presidents of Operations and business unit management teams and brief anticipated production levels and efficiency rates
- Evaluate historical efficiencies against future planned efficiencies and reach an agreement of planning performance levels
- Provide base plans for each business unit and determine numbers of crews and scheduling systems per business unit
- Document and file all tunnel dimensions and advance rates
- Review tunnel dimensions with Ventilation, Rock Engineering, Evaluation and Mining Engineering teams
- Agree and reach consensus on all stoping layouts, ledging and extraction sequencing/methodologies
- Review and sign-off with all appropriate Mining Unit Management Teams
- Document the planned parameters in a shaft or unit planning brief
- Commence designing of mine plan. Specify capital and preferably separate individual elements for later revision. Ensure naming of working place, etc.

- Review development and stoping mine design with appropriate business unit management team members and ancillary support staff, including Mineral Resource Management department competencies
- Modify if required, or accept and commence with scheduling based on agreed scheduling parameters per area
- Review schedules and outputs in terms of production with Vice Presidents of Operations to ensure appropriate levels of production and volume efficiencies are obtained for that unit
- Communicate with all service staff (occupational health (environmental ventilation), rock engineering), and engineering for shaft capacities

- Modify and revise as required with appropriate staff
- Consolidate all sections to create an overall operational performance plan
- Run evaluation module/grid and determine 4E output
- Provide shaft or unit-based data in terms of volume and grade into the acceptable standard database and reporting format
- Review total plan with MRM staff competencies heads
- Revise and review again if required
- Submit for final review with Senior Vice Presidents and Vice Presidents of Operations to ensure operational targets and performance levels are reached
- Submit to the Unit Manager Mine Planning to prepare an appropriate format and for submission to the Financial Department for total mine financial evaluation
- Identify all areas where differences in design can or may require additional feasibility study work in the future. These would include declines, new shafts, and alternative layouts. Generate cost models in conjunction with the Project Office
- Review mining plan with rock engineers and provide data sets for design modelling. Obtain the support of acceptance of plan as far as rock engineering is concerned
- Review mining plan with occupational health (ventilation) engineers and provide data sets for design modelling. Obtain written support of acceptance of plan as far as occupational health is concerned
- Review with all mining engineering staff and gain acceptance and commitment to plan. Generate and provide appropriate schedules and plans for all Manager Operations
- Consider alternative scenarios relating to rates of advance, alternative layouts, and risk mitigation
- Formally document all capital projects and compile consolidated project reports for each project
- Reconcile the planning Mineral Reserves per shaft with scheduled and designed Mineral Reserves and account for all differences. Modify the plan to eliminate all differences. This reconciliation is an MRM competency head process
- Prepare Operational/ Strategic Plan presentation to SA Regional EXCO.
- Modify and amend where required
- Complete final cycle of the planning process and document all parameters. Make a digital backup of the Mineral Reserve model, design model, schedule model, and all associated worksheets/presentation
- Roll out and communicate the final plan to all Business Units with prints of appropriate plans and spreadsheets. Confirm and identify all critical development and
- Review and modify on a monthly basis actual achievement vs planned volumes.

12.3 Historical Mining Parameters

The planning parameters are primarily based on historical achievements. Table 33 provides the historical mining performance for the Kroondal Operations, where mining expenditures are stated in nominal terms.

Historical mining statistics for the shafts from 2016 to 2021, as well as historical averages are presented in Table 33.

Table 33: Historical Mining Statistics by Section

Shaft	Units	C2016	C2017	C2018	C2019	C2020	C2021
Kwezi							
Primary Reef Development	(m)	1.816	2.498	2.3	2.984	1.432	1.909
Primary Waste Development	(m)	841	1.258	234	92	325	137
Stoping Square metres	(m2)	190.661	202.384	225.535	225.907	159.417	157.314
Tonnes Milled	(kt)	1,542,806	1,728,944	1,815,711	1,782,043	1,272,974	1,235,744
4E ounces M&C	(oz)	111.49	115.503	123.132	118.941	86.237	79.45
K6							
Primary Reef Development	(m)	3.485	2.815	2.188	2.147	1.378	1.653
Primary Waste Development	(m)	50	602	294	34	78	0
Stoping Square metres	(m2)	145.469	158.906	190.13	197.268	148.749	199.43
Tonnes Milled	(kt)	1,395,966	1,518,174	1,551,859	1,720,374	1,317,954	1,659,802
4E ounces M&C	(oz)	93.656	102.317	107.218	116.578	88.898	112.122
Simunye							
Primary Reef Development	(m)	1.908	1.861	1.84	1.443	196	0
Primary Waste Development	(m)	151	387	247	99	657	110
Stoping Square metres	(m2)	146.726	176.503	201.992	208.728	161.127	191.503
Tonnes Milled	(kt)	1,454,280	1,559,010	1,648,784	1,729,519	1,256,323	1,433,651
4E ounces M&C	(oz)	86.21	96.397	107.28	109.348	78.894	92.325
Bambanani							
Primary Reef Development	(m)	2.551	2.336	2.23	2.593	2.198	2.056
Primary Waste Development	(m)	1.409	562	256	-	-	45
Stoping Square metres	(m2)	126.069	134.782	151.102	155.371	119.803	146.005
Tonnes Milled	(kt)	1,324,009	1,233,074	1,144,517	1,199,372	924.955	1,117,356
4E ounces M&C	(oz)	85.901	78.411	76.547	83.202	63.515	71.526
Kopaneng							
Primary Reef Development	(m)	1.818	2.068	2.266	2.668	1.824	1.809
Primary Waste Development	(m)	516	442	79	44	276	791
Stoping Square metres	(m2)	159.938	168.238	187.997	195.775	143.428	189.516
Tonnes Milled	(kt)	1,482,254	1,516,846	1,569,211	1,688,472	1,221,591	1,560,841
4E ounces M&C	(oz)	94.153	89.821	96.271	101.742	76.151	95.672
Total Underground Kroondal Operations							
Primary Reef Development	**(m)**	**11.577**	**11.578**	**10.823**	**11.835**	**7.028**	**7.428**
Primary Waste Development	**(m)**	**2.967**	**3.252**	**1.109**	**269**	**1.336**	**1.083**
Stoping Square metres	**(m2)**	**768.863**	**840.814**	**956.756**	**983.048**	**732.524**	**883.855**
Tonnes Milled	**(kt)**	**7,199,315**	**7,556,048**	**7,730,083**	**8,119,781**	**5,993,797**	**7,007,395**
4E ounces M&C	**(oz)**	**471.41**	**482.449**	**510.448**	**529.811**	**393.695**	**451.096**

12.4 Shaft and Mine Paylimits

12.4.1 Paylimits

- No paylimits are applied to the Mineral Resources and Mineral Reserves. There is no mining selectivity based on the grades applied at any of the Shafts at Kroondal Operations.

- With the UG2 Reefs having low grade variability, all available blocks are reported to be mined, essentially a blanket mining approach is applied.
- Refer to section 11.3.2 for more information on paylimits and cut-off grades.

12.4.2 Modifying Factors

Table 34 provide details of the projected modifying factors. Table 35 presents the LoM plan. Dilution is variable across the property and is included in the stope tramming width. A separate dilution factor is not used as a modifying factor.

The Mineral Reserve classification of Proved and Probable was largely a function of the Mineral Resource classification with due consideration of the minimum criteria for the "Modifying Factors" as considered:

- Mining
- Metallurgical
- Processing
- Infrastructural
- Economic
- Marketing
- Legal and Environmental, social and governmental factors.

Table 34: Mineral Reserve Modifying Factors

Kroondal	Unit	C2019	C2020	C2021	C2022
Survey Called For Grade					
UG2 Reef	g/t	2.6	2.6	2.6	2.5
Total	**g/t**	**2.6**	**2.6**	**2.6**	**2.5**
Stope Tramming Width					
UG2 Reef	(cm)	223	222	223	225
Total	**(cm)**	**223**	**222**	**223**	**225**
Waste Mining Percentage					
UG2 Reef	(%)	4	4	7	7
Total	**(%)**	**4**	**4**	**7**	**7**
Scalping					
UG2 Reef	(%)		3	3	4
Total	**(%)**		**3**	**3**	**4**
Reef Development to Mill					
UG2 Reef	(%)		7	6	7

Total	**(%)**		**7**	**6**	**7**
Mine Call Factor					
UG2 Reef	(%)	93	93	95	95
Total	**(%)**	93	93	95	95
Plant Recovery Factor					
UG2 Reef	(%)	82	83	83	83
Total	**(%)**	**82**	**83**	**83**	**83**

.

Table 35: LoM Plans – Current Operations 2022-2037

Kroondal Operations	Units	LoM	C2022	C2023	C2024	C2025	C2026	C2027	C2028	C2029	C2030	C2031
			1	2	3	4	5	6	7	8	9	10
Underground												
Primary On-Reef Development	(m)	27,285	7,730	7,262	6,158	3,303	1,340	1,015	477	-	-	-
Primary Off-Reef Development	(m)	3,455	1,077	718	982	30	647	-	-	-	-	-
Mill Tonnes**	(kt)	41,322	5,757	4,983	5,072	5,327	4,670	3,534	1,838	1,272	1,269	1,242
4EOunces in Mill Feed	(kOzt)	3,353	448	392	407	428	372	287	152	107	109	104
Recovery	(%)	83.2	82.7	82.8	82.8	83	83	83.3	83.4	83.8	84.1	83.7
Yield	(g/t)	2.10	2	2.03	2.07	2.07	2.06	2.1	2.14	2.18	2.24	2.17
4E Produced	(kOzt)	2,791	371	325	337	355	309	239	127	89	92	87
Surface												
Mill Tonnes	(kt)	1,667	580	601	441	-						
4EOunces in Mill Feed	(kOzt)	176	56	59	56	-						
Recovery	(%)	70.6	67.7	68.3	75.4	-	-	-	-	-	-	-
Yield	(g/t)	2.31	2.02	2.08	2.96	-	-	-	-	-	-	-
4E Produced	(kOzt)	124	38	40	42	-						
Total Mine												
Mill Tonnes	(kt)	42,989	6,337	5,584	5,513	5,372	4,670	3,534	1,838	1,272	1,269	1,242
4EOunces in Mill Feed	(kOzt)	3,528	504	451	463	434	372	287	152	107	109	104
Recovery	(%)	82.6	81.1	80.9	82	82.9	83	83.3	83.4	83.8	84.1	83.7
Yield	(g/t)	2.11	2	2.03	2.14	2.08	2.06	2.1	2.14	2.18	2.24	2.17
4E Produced	(kOzt)	2,914	408	365	379	359	309	239	127	89	92	87

**Includes tonnage from Rustenburg Mine accessed through the Kroondal infrastructure see Section 21 for more information.

12.5 LoM Projects

The only major project is the Klipfontein Open-Pit project which lies to the South of the Bambanani Underground operations. This area was historically overlain by the Klipfontein Tailings Storage Facility (TSF). This TSF has been removed during the reprocessing thereof and has created the opportunity to exploit this shallow Mineral Resource by means of open-pit mining methods.

The Klipfontein open-cast project was approved by the Board and is included in the Mineral Reserves.

12.6 Specific Inclusions and Exclusions

The decision on whether to include or exclude potential mining areas is based on a detailed review, which includes:

- Health and safety considerations
- Economic viability
- Technical justification
- Ability to mine the area and
- Infrastructure availability constraints.

All areas included in the LoM plan are mined from the current infrastructure and are a normal continuation of mining.

12.6.1 Specific Exclusions:

- Areas with adverse ground conditions after evaluation by Rock Engineering and other service departments and mining
- OFF REEF areas where there is no other need requirement such as ventilation or infrastructure.

12.6.2 Specific Inclusion:

Areas required for Ventilation or specific infrastructure development.

12.7 Mineral Reserve Estimation

The tonnage and grades scheduled in Measured Mineral Resources classified as Proved and those in the Indicated Measured Mineral Resources classified as Measured. No Measured Mineral Resources were converted to Probable Reserves.

The Mineral Reserve estimation process at the Kroondal Operations is based on the development of an appropriately detailed and engineered LoM plan, which accounts for all necessary access development and stope designs. The terms and definitions are in accordance with the classification criteria of Sub-part 1300 of Regulation S-K.

Further, in presenting the Mineral Reserve statements and associated sensitivities, the following applies:

- All Mineral Reserves are quoted as of 31 December 2021
- All Mineral Reserves are quoted at prices listed in Table 51 in Section 16.4
- Mineral Reserves are attributable at 50% with respect to ownership

- All Mineral Reserves are quoted in terms of the expected RoM grades and tonnage delivered to the metallurgical processing facilities, and therefore the quantities reported account for dilution
- Mineral Reserve statements include only Measured and Indicated Mineral Resources modified to produce Mineral Reserves, and contained in the LoM plan
- All Mineral Reserves are evaluated to at least a Prefeasibility level within cost limits as given in section 18 and
- All references to Mineral Resources and Mineral Reserves are stated in accordance with Subpart

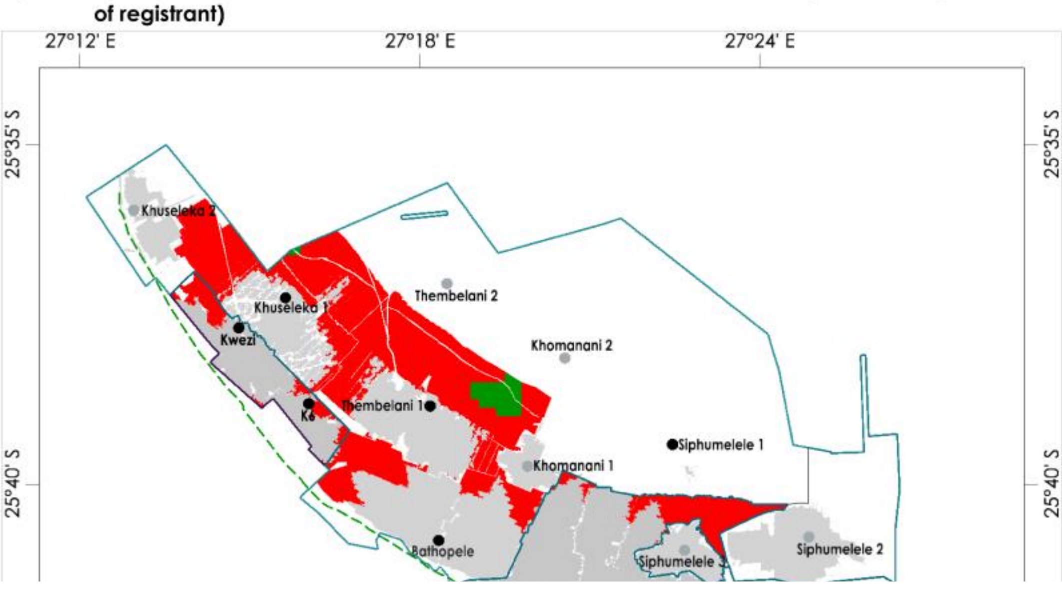
- All references to Mineral Resources and Mineral Reserves are stated in accordance with Subpart 1300 of Regulation S-K.

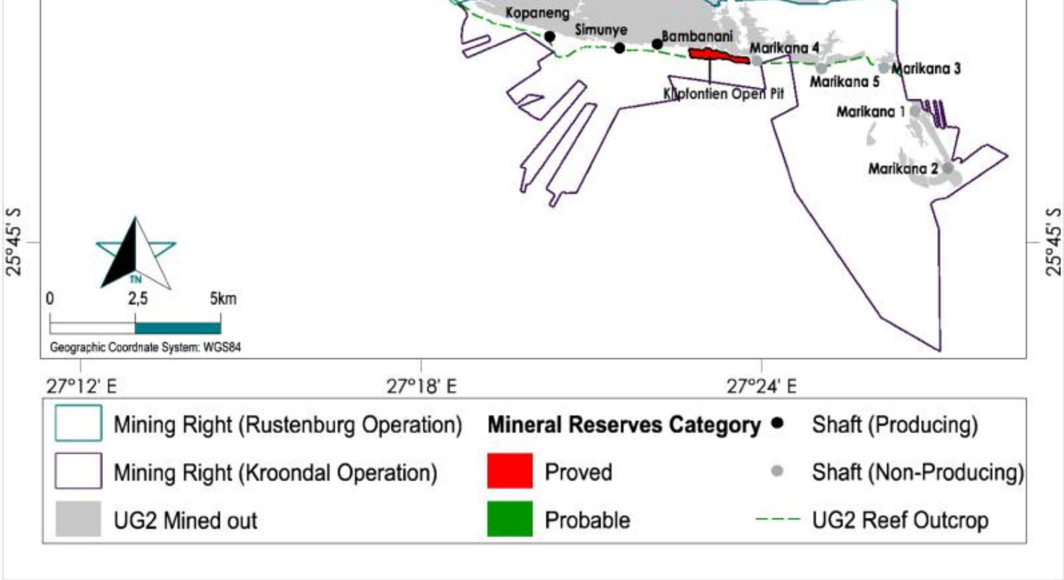
The Mineral Reserves are derived following the production of a LoM plan by incorporating Modifying Factors into the Mineral Resource model. All design and scheduling work is undertaken within Cadsmine, a mine planning and scheduling program. The planning process incorporates appropriate Modifying Factors based on the reconciliation exercises described and technical economic investigations.

The mill tonnes are quoted as the expected mill delivered metric tonnes and RoM, grades, inclusive of all mining dilutions and 4E losses except mill recovery.

Mine dilution includes other material, which is waste that is broken on the mining horizon, other than on the stope face and includes unknown geological losses.

Figure 35: Mineral Reserve Classification as at 31 December 2021 – UG2 Reef (includes adjacent mines of registrant)





For Kroondal outline, please see the Figure 3.

12.8 Surface Sources

Surface sources in the Kroondal Operations context refer to reef tonnage from the Klipfontein Open-Pit operation.

12.9 Mineral Reserves Statement

The Mineral Reserve is declared separately for underground and surface sources.

The Prill Split for the Mineral Reserves is given in Table 36.

The Mineral Reserves are given in Table 37 and Table 38.

Mineral Reserve per shaft is given in Table 39 and Table 40.

Figure 36 shows the main changes year on year are due to various factors.

Notes on the Mineral Reserve Tables

- Mineral Reserve was reported in accordance with the classification criteria of Regulation S-K 1300.
- Mineral Reserve was estimated on all available blocks accessible from the infrastructure and no cut-off grade was applied.
- Attributable Mineral Reserve is 50.00%.
- Where Au grade is less than 0.05g/t, the value will reflect as zero(0) in the table
- Where 4E, Pt, Pd, Rh, Au is less than 0.05Moz, the value will reflect as zero(0) in the table.
- Mineral Reserves are estimated using the prices in Section 16.4.
- The average recovery factor for the UG2 is 83% (Section 12.4.2).
- Risks are discussed in Section 21.1.2.

Table 36: Prill Split and Recovery for Mineral Reserves

Prill Split	Pt	Pd	Rh	Au	Recovery
	%	%	%	%	%
Merensky	-	-	-	-	-

UG2	57.84	31.37	10.08	0.71	83%
Combined (weighted average)	**57.84**	**31.37**	**10.08**	**0.71**	**83%**

Table 37: Mineral Reserve as at 31 December 2021 at 100%

Classification - 4E PGM	Tonnes (Mt)		4E Grade (g/t)		4E PGM (Moz)	
	Dec-21	Dec-20	Dec-21	Dec-20	Dec-21	Dec-20
Underground						
Proved	19.1	24.1	2.5	2.6	1.6	2.0
Probable	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**19.1**	**24.1**	**2.5**	**2.6**	**1.6**	**2.0**
Surface Open-pit						
Proved Open-pit	1.7	1.7	3.3	3.3	0.2	0.2
Probable Open-pit	0.0	0.0	0.0	0.0	0.0	0.0
Total Surface	**1.7**	**1.7**	**3.3**	**3.3**	**0.2**	**0.2**
Total Proved	20.8	25.7	2.6	2.6	1.7	2.2
Total Probable	0.0	0.0	0.0	0.0	0.0	0.0
Total Reserve	**20.8**	**25.7**	**2.6**	**2.6**	**1.7**	**2.2**

Table 38: Attributable Mineral Reserve as at 31 December 2021 at 50%

Classification - 4E PGM	Tonnes (Mt)		4E Grade (g/t)		4E PGM (Moz)	
	Dec-21	Dec-20	Dec-21	Dec-20	Dec-21	Dec-20
Underground						
Proved	9.6	12.0	2.5	2.6	0.8	1.0
Probable	0.0	0.0	0.0	0.0	0.0	0.0
Total Underground	**9.6**	**12.0**	**2.5**	**2.6**	**0.8**	**1.0**
Surface Open-pit						
Proved Open-pit	0.8	0.8	3.3	3.3	0.1	0.1
Probable Open-pit	0.0	0.0	0.0	0.0	0.0	0.0
Total Surface	**0.8**	**0.8**	**3.3**	**3.3**	**0.1**	**0.1**
Total Proved	10.4	12.9	2.6	2.6	0.9	1.1
Total Probable	0.0	0.0	0.0	0.0	0.0	0.0
Total Reserve	**10.4**	**12.9**	**2.6**	**2.6**	**0.9**	**1.1**

Figure 36: The Kroondal Operations Mineral Reserve Reconciliation at 31 December 2021

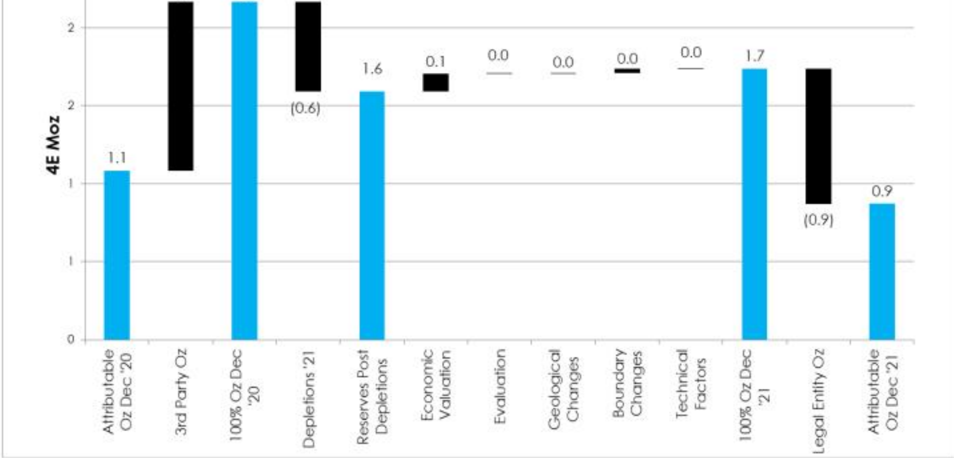


Table 39: Mineral Reserve per Mining Area as at 31 December 2021 at 100%

4E PGM per Mining Area	Proved			Probable			Dec-21	
	Tonnes (Mt)	4E Grade (g/t)	4E PGM (Moz)	Tonnes (Mt)	4E Grade (g/t)	4E PGM (Moz)	Tonnes (Mt)	4E Grade (g/t)
Kwezi	4.8	2.3	0.4	0.0	0.0	0.0	4.8	2.3
K6	2.2	2.7	0.2	0.0	0.0	0.0	2.2	2.7
Kopaneng	1.0	2.4	0.1	0.0	0.0	0.0	1.0	2.4
Simunye	0.3	2.4	0.0	0.0	0.0	0.0	0.3	2.4
Bambanani	10.8	2.6	0.9	0.0	0.0	0.0	10.8	2.6
Total Underground	**19.1**	**2.5**	**1.6**	**0.0**	**0.0**	**0.0**	**19.1**	**2.5**
Total: Surface Open-pit	1.7	3.3	0.2	0.0	0.0	0.0	1.7	3.3
Grand Total (Underground and Surface)	**20.8**	**2.6**	**1.7**	**0.0**	**0.0**	**0.0**	**20.8**	**2.6**

Table 40: Mineral Reserve per Mining Area as at 31 December 2021 at 50%

4E PGM per Mining Area	Proved			Probable			Dec-21	
	Tonnes (Mt)	4E Grade (g/t)	4E PGM (Moz)	Tonnes (Mt)	4E Grade (g/t)	4E PGM (Moz)	Tonnes (Mt)	4E Grade (g/t)
Kwezi	2.4	2.3	0.2	0.0	0.0	0.0	2.4	2.3

K6	1.1	2.7	0.1	0.0	0.0	0.0	1.1	2.7
Kopaneng	0.5	2.4	0.0	0.0	0.0	0.0	0.5	2.4
Simunye	0.2	2.4	0.0	0.0	0.0	0.0	0.2	2.4
Bambanani	5.4	2.6	0.5	0.0	0.0	0.0	5.4	2.6
Total Underground	**9.6**	**2.5**	**0.8**	**0.0**	**0.0**	**0.0**	**9.6**	**2.5**
Total: Surface Open-pit	0.8	3.3	0.1	0.0	0.0	0.0	0.8	3.3
Grand Total (Underground and Surface)	**10.4**	**2.6**	**0.9**	**0.0**	**0.0**	**0.0**	**10.4**	**2.6**

12.10 Mineral Reserve Sensitivity

- No cut-off grade is applied to the Mineral Resources and Mineral Reserves that are quoted due to there being no mining selectivity based on the grade variability being mined at any of the Shafts at the Kroondal Operations.
- With the UG2 Reef having low grade variability, all available blocks are reported to be mined, essentially a blanket mining approach.
- Long term major changes in prices or input costs can affect shaft sustainability or new project introduction (Section 19).

12.11 QP Statement on the Mineral Reserve Estimation

The Mineral Reserves declared are estimated from detailed LoM plans developed per shaft and are based on the Mineral Resource Estimates as at 31 December 2021 together with a set of modifying factors based on recent historical achievements. The assumptions applied in determining the modifying factors are reasonable and appropriate and the LoM plans were developed with a bottom-up approach that is sufficient in detail to ensure achievability. All the inputs used in the estimation of the Mineral Reserves have been thoroughly reviewed and can be considered technically robust. The QP considers the modifying factors to be based on a robust historical database of several years history and no material changes are anticipated that will have a significant bearing on the estimation process. Risks are further discussed in Section 21.

13 Mining Methods

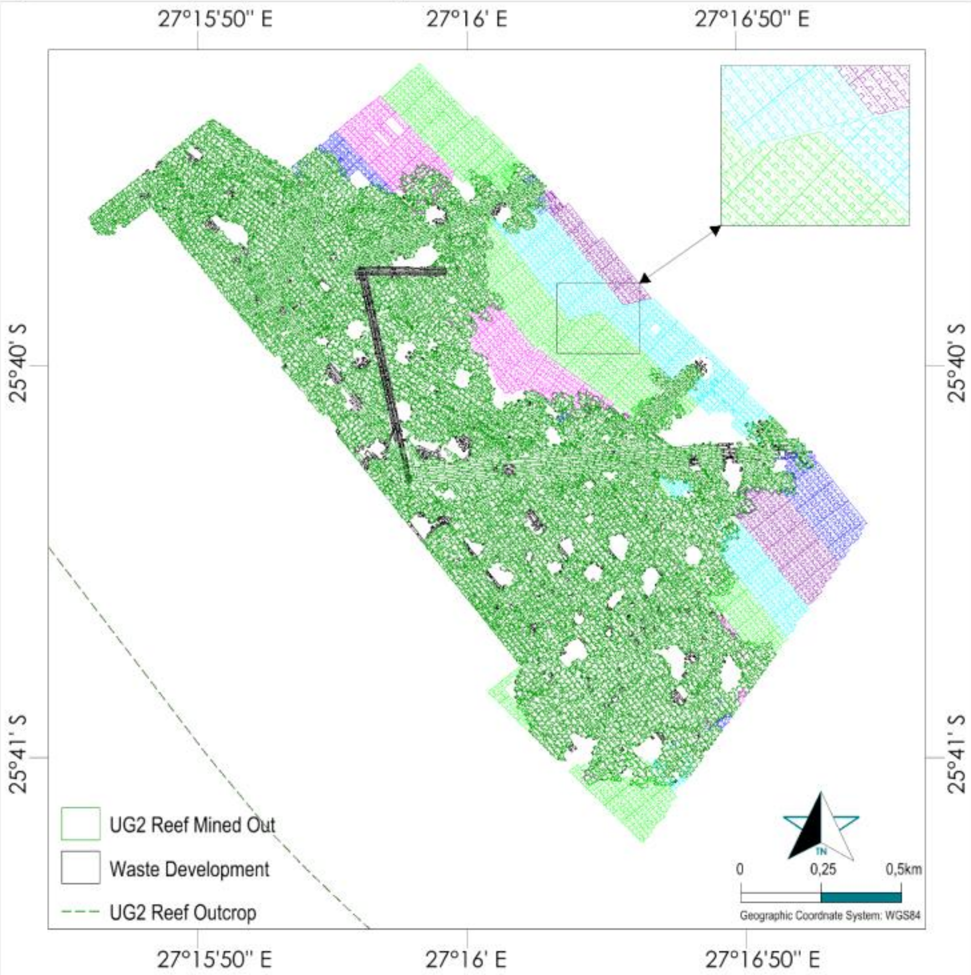
13.1 Introduction

This section includes discussion and comments on the mining engineering related aspects of the LoM plan associated with Kroondal Operations. Specifically, the comment is given on the mine planning process, mining methods, geotechnics, geohydrology and mine ventilation. Kroondal Operations are divided into five separate mining shafts:

- Kwezi
- K6
- Kopaneng
- Simunye
- Bambanani

The mine layout is presented in Figure 37.

Figure 37: Mine Layout (Bord and Pillar)



13.2 Shaft Infrastructure, Hoisting and Mining Method

13.2.1 Shaft Infrastructure

Kroondal Operations consist of large, established shallow level mechanised PGM mines in the Bushveld Complex accessed from the surface utilizing decline systems.

Kroondal Operations comprise five shafts that have the same decline systems and mining method i.e. bord and pillar.

Figure 38 shows the Townlands Section (Kwezi and K6 Shafts) infrastructure and Figure 39 shows longitudinal sections of the Western Kroondal Operations mining units (Kopaneng, Simunye and Bambanani).

Figure 38: Townlands Section Infrastructure

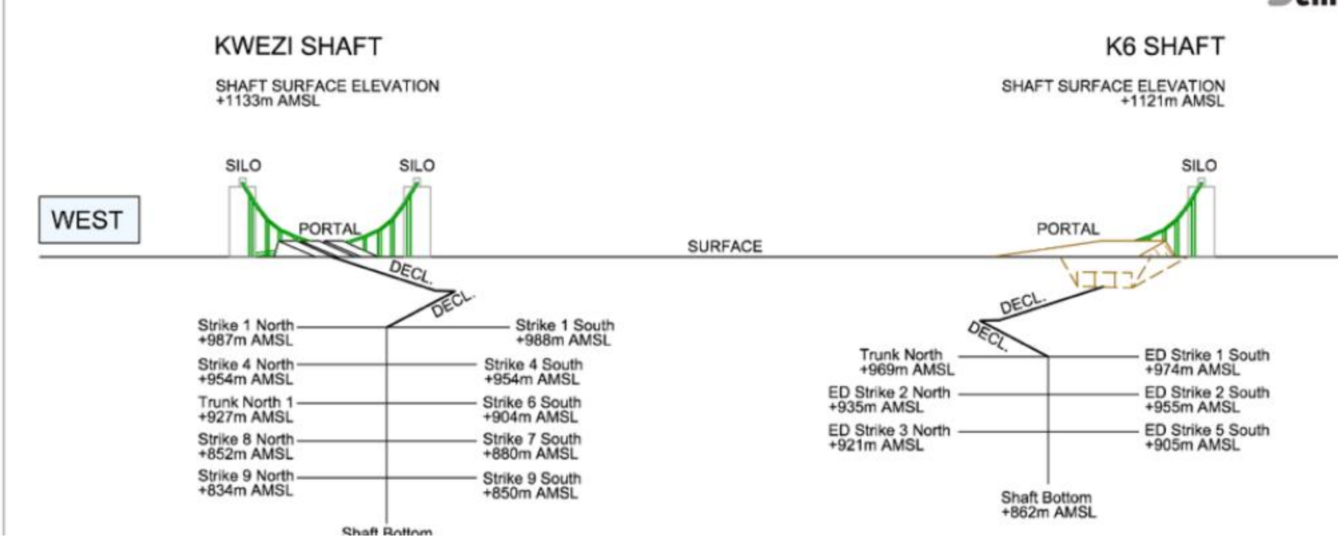
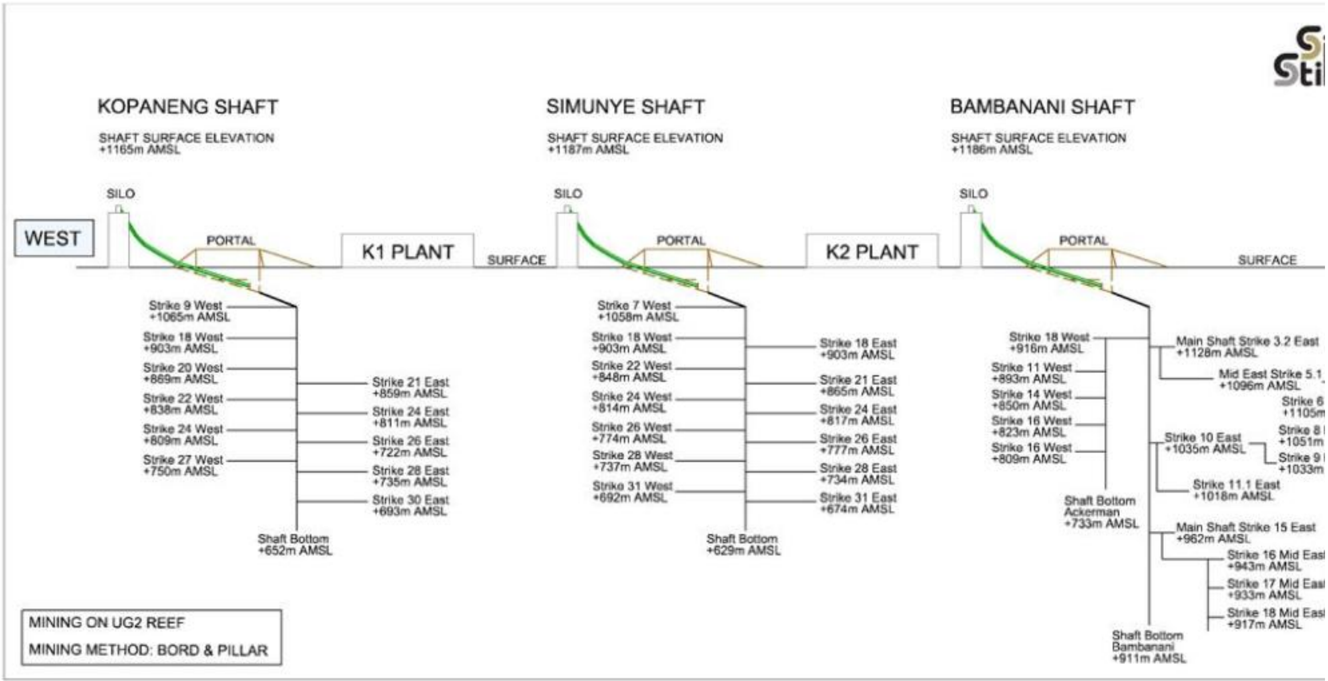


Figure 39: Kroondal Section Infrastructure



13.2.2 Hoisting

All underground mining operations are accessed via decline ramp systems. The hoisting capacities are presented in Table 41.

Blasted material is transported to the tipping places underground with low profile Load Haul Dump (LHD) machines). At the tips, broken material is screened at grated grizzlies. From the grizzlies, the material is automatically loaded onto an intricate system of conveyor belts. Material is moved from underground via conveyor belt systems to surface storage silos before being transported again via the conveyor belt system to the processing plants.

Table 41: Hoisting Capacities of the Kroondal Shafts

Shaft	Operating Capacity (ktpm)	5-year Planned production (ktpm)
Kwezi	150	145
K6	140	125
Kopaneng	186	144
Simunye	160	141
Bambanani	130	120

13.2.3 Mining Methods

The mining method applied at all Kroondal Operations shafts is mechanised bord and pillar. There are, however, a few sections where handheld drill and blast operations take place.

No backfilling is used on underground operations. There is no requirement for stripping in the open-pit operations.

13.3 Geotechnical Analysis

The TRS has been compiled with generally appropriate input from qualified rock engineers. Strategic planning and major design issues were completed with the relevant input from the responsible rock engineers. The primary aspects making up the geotechnical analysis are;

- Geotechnical conditions
- Stress and seismological setting
- Regional and local support

13.3.1 Geotechnical Conditions

Major structures/fault zones intersect the orebody at most operations. Structures of note are;

- Dykes – A number of dykes affect these operations, especially Bambanani Shaft. Appropriate mitigation strategies are in place and these include bracket pillars, secondary and tertiary support as well as limiting mining to necessary development only.
- Siphumelele/Turfontein Shear zone – affects Bambanani Shaft. Ground conditions characterised by blocky rockmass. Mitigation strategies include secondary support and reduced panel spans.

13.3.2 Stress and seismological setting

Stress and seismicity risk is low at these operations as they are generally shallow mining operations.

13.3.3 Regional and local support

In the bord and pillar operations, regularly spaced intact pillars are left as part of the layout. These pillars support the middling to the surface and should not be allowed to yield or fail. The protection of surface structures, i.e. buildings, roads, railway lines, etc., is achieved by ensuring that the pillars, in the stoping environment are capable of supporting the overburden. These pillars have Factor of Safety (FoS) >2,0 This empirically derived FoS is a requirement of the MCOP.

13.4 Mine Ventilation

All projects and new infrastructure designs incorporate detailed ventilation modelling and recommendations as part of normal feasibility planning processes under the auspices Environmental Engineering. All underground mines are demarcated into mining ventilation districts. The ventilation design is based on the velocity of 0.7 m/s for mechanized mining.

13.5 Flammable Gas Management

Sporadic flammable gas intersections are encountered on the shafts. These intersections are well controlled by the Flammable Gas Code of Practice and procedure. Continuous gas measuring instruments and a telemetry system are used to detect Carbon Monoxide in the operations.

13.6 Mine Equipment

The following major mine equipment (Table 42) is installed and utilised at the Kroondal Mechanized Operations:

Table 42: Major Equipment Quantity Summary

Major Equipment	Quantities
Chairlifts	20
Conveyors	237
Mini-Subs	277
Substations	21
Vent Fans	26

Summary of mobile equipment (Table 43)utilized at the Kroondal Operations:

Table 43: Mobile Equipment Summary - 2021

Asset Type	Jan-21
Ambulance	6
Forklift	1
Grader	7
LDV	110
LHD	239
Manitou	5
Roof-bolter	90
Drill Rig	78
Jeeps	49
UVS	109
UPC	38

The following major process equipment (Table 44) is installed and utilised at the Kroondal Minopex Concentrators:

Table 44: Major Process Equipment

Major equipment	Quantity
Ball mills	5
Cone crusher	3
Flotation cells	77
Jaw crusher	2
Thickeners	4

13.7 Personnel Requirements

Refer to section 4.5 for personnel requirements.

13.8 Final Layout Map

Refer to Section 12.7 and Figure 35 for the distribution of Mineral Reserve and mined-out areas.

14 Processing and Recovery

This section covers the metallurgical and mineral processing aspects associated with Kroondal Operations. The process metallurgy and process engineering aspects relating to plant capacity, metallurgical performance and metal accounting practices are incorporated in the LoM plan.

Sibanye-Stillwater owns and operates two processing plants at the Kroondal Operations which are Kroondal 1 Concentrator Plant (K1 Plant) and Kroondal 2 Concentrator Plant (K2 Plant) whilst Marikana processing plant is under care and maintenance.

The mineral processing facilities at the Kroondal Operations are located at two sites. Both mineral processing plants are operated and maintained under contract by Minopex. The K1 Plant was commissioned in October 1999 and the K2 Plant was commissioned in April 2005. A summary of the main components for the operations is provided below.

14.1 Processing Facilities

Kroondal Operations incorporate the Kroondal 1 Concentrator Plant situated next to Kopaneng Shaft and the Kroondal 2 Concentrator Plant, situated about 2km East of K1 Concentrating Plant close to Simunye and Bambanani shaft. Both K1 and K2 Plants have associated Chrome Spiral Plants (Namely K1.5 and K2.5) situated next to the respective plants. Presently, the K1 and K2 processing plants process 310 and 325 ktpm of ore, respectively.

In addition to the PGM plants, the Kroondal Operations also include:

- Chrome Tailings Retreatment Plant (CTRP) and Marikana concentrator are currently under care and maintenance
- The three Tailings Storage Facilities (TSFs), namely the K1, K150 and K2 TSF
- The two Dense Media Separation (DMS) waste stockpiles (K1 DMS Stockpile and K2 DMS Stockpile)

Current mineral processing plant parameters for the Kroondal Operations are shown in Table 45. Capacities are based on historical and current performance.

Table 45: Mineral Processing Plant Parameters

Plant	Design Capacity (ktpm)	Operational Capacity*	Average 4E Recovery Factor (%)	Material Treated	Average Forecast Tons /Month(2022 Plan)
K1	290	290	81.7	UG2	265 021
K2	300	300	80.0	UG2	263 419

Kroondal has access to all material requirements.

14.1.1 K1 Plant

Mining started in March 1999 via two decline shafts (originally the Central and East shafts, now Kopaneng and Simunye) and by year-end, full production had been achieved and the initial plant commissioned. The original plant design made provision for the establishment of one mineral processing plant located to the south of the open-pit, now referred to as the K1 Plant (Figure 42). The original production capacity of the plant was 100 kilotonnes per month (ktpm). This capacity was increased to 290 ktpm as part of the Phase 1 Expansion project.

The Expansion Project that took place included the addition of the Secondary Ball Mill and Flotation circuit as well as Flash Float Cells at the DMS circuit. The original Primary Rod Mills were also converted to Ball Mills.

The QP considers the K1 Plant to be in good condition both mechanically and structurally and, subject to adequate ongoing maintenance, should meet the LoM requirements.

14.1.1.1 Production Plan

The recent history and budget operational parameters for the K1 concentrator are presented in Table 46, Figure 40 and Figure 41. The C2018, C2019, 2020 and C2021 data presented reflect the actual annual performance whilst the C2022 to C2040 data represents current budget targets. The current operational methods and capacities are adequate. Metallurgical efficiencies projected have also been sustainably obtained historically and are thus reasonable budget targets.

Table 46: K1 Concentrator Production Forecast and Operational Data

Parameter	Actual				Budget							
	C2018	C2019	C2020	C2021	C2022	C2023	C2024	C2025	C2026	C2027	C2028	C2029
Total Feed (kt)	3 892	4 024	2 875	3 532	3 180	2 681	2 541	2 159	1 557	1 163	490	186
Head Grade (g/t)	2.44	2.36	2.38	2.39	2.45	2.48	2.56	2.53	2.48	2.48	2.51	2.60
Concentrate Produced (kt)	29	30	24	28	27	23	21	18	13	10	4	2
4E Recovery (%)	83%	82%	83%	88%	83%	83%	83%	83%	83%	83%	83%	83%
4E Metal Produced (koz)	253	251	182	225	208	177	173	146	103	77	33	13

Figure 40: K1 Concentrator Throughput Forecast

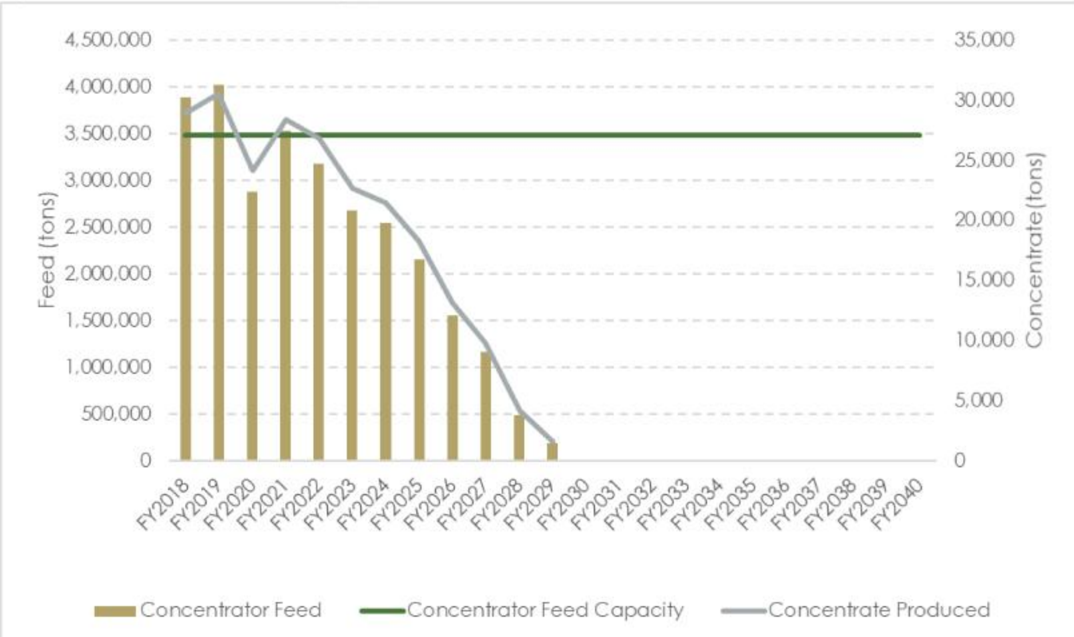


Figure 41: K1 Concentrator Production and Recovery Forecast

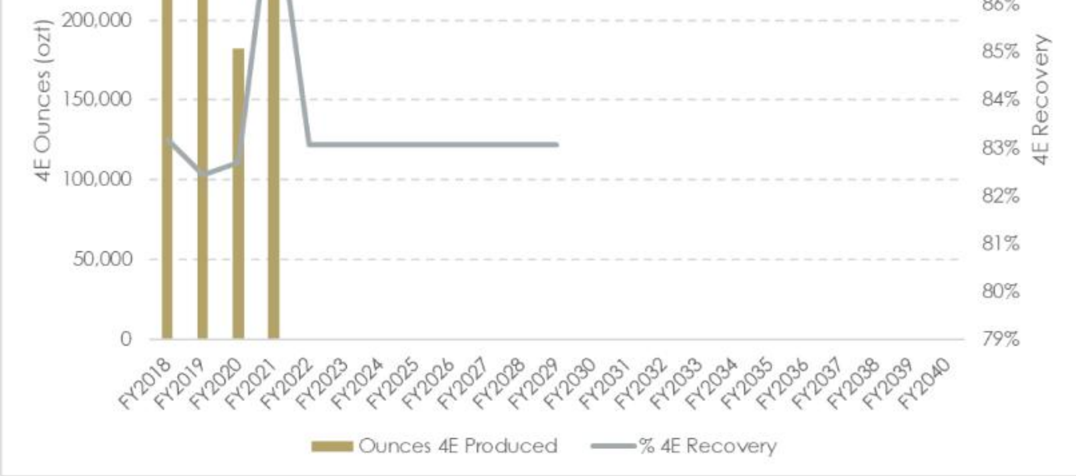
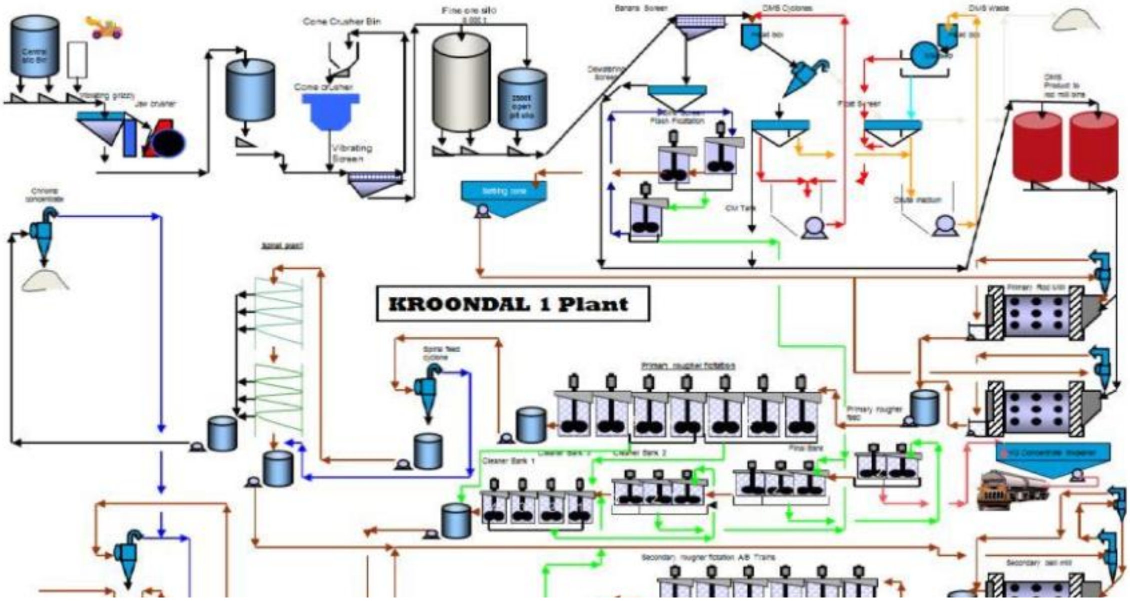
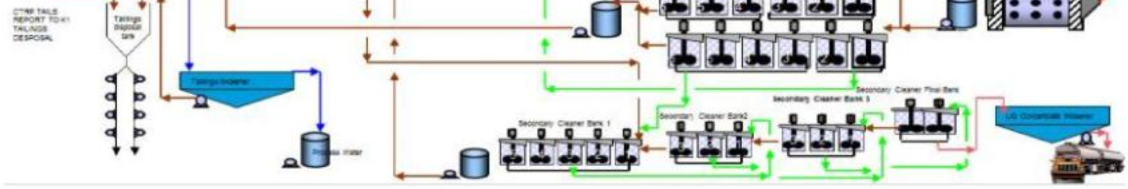


Figure 42: The Schematic Process Flow Diagram for K1 Processing Plant





14.1.1.2 Crushing

K1 Plant treats ROM ore from Kopaneng, Simunye and K6 shafts. ROM ore is transported by truck or conveyor to the primary crusher, where it is crushed and screened before being passed through a secondary crusher. The correctly sized material is then conveyed to the DMS feed silos.

As part of the Phase 1 expansion project, the capacity of the crushing plant was increased to 142 000 – 300 000tpm. A grizzly feeder is used to remove most of the fines before the ROM ore is sent to the Primary Crusher to better utilize the crusher. An intermediate silo with a capacity of 800t was developed between the primary and secondary crushing sections. Furthermore, the operating time of the crushing plant was increased to 7 days from the original design capacity of 6 days a week.

14.1.1.3 Dense Media Separation (DMS) Plant

To minimize the treatment of waste rock and to upgrade the ore head grade, a DMS plant is located between the crusher section and the milling section of each plant. The DMS plant is fed from the DMS feed silos, which are two concrete units with a total storage capacity of approximately 8000t and 2500t, respectively. The additional DMS feed silo was built at a later stage and served as a reserve silo. An automated hammer sample cutter takes samples every few minutes to determine the feed head grade of the ore coming into the DMS circuit.

The Phase 1 expansion to the DMS plant involved upgrading the DMS section with larger cyclones to treat the higher feed tonnage. The DMS process treats coarse material (minus 30 mm plus 2 mm), whilst the fines (minus 2mm) bypass this process and are 'flash-floated' immediately after being screened ahead of the DMS section. A short residence-time flotation unit recovers the bulk of the PGM-bearing material from the fines before reporting to the primary milling-flotation circuit. During the Phase 1 expansion, additional flash-float units were also installed to treat the additional fines coming from the feed and to increase the residence time to increase grade and recovery.

The DMS waste is passed onto a waste conveyor which transports the material to a DMS waste rock stockpile, situated to the east of the plant. The DMS product is then conveyed to the north feed bin. Regular interval samples are taken with an automated sample cutter to minimize the loss of PGMs contained within the waste rocks to the waste rock stockpile. The DMS plant produces a maximum of 1 200 000 tpa of waste rock.

14.1.1.4 Milling

The primary milling-flotation circuit treats DMS 'sinks' material (together with the flash float fines), which is essentially the 'reef' proportion of the coarse run-of-mine ore. Two primary mills are installed at the plant. The two circuits are identical and are described below. In order to maximize recovery of the PGM, the material must be ground. The PGM bearing material is fed into the front of the mill and is broken into smaller particles. Water is also fed into the mill and the material exists as a dense slurry and is then diluted. The slurry passes over vibrating screens to remove any waste and scats and is then pumped to the flotation section.

The Phase 1 expansion project made provision for the inclusion of a regrind ball mill circuit. The ball mill operates in an open-circuit so as to minimize losses. The cleaner flotation tailings are re-introduced to the ball mill circuit which effectively 'closes' the primary cleaner flotation circuit, and improves recovery

and reduces the likelihood of operational losses from the concentrator. The regrind flotation cell arrangement is similar to the primary rougher flotation circuit, resulting in parallel flotation trains.

14.1.1.5 Flotation (Addition of Reagents)

The floatation process is used to concentrate the PGMs. In the flotation process, the minerals of the PGM attach to bubbles of air and are thus separated from the slurry of milled ore. The concentrate collected on the bubbles is upgraded through a series of flotation steps.

Reagents for the flotation process are added to the slurry from the mill. These reagents are:

- Sodium isobutyl xanthate (SIBX) links up with sulphide minerals, these minerals are naturally hydrophobic and the SIBX enhances this
- Poly-propylene-glycol (frother) which stabilises the bubbles
- Carboxy-methyl-cellulose (CMC depressant) stops fine silica and slimes attaching to the bubbles and makes talc and gangue material in the solution fuse together.

Kroondal 1 operates an MF2 circuit, whereby the product of the primary mill feeds the primary rougher circuit with the tails from the primary roughers feeding the secondary mill. The secondary mill product feeds the secondary roughers. The primary roughers produce high grade and medium grade concentrate, the high-grade concentrate reports to the primary cleaner bank 1. The primary medium grade concentrate reports to the secondary cleaner bank 1. The secondary roughers produce high and medium grade concentrate. The high-grade concentrate from the secondary roughers reports to primary cleaner bank 1 and the medium grade concentrate from the secondary roughers reports to the secondary cleaner bank 1.

The primary cleaner circuit comprise of 4 banks of primary cleaners. The primary cleaner circuit like the secondary is an upgrading floatation circuit with concentrate from bank 1 upgraded in bank 2, bank 2 concentrate upgraded in bank 3 and bank 3 concentrate upgraded in bank 4 which is the final concentrate. Secondary cleaner section is similar to primary cleaners section. The final concentrate is pumped to the concentrate thickener for thickening and dispatch via slurry trucks.

The tails from the secondary rougher flotation cells pass to the chromite removal section.

14.1.1.6 Chrome Removal

Associated with the processing plant is the Chrome Spiral Plant. The secondary rougher flotation tailings pass through the spiral plant to recover chromite from the milled product. The chrome recovery circuit of the K1 plant was upgraded to contain additional spiral concentrator units to increase the chromite concentrate yield. On average, the K1 Spiral Plant produces 26 000 tonnes of chrome per month with a Cr_2O_3 grade of above 40.5%.

14.1.1.7 Reagent Make-Up and Distribution

The chemicals used in the flotation process are delivered as either concentrated solutions or dry. Except for the frother, these chemicals must be made up, hydrated or diluted prior to use in the flotation plant. Although the exact make-up system varies for each chemical, basically, each reagent is added to a tank, to which water is added and then the resultant solution is mixed and circulated and then pumped into the flotation plant.

14.1.1.8 Tailings Separation

Slurry from the secondary rougher flotation step is discarded as tailings, after the Chrome is removed by the Spirals. The tailings are thickened in thickeners and then discharged to one of the tailings storage facilities, namely K1 Tailings dam and K150 Tailings dam.

14.1.2 Kroondal No 2 Plant

K2 Plant (Figure 43 and Figure 46) was built and commissioned in 2005. At that stage, there were three operational shafts with the construction of a fourth shaft (Kwezi) to start in the following year. In 2008 the production ramp-up began at Kwezi and continued into the following year with a total of four decline shafts in production.

The QP considers the K2 Plant to be in good condition both mechanically and structurally and subject to adequate ongoing maintenance should meet the LoM requirements.

Figure 43: Aerial View for the K2 Plant

14.1.2.1 Production Plan

The recent history and budget operational parameters for the K2 concentrator are presented in Table 46, Figure 405 and Figure 416. The C2018, C2019, 2020 and C2021 data presented reflect the actual annual performance whilst the C2022 to C2040 data represents current budget targets. The current operational methods and capacities are adequate. Metallurgical efficiencies projected have also been sustainably obtained historically and are thus reasonable budget targets.

Table 47: K2 Concentrator Production Forecast and Operational Data

Parameter	Actual				Budget						
	C2018	C2019	C2020	C2021	C2022	C2023	C2024	C2025	C2026	C2027	C
Total Feed (kt)	3 838	4 095	3 119	3 518	3 161	2 903	2 973	3 215	3 106	2 684	1
Head Grade (g/t)	2.54	2.58	2.53	2.42	2.5	2.55	2.66	2.5	2.48	2.51	
Concentrate Produced (kt)	40	40	32	37	33	31	31	34	32	28	
4E Recovery (%)	82%	82%	83%	83.30%	79%	79%	81%	83%	83%	83%	
4E Metal Produced (koz)	257	278	211	228	201	188	206	214	206	180	
Parameter	Budget										
	C2030	C2031	C2032	C2033	C2034	C2035	C2036	C2037	C2038	C2039	C
Total Feed (kt)	1 258	1 246	1 271	1 236	1 137	921	913	885	672	499	
Head Grade (g/t)	2.63	2.61	2.69	2.64	2.7	2.69	2.68	2.64	2.6	2.63	
Concentrate Produced (kt)	13	13	13	13	12	10	10	9	7	5	
4E Recovery (%)	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	
4E Metal Produced (koz)	89	888	92	88	83	67	66	63	47	35	

Figure 44: K2 Concentrator Throughput Forecast

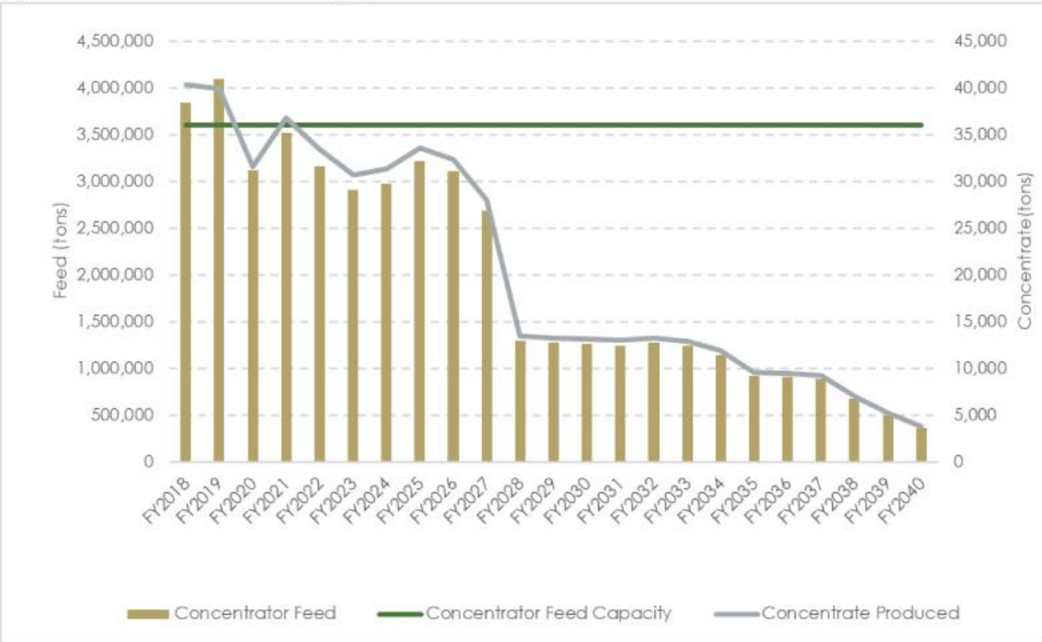


Figure 45: K2 Concentrator Production and Recovery Forecast.

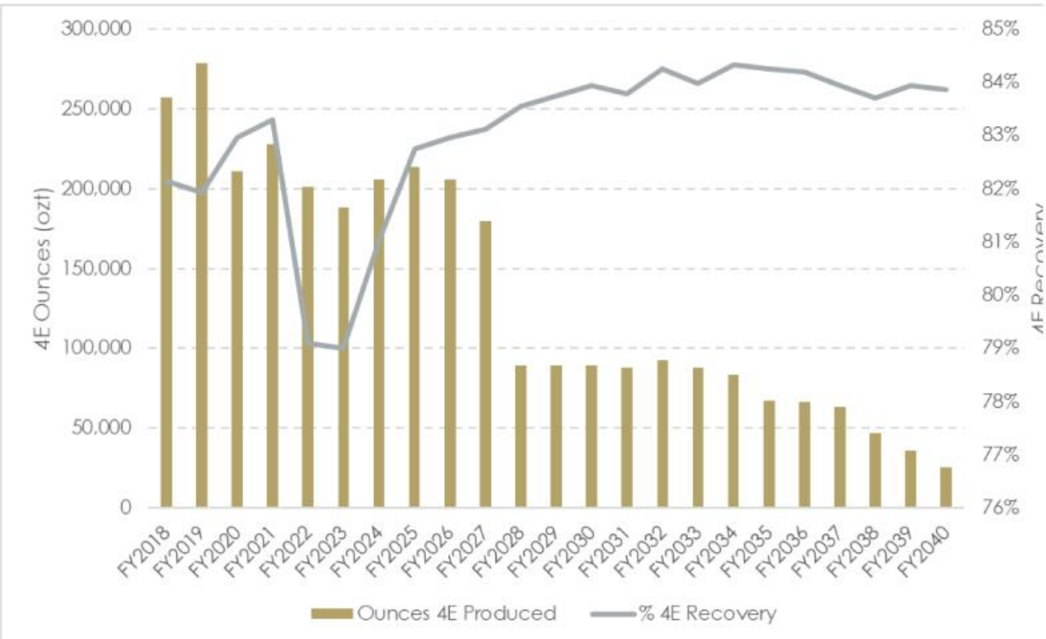
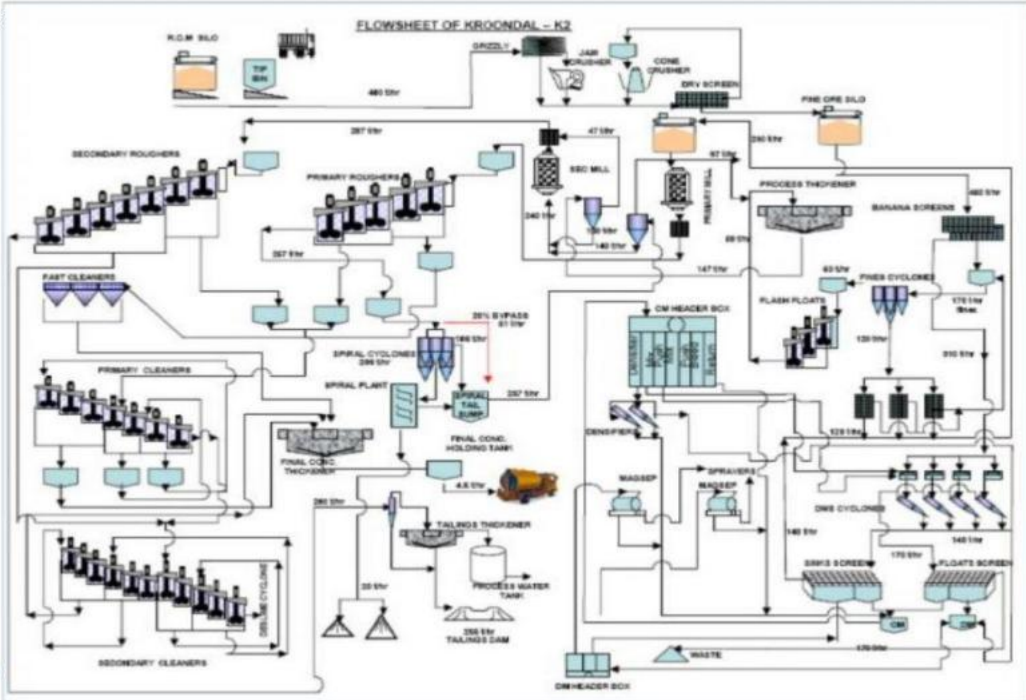


Figure 46: The Schematic Process Flow Diagram for Kroondal No.2 Plant



14.1.2.2 Crushing

The K2 Plant treats ROM ore from the Simunye, Kwezi and Bambanani shafts, respectively and recently open-pit ore from Klipfontein. The ROM ore is transported via train, truck or conveyor to an elevated ROM silo. From this silo, it is crushed down to minus 20 mm by a two-stage crushing circuit.

The primary crushing consists of a Grizzly Feeder feeding the Jaw Crusher, which crushes the ROM ore down to 75 mm. This ore is then transported via an overland conveyor to the secondary crushing.

The secondary crushing consists of a vibrating screen that removes the minus 30 mm particles. The oversize is sent to a small bin with a vibrating feeder which feeds the secondary cone crusher which has a closed side setting of 19-22 mm. The Cone Crusher product will then go back to the vibrating screen. The secondary crushing is thus operating in a closed loop. The undersize of the vibrating screen is then sent to a 4000t fine ore silo, also known as the DMS feed silo.

14.1.2.3 Dense Media Separation (DMS) Plant

The operation of the DMS at the K2 Plant is very similar to the DMS of the K1 Plant. Both are used to upgrade the feed ore head grade and to minimise treatment of waste rock. Minor differences exist in the plant itself, such as original equipment manufacturer (OEM) designs of certain equipment and sizes due to the K2 Plant being able to feed 325 ktpm to the DMS.

being able to feed 325 ktpm to the DMS.

Regular automated samples of the DMS feed as well as the DMS floats (waste rock) are taken for metal accounting purposes, the same as at K1. K2 also has its own waste rock stockpile situated next to the plant, where waste rock is transported by conveyor belts to the stockpile. Around 3.7 Mt per annum of waste rock is produced by K2 Plant.

The sinks (product rock) from the DMS, together with the particles that are smaller than 2 mm (the feed prep screen underflow) is sent with a conveyor to the concrete mill feed silo which has a capacity of 3500t.

14.1.2.4 Milling

The primary milling phase is carried out in a single primary ball mill similar in design to the mills at the K1 Plant, but larger in capacity. Grinding balls (70mm diameter for primary mill and 40mm diameter for secondary mill) are used to grind the material down.

The K2 Plant also follows a mill-float-mill float (MF2) processing circuit, meaning that the discharge of the primary mills will be fed to the primary roughers. The tails of the primary roughers are then sent to the secondary ball mill to be re-grinded. The discharge of the secondary ball mill is then sent to the secondary floatation to be floated again.

14.1.2.5 Flotation (Addition of Reagents)

The floatation process of the K2 Plant has the same purpose as that of the K1 Plant, which is to concentrate the PGMs, but with a different flow in the process. The difference between the floatation circuit of the K1 and K2 Plants is that the K2 Plant has additional fast cleaners in the primary as well as the secondary circuit. The concentrate of these fast cleaners is considered by the QP to be of a grade high enough to go directly to the final concentrate.

Reagents for the flotation process at the K2 Plant are the same as the K1 Plant, except for the additional copper sulphide. These reagents are:

- SIBX, which links up with sulphide minerals, these minerals are naturally hydrophobic and the SIBX enhances this
- Poly-propylene-glycol (frother) which stabilises the bubbles
- CMC depressant which stops fine silica and slimes attaching to the bubbles and makes talc and gangue material in the solution fuse together
- Copper sulphide (activator) acts as a promoter for the PGM's to be floated.

- K2 basically has four product streams which will all go to the final concentrate. These four streams are:
- Flash float concentrate from the DMS section
- Fast cleaner concentrate from the primary floatation circuit
- Secondary re-re-cleaner concentrate
- Primary re-cleaner concentrate.

All of the above mentioned is blended to deliver a final concentrate of around 180 g/t PGM's. The secondary rougher tails are also pumped to the spiral section for the chrome removal.

Kroondal 2 operates a MF2 circuit, whereby the product of the primary mill feeds the primary rougher circuit with the tails from the primary roughers feeding the secondary mill. The secondary mill product feeds the secondary roughers. The primary roughers produce high grade and medium grade concentrate, the high-grade concentrate reports to the fast cleaners. The primary medium grade concentrate reports to the secondary cleaners. The secondary roughers produce medium and low grade concentrate. The medium grade concentrate from the secondary roughers reports to primary cleaners and the low-grade concentrate from the secondary roughers reports to the secondary cleaners.

The primary cleaner circuit comprise of fast cleaners, primary cleaners and primary re-cleaners. The concentrate from the fast and primary – re cleaners is the final concentrate and it is pumped to the concentrate thickener for dispatch. The secondary cleaner circuit is made up of the secondary cleaners, secondar re-cleaners and secondary re-re-cleaners. The concentrate from the secondary re-re-cleaners is the final concentrate from this circuit and is pumped to the concentrate thickener for dispatch.

The tails from the secondary rougher flotation cells pass to the chromite removal section.

14.1.2.6 Chrome Removal

Like the K1 plant, the K2 Plant also has an associated Chrome Spiral Plant. The secondary rougher flotation tailings pass through the spiral plant to recover chromite from the milled product. A total of approximately 41 000t of chromite concentrate is produced per month from both plants.

14.2 Future Projects

As part of the proposed West-West Open-Pit Rehabilitation and Surface Tailings Storage Facility Project for the Marikana assets at the Kroondal Operations, modifications will be required for the Kroondal Mine Processing Plants to recover residual platinum in the current tailings. These modifications are necessary to ensure that further residual platinum, PGMs and chrome from the tailings are extracted, and that no viable resources are deposited in the tailings during the rehabilitation of the West-West Open-Pit.

The profit-sharing agreement (PSA) agreement with Anglo American Platinum for the Kroondal mine is set to expire during the course of 2022-2024. This development means that Kroondal concentrates needs to produce concentrate with chrome content of below 1.5%. A project, although in its conceptualisation stage, is underway to investigate the feasibility of installing additional floatation cells which will help in cleaning the concentrate to reduce chrome content in the final concentrate for the Kroondal Operations.

A feasibility study is planned to be undertake by Kroondal Operations and a third party to determine the economic and metallurgical viability of re-treating Kroondal floats discards. The proposal is still on pre-planning stage and awaiting approval from the executives.

14.3 Sampling, Analysis, PGM Accounting and Security

Generally, adequate attention is given to sampling and sample preparation. Samples are prepared in the on-site labs at both the K1 and K2 Plants whereafter it will go to external laboratories for PGM and Chrome analysis. A final analysis is conducted at the Waterfall smelter on the concentrate to complete the metal accounting. Whilst there are minor accounting anomalies, good accounting procedures are largely in place.

Plant feed tonnage is generally measured via weightometer scales after the Primary Crushing section, before the Secondary Cone Crusher as well as on the DMS Feed Conveyor and mill feed belts. The waste (floats) and product (sinks) material are also measured on the separate conveyor belts. Plant feed and the waste are sampled on the DMS Feed conveyor and DMS floats conveyor, respectively, with a hammer sampler. Primary rougher feed, secondary rougher tails, flash float concentrate, primary and secondary cleaner concentrate and final concentrate before despatch samples are almost exclusively taken automatically, with cross-stream pulp cutters, although hand cut samples are taken in certain cases. Shift composites are accumulated and prepared as per the defined standard operating procedure.

There are no real security issues, as the final product is a concentrate which is transported in bulk and requires further processing at the smelter and refinery.

14.4 Plant Lock-up

The quantity of clean-up PGMs that can be anticipated on the closure of a concentrator or processing plant is uncertain. Final Product

The final product of the K1 and K2 Plants is PGM concentrate in a slurry form. Waterfall smelter, with whom there is a pooling and sharing agreement, takes this slurry concentrate and smelts it to purify it even further before sending it to the refineries.

14.5 Energy

South African power utility Eskom supplies energy to Kroondal Operations. Grinding mills are the highest consumer of power at Kroondal. The maximum rating for Kroondal 2 mills is 10.4kW made up of 2 mills of equal rating. The maximum rating for Kroondal 1 mills is 7.6kW, this is made up of 2 mills rated 1.2kW and 1 mill rated 5.2kW. Kroondal 2 uses about 6 569 837.7kWh/month on month on average and Kroondal 1 uses about 4 700 897.7kWh/month on average.

14.6 Water

Kroondal Operations receives water from Kroondal return water dams which are K150, K1, K2 and Marikana return water dams. The slurry from the plants in the form of tailings discards is pumped to Kroondal TSF's(Marikana, K1, K150, K2), these TSF's retain solids and through the penstock returns water to Kroondal return water dams. The major source of water for the Kroondal Operations is rain water which is collected via the TSF's , return water dams ,Marikana pits and storm water dams. The water from the return water dams is pumped to both Kroondal plants process water dams for use in the plants. Rand Water Board supplies water to Kroondal Operations for domestic use.

14.7 Personnel

The complement at Kroondal is 249 permanent employees, with Kroondal 2 accounting for 128 and Kroondal 1 121. The management team is made up of an area manager who is looking after the two plants, a plant manager, plant engineer and a process superintended for each plant. Middle management is made up of materials controller, mechanical foreman, Instrumentation foreman, electrical foreman, lab supervisor and 4 shift supervisors. The operation runs 24 hours with 3 shifts on rotation.

14.8 QP Opinion on Processing

The QP is satisfied that the Mineral Processing is appropriate and sufficient to support the LoM and that all material issues have been addressed in this document.

15 Infrastructure

15.1 Overview of Infrastructure

Engineering infrastructure at the Kroondal Operations includes a wide range of operating technology, which varies in age and extent of mechanisation. Figure 47 shows the layout of the mine and the placement of shafts and other surface infrastructure within the mine boundaries. The infrastructure includes a wide range of underground Trackless Mobile Machinery (TMM) as well as the necessary underground infrastructure to support underground mechanised mining. Surface infrastructure include processing plants, Tailing Storage Facilities as well as

Electricity, Water and Road infrastructure. Shared services infrastructure not on the mine is not shown.

Underground operations comprise of five Decline shafts (3 Barrel systems) and infrastructure to convey personnel, materials and equipment to and from the working areas and associated services to support mining operations. Main Decline infrastructure includes Trunk (Main/Dip/Decline) conveyor systems with underground storage facilities (Bunkers), main roadways (for mobile machinery - TMM) and Chairlift infrastructure for the conveyance of people. The main infrastructure further includes permanent water and compressed air columns and Medium Voltage (MV) electrical reticulation. Main ventilation shafts and associated ventilation fans as well as permanent dams for water management form part of the main infrastructure.

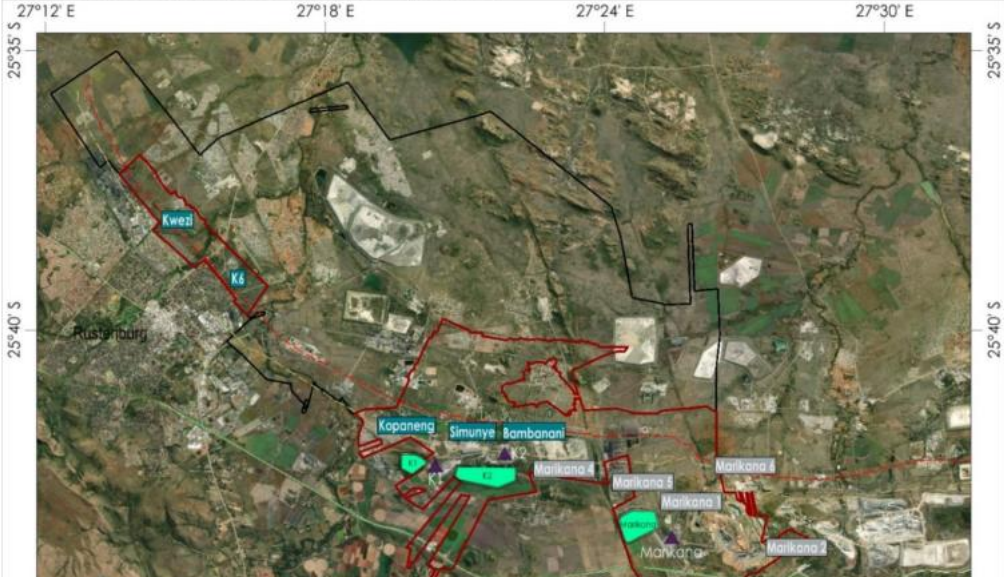
Surface infrastructure at the decline shafts includes TMM workshops, compressors, water supply and settler systems, and MV substations all in support of the underground operation. Other surface infrastructure includes primary ventilation, process facilities, office blocks and training centres, workshops and stores, lamp rooms, and change houses.

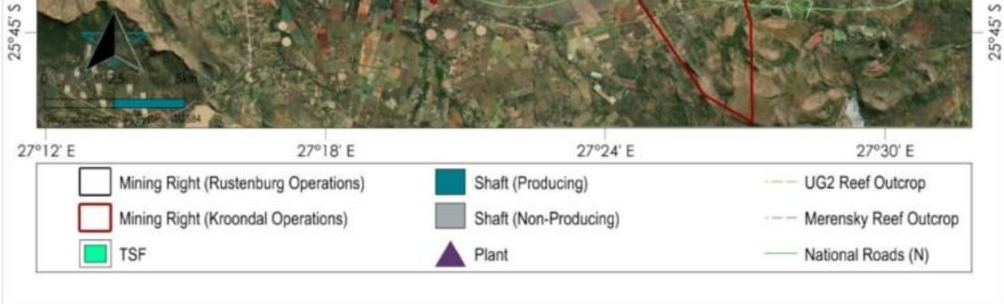
There are also several services and supply centres. These include compressed air supply stations and minor workshops for small repairs to plant and equipment.

Further surface infrastructure includes two Processing plants (K1 and K2 Plants), various Tailings Storage Facilities (TSF) and associated return water dams and waste rock dumps associated with the dense media separation in both processing plants. Office infrastructure, roads, Rand Water supply points, Eskom 88 kV overhead supply lines and surface water and electrical reticulation complete the surface infrastructure.

Notwithstanding the age of the general infrastructure, all surface and underground infrastructure is reasonably maintained and equipped. In conjunction with the planned maintenance programmes, including specific remedial actions, structural audits and condition monitoring programmes, the QP considers the current infrastructure, hoisting capacities and logistical capacities more than adequate to satisfy the requirements of the LoM plan. Further, the power supply and distribution systems, water sourcing and reticulation systems are appropriate as envisaged in the LoM plan.

Figure 47: The Layout of the Kroondal Operations





15.2 Tailings Storage Facilities

The Kroondal Operations have four TSFs (Figure 48), namely:

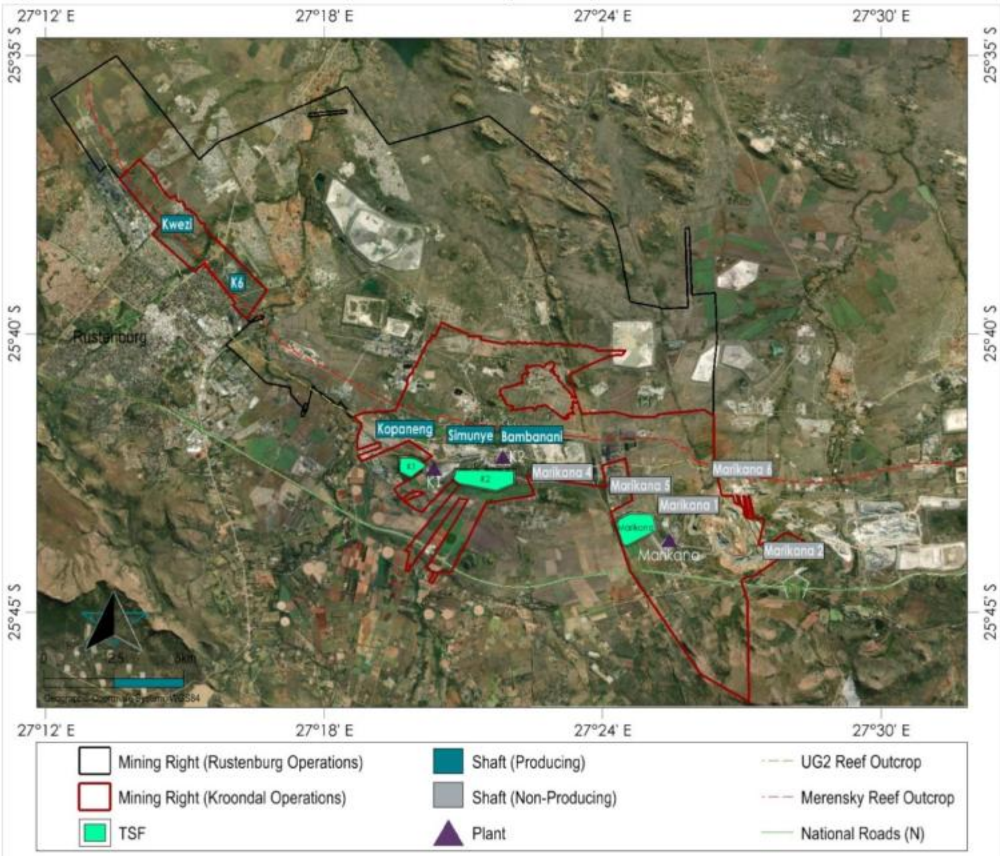
- K1 TSF which receives tailings from the K1 Plant and K2 Plant in emergencies
- K150 TSF which receives tailings from the K1 Plant
- K2 TSF which receives tailings from the K1 Plant
- Marikana TSF which has recently been used again by the K2 Plant.

Plant residue is disposed on four TSFs located close to the K1 and K2 plants with the following properties:

- K1 TSF with a design capacity of 28,000tpa.
- K2 TSF with a design capacity of 86,000tpa.
- K150 dam, an extension next to K2 with a design capacity of 86 000tpa.
- Marikana TSF with a design capacity of 200 000tpa.

Tailings are transported and deposited by means of multi-stage pumping and tailings disposal lines discharging into spigots at the TSF, with decant water being returned to the process water circuit. K1 and K2 are raised using spigot systems. K150 is raised using cyclones.

Figure 48: Location of Kroondal Operations Tailings Storage Facilities



15.2.1 K1 TSF

This is the first TSF that was used at the Kroondal Operations in 1999. Currently, it is almost at its full capacity. A maximum of 28 000t of tailings can be pumped to the K1 TSF per month. Return water from this TSF is pumped back to the K1 Plant. The K1 TSF was used as an emergency deposition facility for the K2 Plant.

15.2.2 K150 TSF

K150 TSF is being used by the K1 Plant. Return water can also be transferred back to either the K1 Plant process water dam or the K2 Plant process water dam. Normally most of the water is pumped back to the K1 Plant as K150 is the Plants'

main source of water. K150 elevated Penstock project will be completed in Q3 2022

15.2.3 K2 TSF

The K2 TSF is used by the K1 Plant.

15.2.4 Marikana TSF

The Marikana TSF was used during the time that Marikana Concentrator Plant was still operational. It has been utilised again by K2 Plant (2019) to pump its tailings. A booster pump station (BPS) is situated between the K2 Plant and Marikana TSF due to the distance between the K2 Plant and the TSF. Dam stability Buttress is ongoing. Phase 3 will be completed in end April 2022 and Phase 4 at end December 2022.

15.2.5 LoM Requirements

There is adequate storage capacity for the tailings resulting from ore processing at the K1 processing facility (Table 48) for the LoM Plan till 2025, and the Tailings Storage Facilities are in good condition.

Tailings from the K2 processing facility in excess of the capacity of the Marikana TSF is to be deposited on the planned Marikana Pit TSF.

Future Opportunities to increase capacity

- Utilize Marikana Open-Pit (disused pit) for tailings deposition
- Improved water reticulation strategy to be developed

Table 48: LoM Assessment of Tailings Facilities

Tailings Facility	LoM Deposition (Mt)	Available Capacity (Mt)	Surplus / (Shortfall) (%)
K1	1.3	1.3	0
K150	3.9	3.9	0
K2	3.9	5.0	28.2%
Marikana**	30.6	18.6	-39.2%
Total	**39.7**	**28.8**	
**Additional capacity is possible if additional buttressing is approved for extension of the dam elevation an additional 10 metres.			

15.3 Power Supply

Power supply at Kroondal Operation is obtained from two separate Eskom supply points into the K1 and K2 Plants, respectively, via two separate 88 kV overhead lines from the Eskom grid (Figure 49 and Figure 50). The power distribution to the three shafts at Kroondal as well the plants and surface infrastructure is done by means of

11 kV Over-Head conductors. The other two shafts at the Kroondal operation are supplied via the Anglo MV network and the Rustenburg Local Municipality (RLM). Kroondal has a total of 80 MV-installed capacity (two off 20 MVA at each point of supply) and a combined Notified Maximum Demand ("NMD") of around 60 MVA. Figure 49 shows the layouts for power points and surface infrastructure for Kroondal Operations.

Figure 49: Schematic Layout of Power Points of Supply and Surface Infrastructure

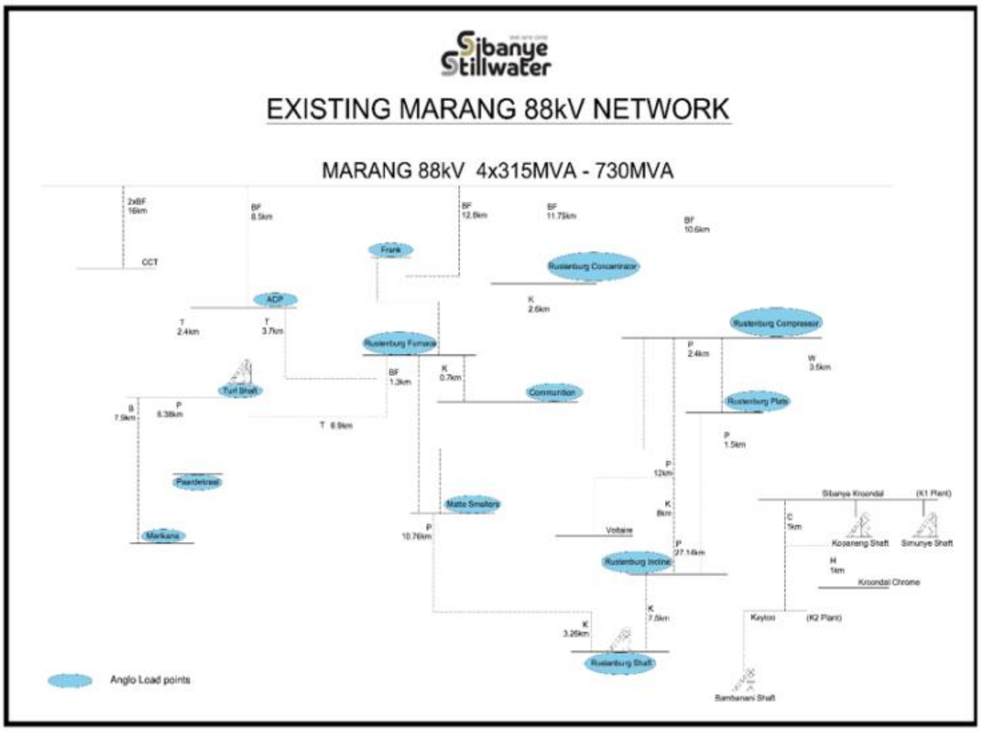
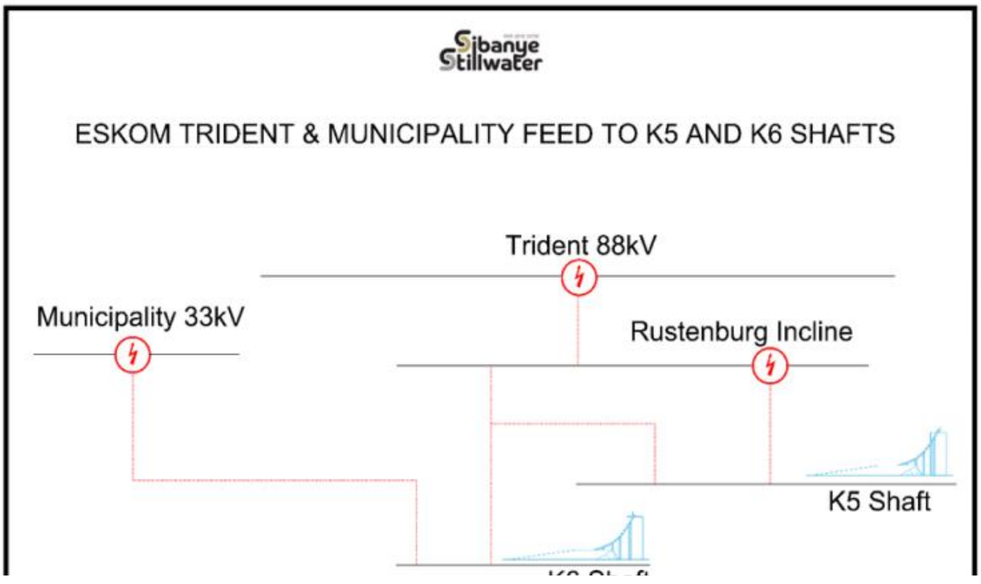


Figure 50: Eskom Electricity Supply



K6 Shaft

15.4 Bulk Water, Fissure Water and Pumping

See Section 17.5.6 for more information on Bulk Water, Fissure Water and Pumping. No pipeline infrastructure components are material to the Kroondal Operations.

At each of the underground operations, there are local and main pumps installed for dewatering purposes.

There are a number of underground dams available at the mines:

- Kopaneng 7
- Simunye 10
- Bambanani 19
- Kwezi 8
- K6 4

Monthly pumping rates at the shafts are:

- Kopaneng 63,528 m^3/month
- Simunye 53,616 m^3/month
- Bambanani 54,217 m^3/month
- Kwezi 41,936 m^3/month
- K6 45,198 m^3/month

Monthly Process Water sent underground was declared per shaft as follows in December 2016:

- Kopaneng 47,404 m^3/month
- Simunye 36,180 m^3/month
- Bambanani 47,404 m^3/month
- Kwezi 41,936 m^3/month
- K6 29,155 m^3/month

Monthly freshwater used for top-up from Rand Water Board was declared per shaft as follows in December 2016:

- Kopaneng 9,504 m^3/month
- Simunye 6,570 m^3/month
- Bambanani 4,301 m^3/month
- Kwezi 7,678 m^3/month
- K6 4,315 m^3/month

The risk that run-off from surrounding areas would enter the mine via the surface portals is well managed by measures to divert run-off away from the portals.

Fresh and processed water sent underground could be stopped immediately if circumstances threatened underground flooding, limiting the ingress of water to groundwater, i.e., from fissures.

Fissure water ingress varies considerably by the shaft. 'Other water' entering the system is as little as 5% of the total volume pumped to the surface at Kopaneng and Bambanani shafts, but as much as 35% at the K6 decline shaft, with the Kwezi decline shaft at 20% and the Simunye decline shaft at 25%. Since the area is already extensively mined, there is little likelihood of intersecting a significant underground lake.

Under normal circumstances, therefore, considering the installed pump capacity and the rate of fissure water ingress, accidental flooding at these operations is unlikely.

15.5 Roads and Transport Infrastructure

The road network on the Kroondal Operations site consists of paved and unpaved roads, which are primarily used for the transport of personnel and for access to the offices, shafts, plants and infrastructure positioned around the mine site. Rail and port infrastructure are not material. as the product is transported by road to the smelter and refineries and by road or commercial airlines to the end consumer.

15.6 Equipment Maintenance

15.6.1 Surface Workshops

Surface workshops for major repairs were converted to off-site repair facilities operated by third party suppliers in the neighbouring towns. Only minor repairs are done on the decline shafts.

15.6.2 Underground Workshops

Underground workshops are used for routine maintenance of equipment. All areas are well equipped. Facility configuration depends on the equipment that is being serviced to ensure compliance as per the requirements of the planned maintenance schedules. Workshop areas are well ventilated and illuminated, and floor areas are concreted.

15.7 Offices, Housing, Training Facilities, Health Services Etc.

The Kroondal Operations have central offices at various mines for shared services and offices at the shafts and plant for mine services(Figure 39).

Kroondal Operations are near to several towns and cities at which some of the mine personnel live. The mine also provides mine housing and hostels for some of its personnel. Transportation from high population density areas serving the mine is operated by a third-party supplier. Otherwise, all transportation is public services or personal vehicles.

Training facilities are provided through the Sibanye Platinum Academy and central training near the Kroondal Operations (see adjacent properties Section 20).

Primary Health services are centralised at Operations shared by the Sibanye Platinum Operations.

15.8 QP Opinion on Infrastructure

The Qualified Person is satisfied that the infrastructure is appropriate and sufficient to support the LoM and that all material issues have been addressed in this document. There are no other infrastructure components that are material to the. Rustenburg operations.

16 Market Studies

16.1 Concentrates and Refined Products

Concentrate is sold to Anglo American Platinum under a toll agreement where the downstream smelting and refining is carried out by AAP Rustenburg.

16.2 Metals and Marketing Agreements

AAP is responsible for the sale and marketing of the final product.

16.3 Markets and Sales

16.3.1 Introduction

Information on PGM, including gold, markets is widely available in the public domain. Major refiner and manufacturer of products using PGM, Johnson Matthey regularly publishes market reports. In addition, Sibanye-Stillwater has commissioned an independent PGM market study from SFA (Oxford). This information, along with negotiated contracts, informs Sibanye-Stillwater's price and sales predictions. Below is an extract on Supply and demand from the SFA market study, March 2022.

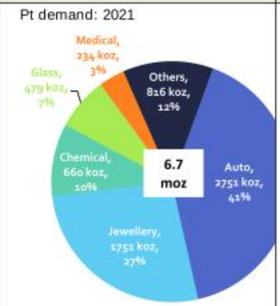
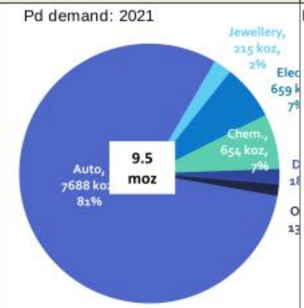
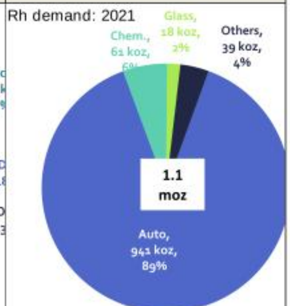
The usefulness of PGMs is determined by their particular chemical and physical properties. Certain of these properties are shared by other materials, but it is the unique combination of properties that makes the PGMs so valuable in their end-markets. The PGMs have high and specific catalytic activity, high thermal resistance, are chemically inert, biocompatible and are hard but malleable for forming into shapes. All the PGMs are constantly subject to risks of substitution from cheaper alternatives, but in most applications their unique properties render them relatively secure. The high cost of PGMs inevitably drives efforts to use lower quantities through thrifting, thereby reducing the loadings in applications.

16.3.2 Demand Summary

The main uses of platinum are as a catalyst for automotive emissions control, in a wide range of jewellery pieces and in industrial catalytic and fabrication applications. Palladium is primarily used as a catalyst in the automotive sector, mainly in gasoline-powered on-road vehicles, but alongside platinum in parts of the light-duty diesel engine after-treatment too. The second main use of palladium is in electrical components, specifically in multi-layer ceramic capacitors (MLCCs), as conductive pastes and in electrical plating. Rhodium is used almost solely in the automotive sector, with a small amount used in the glass, chemical and electrical industries.

Table 49: PGM Demand 2021

Platinum Demand	Palladium Demand	Rhodium Demand
• Autocatalysts (primarily for diesel engines • Wide range of jewellery • Many industrial uses	• Autocatalysts (primarily for gasoline engines • Electrical components • Many chemical applications	• Autocatalysts • Chemical catalysts • Glass fabrication • Electrical components

Platinum Demand	Palladium Demand	Rhodium Demand
		

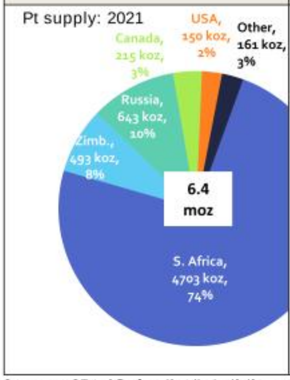
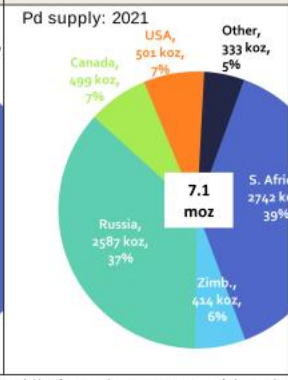
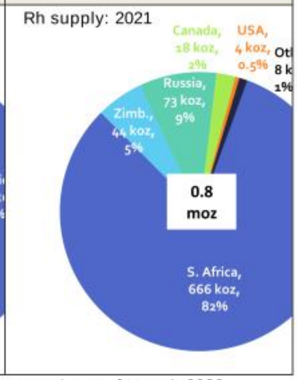
Source: SFA (Oxford). Note: Excludes physical investment products. All statistics and their analyses are accurate as of March 2022.

16.3.3 Supply Summary

The majority of PGM resources are located in Southern Africa, which accounts for over 80% of global PGM resources.

Russian PGM supply, with the exception of PGMs produced in the Kondyor, Koryak and Urals regions, is mostly generated as a by-product of nickel mining (from Nornickel) and is the world's largest source of palladium. Russia is also the second-largest producer of platinum and rhodium, accounting for approximately 25% of the world's total PGM supply in 2021. Other key platinum mining regions include Zimbabwe's Great Dyke, the Stillwater Complex in the US and the Sudbury Basin in Canada.

Table 50: Platinum Supply 2021

Platinum Supply	Palladium Supply	Rhodium Supply
		

Source: SFA (Oxford) All statistics and their analyses are considered accurate as of March 2022.

16.3.4 Palladium and Platinum Pricing Outlooks

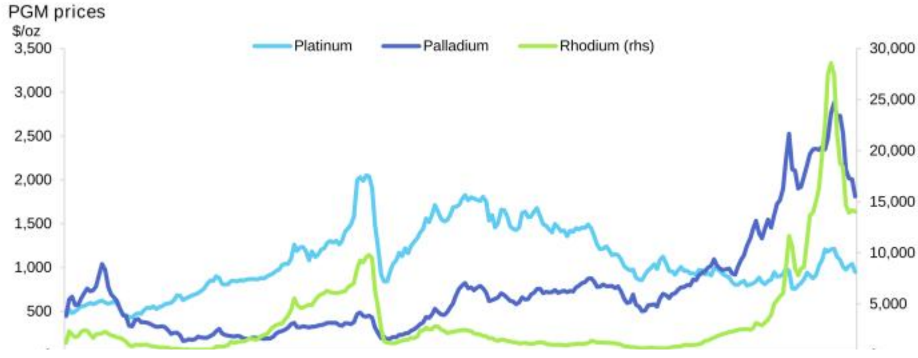
The near to medium term fundamental outlook for PGMs is robust. As the largest primary producer and recycler of PGMs in the world, Sibanye-Stillwater's investments into the high return, organic growth projects positions us well to support PGM demand driven by increasing social pull and regulatory drive for a cleaner environment. Climate change targets in Europe and other parts of the world have resulted in renewed interest in the hydrogen economy. Longer term production of green hydrogen for industrial use is supportive of demand for both platinum and iridium.

With the medium-term evolution of the automobile drive train from internal combustion engines (ICE) to greener technologies, such as battery electric fuel cell electric and hybrid vehicles, we continue to monitor and evaluate the sector for entry points that meet our strategic objectives.

As our customers' needs change, the opportunity for us to further build on our mining platform and diversify our offering will ensure that we remain preferred suppliers of strategic metals for tomorrow's powertrains.

Figure 51 illustrates the palladium and platinum price trends since 2000, expressed as nominal USD/oz.

Figure 51: Price Trends 2000-2021



Source: SFA (Oxford) *All statistics and their analyses are accurate as of March 2022.*

16.4 Metals Price Determination

Sibanye-Stillwater considers multiple trailing averages and forecasting scenarios for the determination of the commodity prices and exchange rates used as modifying factors for estimating Mineral Reserves. Mineral Reserves are estimated before the end of the calendar year. Sibanye-Stillwater uses the Q2 actuals process and forecasts for the remainder of the year to 31 December. The following are the commodities produced at Kroondal, the scenarios considered and the final parameters chosen. Additional comment on Risk is provided in Section 21.1.2.

16.4.1 Exchange Rate

The three-year average and Mineral Reserve ZAR/USD exchange rate parameters are given in Table 51.

Table 51: Exchange Rates

	Three Year Average July 2017 to June 2021	30 Months Average January 2019 to June 2021	Forecast to December 2021	Three Year Average January 2019 to December 2021	Mineral Reserv Price
ZAR/USD exchange rate	15.54	15.27	13.90	15.04	15.00

16.4.2 Platinum Group Metals Price Deck

The three-year average prices for the Platinum Group Metals ("PGM") are tabulated below. For the Platinum Group Metals price deck, Sibanye-Stillwater forecasted the metal prices to the end of 2021 in order to determine a three-year average.

Sibanye-Stillwater has declared PGM Mineral Reserves with the metals prices as in Table 52.

Table 52: PGM Deck Price Scenarios

	Unit	Three Year Average July 2017 to June 2021	30 Months Average January 2019 to June 2021	Forecast to December 2021	Three Year Average January 2019 to December 2021	Mineral Resource Price	Miner Reser Price
Platinum	USD/oz	859	934	1 125	965	1 500	1 25

Platinum	USD/oz	939	934	1,123	983	1,300	1,25
Palladium	USD/oz	2,164	2,013	2,722	2,132	1,500	1,25
Rhodium	USD/oz	12,611	10,658	21,250	12,423	10,000	8,00
Iridium	USD/oz	2,463	2,261	5,725	2,839	3,000	2,50
Ruthenium	USD/oz	290	283	700	353	350	30
Nickel	USD/tonne	15,128	14,567	17,943	15,130	17,500	16,20
Copper	USD/tonne	6,819	6,688	9,612	7,176	10,000	8,95
Cobalt	USD/lb	17	17	21	17	25	2
Chrome	USD/tonne	143	147	153	148	165	15
Gold	USD/oz	1,723	1,644	1,806	1,671	1,800	1,65
Basket Price	USD/4Eoz	2,616	2,339	3,842	2,589	2,451	2,00
Basket Price	R/4Eoz	40,643	35,702	53,425	38,940	36,767	30,09

16.4.3 Comparison to 2019 Prices

Table 53 gives the price comparison between the Mineral Reserve prices at 31 December 2020 and 31 December 2021.

Table 53: Comparison of Mineral Reserve Prices Current and Previous Year

	31-Dec-21			31-Dec-20		
Precious metals	**USD/oz**	**R/oz**	**R/kg**	**USD/oz**	**R/oz**	**R/kg**
Gold	1659	24,855	800,000	1,500	22,500	720,000
Platinum	1250	18,750	602,826	880	13,200	424,389
Palladium	1250	18,750	602,826	1,600	24,000	771,617
Rhodium	8000	120,000	3,858,084	5,650	84,750	2,724,772
Iridium	2500	37,500	1,205,651	1,450	21,750	699,278
Ruthenium	300	4,500	144,678	260	3,900	125,388
Base metals	**USD/lb**	**USD/tonne**	**R/tonne**	**USD/lb**	**USD/tonne**	**R/tonne**
Nickel	7.35	16200	243,000	5.90	13,000	195,000
			134,25			

Copper	4.06	8,950	134,250	2.72	6,000	90,000
Cobalt	22.00	33,069	727,525	15.00	33,069	496,040
Chromium oxide (Cr_2O_3)[2], (42% concentrate)[1]	0.07	150	2,250	0.07	160	2,400

17 Environmental Studies, Permitting, Plans, Negotiations/Agreements

17.1 Social and Community Agreements

17.1.1 Overview

Kroondal Operations' social performance is guided by our socio-economic development agenda, which is aimed at ensuring that the Kroondal Operations contribute to the upliftment of the communities during and beyond mining activities. Sibanye-Stillwater's performance is supported by authentic stakeholder engagement, fit for purpose systems, credible data and capability that aligns with international standards and locally negotiated commitments. Sibanye-Stillwater's primary objective is to avoid harm to people and the environment, ensuring a stable operating environment in which all our stakeholders within the Company's footprint can derive value during the LoM. Sibanye-Stillwater will endeavour to create equitable engagement capability in host communities to ensure constructive dialogue with our neighbours. The key to responsible mining is

protecting the Company's reputation as work continues building the Sibanye-Stillwater brand globally.

In line with Sibanye-Stillwater's approach to creating and sharing value, in 2020/1, Rustenburg operations conducted broad based stakeholder engagement and a socio-economic baseline to understand the socio-economic needs of stakeholders. The engagement highlighted gaps in the municipality-led Integrated Development Plan (IDP) process, which is meant to determine and prioritize the needs of communities that ultimately inform our social and labour plans (SLPs). There was also an apparent misunderstanding of SLP funding and related responsibilities. The company has a shared environment with Anglo American, which is responsible for the implementation of the community development projects as part of the PSA.

Communities expressed frustration, believing that the mines do not respond to their grievances, particularly in relation to Corporate Social Investment (CSI) programs, procurement and employment. To this end, the Company put in place a mechanism to ensure that a formal, proactive and responsive process is in place to deal with stakeholder grievances.

The findings support the feedback the Company regularly receives from its engagement partners and therefore, engagement and communication have been strengthened to ensure that stakeholders are informed and where applicable engaged and consulted on issues of mutual interest.

17.1.2 Vision

Sibanye-Stillwater's vision is to unlock the potential of communities affected by its operations through economic empowerment, institutional development and creating a local benefit that inspires sustainable living.

17.1.3 Communities' Priorities

Kroondal community priorities are as follows:

- Supporting communities to deliver local social economic benefits through economic empowerment and the delivery on the Mining Charter and Social and Labour Plan commitments.

- Strengthening institutional capacity and unlocking and mobilizing partnerships and resources to resolve collective challenges.
- Deliver on programs that retain sustainable community benefits and its social impacts that are well understood by all stakeholders.
- Create shared value beyond compliance.
- Facilitate integrated spatial development by improving the living conditions and surrounding amenities for our workers.

The PSA LED element of the SLP is implemented by Anglo American. Sibanye is implementing acquired backlog LED projects in the Kroondal (104MR) SLP. Table 54 provides the status.

Table 54: Kroondal (104MR) SLP Projects

No	Project Name	Status	Year of Completion
1	Ikemeleng Infrastructure Development	Completed	2017
2	Community Project- Skills development, Bursary funding & Facilitation of Local SMME	Completed	2017
3	Tirelong School Yard improvement	Completed	2019
4	Tirelong Early Childhood Centre	Completed	2015
5	The formalisation of Ikemeleng legal	In Progress	2022
6	Partnership in facilitating Ikemeleng/Kroondal Community Resource centres	Lefaragatlha – In Progress	2022
		Seraleng- In Progress	2022
7	Ikemeleng Chemical Toilets and VIP toilets	In Progress	2022
8	Socio Economic Assessment (Lapologang Agricultural Project)	On Hold due to relocation of the community by Tharisa Mine(neighbouring property)	

17.2 Human Resources

17.2.1 Introduction

This section includes discussion and comments on the human resources, health and safety-related aspects associated with the Kroondal Operations. Specifically, information is included on the current organisational structures and operational management, recruitment, training, productivity initiatives and remuneration policies, industrial relations, safety statistics and performance.

Kroondal follows the Sibanye-Stillwater Code of Ethics, which is fully compliant with the Sarbanes-Oxley Act of the United States of America. This policy was adopted and communicated to all employees. A Human Rights Policy has also been adopted, which confirms full compliance with all applicable International Labor Organisation Conventions.

17.2.2 Human Resources

17.2.3 Legislation

Kroondal is committed to promoting Historically Disadvantaged South African's (HDSA) in its management structure by instituting a framework geared toward local recruitment and human resources development. Vacancies are primarily filled by candidates from local communities. Where specialist skills are not available locally, they are sourced from outside local communities. The Mine's long-term objective is

to have these skills shortages addressed via skills development programs(Table 55). Labour distribution and availability are shown in Table 56 and Table 56).

Various regulatory authorities, in addition to mining and labour codes, govern labour legislation in South Africa. In general, these are well established in conjunction with current operating policies and form the cornerstone of human resource management. High-level compliance in terms of the following key acts and associated regulations was assessed:

- Constitution of the RSA (Act 108 of 1996) (Constitution).
- Mine Health and Safety Act (Act 29 of 1996) and amendments (MHSA).
- The Occupational Health and Safety Act (85 of 1993) (OHSA).
- Labour Relations Act, 1995 as amended.
- Employment Equity Act, 1998 with specific reference to medical testing and HIV/AIDS.
- Compensation for Occupational Injuries and Diseases Act, 1993.
- Basic Conditions of Employment Act, 1997.
- Employment Equity, 1998 and
- Promotion of Equality and Prevention of Unfair Discrimination Act, 2000.

Table 55: Undertaking and Guidelines

Undertaking	Kroondal is committed to attaining the 40% HDSAs in management target as set by the DMRE and recognizes that this refers to Management in the D, E and F Patterson bands.
Guidelines	Build capacity within the organisation through Human Resource Department (HRD) initiatives with preference given to individuals from designated groups. These employees to form the pipeline for the Company's talent pool and succession planning.

Table 56: HDSA in Management as at the end December 2021

Occupational Level/Paterson Band	Prescribed Target	Current			Prescribed % by 2024
		Designated	Non-Designated	% Compliance	
Top Management (Board)*	50%				
Senior Management (EXCO)*	50%				
Senior Management (Other)*	60%	6	6	50%	60%
Middle Management Levels	70%	61	26	70%	70%
Junior Management Levels	70%	678	206	77%	70%
Total HDSAs in Management		745	238	76%	
(Including Junior Management)			735	282	

*These numbers are reflected in accordance with the Mining Charter requirements and these individuals are not employed by the Operation.

Sibanye Stillwater we are one

Table 57: Breakdown of Employee Profile as at the end December 2021

Grade	Occupational Level	Number of Employe
E Band	Senior Management	12
D Band	Professionally Qualified, Experienced Specialists and Middle Management	88
C Band	Skilled Technical, Academic Qualified, Junior Management and Supervisors	898
B Band	Semi-Skilled and Discretionary Decision Making	2 882
A Band	Unskilled and Defined Decision making	1436
NG	Learners and Trainees	22
Total Permanent and Temporary Employees		**5,338**
Employees temporary		59
Contractor Employees		3,139
Total Head Count		**8,536**

Table 58: Employee Turnover

Reason	2018	2019	2020	2021

Death	16	25	26	44
Desertion	11	33	30	24
Dismissal	41	55	56	36
Medical	28	49	12	48
Group Transfer	0	0	0	0
Relocated to Contractor	0	0	0	0
Resignation	96	193	114	183
Retirement	23	55	115	39
Retrenchment	5	1		30
Grand Total	**220**	**411**	**353**	**404**

Table 59: Labour Unavailability and Absenteeism

Description	2018	2019	2020	2021
Mine accident	0,2%	0,2%	0,3%	0,4%
Sick	4,2%	4,3%	2,7%	4,2%
Occupational health	0,0%	0,0%	0,0%	0,0%
Unpaid leave	0,2%	0,1%	0,0%	0,0%
AWOPs	0,2%	0,1%	0,4%	0,6%
Training	1,4%	1,5%	0,6%	1,6%
Leaves	7,5%	6,9%	2,9%	6,2%
Other	0,6%	1,3%	6,9%	1,3%

17.2.4 Human Resource Development (Training)

Kroondal has instituted a comprehensive program to train and develop its employees to the extent that they are able to function competently in their specific jobs, with particular reference to compliance with legislative requirements and to providing the capacity for individuals and teams to work safely and productively. These cover both technical/ vocational training and supervisory and managerial skills development. Kroondal typically spends a total of 5% of payroll on employee training and development programs.

Specific areas of focus in the training and development programs include:

- Functional literacy and numeracy;
- Safe working practice training by means of programs aligned with the requirements of the National Qualifications Framework;
- Interventions aimed at improving the business awareness and teamwork of employees at the lower levels of the organization in particular;
- Improved middle management skills through the implementation of an internal leadership program to help fulfil the human resources requirement of the Mining Charter;
- Systems to track and manage, on an integrated basis, employee development and performance; and
- Portable skills training.

17.2.5 Remuneration Policies

Kroondal operates remuneration and employee benefits policies that recognize labour market conditions, collective bargaining processes, equity and legislation.

17.2.6 Industrial Relations

Industrial relations are managed at several levels and in several formalised structures, encompassing the corporate and mining asset domains in accordance with several key driving factors. These include the prevailing legislative requirements, regulatory bodies, labour representation, collective bargaining arrangements, sectoral and operation specific employer employee agreements arrangements, sectoral and operation specific employer-employee agreements, and the quality of labour relations management philosophies and practices.

An Employee Relations/Engagement framework also governs all engagements with organised labour and other stakeholders. The principal strategy elements are to entrench an improved understanding of the business imperatives on the part of labour, appropriate and timely intervention to pre-empt industrial relations issues and timely delivery by management on its undertakings to labour.

Some 71% of the permanent employees of Kroondal are paid up members of registered trade unions and associations. Most of these unionised employees are from the lower skilled level and are represented by the Association of Mining and Construction Workers Union (AMCU). Historically, trade unions with such a constitution have exercised a strong influence over social and political reform. The

labour legislative framework reflects this by strongly empowering trade unions in the collective bargaining processes. The clear implication is that industrial relations are an area of critical focus for Kroondal.

17.2.7 Employment Equity and Women in Mining (WIM)

The purpose of the Employment Equity Plan is to ensure that a demographically appropriate profile is achieved through the participation of HDSAs in all decision-making positions and core occupational categories at the Operation. In striving to achieve 60 - 70% HDSA representation in the management structure and 25 - 30% participation of women in core mining occupations, Kroondal seeks to redress the existing gender and racial disparities. The plan reflects Sibanye-Stillwater's annual progressive targets and embrace the challenge to transform the composition of the Company's workforce and management. This is a business imperative to ensure that we tap into the entire skill base of the South African population. All efforts in this regard have been aligned with the National Development Plan and the UN Global Goals for Sustainable Development in relations to:

- no poverty.
- zero hunger.
- quality education.
- gender equality.
- decent work and economic growth and
- reduced inequalities.

Employment Equity Strategies are aligned to succession planning, development of the Company's talent pool, learner development programs, core and critical skills training programs, career development plans, mentoring and coaching.

The following Sibanye-Stillwater principles guide the way in which Employment Equity is implemented at Kroondal, and to further comply with our Ethics and Human Rights policies:

- Recognizing historic inequalities, HDSAs and women with recognized potential are afforded special opportunities and additional support to realize their potential.
- To fill each position in the Company with a fully performing individual. Thus, we will not create phantom jobs nor make token appointments.
- Diversity is encouraged in the workplace and any form of racism is not tolerated.
- Some employees in management positions may be involuntarily redeployed to make space for HDSAs and women.
- All employees are developed to ensure that they are fully performing in their current jobs and, where applicable, to prepare them for future opportunities and
- In placing women in jobs, the Company will take cognisance of the special risks to which women of child-bearing age, pregnant and lactating women should not be exposed.

Kroondal is required to translate the Sibanye-Stillwater company strategy to five-year action plans that are implementable and measurable. Kroondal is committed to create a workplace in which individuals of ability and competency can develop rewarding careers at all levels regardless of their background, race or gender. Kroondal's employment practices and policies emphasize equal opportunity for all, and aim to identify, develop and reward those employees who demonstrate qualities of individual initiative, enterprise, commitment and competencies. Employment Equity policies also aim to create an inclusive organisational culture in which all employees are valued. The implementation of Employment Equity is overseen by senior management and is at the core of the mine's strategy.

Where appropriate, Employment Equity (Table 60 to Table 61) is implemented in consultation with employee representative bodies. As a key business imperative for Kroondal, Employment Equity is critical in assisting the Operation to place competent employees in the correct jobs aligned with the Operation's objectives. These are:

- Kroondal is committed to developing its employees to their greatest potential, which will contribute to the achievement of the Operation's objectives.
- Kroondal recognizes the need for continued investment in its employees through training and development, which is demonstrated through training and development opportunities and job placements with a focus on the development of key competencies, career path progression and retention of talent and
- Kroondal has adopted proactive recruitment, selection and appointment policy, which favours candidates from designated groups. This has assisted the Operation in working toward the achievement of numerical goals of the Operation's Employment Equity Plan.

Table 60: Kroondal Total Employees

Occupational Levels	Male				Female				Foreign		Tot
	A	C	I	W	A	C	I	W	M	F	
Senior management	5	0	0	0	1	0	0	6	0	0	**12**
Professionally qualified and experienced specialists and mid-management	34	1	0	15	7	0	1	26	4	0	**88**
Skilled technical and academically qualified workers, junior management, supervisors, foremen, and superintendents	559	5	0	210	67	0	1	36	20	0	**89**
Semi-skilled and discretionary decision making	1 628	2	0	29	291	0	0	5	926	1	**2 88**
Unskilled and defined decision making	704	0	0	1	485	0	0	0	243	3	**1 43**
Non graded	13	0	0	0	9	0	0	0	0	0	**22**
TOTAL PERMANENT	**2 918**	**8**	**0**	**80**	**850**	**0**	**2**	**243**	**1 193**	**4**	**5 33**

Table 61: Kroondal Total Contractors (excluding Ad- Hoc Contractors)

Occupational Levels	Male				Female				Total
	A	C	I	W	A	C	I	W	
Senior management	2	0	0	13	2	1	0	1	**19**
Professionally qualified and experienced specialists and mid-management	35	0	0	14	1	1	0	4	**55**
Skilled technical and academically qualified workers, junior management, supervisors, foremen, and superintendents	161	4	1	115	13	0	1	10	**305**
Semi-skilled and discretionary decision making	900	2	0	31	65	0	0	13	**1 011**
Unskilled and defined decision making	1 495	8	0	14	135	0	0	0	**1 652**
Total Contractors	**2 571**	**14**	**1**	**182**	**217**	**2**	**1**	**28**	**3 043**

17.3 Health and Safety

17.3.1 Policies and Procedures

Since Sibanye-Stillwater's inception, Kroondal Operations has formed part of the Health and Safety Strategy and Policy development process, as well as the adoption and implementation thereof. The Safe Production Strategy that was developed as part of an ongoing safety improvement journey takes into account "fit for purpose systems" such as ISO 45001 that was published in 2018. The Sibanye-Stillwater Health and Safety Strategy and Policy is further aligned with the Mine Health and Safety Act, the International Council on Mining and Metals, the World Bank Policies and Guidelines, International Finance Corporation Operational Policies and International Labour Organisation Conventions.

17.3.2 Statistics

Table 62 presents safety statistics for Kroondal and includes the total number of fatalities, fatality rate and the lost day injury frequency rate (LDIFR) from 2016 to 2021.

Table 62: Safety Statistics

	Units	2016	2017	2018	2019	2020	2021
Fatalities	(No)	2	0	1	0	1	2
Fatality Rate	(per mmhrs)	0.07	0.00	0.05	0.00	0.07	0.14
LDIFR	(per mmhrs)	4.65	4.83	6.36	4.24	6.83	4.87
MHSA Section 54's	(No.)	28	27	9	4	8	10

mmhrs = million man hours worked

17.3.3 Occupational Health and Safety Management

As part of the rollout of the Safe Production Strategy, the management of Critical Controls, Rules of Life, Risk Management as well as management of A Hazards were a key focus area at the operations. The challenges in terms due to COVID-19 are ongoing and are dealt with at the shafts.

The Kroondal Operations achieved 2 million fatal free shifts on 21 May 2021, prior to the fatalities that occurred.

17.3.4 HIV/AIDS

Prevalence of HIV/AIDS at the Kroondal Operations, including both Rustenburg and Kroondal Operations is currently at around 15% of the workforce. However, the impact on sick absenteeism and mortality due to this pandemic is relatively low. This is attributed to the development and implementation of effective and comprehensive HIV/AIDS programmes, which includes the following elements:

- Creating a supportive workplace environment where discrimination is not tolerated to allow employees with HIV/AIDS to remain employed and productive.
- Access to Primary Health Care Clinics and Occupational Health Centres providing voluntary, confidential counselling and testing.
- Aggressive treatment of sexually transmitted diseases, which in turn reduce the risk of HIV infection.
- Prophylaxis and treatment of opportunistic infections related to HIV/AIDS.

Access to Antiretroviral therapy to help employees with HIV/AIDS to stay healthy and productive.

17.4 Terminal Benefits

The total terminal benefits liability (TBL) for Kroondal Operations has been determined by consideration of various employee requirements of the LoM profile. This number has been estimated at ZAR 484 million.

17.5 Environmental Studies

17.5.1 Introduction

As part of the Sibanye-Stillwater, Integrated Compliance, Governance and Risk (ICGR) framework, the Company has embedded a process for improved regulatory risk profile and action plans to address any gaps in the identification of risk, level of adequacy and effectiveness of control measures. This has provided the Environmental and Corporate Affairs Departments with a much clearer picture of all the legal requirements, its risk exposure and what mitigatory actions (compliance risk management plans) need to be put in place to improve and ensure compliance. Updated and detailed public reports are available at Environment | Sibanye-Stillwater (sibanyestillwater.com).

The following generic environmental risks have been identified and are applicable to the Kroondal Operations:

- Lack of clarity from regulators in respect of Regional Closure and ground water pollution plume rehabilitation.
- The carbon tax implementation.
- The inclusion of VAT to the existing closure provisions.
- The quantification of as-yet unknown latent and residual liabilities and the resultant impact on the final quantum of the closure liability and/or our closure strategies.
- The sustained provision of potable water to our platinum operations in the Rustenburg area and
- Ongoing operational compliance to current and new environmental legislation.

In addition, and from an Environmental, Social and Governance (ESG) perspective, the following key environmental and social legislation, and its associated subsequent amendments, was identified to be applicable, wholly or partially, to the Kroondal Operations:

- Constitution of the RSA, 1996.
- The Companies Act, Act 71 of 2008.
- King IV Report on Corporate Governance for South Africa 2016 (Institute of Directors in Southern Africa NPC).
- Promotion of Administrative Justice Act, Act 3 of 2000.
- Protection of Personal Information Act, Act 4 of 2013.
- Minerals & Petroleum Resources Development Act (MPRDA), Act No 28 of 2002 and all its Regulations and subsequent Amendments.
- National Environmental Management Act (1998).
- National Environmental Management: Biodiversity Act, Act No 10 of 2004.
- National Environmental Management: Waste Act, 2008.
- National Nuclear Regulatory Act, 1999.
- National Environmental Management: Air Quality Act (NEM:AQA), Act No 39 of 2005.
- National Water Act (NWA), Act No 36 of 1998.
- Water Services Act (NWS), Act 108 of 1997.
- Labour Relations Act, Act 66 of 1995.
- Mineral and Petroleum Resources Royalty Act 28 of 2008.
- Hazardous Substances Act, Act No 15 of 1973.
- National Heritage Resources Act (NHRA), Act No 25 of 1999.
- National Forest Act, Act No 84 of 1998.
- National Road Traffic Act, Act 93 of 1996.
- Road Transportation Act, Act 74 of 1977.
- Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, Act No 36 of 1947.
- Conservation of Agricultural Resources Act (CARA), Act No 43 of 1983.

- National Veld and Forest Fire Act, Act No 101 of 1998.
- National Environmental Management: Protected Areas Act, Act 57 of 2003.
- Promotion of Access to Information Act, 2000.
- Agricultural Pest Act, Act No 36 of 1983.
- Skills Development Act, Act 97 of 1998.
- Skills Development Levies Act, Act 9 of 1999.

- Broad-Based Black Economic Empowerment Act, Act 53 of 2003 and
- Employment Equity Act, Act 47 of 2013.

An important change in the regulation of mining related environmental activities was that on 8th December 2014, with the launch of the so-called "One Environmental System" (OES), the Minister and thus the DMRE became the Competent Authority for environmental issues within the mining industry. The Minister of Environmental Affairs -Department is now referred to as the Department of Environment, Forestry and Fisheries (DEFF) became the appeal authority for mine environmental issues. Since its inception in 2014, the OES has not yet fully taken off. Not all of the relevant Government Departments/Regulators seem to be on-board with the new, stricter approval timeframes and/or other OES requirements which has led to the implementation of OES being, at best, mediocre and at worst, not meeting applicants' expectations.

In November 2015, the regulations regarding Financial Provisioning Regulations, 2015 (FP Regulations) were gazetted, with onerous legal obligations around financial provisioning on several closure-related issues. The mining industry has and is in the process of challenging these proposed FP Regulations, with a view to have the most onerous Regulations excluded from any revised FP Regulations. Stakeholder engagement and consultation on the revised FP Regulations is ongoing, and while the compliance date for the 2015 FP Regulations has been set as 19 June 2022, the final amended FP Regulations have not been formally promulgated as yet – the expectation is that the amended FP Regulations will be promulgated before the compliance date of June 2022. Sibanye-Stillwater has participated in previous public participation processes on these FP Regulations, either as an interested and affected party, or as a member of the Minerals Council of South Africa.

17.5.2 Baseline Studies

17.5.2.1 History

The first Environmental Management Programme (EMPr) for Kroondal was approved in 1999. The EMPr was modified via various amendments during mine development in 2001,2004 and 2010. A consolidated EMPr for Kroondal was compiled in 2016 to combine the 1999 EMPr and all EMPr Amendments and updates into a single document. This document has since been revised in 2022 upon request from the DMRE in order to conclude approval of the consolidated document. The first Environmental Management Programme (EMPr) for PSA was approved in 2002 for K5 (Kwezi) Shaft, followed by an addendum which was

approved in 2003. The first EMPr for Klipfontein Open-Pit and MK4 Shaft was approved in 2005. The first EMPr approval for K6 Shaft was in 2010. In 2016 these EMPr's were consolidated into a single EMPr for PSA and approved by the DMRE.

The purpose of these baseline and amended EIA and EMPr's intended to achieve the following:

Submitted in support of existing mining rights in terms of Section 102 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) and Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

The amendment and consolidation of several existing approved EIA's and EMPr's in accordance with the DMRE EIA and EMPr template format as posted on the official DMRE website (at time of submission) and with what is prescribed by Appendix 4 of the NEMA EIA Regulations, 2014 (GNR 982).

The amendment and consolidation process were undertaken for approved activities that already had environmental authorisation and, in this regard, no additional NEMA authorisation was applied for / required as part of this process. This is emphasised by section 12(4) of the National Environmental Management Amendment Act, 2008 (Act No. 62 of 2008) (NEMA), which states that an EMPr approved in terms of the MPRDA prior to 8 December 2014 when the NEMA EIA Regulations, 2014 came into effect must be regarded as having been approved in terms of the NEMA, under the guise of the DMRE.

As required by Regulation 35 of the EIA Regulations, 2014, the EIA and EMPr were subjected to an appropriate public participation process which consisted of public and regulatory authority review of the EIA and EMPr report. All comments received during the review process are included in section 7.3 and were submitted to the competent authority as part of the final EIA and EMPr report.

17.5.2.2 Impact Assessment 2016

The assessment of the impacts for the 2016 EMPR was conducted according to a synthesis of criteria required by the integrated environmental management procedure. This methodology was constructed by SLR Consulting (Africa) (Pty) Ltd, the consultants who compiled the studies.

A summary of study areas and assessed environmental Impacts is given in Table 63.

Table 63: Summary of Anticipated Environmental Impacts (revised EMP,2016)

Section	Potential impact	Significance of the impact (the ratings are negative unless otherwise specified)	
		Unmitigated	Mitigated
Geology	Loss and sterilisation of mineral resources	High	Medium
Topography	Hazardous excavations/structures/surface subsidence	High	Medium
Soil and land capability	Loss of soil resources and land capability through pollution	High	Medium
	Loss of soil and land capability through physical disturbance	High	Medium
Terrestrial Biodiversity	Physical destruction of biodiversity	High	Medium
	General disturbance of biodiversity	High	Medium
Aquatic Biodiversity	Physical destruction and / or disturbance of aquatic biodiversity	High	Medium
Surface water	Pollution of surface water resources	High	Medium
	Alteration of natural drainage patters	High	Medium
Groundwater	Contamination of groundwater resources	High	Medium
	Dewatering	High	Medium
Air quality	Air pollution	High	Medium
Noise	Noise pollution	High	Medium
Visual	Visual impact	Medium	Medium
Blasting	Blasting impacts (fly rock, air blasts and ground vibrations)	High	Medium
Traffic	Traffic impact	High	Medium
Heritage/ cultural and palaeontological resources	Loss of heritage, cultural and palaeontological resources	High	Medium
Socio-economic	Economic impact	High positive	High positive
	Inward migration	High	Medium
Land use	Land use impact	High	Medium

17.5.2.3 Methodologies for Impact and Risk Assessment

The assessment results and criteria in the studies presented above are as submitted

The assessment results and criteria in the studies presented above are as submitted by the companies undertaking the assessments. Sibanye uses consultants for the specialists' studies. Each company has its own methodologies that it applies. Where there are no material conflicts with Sibanye's criteria, other studies or regulatory requirements the methodologies are accepted as valid.

17.5.3 Zone of Influence

17.5.3.1 Studies and Methodologies

The Zone of Influence of the project the Kroondal Operations is defined as the area within which it has or can have material impacts or can influence impacts due to the establishment and continuation of the project's activities, products or services.

The Zone of Influence is unique to each project and each aspect thereof, is larger than the actual project footprint and can either be positive or negative.

The Zone of Influence is determined by evaluating and mapping the following environmental and social components of the project:

Footprint and areas directly adjacent to the infrastructure erected for the project.
The areas affected due to the following definitions:

1. Secondary impacts arise from other impacts that are directly due to the development.
2. Induced impacts are due to unplanned/unintended/secondary activities that are 'catalysed' by the project.
3. Cumulative impacts are results of numerous individual activities, which might not be material on their own, but which can interact or combine to cause material impacts.

These areas can typically be impacted by surface and groundwater abstraction, surface and groundwater usage or discharges, seismicity, air quality, noise, visual and soil impacts, as well as invader vegetation infestation, protected areas destruction, loss of important biodiversity areas, and any other material impacts that may be identified during the Zone of Influence determination;
Areas that will be deriving economic benefits from the project like adjacent towns and communities, as well as labour sending areas; and
Surrounding environmental areas that can benefit or be impacted upon by the project.

For each environmental aspect, the Zone of Influence is determined independently and displayed on a map. A composite Zone of Influence for the entire project is then eventually determined.

For its major environmental aspects (e.g.: water discharges and air emissions) and resulting material impacts Kroondal has extended monitoring programmes and management systems in place to ascertain its impact on the environmental and surrounding communities and therefore has a very good understanding of its material impacts on the above-mentioned areas. Management systems and procedures are in place to deal with those identified material impacts. Specialist studies required for environmental authorisations and Environmental Impact Assessments (EIA's) are further valuable sources of information to determine those areas potentially impacted upon by the project. Future specialist studies should include an update or revision of the Zone of Influence map for each aspect and material impact as well as a combined Zone of Influence per aspect. These are updated at varying frequencies as informed by specialist studies.

The determination and display of a composite Zone of Influence that includes environmental, social and economic issues is a complex matter and has not been attempted by Kroondal yet. Current Zone of Influences are provided only for

surface water resources as described in the Water Strategy Section of this report. Kroondal Operations have not determined the composite Zone of Influence (due to its complexity for a large-scale mining operation), but an individual specialist zone of influences have been compiled as part of environmental risk management. Examples: noise, visual, air, surface and groundwater.

An attempt will be made in 2022/3 to determine, map and collate a composite

Zone of Influence for Kroondal that may or may not also include the social Zone of Influence. Focus is currently placed on the determination and update of each aspect of the zone of influence through integrated specialist studies. These commenced in 2021 and will be completed in 2022, only thereafter can integration be pursued.

For each environmental aspect the Zone of Interest is determined independently and displayed on a map. A composite Zone of Influence for the entire project is then eventually determined.

For its major environmental aspects (e.g., water discharges and air emissions) and resulting material impacts Kroondal has set monitoring programmes and management systems in place to ascertain its impact on the environmental and surrounding communities, and therefore has a very good understanding of its material impacts on the above-mentioned areas. Management systems and procedures are in place to deal with those identified material impacts. Specialist studies required by environmental authorisations and Environmental Impact Assessments (EIAs) are further valuable sources of information to determine those areas potentially impacted upon by the project. Future specialist studies are expected to include an update or revision of the Zone of Influence map for each aspect and material impact, as well as a combined Zone of Influence per aspect.

17.5.3.2 Groundwater

The groundwater Zone of Influence represents the following two scenarios:

- Secondary Impacts: These are currently defined by the pollution plumes emanating from waste storage facilities, namely the TSFs and Surface Rock Dumps ("SRDs"); and
- Induced and Cumulative Impacts: These are presented by the dewatered areas to allow for mining.

A comprehensive update of the groundwater specialist studies was undertaken in 2021 and will be completed in 2022, this will be incorporated into the 2023 TRS.

The current groundwater data indicates that the zone of influence from a water quality perspective is largely limited to the source (boreholes located at the TSFs, dirty water dams and waste rock dumps) and plume boreholes (boreholes located within the expected plumes of the TSFs, dirty water dams and waste rock dumps). No dewatering impacts are expected or are highly localised to the shaft areas. Impacts from groundwater contamination may however occur on the adjacent Kroondal Tributary, due to the location of the contamination sources within the

buffer area, and in some case historical area of the wetland. These impacts occur as a result of ground-surface water interactions. Refer to the Surface Water discussion for further information.

17.5.3.3 Surface Water

The surface water Zone of Influence is made up of areas influenced by secondary, induced and cumulative impacts. However, the assessment of cumulative and induced impacts still requires further investigation as these impacts may be far-reaching and they become less apparent due the activities of others in the catchment. Alternatively, they may only become apparent in the future dependent on the environmental context, such as the climatic conditions. The Zone of Influence's represented below consider the secondary impacts that have been evaluated as associated with the current operational area of the mine.

1. **Secondary Zone of Influence**

The watercourses within this section of the Zone of Influence represent activities within the wetlands, drainage lines, rivers and the recommended buffer areas that have the potential or have already caused a change to the ecological function and service provision of the wetlands. An updated and detailed wetland delineation is being undertaken to ascertain an improved zone of influence.

2. **Induced and Cumulative Impacts Zone of Influence**

The Zone of Influence for the induced and cumulative impacts has been determined based on the compliance of the water quality of the surface water bodies. The end of the impact is considered to be the point at which 95% compliance to the Resource Water Quality Objectives ("RWQO") has been achieved for the year to date. The use of water quality as a means of determining compliance implies that all potential impacts whether from direct discharges, diffuse seepage and/or groundwater interflows would be assessed against the current applicable standards. The majority of the Kroondal Operations are located within the catchment of a tributary of the Hex River, hence the Hex River RWQOs have been used. However, it must be noted that the Kwezi (K5) and K6 Shaft operations are located in the Dorpspruit (also a tributary of the Hex River), these shafts however are located more than 500m from the nearest wetland, have limited dirty water areas that may contribute to seepage pollution and have no discharges, hence they are not considered to be impacting on the water resources at this time and not included in the current zone of influence. The Marikana (Aquarius) operations also have not been provided with a zone of influence as the surface water resources downstream of the operations have been consistently dry throughout 2021, thus no assessment against the RQOs can be performed. This assumption will continuously be re-evaluated as data and specialist studies continue. The tributaries and associated river systems for the abovementioned areas are however assessed in the RPM and Marikana TRS' as these operations are located downstream of the Kroondal and Marikana (Aquarius) operations.

The Kroondal Operations make-up almost the entirety of the Kroondal Tributary's catchment, as such water quality is heavily influenced by the mining operations. The impacts relate primarily to nitrate enrichment and elevated chlorides associated with the TSFs and dirty water dams. Numerous action plans are in place to improve the water quality and reduce the impacts to the tributary. The point AQS01 only shows 51% compliance to the RWQOs, while the point AQS06 improves to 72% compliance (Figure 5252). Although the zone of influence criteria was not satisfied (I.e. 95% compliance to the RWQOs), the downstream Hex River system is considered in the RPM zone of influence and thus the Kroondal zone of influence cannot be further extended downstream.

Although the water quality compliance to the RWQOs is poor it is expected that with the implementation of mitigation and restoration measures, the compliance can be improved to acceptable standards.

Figure 52: Kroondal Operations Zone of Influence

17.5.3.4 Visual Zone of Influence

The latest Study on the visual Zone of Influence was completed in 2014(Newtown 2014). Prior to the establishment of the Kroondal Platinum Mine, the broader landscape already had a prominent mining influence as well as agriculture and rural residential (formal and informal land uses. The existing mining infrastructure at the time was in stark contrast to the natural or agricultural surrounds and dominant in most views within the area. Given this, the pristine appearance of the natural environment was considered to be already compromised prior to the establishment of the Kroondal Operations (SRK, 1999 Arnot and Stobart, 2016).

The landscape character of the broader area consists of slightly rolling plains with singular and clusters of smaller koppies. The Magaliesberg mountain range is a major landform which runs east-west approximately 10 km to the south.

Due to extensive mining over a long time-period, mining activities as well as dumps and storage structures of the mines, have become an integral part of the landscape topographical features and character. Interspersed with the mining operations are the Klipfontein, Waterval and Waterkloof Villages, small-to-medium businesses and farming activities.

The mine and its surrounds have a strong sense of place dominated by the mining structures and activities within the study area. Another strong component is the residential settlements and the agricultural land use. The agricultural land use type is however a more prominent land use south of the N4 highway / R104 main artery and therefore gives the area a more pastoral sense of place. The area to the north of the N4 highway / R104 is dominated by mining activities with associated infrastructure as well as the townships and settlements associated with the mines.

When viewed from the perspective of tourists and community members, mining activities could be associated with a sense of disenchantment. People who benefit from the operations (employees, contractors, service providers, etc.) may not experience this disenchantment and be less susceptible to changes in the view.

Sensitive viewers include farmsteads/residences and tourist travellers along tourist routes. It is however noted that the views already include the current mining activities and structures. Thus, the sensitivity of viewers has already been compromised by the existing land use within the study area (Newtown, 2014).

Visual Zone of Influence study of 2014 is still relevant for the Kroondal Operations. Sibanye- Stillwater has not as yet undertaken an update. This will be developed given budgetary and time constraints.

17.5.3.5 Noise Zone of Influence

A Noise Zone of Influence for the Kroondal Operations has not as yet been developed and will be developed given budgetary and time constraints.

17.5.4 Climate Change and Greenhouse Gas Emissions

Sibanye-Stillwater considers climate change as one of the most pressing global environmental challenges of our time. Sibanye-Stillwater recognises the importance of proactively managing its carbon footprint in the global context and is committed to contributing to a global solution through the deployment of responsible strategies and actions. To this effect, Sibanye-Stillwater monitors and reports on its carbon emissions (Table 64). Sibanye-Stillwater uses the Department of Environmental Affairs, Technical Guidelines for monitoring, reporting and verification of greenhouse gas emissions by industry (Version No. TG-2016.1 of April 2017) and the World Resources Institute, Greenhouse Gas (GHG) Protocol for determining its carbon inventory.

Furthermore, Sibanye-Stillwater is committed to contributing to a global solution by deploying responsible strategies and actions in the areas within which we operate:

- Implement the group energy and decarbonization strategy.
- Drive and achieve a carbon neutral position by 2040.

- Drive an absolute reduction of Scope 1, 2 and 3 GHG emissions to achieve a science-based target (Science Based Target Initiative (SBTi) approved) that is required to keep global temperature increases below levels recommended by the latest climate science.
- Drive and implement initiatives and programmes to assess and understand our GHG emissions profile and carbon footprint in order to optimally reduce our carbon footprint.
- Implement the sourcing of carbon offsets in line with the Sibanye-Stillwater Carbon Offset Strategy, legislation and other principles that can be used to offset carbon emissions and that has the potential to offset the financial liability imposed by a carbon tax in specific jurisdictions.
- Promote awareness and drive initiatives to combat the impact of global warming and climate change.
- Deploy effective climate risk management strategies, taking into consideration ESG risks and stakeholder perceptions of risks.
- Adhere to the requirements as set out in Sibanye-Stillwater's policies, position statements and procedures.

Table 64: Kroondal Emissions Inventory 2021

Scope of emissions	Emissions (tonnes carbon dioxide equivale tCO2e)
Scope 1: Emissions from direct fuel sources such as petrol and diesel	27,171
Scope 2: Emissions from purchased electricity	387,555
Scope 3: Emissions from other indirect sources such as purchased goods and services	236,875

The South African Government has set out the country's nationally determined contributions to follow a peak-plateau-decline trajectory, where greenhouse gas emissions peak in 2020 to 2025, plateau for a ten-year period from 2025 to 2035, and decline from 2036 onwards.

Sibanye-Stillwater set a target in accordance with the science-based methodology to reduce its carbon emissions by 27%, from its 2010 base year by 2025. A base year is a reference point in the past with which current emissions can be compared. In order to maintain the consistency between data sets, base year emissions need to be recalculated when structural changes occur in the company that change the inventory boundary (such as acquisitions or divestments).

The base year emissions for Sibanye-Stillwater, recalculated in 2018 to incorporate the emissions from the US Operations, amount to 7 808 692 tCO2e. In 2022 the emission reduction target will be reviewed to include the Kroondal Operations and to incorporate the group carbon neutrality goal.

Carbon Project

The Afrigle System has been implemented at all the shafts. The project entails a fuel management system (FMS), installed at all the shaft's filling stations.

The system provides accurate, automatic, electronic records and real-time reporting of fuel usage and eliminates driver intervention, data manipulation, unauthorised refuelling, possible theft and human error, enabling each shaft to understand their usage and better control fuel consumption and their resulting emissions.

17.5.5 Biodiversity Management

Since Sibanye-Stillwater took ownership of the Operations, there were no major infrastructure expansions that would have resulted in the loss of key biodiversity areas. Nevertheless, biodiversity management continues in terms of the following initiatives:

- Update of Biodiversity Management and Action Plans associated specialist studies with specific focus on alien and invasive plant management;
- Wetland delineations and health assessments, including impact assessments where new projects or project changes are planned to occur;
- Surface water monitoring in terms of quality, quantity and biological taxa composition; and
- For any new projects, the Environmental Impact Assessment and Basic Assessment processes are also implemented which incorporate the identification of important biodiversity areas such as wetlands, cave systems and ridges.

South African Non-Profit Organisation, the Endangered Wildlife Trust ("EWT"), has taken the lead in South Africa in developing an international voluntary reporting mechanism, called the Biodiversity Disclosure Project, similar in approach to the Carbon Disclosure Project. Sibanye-Stillwater contributed to the final document, the Biological Diversity Protocol ("BDP"), and has completed its first assessment of the BDP for its operations and will be reporting on this in the 2021 Annual Integrated Report. The assessment includes hectare equivalency accounts for ecosystems and plots the planned changes over time in order to inform management and mitigation measures to achieve our target of a net gain in biodiversity as based on the ecosystem state at the date at which Sibanye-Stillwater took ownership of Kroondal.

The assessment currently focusses on ecosystems and new mechanisms will be investigated in order to effectively assess species population data in a meaningful manner as current assessment measures are considered to be unviable (due to

large areas and security considerations) and arbitrary (due to challenges in seasonality, specialist availability and geographical extent).

Sibanye-Stillwater developed its first Biological Diversity Procedure that embeds the mitigation hierarchy into all decision-making processes from feasibility to post-mining. It ensures the use of the best practice local science-based methods for monitoring and assessment, the outcomes thereof are then incorporated into option analyses along with consideration of health, safety, engineering, social and economic considerations to arrive at the best practicable and sustainable way forward. Ultimately it aims to enhance avoidance of impacts on sensitive ecosystems and thereafter integrate mitigation, restoration and off-setting to achieve our net gain and no net loss targets as applicable to the sites.

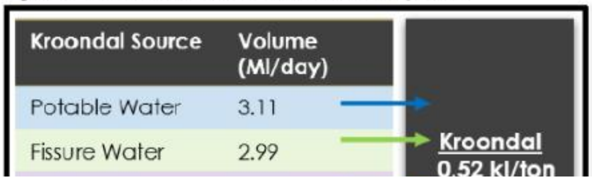
Managed by the EWT, the BDP will build the capacity of businesses to manage their biodiversity risks and opportunities and enable them to disclose their biodiversity performance in a standardised and comparable manner.

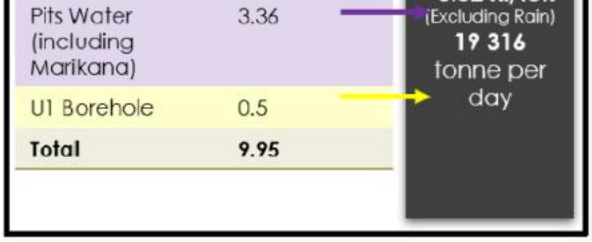
17.5.6 Water Use Strategy

Sibanye-Stillwater recognizes water as a critical resource. The Company further considers its integrated approach to the management of our water footprint and our water systems infrastructure as a key component of its business strategy.

The context summary of water use at the Kroondal Operations for 2021 is presented in Figure 53. The Kroondal Operations, the operations most vulnerable to water scarcity, abstracted on average 9.95 Ml/day to process 19,316 tonnes per day. 31% of this was purchased from Rand Water Board, supplied from the Vaal River System (VRS).

Figure 53: Kroondal Water Use Summary 2021





Pits Water (including Marikana)
3.36
U1 Borehole
0.5
Total
9.95
(Excluding Rain)
19 316
tonne per day

17.5.6.1 Licensing

Kroondal Operations operate with approved water use licenses. These licenses were obtained for Kroondal, Kwezi and Marikana on 19 July 2011, 24 June 2011 and 4 October 2013, respectively. In addition, Kroondal and Marikana submitted their Integrated Water Use Licences Amendment Applications ("IWULA) on 31 October 2012 and 26 August 2014, respectively, and are awaiting approval for both amendments. Kroondal Operations received the K6 WUL on 02/07/2021, and the first external audit was already conducted in November 2021.

17.5.6.2 Geohydrological Analysis and Pumping Strategy

Geohydrology

Three studies undertaken in 2009, 2010 and 2012 to characterised deep and shallow ground flow conditions in Kroondal concluded apart from sections of the Hex River /Small Hex River fault system, there appears to be no major deep groundwater storage or hydraulic connectivity associated with the regional structures exposed underground.

Deep fissure inflow is generally limited to seepage and low inflow zones (associated with structural features). Hydro-chemical and isotope data indicate either the presence of old hypersaline groundwater with no significant recent groundwater recharge or as in the case of the Hex River /Small Hex River fault system, mixed saline and recharged surface water suggesting areas of circulation (

Figure 54 and Figure 55).

Pumping Strategy

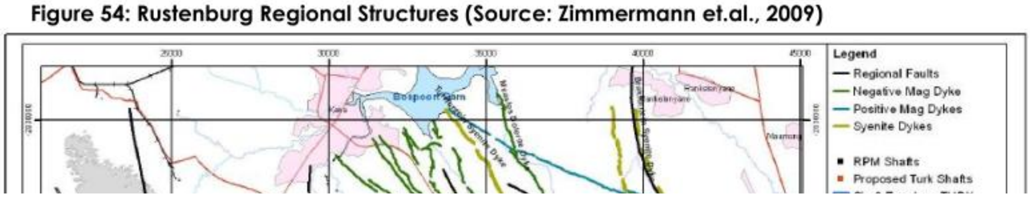
Shafts are equipped with water handling infrastructure to:

- Supply workings with required water;
- Treatment and recycling of water to minimise top-up requirements; and
- Pump systems to enable water re-cycling and removal of excess fissure water to ensure safe workings.

Some of the shafts on care-and-maintenance is used primarily for the removal of excess fissure water to ensure safe workings. Excess water is directed to other process users such as concentrators.

The water handling infrastructure is operated and maintained in accordance with engineering standards and procedures.

Figure 54: Rustenburg Regional Structures (Source: Zimmermann et.al., 2009)



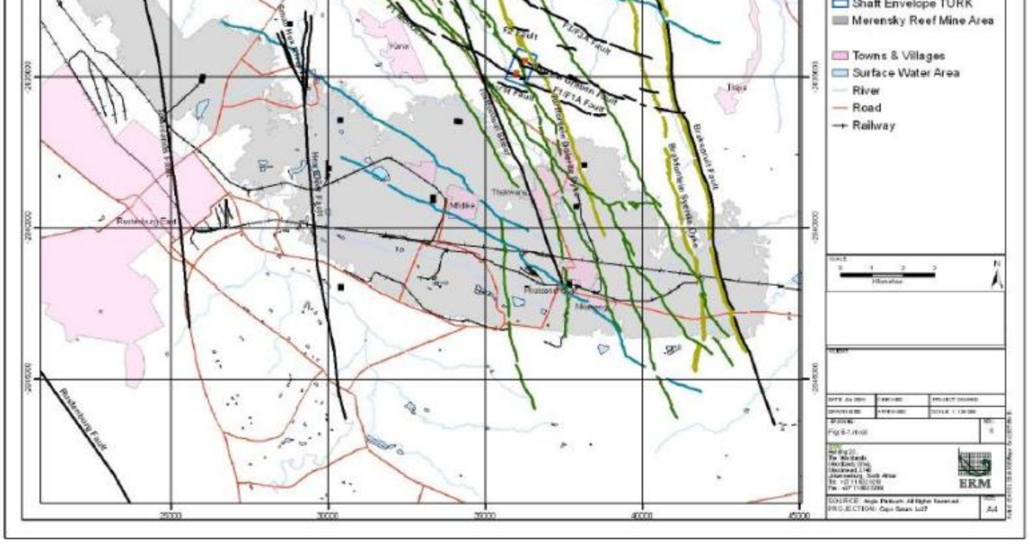


Figure 55: Sub-quaternary Reaches around Kroondal and source of potential contamination

17.5.6.3 Discharge

All water on the mining operations is kept in a closed water reticulation and therefore, no discharges are experienced on a continuous basis. However, from time to time, the operations may experience a dam overflow due to heavy rainfall in the summer periods. Our strategy is to minimise or eliminate any uncontrolled discharges through our storm water management systems and optimising dam capacity management.

17.5.6.4 Usage and Storage

The water distribution diagram of the Rustenburg – Kroondal Complex is presented in Figure 56. There are currently six active WWTW facilities namely the Khuseleka and Municipal WWTW situated in the Paardekraal Complex, the K5 WWTW situated in the Kroondal West Complex, the Waterval WWTW in the Waterval Village area of the Paardekraal Complex and the K1 and K2 WWTW facilities situated in the Kroondal East Complex.

Eight active Tailings Storage Facilities (TSFs) receive tailings deposits from the various concentrator plants. Three of these TSFs (PK Central, PK 4 and PK 5) are located in

the Paardekraal Complex, three (K1, K150 and K2) are located in the Kroondal East Complex, one (Hoedspruit) in the WLTR Klipfontein Complex section and one (Marikana) in the Klein Marikana Complex. Waterval West and East Tailings Dams in the Paardekraal Complex are not active and only receive rainfall runoff. The Klipfontein Tailings Dam in the WLTR Klipfontein Complex is re-mined and receives recovered tailings from the Waterval East e-feed transported with trucks to the Klipfontein Tailings Dam from where the slurry is pumped to the WLTR Concentrator.

Potable water is supplied to various villages and hostels located in the Rustenburg - Kroondal Complex.

17.5.6.5 Water Conservation and Water Demand Management WCWDM

Sibanye-Stillwater listed the following strategic objectives as Water Conservation and Water Demand Management (WC focus areas):

Objective 1: Demonstrating thought leadership in WCWDM practices;

Our WCWDM plan presents a strategy and specific initiatives that aims to drive industry leading performance when it comes to responsible water management practices. Our aim is to align our strategy and initiatives to regional, national and global strategies, where each initiative is implemented after thoroughly considering and aligning to all relevant social, environmental and governance requirements.

Objective 2: Drive business sustainability through ensuring availability of water to support safe and productive operations – water security and water independence;

Objective 3: Minimise the impact of our operations on water resources;

Achieve this through:

- Responsible and efficient use of water;
- Minimise uncontrolled and unlicensed discharge of water; and
- Minimise pollution of water.

Our plan is to improve the recovery of water from large facilities such as Tailings

Storage Facilities (TSF's) and rock dumps. It also consists of monitoring regimes used to identify and minimise water leakages and excessive use.

We drive initiatives required to improve water storage and the control of process dams for each operation.

Water polluted with fuels, oils, greases, heavy metals, salts and other possible pollutants are not fit for operational or potable use. It is not permitted to discharge water polluted beyond specified limits. Therefor pollution must be kept to a minimum. Our strategy aims to optimise the re-cycling of effluent water.

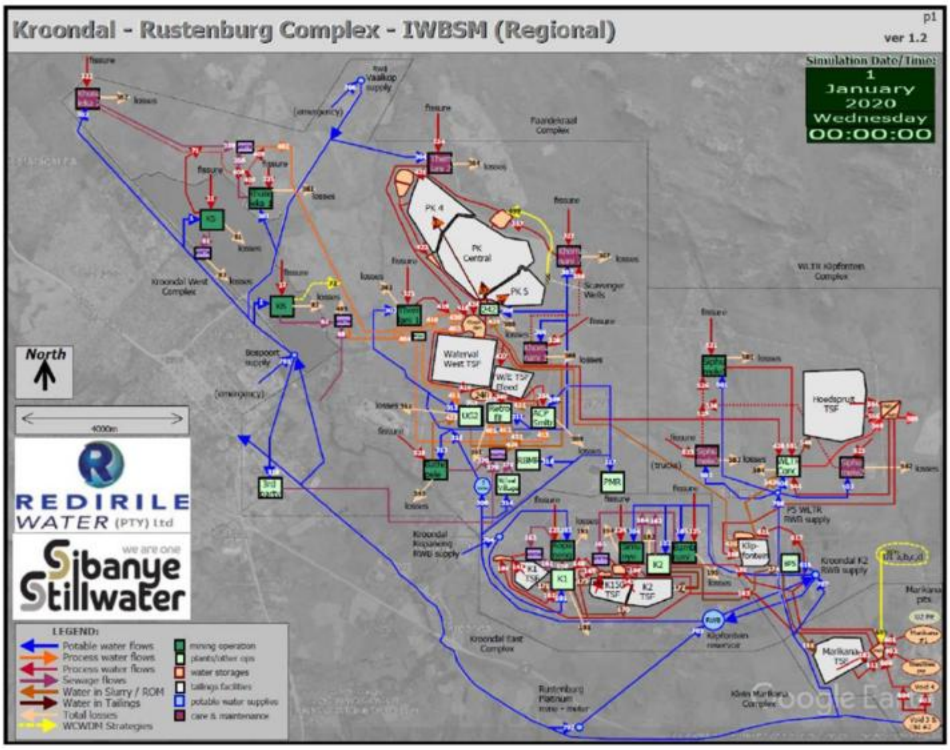
Objective 4: Drive business sustainability through continuous improvement, effective governance and meaningful stakeholder engagement to promote WCWDM;

Each initiative in the WCWDM plan carefully considers business sustainability, such as risk and cost, and is evaluated, designed and implemented within defined governance framework and procedures. A comprehensive Legislated Environmental Activity Procedure (LEAP) ensures that affected stakeholders are consulted and considered in the implementation of projects. The aim of Sibanye-Stillwater is to embed a culture of responsible water use among our employees and stakeholders.

Objective 5: Drive sustainable mine closure strategies

Given the priority of sustainable post mining economies, the management of water resources to benefit the region post-closure is important. Our aim is to implement closure strategies that considers the opportunities and risks associated with water resources available for future communities and economies.

Figure 56: The Schematic Process Flow Diagram for Water Handling at the Rustenburg-Kroondal Complex



17.5.7 Waste Management

The Kroondal Operations' waste management procedure follows the standard procedure outlined for the SA PGM operations. This procedure deals with all non-mineral general and hazardous waste streams generated at the various sites as is aligned with the waste inventory for the site. This procedure outlines the applicable legislation and required authorizations, storage and handling procedures, and lines of responsibility for mine residues and non-mineral wastes as classified in the 2015 study by En-Chem Consultants (Baldwin 2015). The SA PGM Segment developed and implemented new waste signage during 2021 in alignment with the waste classification regulations and best practices. This is in support of waste sorting at the source as well as to maximise reuse and recycling capabilities at our operations.

From a strategic waste management perspective, Sibanye-Stillwater published a Waste Position Statement in 2021, in which our strategic position on waste was communicated to internal and external stakeholders. Sibanye-Stillwater has committed to zero-waste-to-landfill by 2030, and this includes driving concepts and principles such as waste management hierarchy, a circular economy in which waste plays a more prominent role and waste minimisation. Waste reduction targets for specific priority waste streams are being investigated and will be set for implementation in 2023 and beyond.

Tailings Storage Facilities (are described in the Tailings Section (15.2) and Waste Rock Dumps are managed in accordance with the Mandatory Code of Practices for the relevant Mine Reside Deposits.

17.5.8 Environmental Reporting

17.5.8.1 Audits

In order to ensure continued compliance to the various licenses in place for the Operation, numerous internal and external audits are performed at varying intervals, based on the regulatory as well as practical management requirements associated with the relevant authorisations. The audit frequencies are summarised in Table 65 below:

Table 65: Kroondal Environmental Audits

Authorisation	Frequency of audit
Environmental Audit of the Kroondal Platinum Mine EMPR	Biennial
Environmental Audit of the PSA EMPR	Biennial
Internal Audit of the Kroondal Water Use Licence	Annual
Internal Audit of the K5 (Kwezi) Water Use Licence	Annual
External Audit of the Kroondal Water Use Licence	Biennial
External Audit of the K5 (Kwezi) Water Use Licence	Annual
External Audit of the K6 Water Use Licence	Annual

The auditing process follows the standard approach for auditing. Evidence to support compliance was reviewed which included a review of monitoring data, records, specialist reports, projects, operational procedures, design reports and other relevant documentation. Thereafter a detailed site visit was undertaken to verify the status of compliance of the required site management and mitigation

measures as prescribed. To obtain the percentage compliance, each commitment/condition was scored from 0 to 2, and the weight/definition of these scores was as follows:

- Commitments assessed to be compliant are awarded 2 points
- Commitments assessed to be partially compliant are awarded 1 point and
- Commitments assessed to be non-compliant are awarded 0 points
- Conditions that are not applicable or recorded as noted are not awarded any points and are not considered in the calculation of the results.

Summary of past environmental compliance audits Is presented in Table 66.

Audits were conducted by Environmental Legal Services and an independent external auditor.

Table 66: Summary of 2020 Audits for Kroondal

Authorisation	Date completed	Name of auditor	Qualification of auditor
Kroondal EMPR	December 2020		• Environmental Lawyer and qualified Legal Auditor. • Legal advisor for the Government with experience in the drafting, updating and interpretation of legislation, prior to joining SABS. • Involved in the establishment of the international ISO 14001 standard in South Africa on behalf of the SABS, 1996.

		Anneline Dreyer	• Appointed as the first environmental legal auditor to the SABS's certification body for a period of 3 years. • Private practice as a legal advisor since 1999. • Undertaken intensive legal compliance audits within the industry and mining sectors alike including the auditing of environmental authorisations (EA's), Integrated Water Use Licences, Waste Management Licences as well as performance assessments on approved EMPr's. She has developed and presented in - house legal courses, as well as drafted numerous legal opinions on the implications and interpretation of Legislation. Over 15 years of experience.
PSA EMPR	December 2020		
Kroondal Water Use Licence	October 2020	Ruan Dreyer	• B.Sc. Environmental and Biological Sciences (Geology) from the University of the North West (Potchefstroom) • B.Sc. Honours: Environmental Management from the University of South Africa (UNISA). • SAMTRAC course at NOSA (National Occupational Safety Association Ltd) • ISO 14001:2004 Understanding and Implementation course • ISO 14001:2004 Lead Auditors course, SABS • IRCA accredited ISO 14001:2015 Lead auditors' course, BSI • ISO 14001:2015 Understanding and Implementation course at the SABS • ISO 9001:2015 requirements course at BSI • Waste Management course at Interwaste, Hazard Identification and Risk Assessment course at HASLAC
K5 (Kwezi) WUL	August 2021		
K6 WUL	November 2021		• Over 10 years' experience in environmental management and Auditing and specializes in Environmental Audits, Waste Management Licence audits, Water Use Licence audits, Waste Assessments and classifications, Environmental Legal Gap analysis's, compliance monitoring to Environmental Authorisations (ROD's) issued in terms of the National Environmental Management Act, EMPr (Mining) Compliance Auditing and implementation of SHE management systems at Diamond Mines, Coal Mines, Gold Mines, Platinum Mines, Limestone Mines, Chemical Industry, Computer Manufacturing Industry, Railway Industry, Bearing Manufacturing Industry, Glass Manufacturing Industry, Construction Industry and Clutch Manufacturing Industry

The following material risks and action plans (Table 67) have been identified from the 2020 audits conducted for the Operation:

Table 67: Kroondal Material Risks and Action Plans

Audit	Overall Compliance	Finding / Risk	Action plan
Environmental Audit of the PSA EMPR	84%	Klipfontein Open-Pit mining was originally approved in the Kroondal Phase 4 EMPR and included in the Consolidated PSA EMPR, 2016. Following re-assessment of the mining methodology 15 years later, a few changes to the project as initially approved, are envisaged. Sibanye-Stillwater is currently in the process of identifying any changes that may require new or amended authorisations.	Following the possible change of scope of the planned Klipfontein Open-Pit Mining activities as previously approved, investigate and identify if any new, or changes to, authorisations are required, including the need for amendments to the mining right MR 80, the Consolidated PSA EMPR and/or the Water Use Licence.
Environmental Audit of the Kroondal EMPR	65%	No approval in place for the Kroondal Phase 2 EMPR, and subsequent Kroondal Consolidated Amendment of September 2016.	Obtain approval for the Kroondal Phase 2 EMPR activities, and additional amendments required, by resubmitting the EMPR to DMRE.
			If the access road is permanent, the IWUL needs to be amended to include

		No authorisation in place for the access road constructed through the diverted Kroondal Tributary to the K2 DMS Dump.	the Section 21(c) and (i) activity. Determine if an EA and Section 24G in terms of the National Environmental Management Act, 1998, for the activity would also need to be conducted.
		The Kroondal tributary Diversion around the K2 and K150 TSF's has not been maintained, including damage to erosion prevention measures and certain sections blocked off or no longer capable of conveying water during a flood or rain event.	Ensure that the Diversion is reinstated in accordance with an approved design and if designs are updated, ensure that they are approved and included in the IWUL, EMPr and other relevant Authorisations.

Audit	Overall Compliance	Finding / Risk	Action plan
		Affected storm water management does not fully comply with GN 704, including the operation of surface water dams above maximum operating levels	Fully implement the recommendations made in the most recent Storm Water Management Plan and Surface Water Decant Study.
		Inadequate freeboard management and reduced capacity of affected water systems (TSF's and RWD's) to cater for the 1:50 year flood event.	(1) Ensure that a pool distance of 50m from the wall is maintained on all the TSF's as required by GN R632 of 24 July 2015.
			(2) Ensure that the capacity of the affected water reticulation system is maintained through regular de-silting of trenches, canals, silt traps, storm water dams and other affected water dams.
			(3) Fully implement the recommendations made in the most recent Storm Water Management Plan and Surface Water Decant Study.
			(4) Continue with the planned construction of downstream containment measures at K1 Plant and investigate the practicality and feasibility of upgrading the upstream containment measures.
			(5) Upgrade the upstream containment measures at the Concentrator Plants.

Audit	Overall Compliance	Finding / Risk	Action plan
		The following activities require authorisation under the following sections of the National Water Act, 1998: (1) Section 21 (g) for the Kwezi Shaft Waste	Follow-up on approval of the IWUL Amendment Application submitted to

External Audit of the K5 (Kwezi) Water Use Licence	81%	Rock Dump. (2) Section 21 (c) and (i) for the future undermining of the Dorpspruit may be required.	DHSWS on 22 June 2020.
		Groundwater quality varies from marginal to poor with respect to SANS drinking water guidelines, with high levels of nitrates measured in certain areas.	Delineate the source/origin of pollution at Kwezi Shaft and implement remedial actions to contain pollution plume movement
External Audit of the Kroondal Water Use Licence	77%	No authorisation is in place for the following activities:	Apply for authorisation of all water use activities not currently authorised in the Kroondal WUL during the planned IWULA.
		- Kopaneng Shaft two "new" oil settling dams and two additional Erickson Dams	
		- Unauthorised crossing through Southern Kroondal Tributary Diversion	
		- Pipeline crossing the Kroondal Tributary Diversion	
		- New haul road crossing over the Kroondal tributary at the front and of the DMS 1 Dump	
		- Emergency DMS Dump North of the K2 Plant	
		No exemption in place for the K1, K150 and K2 TSF's, K1, K150 and K2 RWD's, DMS 1 Dump, DMS 2 Dump and K1 Dust Suppression Dam, in terms of Regulation 4 of GN 704 of 4 June 1999, Reg 4 for	Apply for exemption from Reg 4 of GN 704 during the IWUL Amendment Application process.
		Due to non-compliance with the deposition strategy at the K2 TSF, seepage was noted at the Northern and South-eastern sides of the K2 TSF.	(1) Ensure that a pool distance of 50m from the wall is maintained on all the TSFs as required by GN R632 of 24 July 2015.

Audit	Overall Compliance	Finding / Risk	Action plan
			(2) Implement the Recommended Actions in the SRK 2019 Annual and 2020 Quarterly TSF Reports.
			(3) Implement remedial actions to address the seepage risks that were detected at K2 TSF.
		Inadequate operation and maintenance of the affected water system at the plants and shafts contribute to the capacity constraints experienced	(1) Affected water dams should be operated below maximum operating levels, and in compliance with GN 704.
			(2) Implement effective level control mechanisms / devices.
			(3) Remove silt and reeds from dams, trenches, canals and silt traps to ensure adequate capacity during a 1:50 year flood event

External Audit for K6 Water Use Licence	97%	All of the findings are minor and associated with the operation and maintenance of affected process water systems, namely:	Ensure that dried silt / mud removed from the Mud Settling Dams is correctly disposed of.
		(1) Silt / mud removed from Settling Dams is left adjacent to WRD instead of being correctly disposed of as soon as it dries.	(1) Ensure that dried silt/mud removed from the Mud Settling Dams is correctly disposed of as soon as it dries.
		(2) The Storm Water Dam (SWD) is being utilised as a process water storage facility but should be operated as empty as possible (to contain the affected storm water up to the 1:50 year flood event).	(2) Operate the SWD as empty as possible, to ensure adequate capacity up to the 1:50 year flood event.
		(3) SWD level monitor was removed, and the control room can no longer monitor water levels in this dam to timeously inform the Shaft of potential overflow risks.	(3) Re-install the level monitor at the SWD to enable the control room to monitor the SWD levels.
		(4) Lack of vegetation management in and around the SWD and other water channels.	(4) Vegetation in and around the SWD and water channels should be maintained and removed more frequently.

It should be noted that action plans are reviewed and revised, if necessary, as actions are implemented to ensure the best way forward is continually followed. Therefore, action plans may vary over time.

17.5.8.2 Findings

Findings are discussed in terms of overall compliance with the legislation that pertains to the environment and community. Refer to Table 68 for further details.

Sibanye-Stillwater confirms that Kroondal is compliant with the legal and other requirements that are applicable to its mining operations.

Table 68: Kroondal Compliance to Legislation

Authorisation/Approvals	Legislation	Date of Issue & Current Status
Converted Mining Right(s)	MPRDA	February 2007
Environmental Management Programmes (EMPrs)	MPRDA/NEMA	2016
Water Permit	1956 Water Act	N/A
Water Use Licences (WULs)	NWA	2018
Atmospheric Emissions Licences (AELs)	NEM: AQA	Not applicable
Waste Management Licences (WMLs)	NEM: WMA	2012
NEMA Environmental Authorisations (where applicable)	NEMA	The Phase 2 EMPr are not yet approved but were in the process to get it approved

It should be noted that action plans are reviewed and revised, if necessary, as actions are implemented to ensure the best way forward is continually followed. Therefore, action plans may vary over time.

Compliance is evaluated against relevant legal and other requirements, including environmental authorisations/approvals. Findings are discussed in terms of overall compliance with the legislation that pertains to the environment and community.

17.5.8.3 Future Actions

Table 69 shows the future actions and projects for the Kroondal Operations.

Table 69: Future Actions

Project Description	Due Date	Status
Hydrogeological Assessments	March 2022	Complete
Wetland delineation studies	November 2022	In Progress
Desilting and re-lining of K1 and K2 Concentrator storm water dams	December 2021	Complete
Implementation of 5-year dust management plan for Kroondal Haul roads and Kroondal K150 and K2 Tailings Dams	Project Commenced in October 2020. • Year 1 – Complete 2020/2021 • Year 2 – 2022 • Year 3 – 2023 • Year 4 – 2024 • Year 5 – 2025	
Drilling of scavenger wells for management of ground water contamination and use of water within the operations to supplement purchased potable water.	November 2023	In Progress
Tailings Dam Break Analysis Assessments in order to comply with GISTM Standard Requirements	August 2023	In Progress
Implementation of K2Fly in order to gather environmental and data to support compliance to the GISTM Standard Requirements	August 2023	In Progress
EMPR consolidation and amendment	Submitted in March 2022, awaiting feedback / approval from DMRE	In Progress
Water Use Licence amendment	December 2023	In Progress

17.5.9 Closure Planning and Costs

17.5.9.1 Decommissioning and Closure Liabilities

The Operations are committed to on-going closure planning. Scheduled and unscheduled mine closure costs are reviewed and updated annually for financial reporting and regulatory compliance.

The National Environmental Management Act (NEMA), pertains to the financial provision for prospecting, exploration and mining and requires that a final rehabilitation, decommission and mine closure plan is developed which includes the determination of financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of mining. An amendment to GNR 1147 (Regulations for Financial Provision for Prospecting, Exploration, Mining and Production Operations,2015) in October 2016, extended the Transitional

Arrangements to February 2019 (which was subsequently further extended to February 2020 and again to June 2022). The alignment of these plans and documents to the 2015 FP Regulations is ongoing.

Compliance with the Financial Provisioning Regulations is required within three months from the first financial year-end following June 2022, which is the new promulgated compliance date for the amended FP Regulations. Therefore Sibanye-Stillwater Marikana Operations is required to be compliant by March 2023.

In order to ensure that all aspects potentially applicable during the closing of a facility is considered during the quantum assessment, a standard checklist have been provided by the guidelines which was used in compilation of this plan. It is however recognized that all the items will not always be applicable for all the areas, but it was considered in any event to make sure that all possible issues were addressed and assessed.

Closure Components to be considered during the Quantum Assessment are given in Table 70.

In addition, Long Term Care and Maintenance plans as well as Future Monitoring programmes will be established as part of the Closure Plans.

Table 70: Closure Components

Component No.	Description
1	Infrastructural Areas
1.1	Dismantling of processing plant and related structures (including overland conveyers and powerlines)
1.2	Demolition of steel buildings and structures
1.3	Demolition of other buildings and structures
1.4	Rehabilitation of roads and paved surfaces
1.5	Demolition and rehabilitation of railway lines
1.6	Other linear infrastructure
1.7	Disposal of demolition waste
1.8	Making good of infrastructure
2	Mining Areas
2.1	Open-pit rehabilitation, including final voids and ramps
2.2.	Sealing of shafts, adits and inclines
2.3	Rehabilitation of stockpiles and processing residues
2.4	Rehabilitation of clean water impoundments
2.5	Rehabilitation of dirty water impoundments
3	General surface rehabilitation
3.1	Infrastructural areas
3.2	Other surface disturbances
4	Runoff Management
4.1	River diversions and watercourse reinstatement
4.2	Reinstatement of drainage lines
5	P&Gs, Contingencies and additional allowances
6	Pre-site relinquishment monitoring and aftercare

17.5.9.2 Life of MIne Planning and Closure

Given the long Life of the Mines, final closure plans have not been fully developed. As the shafts are closed plans are developed near the time of the closure depending on the local environmental and community situations.

The closure objective for the operations including how the objective will align with the current baseline environment includes the following:

- Gently undulating topography, interspersed with small hills.
- Pre-mining soils which supported arable, grazing and wilderness land capabilities and/or uses. Closure objectives around land capability and use must be informed by consensus with relevant stakeholders.

- A functioning ecosystem.
- Non-perennial drainage patterns.
- Moderate groundwater quality (considered not suitable for Domestic Use in terms of the South African Water Quality Guidelines).
- Water table which was unable to provide groundwater as a water supply source.
- Quite rural environment.

17.5.9.3 Unscheduled Closure Cost Estimate

Kroondal total closure liability and associated financial provision is based on unplanned closure, with specific costs allocated to the demolition of mining and associated infrastructure, the rehabilitation of mine-impacted land and post-closure monitoring and maintenance. The mechanisms and methods of the demolition, remediation and rehabilitation processes are described in rehabilitation and final closure plans.

However, as far as possible, Kroondal will embark on a concurrent rehabilitation programme during the operational phase of the mine. This programme will be completed irrespective of unplanned closure and/or continued operations.

A closure cost estimate for an unscheduled closure at the Kroondal Operations is updated annually, in line with the International Financial Reporting Standards ("IFRS") of the International Accounting Standards Board and South African Statements of Generally Accepted Accounting Practice as well as applicable environmental legislation (MPRDA and NEMA) and in accordance with the Draft GN1147.

The closure cost assessment included an update and escalation of the unit rates applied in the FY 2020 update, and the inclusion of additional construction and removal of existing infrastructure since the previous closure cost update. The base rates applied in the closure cost assessment were determined

as at March 2021. The 2021 unit rates remained largely unchanged from the 2020 rates, and similar to 2019, primarily due to COVID-19 restrictions and the resultant impacts on escalations.

The updated closure cost estimates for unscheduled closure as at 31 December 2021 amount to ZAR 284 million for the Kroondal Operations, excluding the Marikana Section. No financial discounting has been applied. The 2021 closure liability of ZAR284 million will be funded through a combination of cash in trust funds as well as third party financial guarantees.

The detailed breakdown of the 2021 unscheduled closure estimate is as follows:

- Infrastructural and mining aspects – ZAR 226,724,724 (80%)
- Pre-site Relinquishment Monitoring & Aftercare – ZAR 6,565,278 (2%)
- Combined Preliminary & General and Contingencies – ZAR 31,315,304 (11%)
- Additional studies & allowances – ZAR 19,220,828 (7%)

Marikana(Kroondal) Section has its own mining right and therefore its own closure liability. The 2021 Marikana section closure liability of ZAR1,113.6 million is funded through financial guarantees.

A detailed breakdown for the closure liability is as follows:

- Infrastructural and mining aspects – ZAR 962,831,483 (86%)
- Pre-site Relinquishment Monitoring & Aftercare – ZAR 12,646,433 (1%)
- Combined Preliminary & General and Contingencies – ZAR 130,273,788 (12%)
- Additional studies & allowances – ZAR 7,820,550 (1%)

17.6 QP Opinion

The QP is satisfied that all material issues relating to Environmental, Social and Governance have been addressed in this document.

18 Capital and Operating Costs

18.1 Overview

18.2 Capital Expenditure

Capital expenditure on Table 71 for Kroondal includes sustaining capital.

Ongoing capital expenditure estimates are based on a provision of an approximate 4% of operating cost expenditures for shallow mines, this percentage is based on historical spend, and the current business plan generally are included for the first year of the LoM plan. These amounts cater for expenditures of a capital nature and are considered prudent provisions (contingencies) to maintain the operations infrastructure, given that limited detail is provided beyond the current three-year horizon.

Table 71: Historical and Forecast Capital Expenditure

		Historical			Real Forecast									
	Units	C2019	C2020	C2021	LoM	C2022	C2023	C2024	C2025	C2026	C2027	C2028	C2029	C2030
					Total	1	2	3	4	5	6	7	8	9
Sustaining Capital	(ZARm)	426	376	536	1 445	602	142	119	104	78	53	55	55	55

18.3 Operating Costs

This section provides details on the forecast operating cost estimates for Kroondal.

18.3.1 Operating Costs by Activity

Table 72 provides details of historical and forecasted Operating Costs by activity grouped according to:

- Mining costs–underground mining costs and surface sources costs, including ore handling costs
- Processing costs, including tailings and waste disposal costs and
- The cost of maintaining key on mine infrastructure.

In addition, Kroondal has incorporated costs for environmental rehabilitation and closure and costs associated with terminal benefits, which will be payable on cessation of mining activities. No salvage values have been assumed for plants and equipment.

The Operating cost are based on the current year's operational business plan and projected forward using the required production profile taking into account the likely physical changes in the operating parameters over the full period of the LoM plan.

18.3.2 Operating Cost

The operating cost for Kroondal for the Mineral Reserves estimation used in the LoM plan is ZAR1,104/t.

The actual operating cost for 2021 was ZAR 896/t for underground and surface combined. The five-year forecast average is ZAR1,035/t.

18.3.3 Surface Sources Costs

No rock dumps or tailings dams are included in this declaration.

18.3.4 Processing Costs

The treatment cost for 2022 is estimated at ZAR133/t for underground material. For LoM, the expected unit costs increase as the production plan decreases. The average over the next five years is ZAR146/tonne.

18.3.5 Allocated Costs

Allocated costs have been forecast at an average of ZAR 783 million per annum for the next five years. These costs include costs for Rehabilitation, Royalties, Retrenchment cost, Engineering, Occupational Environment and Hygiene, Environmental Management, Health and Safety, and other typical centralised costs.

Table 72: Historical and Forecast Operating Costs

		Historical			Real Forecast									
	Units	2019	2020	2021	LoM Total	2022 1	2023 2	2024 3	2025 4	2026 5	2027 6	2028 7	2029 8	2030 9
Operating Cost	(ZARm)	5,757	5,291	6,316	47,479	6,333	5,645	5,657	5,587	5,205	3,835	2,371	1,545	1,542
Tonnes Milled	(Kt)	8,120	5,994	7,050	42,989	6,337	5,584	5,513	5,372	4,670	3,534	1,838	1,272	1,269
Operating Cost	(ZAR/t)	709	883	896	1,104	999	1,011	1,026	1,040	1,115	1,085	1,290	1,215	1,215

19 Economic Analysis

19.1 Introduction

The following Section presents a discussion and comment on the economic assessment of Kroondal. Specific comment is included on the methodology used to generate the financial models for Kroondal to establish a base case, including the basis of the techno-economic model, modelling techniques and evaluation results.

19.2 Economic Analysis Approach

Kroondal can be classified as a Production Property as it has a significant, detailed cost and capital information specific to the geographic and economic locality of its assets. The cash-flow approach is the most appropriate method to use for economic analysis.

19.3 Economic Analysis Basis

The assumptions on which the economic analysis is based include:

- All assumptions are on 31 December 2021 money terms, which is consistent with the Mineral Reserve declaration date
- Royalties on revenue are consistent with relevant South African legislation (0.5 – 9% based on the formula) (refer to Table 73)
- Corporate taxes that can be offset against assessed losses and capital expenditure (refer to Table 73)
- A Real base case Discount Rate of 5% and

Discounted cash-flow (DCF) techniques applied to post-tax pre-finance cash flows. Sensitivity analysis was performed to ascertain the effect of discount factors, product prices, total cash costs and capital expenditures. The post-tax pre-finance cash flows presented for the mining asset incorporate macroeconomic projections as set put in Table 74 and

- Table 75.
- The Technical – Economic Model is presented in real terms are based on annual cash-flow projections determined at the end-point 31 December.

19.4 TEM Parameters

Table 73 provides details of the parameters applied in the Technical – Economic Model.

Table 73: Technical – Economic Model Parameters

Parameter	Units	Historical
Corporate Tax Rate	(%)	27%
Royalties (based on the formula)	(%)	0.5% - 12.5%
Trading Terms		
Debtors	(Days)	3
Creditors	(Days)	45
Stores	(Days)	45
Balance at 31 December 2020		
Debtors	(ZARm)	263
Creditors	(ZARm)	663
Stores - opening balances	(ZARm)	
Unredeemed Capital - 31 December	(ZARm)	
Environmental Closure Liability – 31December	(ZARm)	609
Terminal Benefits Liability based on LoM	(ZARm)	481
Assessed Losses	(Years)	N/A

The following working capital parameters have been applied in the model: Debtors – 3 days; Creditors – 45 days; and Stores – 45 days. Sibanye-Stillwater has indicated that the balances for working capital will be settled at the effective date of the Mineral Reserve declaration, and as such the opening balances have been set to zero.

The corporate tax rate applied is based on a formula that uses capital expenditure and assessed tax losses. Royalties are calculated using the formula for refined metals [Royalty Payable = 0.5+ (EBIT/Gross Sales)/9].

19.5 Technical Economic Model

The technical inputs used to determine the financial parameters for the TEMs are provided in Table 74 to and Table 77 as well as an assessment of the financial parameters on a unit cost basis: ZAR/4Eoz.

Table 74: TEM – Mining, Processing, PGM's Sold and Revenue, Cash Costs, Taxation, Capital Expenditure and Free Cash - 2022-2031

		LoM	C2022	C2023	C2024	C2025	C2026	C2027	C2028	C2029
	Units	Total	1	2	3	4	5	6	7	8
Underground Mining										

Development	(m)	33,245	9,393	8,529	7,578	3,787	2,325	1,156	477	0
ROM**	(kt)	41,322	5,757	4,983	5,072	5,327	4,670	3,534	1,838	1,272
Head Grade	(g/t)	2.52	2.42	2.45	2.50	2.50	2.48	2.53	2.57	2.61
Recoveries	(%)	83.2%	82.7%	82.8%	82.8%	83.0%	83.0%	83.3%	83.4%	83.8%
PGM Ounces	(4EOz'000)	2,791	371	325	337	355	309	239	127	89
Recovered Grade	(g/t)	2.10	2.00	2.03	2.07	2.07	2.06	2.10	2.14	2.18
Surface										
ROM	(kt)	1,667	580	601	441	45	0	0	0	0
Head Grade	(g/t)	3.27	2.98	3.04	3.92	3.86	0.00	0	0	0
Recoveries	(%)	70.6%	67.7%	68.3%	75.4%	75.1%	0.0%	0	0	0
PGM Ounces	(4EOz'000)	124	38	40	42	4	0	0	0	0
Recovered Grade	(g/t)	2.31	2.02	2.08	2.96	2.90	0.00	0.00	0.00	0.00
Processing										
Ore Processing	(kt)	42,989	6,337	5,584	5,513	5,372	4,670	3,534	1,838	1,272
Head Grade	(g/t)	2.55	2.47	2.51	2.61	2.51	2.48	2.53	2.57	2.61
Recoveries	(%)	82.6%	81.1%	80.9%	82.0%	82.9%	83.0%	83.3%	83.4%	83.8%
Recovered Grade	(g/t)	2.11	200.4%	203.4%	213.9%	208.1%	205.6%	210.3%	214.3%	218.3%
PGM Produced	**(4Eoz)**	**2,914**	**408**	**365**	**379**	**359**	**309**	**239**	**127**	**89**
Basket Price										
Basket Price	(R/4Eoz)	29,746	30,094	29,913	29,714	29,920	29,907	30,013	29,844	29,853

		LoM	C2022	C2023	C2024	C2025	C2026	C2027	C2028	C2029
	Units	**Total**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Revenue										
4E Revenue	(ZARm)	72,407	10,264	9,122	9,408	8,980	7,712	5,989	3,156	2,226
Other Metals	(ZARm)	3,419	494	431	441	421	358	272	145	105
Base Metals	(ZARm)	2,327	321	273	280	300	259	225	112	70
Revenue from sales of mining products	**(ZARm)**	**78,153**	**11,079**	**9,826**	**10,129**	**9,701**	**8,329**	**6,486**	**3,414**	**2,401**
Operating Cost										
Direct Operations Cost	(ZARm)	46,986	6,333	5,645	5,656	5,587	5,062	3,725	2,284	1,542
RBN Royalties	(ZARm)	0	0	0	0	0	0	0	0	0
Terminal benefits costs	(ZARm)	481	0	0	0	0	143	109	85	0
Environmental closure cost	(ZARm)	12	0	0	0	0	0	1	2	3
Royalty payable	(ZARm)	391	55	49	51	49	42	32	17	12
Recurring pre-tax income from continuing operations (EBITDA)	**(ZARm)**	**30,283**	**4,691**	**4,132**	**4,422**	**4,065**	**3,082**	**2,618**	**1,026**	**844**
Taxation	(ZARm)	7,788	1,104	1,077	1,162	1,070	811	693	262	213
Net Income from continuing operations	**(ZARm)**	**22,496**	**3,587**	**3,055**	**3,260**	**2,996**	**2,271**	**1,926**	**763**	**631**
Capital Expenditure	(ZARm)	1,445	602	142	119	104	78	53	55	55
Net Free cash	**(ZARm)**	**21,051**	**2,985**	**2,913**	**3,141**	**2,892**	**2,193**	**1,872**	**709**	**576**

**ROM includes tonnage from Rustenburg Mine accessed through the Kroondal infrastructure see Section 21 for more information.

Table 75: TEM – Mining, Processing, PGM's Sold and Revenue, Cash Costs, Taxation, Capital Expenditure and Free Cash - 2032-2037

		LoM	C2032 - C2036	C2037 - C2041
	Units	**Total**	**11 - 15**	**16 - 20**
Underground Mining				
Development	(m)	33,245	0	0
ROM	(kt)	41,322	5,474	885
Head Grade	(g/t)	2.52	2.67	2.69
Recoveries	(%)	83.2%	84.2%	84.2%
PGM Ounces	(4E0z'000)	2,791	396	64
Recovered Grade	(g/t)	2.10	2.25	2.26
Surface				
ROM	(kt)	1,667	0	0
Head Grade	(g/t)	3.45	0	0
Recoveries	(%)	67.0%	0	0
PGM Ounces	(4E0z'000)	124	0	0
Recovered Grade	(g/t)	2.31	0.00	0.00
Processing				
Ore Processing	(kt)	42,989	5,474	885
Head Grade	(g/t)	2.56	2.67	2.69
Recoveries	(%)	82.4%	84.2%	84.2%
Recovered Grade	(g/t)	2.11	225.2%	226.2%
PGM Produced	**(4Eoz)**	**2,914**	**396**	**64**
Basket Price				
Basket Price	(R/4Eoz)	29,746	29,114	27,975

		LoM	C2032 - C2036	C2037 - C2041
	Units	**Total**	**11 - 15**	**16 - 20**
Revenue				
4E Revenue	(ZARm)	72,407	9,635	1,504
Other Metals	(ZARm)	3,419	467	76
Base Metals	(ZARm)	2,327	301	49
Revenue from sales of mining products	**(ZARm)**	**78,153**	**10,402**	**1,629**
Operating Cost				
Direct Operations Cost	(ZARm)	46,986	6,907	1,186
RBN Royalties	(ZARm)	0	0	0
Terminal benefits costs	(ZARm)	481	0	144
Environmental closure cost	(ZARm)	12	0	5
Royalty payable	(ZARm)	391	52	8
Recurring pre-tax income from continuing operations (EBITDA)	**(ZARm)**	**30,283**	**3,443**	**285**
Taxation	(ZARm)	7,788	895	78
Net Income from continuing operations	**(ZARm)**	**22,496**	**2,548**	**206**
Capital Expenditure	(ZARm)	1,445	129	0
Net Free cash	**(ZARm)**	**21,051**	**2,420**	**206**

Table 76: TEM – Unit Analysis (ZAR/4Eoz) – 2022-2031

		LoM	C2022	C2023	C2024	C2025	C2026	C2027	C2028	C2029
	Units	**Total**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Basket Price										
Basket Price	(R/4Eoz)	29,746	30,094	29,913	29,714	29,920	29,907	30,013	29,844	29,853
Revenue										
4E Revenue	(R/4Eoz)	24,844	25,134	24,984	24,817	24,989	24,979	25,067	24,926	24,933
Other Metals	(R/4Eoz)	1,173	1,209	1,179	1,164	1,171	1,159	1,137	1,149	1,177
Base Metals	(R/4Eoz)	799	787	748	738	835	837	940	885	783
Revenue from sales of mining products	**(R/4Eoz)**	**26,816**	**27,130**	**26,912**	**26,719**	**26,995**	**26,975**	**27,144**	**26,960**	**26,894**
Operating Cost										
Direct Operations Cost	(R/4Eoz)	16,122	15,507	15,460	14,920	15,546	16,396	15,589	18,035	17,277
RBN Royalties	(R/4Eoz)	0	0	0	0	0	0	0	0	0
Terminal benefits costs	(R/4Eoz)	165	0	0	0	1	463	455	673	0
Environmental closure cost	(R/4Eoz)	4	0	0	0	0	0	6	18	30
Royalty payable	(R/4Eoz)	134	136	135	134	135	135	136	135	134
Recurring pre-tax income from continuing operations (EBITDA)	**(R/4Eoz)**	**10,391**	**11,487**	**11,317**	**11,665**	**11,313**	**9,982**	**10,958**	**8,099**	**9,452**
Taxation	(R/4Eoz)	2,672	2,704	2,951	3,065	2,976	2,627	2,898	2,070	2,386
Net Income from continuing										

operations	(R/4Eoz)	7,719	8,783	8,366	8,600	8,336	7,355	8,060	6,029	7,066
Capital Expenditure	(R/4Eoz)	496	1,473	388	313	289	253	223	432	616
Net Free cash	**(R/4Eoz)**	**7,223**	**7,310**	**7,978**	**8,286**	**8,047**	**7,102**	**7,836**	**5,597**	**6,451**

Table 77: TEM – Unit Analysis (ZAR/4Eoz) – 2032-2051

	Units	LoM Total	C2032 - C2036 11 - 15	C2037 - C2037 16 - 20
Basket Price				
Basket Price	(R/4Eoz)	29,746	29,114	27,975
Revenue				
4E Revenue	(R/4Eoz)	24,844	24,316	23,365
Other Metals	(R/4Eoz)	1,173	1,177	1,177
Base Metals	(R/4Eoz)	799	760	756
Revenue from sales of mining products	**(R/4Eoz)**	**26,816**	**26,253**	**25,299**
Operating Cost				
Direct Operations Cost	(R/4Eoz)	16,122	17,432	18,428
RBN Royalties	(R/4Eoz)	0	0	0
Terminal benefits costs	(R/4Eoz)	165	0	2,240
Environmental closure cost	(R/4Eoz)	4	0	83
Royalty payable	(R/4Eoz)	134	131	126
Recurring pre-tax income from continuing operations (EBITDA)	**(R/4Eoz)**	**10,391**	**8,690**	**4,421**
Taxation	(R/4Eoz)	2,672	2,259	1,216
Net Income from continuing operations	**(R/4Eoz)**	**7,719**	**6,432**	**3,205**
Capital Expenditure	(R/4Eoz)	496	324	0
Net Free cash	**(R/4Eoz)**	**7,223**	**6,107**	**3,205**

19.6 DCF Analysis

The following NPV sensitivities are included in this Section:

NPV's at a range of discount factors in relation to the Discount Rate of 5% (Real) [Refer Table 78]. A range of discount factors from 0% to 10% with their associated NPVs are presented for each case. From Table 79, Kroondal at different discount factors and the sensitivity to the discount factor can be evaluated.

Twin parameter sensitivities are presented evaluating Revenue against Operating Costs. NPV's at higher product price levels are shown up to a 20% increase in price, which captures any upside potential. Since markets are inherently volatile, the downside risk is reflected in the 20% decrease in price in increments. The achievability of LoM plans, budgets and forecasts cannot be assured as they are based on economic assumptions, many of which are beyond the control of Kroondal. Future cash flows and profits derived from such forecasts are inherently uncertain and actual results may be significantly more or less favourable. It is for this reason that the Kroondal Operations presents sensitivities for Operating Costs, ranging from -20% to +20%. The most optimistic analysis, which assumes prices have been under-estimated by 20% and Operating Costs over-estimated by 20%, yields an NPV in the top right-hand corner of Table 79. Conversely, the most pessimistic analysis, which assumes prices have been over-estimated by 20% and Operating Costs under-estimated by 20%, yields an NPV in the bottom left-hand corner of Table 79.

NPV sensitivity to sales revenue and capital expenditure derived from twin parameter sensitivities at the Discount Rate of 5% (Real) (Refer to Table 80). Twin parameter sensitivities are presented evaluating Revenue against capital expenditure costs. Capital expenditures are estimates until contracts, which specify the deliverable, are signed by clients. It is for this reason that Kroondal presents sensitivities for capital costs from -20% to +20%. The most optimistic analysis, which assumes prices have been under-estimated by 20% and capital expenditure costs over-estimated by 20%, yields an NPV in the top right-hand corner of Table 80. Conversely, the most pessimistic analysis, which assumes prices have been over-estimated by 20% and capital expenditure costs under-estimated by 20%, yields an NPV in the bottom left-hand corner of Table 80.

Table 78: NPV (Post-tax) at Various Discount Factors

Discount Factor (%)	NPV (ZARm)
0.00%	21,051
2.00%	19,479
5.00%	17,543
7.00%	16,472
10.00%	15,119

Table 79: Twin Parameter NPV (pre-tax) Sensitivity at a 5% Discount Rate (Revenue, Operating Costs)

Post-Tax NPV@5% (ZARm)		Revenue Sensitivity Range						
		-20%	-10%	-5%	0%	5%	10%	20%
Total operating cost sensitivity range	-20%	12,483	18,881	22,081	25,280	28,479	31,678	38,077
	-10%	8,615	15,013	18,212	21,411	24,611	27,810	34,208
	-5%	6,680	13,079	16,278	19,477	22,676	25,876	32,274
	0%	4,746	11,145	14,344	17,543	20,742	23,941	30,340
	5%	2,812	9,210	12,409	15,609	18,808	22,007	28,406
	10%	878	7,276	10,475	13,674	16,874	20,073	26,471
	20%	(2,991)	3,408	6,607	9,806	13,005	16,204	22,603

Table 80: Twin Parameter NPV (Pre-tax) Sensitivity at a 5% Discount Rate (Revenue, Capital Expenditure)

Post-Tax NPV@5% (ZARm)		Revenue Sensitivity Range						
		-20%	-10%	-5%	0%	5%	10%	20%
Capital cost sensitivity range	-20%	4,999	11,398	14,597	17,796	20,996	24,195	30,593
	-10%	4,873	11,271	14,470	17,670	20,869	24,068	30,466
	-5%	4,809	11,208	14,407	17,606	20,806	24,005	30,403
	0%	4,746	11,145	14,344	17,543	20,742	23,941	30,340
	5%	4,683	11,081	14,280	17,480	20,679	23,878	30,276
	10%	4,619	11,018	14,217	17,416	20,615	23,815	30,213
	20%	4,493	10,891	14,090	17,290	20,489	23,688	30,086

19.7 Summary Economic Analysis

The summary economic analysis of Kroondal is based on the Cash-Flow Approach. There is no other appropriate method of analysis for this operation.

The summary economic evaluation for Kroondal is based on the current business plan of the operation and excludes any impact of Secondary Taxation on Companies and adverse international or local events, impact of that risk is illustrated in Table 79 and Table 80 indicating sensitivity impact as a result of fluctuations in operating cost, capital and metal price sensitivities. The economic model has been undertaken to support the declaration of Mineral Reserves. Refer to Table 81.

Table 81: NPV (Post-tax) Relative to ZAR/4Eoz Basket Price at a 5% Discount Rate

Long Term Price (R/4Eoz)	Revenue Sensitivity Range						
	-20%	-10%	-5%	29,746	5%	10%	20%
NPV@ Base case discount Rate	4,746	11,145	14,344	17,543	20,742	23,941	30,340

19.8 QP Opinion

The QP is satisfied that the economic analysis fairly represents the financial status of the operation as at 31 December 2021.

20 Adjacent Properties

Kroondal is part of the Western Limb of the Bushveld Complex. Positions of these mines are shown in Figure 2. Below is a list of adjacent mines/operations. Table 82 gives the mine, owner, commodities mined and link to the Company websites. For current information on these properties, the reader should refer to the official websites. Mineralization on the adjacent properties is continuous across all properties however, variations across the deposit occurs and the quantum and grade of the mineralization at these mines may not be indicative of the same at Kroondal.

The Kroondal and Rustenburg Mines are a single orebody with shared services and infrastructure. ***Data from the Rustenburg Operations has been used in the estimation of Mineral Resource and some operations information has been shared in the estimation of the Mineral Reserves***. Refer to Section 21 for details information.

Rustenburg and Marikana are owned and operated by the Registrant. There are shared services between these operations and the Kroondal Operations. The QPs for these mines are the same as for the Kroondal Operations. The QP's have verified the information in the public sources. The Glencore Mine is owned by a 3rd party and the QPs have not verified the information in the public sources.

Table 82: Adjacent Mines/Operations

Mine name	Owners	Commodities	Source of info
Kroondal Mine	Glencore	Chrome	https://www.glencore.com/
*Rustenburg Operations	Sibanye-Stillwater	PGM	https://www.sibanyestillwater.com/
*Marikana Operations	Sibanye -Stillwater	PGM	https://www.sibanyestillwater.com/

21 Other Relevant Data and Information

21.1 Risk Analysis

21.1.1 Financial Assessment Accuracy

Table 83 provides details of accuracy limits in the major financial categories. Kroondal does not directly report contingencies for Operating costs but rather provides for this as part of sustaining capital at 4% of Operating cost.

There are no new capital projects and no assessed capital risks.

Table 83: Financial Assessment Accuracy

Risks	Mitigation Measures
Price Risk (Mineral Reserve Risk) - Revenue	-assessed the prices using various sensitivities
	(-10% to +10%)
	- the forecast price considered multiple scenarios
Economic Viability Risk (Mineral Reserve Risk) - Operating Costs	-assessed the Operating Costs using various sensitivities
	(-20% to +20%)
Economic Viability Risk (Mineral Reserve Risk) - Capital Expenditure	-assessed the Capital Expenditure based on 4% of operating costs for sustaining capital and technical studies for new projects
	(-20% to +20%)

21.1.2 Risk to the Mineral Resources and Mineral Reserves

As part of the annual operational planning process, the Rustenburg Operations management team assessed all the major risks that impact the execution of the plan. Sibanye-Stillwater maintains a risk register at the corporate level detailing all significant risks that may impact the operations. The Risk register is updated quarterly.

Risks are listed by the source of the risk, the type of operational risk. Risks are assessed for likelihood of occurrence and severity for inherent risks to assess the unmitigated impact on the operations. The risk is reassessed once reasonable mitigation plans have been applied to give a residual risk using the same scale as for inherent risk. The following major risks have been identified.

21.1.2.1 Mineral Resources

There are no deemed material risks to the Mineral Resource Estimate.

21.1.2.2 Mineral Reserves

The key operational risks that could impact the Mineral Reserves are listed below.

Commodity prices and exchange rate assumptions

Sibanye-Stillwater has adopted forward-looking price assumptions. Any material deviations from these assumptions could impact the Mineral Reserves, especially at marginal operations. The QPs are of the view that these prices applied to our LoM valuations are realistic considering the external guidance received.

ESG and social unrest

The SA PGM operations are situated in close proximity to large communities with high unemployment rates and low incomes. As such, it is continually at risk to social unrest events. From a social and governance perspective, the Group has implemented appropriate objectives and initiates to address this risk. From an environmental perspective, the area experiences significant pressure on potable and

fresh water supply. The adoption of the PGM water stewardship, GHG and footprint reduction during 2022 will enable these operations to meet the requirements defined by our ESG commitments.

Cost escalation

Cost escalation assumptions relating to factors such as wages, utilities like electricity and operational consumables (explosives and steel) are aligned with Group estimates. Continuous improvement initiatives adopted to contain cost escalation are in place to mitigate this risk.

Operational Risk

Operational underperformance and slower than planned production build-up at projects may result in variations between planned and achieved production rates. Short interval controls are in place to enable the implementation of timeous interventions and, therefore, correction of deviations to plans.

21.2 Rustenburg and Kroondal Shared Mining Services

Mineral Resources and Mineral Reserves at the Rustenburg Operations (SRPM) are declared within the NW82MR, whilst for the Kroondal Operations, Resources and Reserves are declared within the NW80MR. These mining rights are held by the different legal entities of SRPM and Anglo American Platinum respectively.

In order to accurately declare Resources and Reserves in line with regulatory requirements and existing mining right boundaries, the Reserves mined at SRPM (within NW82MR) yet accessed through Kroondal infrastructure (by means of deepening decline shafts) are declared at SRPM.

The Business Plan 22 LoM of the Kroondal Operations is based on the full extraction of Reserve Tonnes and Oz from both the NW80MR and NW82MR for costing and processing purposes.

Since the LoM valuation is determined on 100% of the production plan, there is inevitably a difference between what is determined in the LoM and the Mineral Reserves declared for the relevant right holder. This approach results in a misalignment between the Tonnes and Oz reflected in the Reserve Statement and the BP22 LoM Tonnes and Oz for both SRPM and Kroondal.

Individually Tonnes and Oz do not balance between Reserves (31 Dec 2021) and BP22 LoM, however when combined there is full and complete alignment in the numbers(Table 84).

Table 84: Kroondal - Rustenburg Reserves and LOM Balance

Mine	Mineral Reserve* Tonnes (million)	Mineral Reserve *Metal (4E MOzt)	LOM Tonnes(Millions)	LOM Metal (MOzt)
Kroondal	20.8	1.7	41.3	3.528
Rustenburg	169.1	15.5	146.9	13.65
Total	189.1**	17.2	188.2**	17.2

*Proved and Probable Reserves, *Differences du to rounding errors

22 Interpretation and Conclusions

In considering the valuation as derived herein, a critical factor is the assumption regarding the future projection is the South African Rand exchange rate against the USD. The views expressed in this Technical Report Summary have been based on the fundamental assumption that the required

management resources and proactive management skills will be focused on meeting the LoM plans and production targets provided by Kroondal Operations and Projects.

The Kroondal Operations has conducted a comprehensive review and assessment of all material issues likely to influence future operations based on information available up to 31 December 2020.

23 Recommendations

There are no recommendations for additional work or changes.

24 Qualified Persons' Consents

We, the signees, in our capacity as Qualified Persons pursuant to Subpart 1300 of Regulation S-K of the US Securities Act of 1933 (SK-1300), each hereby consent to:

- the public filing and use by Sibanye-Stillwater of the Technical Report Summaries for which I am responsible;
- the use and reference to my name, including my status as an expert or "Qualified Person" (as defined by SK-1300) in connection with the Technical Report Summaries for which I am responsible;
- the use of any extracts from, information derived from or summary of the Technical Report Summaries for which I am responsible in the annual report of Sibanye-Stillwater on Form 20-F for the year ended 31 December 2021 (Form 20-F); and
- the incorporation by reference of the above items as included in the Form 20-F into Sibanye-Stillwater's registration statement on Form F-3 (File No. 333-234096) (and any amendments or supplements thereto).

I am responsible for overseeing, and this consent pertains to, the Technical Report Summaries for which my name appears below and certify that I have read the Form 20-F and that it fairly and accurately represents the information in the Technical Report Summaries for which I am responsible.

Property Name	**QP Name**	**Affiliation to registrant**	**Field or area of responsibility**	**Signature**
SA PGM Kroondal Operations	Andrew Brown	Full time employee	Lead	/s/ Andrew Brown
	Manie Keyser	Full time employee	Resources, Reserves, Mine Planning	/s/ Manie Keyser
	Brian Smith	Full time employee	Mineral Reserves	/s/ Brian Smith
	Nicole Wansbury	Full time employee	Mineral Resources	/s/ Nicole Wansbury
	Stephan Botes	Full time employee	Surface and Mineral Rights	/s/ Stephan Botes

	Mandy Jubileus	Full time employee	Environmental Compliance	/s/ Mandy Jubileus
	Dewald Cloete	Full time employee	Mineral Processing	/s/ Dewald Cloete
	Roderick	Full time	Financial	/s/ Roderick

	Mugovhani	employee	Evaluation	Mugovhani

25 References

25.1 List of Reports and Sources of Information

25.1.1 Publications and Reports

Arnot, N., and Stobart, B., 2016, Consolidated Environmental Impact Assessment and Environmental Management Programme for the Kroondal Platinum Mine for Aquarius Platinum (South Africa), SLR Consulting (Africa), unpubl, 2016.

Ballhaus, C.G. 1988. Potholes of the Merensky Reef at Brakspruit Shaft, Rustenburg Platinum Mines: Primary disturbances in the magmatic stratigraphy. *Economic Geology*, vol. 83. p. 1140-1158.

Beukes, J.P and van Zyl, P.G., 2017. Review of Atmospheric SO2 Data Collected with Passive Sampling and Regional Perspective, Atmospheric Chemistry Research Group, North West University, p. 27.

Brown, A., Keyser, H., Wansbury, N., Changara, L., Smith, B., 2020, Technical Report Summary of the Materials Assets of the Kroondal Operations Situated near Rustenburg, North West Province, South Africa. Sibanye Stillwater, unpubl, p. 201

Brown, A., Smith, B., Ross, H., Changara, L., Mugovhani, R., and Gewers, N., 2019, Competent Person's Report on the Material Asset of the Kroondal Operations including Mimosa and RSA PGM Projects Situated near Rustenburg, Northwest, South Africa, Sibanye Stillwater, Platinum Division, Mine Technical Services Team, unpubl, p. 231

Carr, H.W., Groves, D.I., and Cawthorn, R.G. 1994. The Importance of synmagmatic deformation in the formation of Merensky Reef potholes in the Bushveld Complex. *Economic Geology*, vol. 89. p. 1398-1410.

Cawthorn, R.G., Eales, H.V., Walraven, F., Uken, R. and Watkeys, M.K., 2006. The Bushveld Complex. In: Geology of South Africa. Edited by M.R. Johnson, C.R. Anhaeusser and R.J. Thomas. Geological Society of South Africa. 261-281.

Cowley, A., Bloxham, L., Brown, S., Cole, L., Fujita, M., Girardot, N., Jiang, J., Raithatha, R., Ryan, M., Shao, E., Tang, B., Wang, A., Xiaoyan, F., 2021. The Pgm market report, Johnson-Matthey,. https://matthey.com/en/news/2021/pgm-market-report-february-2021

Cawthorn, R.G., (2010). The Platinum Group Element Deposits of the Bushveld Complex in South Africa, Platinum Metals Rev., 2010, 54, (4) 205doi:10.1595/147106710x520222. https://www.technology.matthey.com/article/54/4/205-215/#B1

Crowson, P.,(2001) "Minerals Handbook 2000–01: Statistics and Analyses of the World's Minerals Industry", Mining Journal Books Ltd, Edenbridge, Kent, UK. *Quoted in Cawthorn 2010.* https://www.technology.matthey.com/article/54/4/205-215/#B1

Golder Associates, 2020. Determination of the 2020 Closure Costs for the Kroondal Operations, Sibanye-Stillwater Limited, Golder Associates Africa (Pty) Ltd, 20353611-337625-1, p. 57

Grobler, M., and Kruger, R., 2015, AQPSA Marikana Mine: EMPR Amendment Report, Exigo Sustainability (Pty) Ltd, unpubl, p315

Keays, R. R., Lightfoot, P. C. (2004) Formation of Ni-Cu-Platinum Group Element sulfide mineralization in the Sudbury Impact Melt Sheet. Mineralogy and Petrology, 82 (3). 217-258 doi:10.1007/s00710-004-0050-8

Krivolutskaya, N.A. (2014) Evolution of Trap Magmatism and Pt-Cu-Ni mineralization in the Noril'sk region. Publishing Association of Scientific Publications KMK, Moscow [in Russian].Google Scholar

Malherbe, E., and Wansbury, N., 2020, Rustenburg and Kroondal UG2 Resources of the Sibanye Stillwater Platinum, Report number Rustenburg-UG2-30-04-2020, Sibanye Stillwater, unpub, p. 150

McCallum, I.S. (1996) The Stillwater Complex. In Developments in Petrology. Elsevier. p.441-483. doi:10.1016/s0167-2894(96)80015-7

Newtown Landscape Architects CC. 2014. Proposed K1 & K2 DMS Stockpile Expansion at the Kroondal

Platinum Mine, Rustenburg, North-West Province. Report prepared by Newtown Landscape Architects CC for Aquarius Platinum (South Africa) (Pty) Ltd. Quoted from Arnot, N., and Stobart, B., 2016,

Potgieter, J.G., 2011. Atmospheric Impact Assessment, Information/Subsections for 2011 EMPR: WPL, Central and EL, Environgaka cc, unpub, p. 57

Reczko, B.F.F., Oberholzer, J.D., Res, M., Erikson, P.G. and Schreiber, U.M. (1995). A re-evaluation of the volcanism of the Palaeoproterozoic Pretoria Group (Kaapvaal craton) and hypothesis on basin development. *Journal of African Earth Sciences* 21, 505-519.

Reid, D.L. and Basson, I.J.,2002: Iron-rich ultramafic pegamatite replacement bodies within the Upper Critical Zone, Rustenburg Layered Suite, Northam Platinum Mine, South Africa, Mineralogical Magazine, Volume 66(6).

Scoon, R.N. and Mitchell; A.A. The principal geological features of the Mooihoek platiniferous dunite pipe, eastern limb of the Bushveld Complex, and similarities with replaced Merensky Reef at the Amandelbult Mine, South Africa. South African Journal of Geology 2011; 114 (1): 15–40.

Smith, D.S, Basson, I.J, Reid, D,L; Normal Reef subfacies of the Merensky Reef at Northam Platinum mine, Zwartklip Facies, Western Bushveld Complex, South Africa. The Canadian Mineralogist 2004; 42 (2): 243–260. doi: https://doi.org/10.2113/gscanmin.42.2.243

SRK. 1999. Proposed Kroondal Platinum Mine Environmental Management Programme Report. Report No. 256720. Report prepared by Steffen, Robertson and Kirsten (South Africa) (Pty) Ltd for Kroondal Platinum Mine. Quoted from Arnot, N., and Stobart, B., 2016,

Stewart, R., 2021. PGM Market Report for Sibanye-Stillwater March2021, *SFA (Oxford) Ltd*

Watson, B.P., Hoffmann, D., and Roberts, D.P. (2021). Investigation of stress in a pothole in the Bushveld Complex: A case study. In Journal of the Southern African Institute of Mining and Metallurgy. Volume 121 n.1 Johannesburg. January 2021.

Zurich Insurance., 2020, Risk Assessment and Risk Improvement Assessment for Sibanye Stillwater Kroondal Operations, Republic of South Africa, Zurich Insurance, unpubl, p. 113

25.1.2 Spreadsheets and Presentations

Consolidated Group structure-8 December 2020.xlsx

Copy of Kroondal Mine - Finance Section Backup 20220404

Copy of TRS Reserve Tables 31 Dec 2021 v3 Final 14-04-2022.xlsx

25.2 Glossary of Terms

South African Mining terms

Mine Call Factor(MCF) - compares the sum of metal produced in recovery plus residue to the metal called for by the mines evaluation methods expressed as a percentage. For explanation see Tetteh and Cawood(2014).
Reef – South African Mining term for a Seam. Derived from Afrikaans/Dutch *rif*- ridge for the Witwatersrand goldfields where the seam formed ridges in outcrop.

26 Reliance on information provided by the registrant

The QPs have relied on information provided by Sibanye-Stillwater Kroondal Operations and Sibanye-Stillwater (the Registrant) in preparing the findings and conclusions regarding the following aspects of the Modifying Factors outside of the QPs' expertise:

- Macroeconomic trends, data and assumptions, and commodity prices (Section 16)
- Risks (Section 21.2)

Sibanye-Stillwater assess the factors above at a corporate level and has the necessary skills to make this assessment.