UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 6-K

Report of Foreign Private Issuer

Pursuant to Rule 13a-16 or 15d-16
of the Securities Exchange Act of 1934

Date: February 4, 2022
Commission File Number 001-31528

IAMGOLD Corporation

(Translation of registrant's name into English)

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Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F ☐ Form 40-F ☒

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ____

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Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ____

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Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes ☐ No ☒

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-_

Description of Exhibit

Exhibit	Description of Exhibit
99.1	Technical Report on the Rosebel Gold Mine, Suriname

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

IAMGOLD CORPORATION

Date: February 4, 2022	By:	/s/ Tim Bradburn
		Senior Vice President, General Counsel and Corporate Secretary

IAMGOLD CORPORATION

TECHNICAL REPORT ON THE ROSEBEL GOLD MINE, SURINAME

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January 31, 2022

Effective Date: December 31, 2021

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1 SUMMARY

1.1 Executive Summary

This Technical Report was prepared by IAMGOLD Corporation's (IAMGOLD) subsidiary Rosebel Gold Mines N.V. (RGM), SRK Consulting (Canada) Inc. (SRK), and WSP Canada Inc. (WSP) for IAMGOLD's Rosebel Gold Mine (the Mine) and Saramacca property, located in the Republic of Suriname (the Republic). IAMGOLD holds a 95% interest in RGM, with the Republic holding the remaining 5%. The Rosebel and Saramacca land package consists of two exploitation concessions, Gross Rosebel (Rosebel) and Pikin Saramacca (Saramacca), and nine exploration concessions. Rosebel contains the following producing deposits, Royal Hill (RH), Mayo (MA), Rosebel (RB), Koolhoven-J Zone (KH-JZ), Pay Caro (PC), and East Pay Caro (EPC). Saramacca contains the producing Saramacca (SM) deposit. The purpose of this Technical Report is to support the disclosure of the December 31, 2021 Mineral Resource and Mineral Reserve estimates for Rosebel and Saramacca. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101). Recent site visits were conducted by SRK from February 7, 2021 to March 28, 2021 and WSP from September 24, 2021 to October 1, 2021.

IAMGOLD is a mid-tier gold mining company with three operating gold mines, a mine development project currently under construction, and a portfolio of development to early stage exploration projects located in the Americas and West Africa. IAMGOLD, through RGM, owns 95% of Rosebel, with the Republic holding the remaining 5%. The Mine has been operating commercially since February 2004.

Saramacca, is held under a joint venture (JV) agreement between IAMGOLD and the Republic, whereby the Republic, through its wholly owned subsidiary Staatsolie Maatschappij Suriname N.V. (Staatsolie), holds a 30% interest and RGM holds the remaining 70%. As such IAMGOLD holds a 66.5% interest in Saramacca.

The Rosebel and Saramacca Mineral Resources estimate as of December 31, 2021 (on a 100% basis using a US$1,500/oz Au price and including Mineral Reserves) is comprised of Measured and Indicated Mineral Resources totalling 174 million tonnes (Mt) at an average grade of 1.1 g/t Au for 6.3 million ounces (Moz) Au. In addition, Inferred Mineral Resources total 22 Mt at an average grade of 1.0 g/t Au for 0.7 Moz Au (Table 1-1). The Rosebel and Saramacca Measured and Indicated contained ounces decreased by 3.1 Moz Au and 160,000 oz Au, respectively, from the end of 2020. The decrease in Rosebel Mineral Resources is attributed to 2021 production depletion, a revised optimization methodology incorporating fixed cost distribution (versus dynamic cost accounting used previously), changes to the cost model which translated into an increase in mining, processing, and general and administrative (G&A) costs, an updated resource block model incorporating the results of infill and conversion drilling programs completed in 2021, and applying a different block model interpolation methodology (Ordinary Kriging (OK) versus Uniform Conditioning).

The net result was a reduction in both the size and depth of resource and reserve pit shells, notably for RH and PC, with some mineralized zones excluded from the pit shells (at US$1,500/oz Au). Under different future financial conditions and commodity price assumptions, however, these excluded mineralized zones could re-enter the mine plan.

Table 1-1: Rosebel and Saramacca Mineral Resources Estimate as of December 31, 2021

Classification	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au) 100% Basis	Attributable Contained Metal (000 oz Au)
Rosebel				
Measured	10,736	0.6	223	212
Indicated	139,813	1.0	4,567	4,339
Inferred	16,051	0.9	455	432
Saramacca				
Measured	499	0.5	8	6
Indicated	22,667	2.1	1,507	1,002
Inferred	5,966	1.2	233	155
Rosebel and Saramacca				
Measured and Indicated	173,715	1.1	6,305	5,558
Inferred	22,017	1.0	687	587

Notes:

1. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were followed for Mineral Resources.
2. Attributable ounces have been calculated as 95% for Rosebel and 66.5% for Saramacca.
3. Mineral Resources are estimated at a cut-off grade which varies between 0.18 g/t Au to 0.54 g/t Au, depending on the material and pit. Mineral Resources are estimated using an average long term gold price of US$1,500/oz Au.
4. Mineral Resources are constrained by Whittle optimized pit shells.
5. A minimum mining width of five metres was used.
6. Bulk density was estimated by OK by weathering type except for PC, RB, and MA, which utilizes a mean value based on density data.
7. Mineral Resources are inclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not demonstrate economic viability.
9. Numbers may not add due to rounding.

The QPs are not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

The Rosebel and Saramacca Mineral Reserve estimate as of December 31, 2021 (on a 100% basis using a US$1,300/oz Au price) is 109 Mt comprised of Proven and Probable Mineral Reserves and existing stockpiles at an average grade of 1.1 g/t Au for 3.8 Moz Au (Table 1-2). The Mineral Reserve contained ounces have decreased by approximately 20% since 2020. Most of the decrease in the Mineral Reserve estimate was primarily in the Rosebel pits due to the incorporation of an updated geologic model, new cost model, pit optimization assumptions, and 2021 production depletion offset by an increase in the long term gold price assumption from US$1,200/oz Au to US$1,300/oz Au.

Table 1-2: Rosebel and Saramacca Mineral Reserves Estimate as of December 31, 2021

Classification	Tonnes (000 t)	Grade (g/t Au)	Contained Metal 100% Basis (000 oz Au)	Attributable Contained Metal (000 oz Au)
Rosebel				
Proven Reserves	1,161	1.4	51	48
Proven Stockpiles	9,667	0.5	168	160
Total Proven Reserves	10,828	0.6	219	208
Probable Reserves	75,974	1.0	2,377	2,258
Total Proven and Probable	86,802	0.9	2,595	2,466
Saramacca				
Proven Reserves	-	-	-	-
Proven Stockpiles	499	0.5	8	6
Total Proven Reserves	499	0.5	8	6
Probable Reserves	21,863	1.7	1,225	814
Total Proven and Probable	22,362	1.7	1,233	820
Rosebel and Saramacca				
Total Proven	11,327	0.6	227	213
Total Probable	97,837	1.1	3,602	3,073
Total Proven and Probable	109,164	1.1	3,829	3,286

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
2. Attributable ounces calculated as 95% for Rosebel and 66.5% for Saramacca. Mineral Reserves include material from the Rosebel and Saramacca concessions.
3. Mineral Reserves were estimated assuming open pit mining methods using an average long term gold price of US$1,300/oz Au.
4. Mineral Reserves are estimated at a cut-off grade of 0.23 g/t Au to 0.67 g/t Au, depending on the material and pit.
5. Mineral Reserves include dilution between 3% and 21% at a grade of 0.1 g/t Au to 0.29 g/t Au.
6. Mineral Reserves include a mining recovery between 94% and 99% depending on the zone.
7. Average carbon in leach (CIL) process recovery is estimated at 89.2%.
8. Mining cost: US$2.70/t mined. Processing costs: US$10.51/t milled (inclusive of power). G&A costs of US$4.37/t milled.
9. Mineral Reserves are based on survey at the end of November 2021 projected to December 31, 2021.
10. Numbers may not add due to rounding.

RGM is not aware of any known mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

The 2022 life of mine plan (LOMP) (on a 100% basis) envisages a 12 year operational mine life averaging 277,223 oz Au/year, ramping up to over 300,000 oz Au/year in 2025, with a total forecast production of 3.327 Moz Au. With additional capital investment, there are opportunities to benefit from further operational efficiencies and improve the LOMP including accelerating the production ramp up, improvements to the comminution circuit, the Rosebel processing plant (the Rosebel Plant) expansion and targeting certain productivity and cost optimizations.

1.1.1 Conclusions

1.1.1.1 Geology and Mineral Resources

- The Rosebel and Saramacca Mineral Resource estimate as of December 31, 2021 (on 100% basis using a US$1,500/Au price and including Mineral Reserves) is comprised of Measured and Indicated Mineral Resources totalling 174 Mt at an average grade of 1.1 g/t Au for 6.3 Moz Au. In addition, Inferred Mineral Resources total 22 Mt at an average grade of 1.0 g/t Au for 0.7 Moz Au.
- The decrease in Rosebel Mineral Resources is attributed to:
    - 2021 production depletion.
    - A revised pit optimization methodology.
    - Changes to the cost model.
    - An updated resource block model incorporating the results of infill and conversion drilling programs completed in 2021.
    - Changing interpolation approach from Uniform Conditioning to OK.
- Some mineralized zones excluded from the resource pit shells could be re-instated in the future under different financial conditions and commodity price assumptions.
- The Rosebel and Saramacca Mineral Resource estimates have been prepared in accordance with CIM (2014) definitions and are regarded as a reasonable representation of the Mineral Resources delineated at the deposits as of December 31, 2021.
- Work completed to date by RGM geological staff is appropriate to support this Mineral Resources estimation.
- The geological models employed by RGM geologists are reasonably well understood and supported by field observations in both outcrop, pit mapping, drill intersections and production data.

- The Rosebel and Saramacca resource models have been prepared using appropriate methodology and assumptions. These parameters include:
    - Treatment of high assays.
    - Compositing length.
    - Search parameters.
    - Bulk density.
    - Cut-off grade.
    - Classification.
- The block models have been validated using a reasonable level of rigour consistent with common industry practice.
- The current drill hole spacing for all the deposits is adequate for the development of a reasonable model of the mineralization distribution and to quantify its volume and quality with a sufficient level of confidence.
- Based on visual verification, the RGM models (rock type, density, and gold grade) were identified as being globally representative of the known geological and structural controls of Rosebel and Saramacca mineralization.
- Statistical analysis demonstrates that the block models provide a reasonable estimate of the Rosebel and Saramacca Mineral Resources.
- Validation of the block models, using different interpolation methods, indicated that tonnages, grades, and gold contents are similar.
- The Rosebel and Saramacca block models were also compared and reconciled with production data and are considered appropriate.
- Swath plots for Rosebel and Saramacca Indicated and Inferred Mineral Resources, by vertical sections for the pits, indicate that peaks and troughs in gold content generally match peaks and troughs in composite frequency. No bias was identified in the Rosebel and Saramacca Mineral Resource estimate in this regard.
- A review of the information stored in the RGM database confirmed it to be in good standing.
- Sampling and assaying have been carried out following standard industry quality assurance / quality control (QA/QC) practices. These practices include, but are not limited to, sampling, assaying, chain of custody of the samples, sample storage, use of third-party laboratories, standards, blanks, and duplicates.

- Exploration data collected to date by RGM uses procedures consistent with generally accepted industry best practices and is sufficiently reliable to interpret with confidence the boundaries of the gold mineralization of the deposits.
- The geological models constructed by SRK with the assistance of RGM geologists for the SM, KH-JZ, and RH deposits and exclusively by RGM geologists for the PC, RB, MA, Roma (RM), Mama Kreek (MK), East Tailing Road (ETR) and Overman (OV) deposits are a reasonable representation of the gold mineralization at the current level of sampling.
- The resource model has been prepared using appropriate methodology and assumptions:
    - Gold grades were estimated into a block model informed by composited gold assays, capped where appropriate, and using an OK estimator for models updated in 2021 or an Inverse Distance cubed (ID^3) estimator for models not updated in 2021.
    - Specific gravity was estimated into the blocks, using an Inverse Distance squared (ID^2) estimator, to convert volumes into tonnage for SRK and by using an average value per weathered layers for WSP and RGM.
- The block models have been validated by SRK, WSP, and IAMGOLD using various methodologies, including statistical comparisons between composites and block model distributions, estimation using different interpolation methods, and visual checks with informing composites. These validation steps demonstrate that the block models provide a reasonable estimate of the Mineral Resources for all the deposits.

1.1.1.2 Mining and Mineral Reserves

- The Rosebel and Saramacca Mineral Reserve estimate as of December 31, 2021 (on 100% basis using a US$1,300/oz Au price) is 109 Mt comprised of Proven and Probable Mineral Reserves and existing stockpiles at an average grade of 1.1 g/t Au for 3.8 Moz Au.
- The Mineral Reserve contained ounces have decreased by approximately 20% since 2020. Most of the decrease in the Mineral Reserve estimate was primarily in the Rosebel pits due to the incorporation of an updated geologic model, new cost model, pit optimization assumptions and 2021 production depletion offset by an increase in the long term gold price assumption from US$1,200/oz Au to US$1,300/oz Au.
- Some Mineral Resources excluded from the Mineral Reserve could be added to the mine plan in the future under different financial conditions and commodity price assumptions.

- The Rosebel and Saramacca Mineral Reserve estimates are consistent with CIM (2014) definitions and suitable for public reporting. As such, the Mineral Reserves are based on Measured and Indicated Mineral Resources and do not include any Inferred Mineral Resources.
- The Rosebel and Saramacca mine design and Mineral Reserve estimates have been completed to a level appropriate for an operating mine.
- The economic assumptions and methodology used for estimation of the Rosebel and Saramacca Mineral Reserves are appropriate.

1.1.1.3 Mineral Processing

- Current production statistics indicate that the Rosebel Plant flow sheet is adequate and suitable for processing all of the Rosebel and Saramacca deposit ore types.
- The processing rate of the Rosebel Plant has a limit of 7.7 million tonnes per annum (Mtpa) of hard rock equivalent. The total processing limit is 12.5 Mtpa depending on soft ore feed. The feed is also limited by rock hardness, which is considered through a semi-autogenous grinding (SAG) Power Index (SPI) factor by pit, where fresh rock has a higher factor than soft or transition ore. As a result, a new plant throughput model was developed to estimate processing rate as hard rock increases as feed to the Rosebel Plant. The model takes into consideration current SAG mill limitations (SPI model) and global grinding circuit power available (Bond Work Index (BWi) model).
- A metallurgical test work program was initiated in 2019 on the Rosebel and Saramacca samples to update the geometallurgical model and included head ore characterization, particle size distribution of laterite and saprolite, and gold extraction at different grind sizes.
- A metallurgical test work program was completed on Saramacca samples to optimize gold recoveries, optimize reagent consumption, validate comminution characteristics and to validate metallurgical performance of the Rosebel/Saramacca blends.

1.1.1.4 Infrastructure

- The existing infrastructure is sufficient to maintain current operations.
- Studies to evaluate alternative tailings storage facility (TSF) expansion options will be carried out.

1.1.1.5 Environment

- The 2022 LOMP will result in the generation of mine tailings that exceed the capacity of the current TSF. The 2022 LOMP contemplates the construction of an additional TSF cell for operation as early as 2023. A screening process was completed with the National Institute for Environment and Development in Suriname (NIMOS), and it was advised that a Limited Environmental and Social Impact Assessment (ESIA) (Addendum to the 2013 ESIA) is required for this additional facility. RGM believes it has sufficient time to advance and complete the required assessment to submit as an addendum to the 2013 ESIA and at this time does not see any reason that the required expansion to the TSF would not be approved.

1.1.2 Recommendations

1.1.2.1 Geology and Mineral Resources

1. Continue to update the resource models as new data becomes available.

2. Continue drilling to upgrade the Inferred Mineral Resources to Indicated Mineral Resources.

3. Complete geological studies to build on existing knowledge and improve the understanding of the geological and structural settings at Rosebel and Saramacca.

4. Test the lateral and depth extent of the Rosebel and Saramacca gold mineralization to potentially expand the Mineral Resources.

5. Continue monitoring analytical quality control (QC) data produced by the primary laboratories and investigate poor performances to institute corrective action when required.

6. Maintain consistency in keeping a small number of reference materials over a range of appropriate gold grades in order to develop a meaningful statistical performance going forward.

1.1.2.2 Mining and Mineral Reserves

1. Implement a stringent planning and operations process for following the variable cut-off grades in production, and closely monitor the reconciliation between planning and production.

2. Further refine the mine cost model for future input to the long term planning and scheduling designs.

3. Continue optimization of the development of Saramacca, notably relevant to increasing metallurgical recovery, achieving pit slope dewatering to improve overall slope angles in saprolite, and optimized waste rock storage facility (WRSF) designs to reduce berm construction requirements.

4. Investigate underground development potential for the SM deposit.

5. Investigate further the implementation of in-pit waste rock storage to reduce operational costs and decrease environmental liabilities.

1.1.2.3 Mineral Processing

1. Continue with the geometallurgical program commenced in 2019/2020 for Rosebel and Saramacca.

2. Continue to evaluate ore hardness by pit, weathering type, lithology, and at depth.

1.1.2.4 Infrastructure

1. Carry out TSF expansion studies.

1.1.2.5 Environment

1. Continue advancing the third expansion of the TSF facility (TSF3) ESIA permitting process. While other changes to the Rosebel facilities are required to support the 2022 LOMP, it is not currently anticipated that these changes will require additional permits or approval.

1.2 Technical Summary

1.2.1 Property Description and Location

The Rosebel and Saramacca land packages consists of two exploitation concessions, Rosebel and Saramacca, and nine exploration concessions, all located on contiguous ground.

Rosebel covers an area of 17,000.0 ha in the north-central part of Suriname at a latitude of 5° 25' N and a longitude of 55° 10' W and lies in the district of Brokopondo, between the Suriname River to the east and the Kleine Saramacca River to the west, approximately 80 km south of the capital of Paramaribo.

Saramacca covers an area of approximately 4,975 ha, located at a latitude of 4° 55' N and a longitude of 55° 22' W, straddling the Brokopondo and Sipaliwini districts of Suriname. To the northeast, Saramacca is adjoined to the Headley's Reef exploration concession. Saramacca is also adjacent to the Moeroekreek exploration concession.

The nine exploration concessions cover an area of 83,011.5 ha.

1.2.2 Accessibility, Climate, Local Resources, and Physiography

There are presently two access routes from Paramaribo to the Rosebel and Saramacca operations. One route utilizes a 30 km paved road which connects Paramaribo to Paranam. From Paranam, a paved road courses south following the Afobaka road. From there an unpaved road courses south and west to the Rosebel and Saramacca properties. The other route is a paved road which connects Paramaribo to the international airport at Zanderij. A paved road connects Zanderij to the Afobaka road halfway between Paranam and Afobaka. The route then follows the Afobaka, Brownsweg, and Nieuw-Koffiekamp roads until reaching the property access road. Travel distance for both routes from Paramaribo is approximately 100 km.

The SM pit site is located approximately 25 km southwest of the Rosebel Plant and is accessed primarily via a purpose built 36 km mine haulage road from the Mine.

The climate of Suriname is classified as tropical, i.e., warm during the entire year with the mean temperature of the coldest month being higher than 20°C. The average monthly rainfall is greater than 60 mm in the driest month(s). Like much of Suriname, the Rosebel and Saramacca properties are characterized by consistently warm temperatures and high humidity with little seasonal variation. While exploration and production activities can be carried out in all seasons these can be impacted by excessive rains during the rainy season.

The physical geography of Suriname is divided into three areas: the Coastal Plain, the Savannah Belt, and the Guiana Shield. The Guiana Shield comprises approximately 80% to 85% of the total land area of Suriname, and extends into French Guiana to the east, Brazil to the south, and Guyana, Colombia, and Venezuela to the west.

1.2.3 History

Gold was first discovered in the area of the Rosebel property in 1879, when small scale miners (SSMs) were reported to be working on the property. Since that time, it is estimated that approximately half of the recorded production of Suriname has been produced from the district.

More recently, several companies conducted various exploration and evaluation and resource estimate studies on the Rosebel deposits.

The Rosebel property was held by various owners since 1974. In November 2006, IAMGOLD acquired a 100% interest in Cambior Inc. (Cambior), thereby acquiring a 95% interest in RGM.

Current mining operations at Rosebel and Saramacca are governed by the Suriname Gold Mining Project - Mineral Agreement (the Mineral Agreement) dated April 7, 1994, as first amended, and supplemented on March 13, 2003, followed by a second amendment and supplemental agreement (the Second Amendment) on June 6, 2013. The Second Amendment of the Mineral Agreement contains the terms and conditions for the establishment of an Unincorporated Joint Venture (UJV) with the Republic to undertake exploration and possible exploitation in concessions surrounding Rosebel (the UJV Area). Saramacca is one of the areas subject to the UJV.

The UJV between RGM and N.V. EEN (NV 1), a company established solely for the purpose of obtaining income through financial participation with RGM and wholly owned by the Republic, established that NV 1 would hold a 30% participating interest in the UJV Area on behalf of the Republic, while RGM would hold the remaining 70% interest.

In 2020, the Saramacca UJV was established between RGM and NV 1. Under the UJV NV 1's 30% participating interest was returned to the Republic, and immediately thereafter designated by the latter to be held by Staatsolie along with all the associated rights and obligations, which Staatsolie accepted. As such, IAMGOLD holds a 66.5% interest in Saramacca.

From 2004 to 2021, Rosebel produced 5.65 Moz Au. From 2020 to 2021, Saramacca produced 168,000 oz Au.

1.2.4 Geological Setting and Mineralization

Rosebel and Saramacca lie within a greenstone belt of the Paleoproterozoic Guiana Shield which extends from the Amazon River in Brazil to the Orinoco River in Venezuela. Most of the rocks of the Guiana Shield were formed during the Paleoproterozoic Transamazonian or Late-Transamazonian orogeny. In general, the Proterozoic part of the Guiana Shield exhibits a south-westward younging of units with tonalite-trondhjemite-granodiorite (TTG) and greenstone belt to the North, granitoid succession mainly in the central portion, and Late Paleoproterozoic to Mesoproterozoic volcanic, intrusive, and sedimentary rocks in the southernmost portion. Geologically, the region is well endowed for gold for which the potential for additional discoveries is favourable with continued investment in exploration.

The Rosebel deposits are hosted by a volcano-sedimentary sequence of the Marowijne Supergroup and by the overlying detrital sedimentary sequence of the Rosebel Formation. Five types of lithologies are distinguished on the Rosebel property: felsic to mafic volcanic rocks, felsic intrusion, flysch sequence, arenitic sedimentary rocks, and late diabase dykes. Gold mineralization is predominately hosted in the sedimentary and volcanic rocks, while the intrusions are rarely mineralized, and the late diabase dykes are barren.

Three mineralized/structural domains are observed at Rosebel: the North, Central, and South domains. The North domain includes the KH-JZ and PC deposits located along two trends. The Central domain includes the RB deposit. The South domain hosts the MA, RM, and RH deposits. Mineralization within the Rosebel deposits is structurally controlled and gold is hosted in both shear and tension veins. Relations between veining and folding demonstrate that veining occured after folding and has commonly borrowed pre-existent structures, such as extensional fractures, or along rock heterogeneities. As a result, elements such as an anticline hinges, lithological contacts and conglomeritic beds have provided structural traps for mineralized fluids. As the veins exhibit no significant signs of deformation, the mineralization is interpreted as being emplaced during the latest stage of the Transamazonian orogeny event.

Saramacca is underlain by metabasalt of the Paramaka Formation. The main volcanic units are a massive basalt overlain by a thinner amygdular basalt unit and a thick unit of pillow basalts, with younging direction from southwest to northeast. Rocks have been metamorphosed to the greenschist facies and have developed an assemblage of actinolite-chlorite-epidote-plagioclase. Rare, barren, thin felsic dykes crosscut the volcanic pile.

The SM deposit mineralization is principally hosted within a series of N-NW trending structures ranging from two metres to 40 m in width over a strike length of 2.2 km and is open along strike. Several sub-parallel structures have been identified, however, the Faya Bergi and Brokolonko structures are the primary mineralized structures over a continuous distance. The other structures are variably mineralized, though more drilling is required to test their prospectivity. Dolomite breccias observed in the main fault zone are characterized by repeated "crack/seal" and dilatational infilling textures. These veins are also boudinated and folded, having formed within an active dip-slip environment. Higher grade gold is typically associated with dolomite breccias and pyrite mineralization, with the best gold grades located along thick fault segments to the northwest and the southeast.

1.2.5 Deposit Types

Gold mineralization within the Rosebel and Saramacca deposits is structurally controlled and exhibits similar geological, structural, and metallogenic characteristics to orogenic greenstone-hosted gold deposits. Mineralization over the Rosebel property consists of quartz-carbonate tension and shear vein association, while mineralization at Saramacca is predominately hosted in a brecciated hydrothermal dolomite along a major fault. Rosebel hosts seven main deposits and several smaller gold occurrences in three mineralized domains. To date, the SM deposit is the proven economic gold deposit in the Saramacca area, however, active exploration continues to evaluate the potential of mineralization located towards the northwest of the SM deposit.

1.2.6 Drilling

From 2004 to 2021, a total of 824,439 m of diamond drilling (DD) and 67,977 m of reverse circulation (RC) drilling have been carried out on the Rosebel concession. From 2002 to 2021, a total of 126,234 m of DD and 40,518 m of RC drilling have been completed on the Saramacca concession.

Holes are drilled using HQ size wireline equipment in saprolite, reducing to NQ size in transitional to hard rock. The core recovery is usually very good (>90%). The collar locations are surveyed and single-shot and multi-shot instruments are used to measure downhole deviations.

Since 2016, core orientation using a Reflex ACTII tool is done on DD core from the Rosebel and Saramacca concessions.

The drilling procedures are generally similar between the Mine Exploration (MinEx) and the Suriname Exploration (SurEx) teams. Spacing for infill drilling varies between 25 m and 50 m, depending on the geological complexities related to gold mineralization.

1.2.7 Sample Preparation, Analyses and Security

DD and RC samples are prepared using the industry standard rock sample preparation procedure of drying, weighing, crushing, splitting, and pulverizing.

Two analytical methods are used to analyze Rosebel and Saramacca DD and RC samples: fire assay (FA) and Pulverize and Leach (PAL). Samples are processed in two different laboratories: the onsite RGM laboratory and the independent accredited Filab Suriname laboratory (Filab) (representative of ALS Limited (ALS) in Suriname, N.V. Paramaribo, Suriname).

Rosebel samples y can be analyzed using PAL or FA. In most cases the grade control RC samples and exploration RC samples are analyzed using PAL, while the DD samples are analyzed with FA. The Saramacca samples (grade control and exploration) are systematically analyzed with FA due to the lower metallurgical recoveries observed for the SM deposit.

Since 2014, Filab and ENZA Analytical Services (ENZA) have been used as check laboratories by the RGM laboratory for the FA process. For PAL samples, the RGM laboratory uses CRS Laboratories Oy-Activation Laboratoires Ltd., Newmont Corporation's Merian Gold Mine laboratory in Suriname, and ENZA, as external laboratories. Umpire testing of samples is also conducted by ALS in Vancouver, Canada.

All samples are collected by, or under the secure supervision of IAMGOLD-RGM personnel, from the time of sampling through to being received at the primary laboratory.

In the QP's opinion, the sample preparation, analysis, and security procedures at the Rosebel and Saramacca are adequate for use in the estimation of Mineral Resources.

1.2.8 Data Verification

IAMGOLD-RGM follows a QA/QC protocol which includes:

- The insertion of Certified Reference Materials (CRMs).
- The insertion of certified pulp and rock blanks.
- The insertion of uncertified commercial rock blanks, which were tested to be barren.
- Field duplicates in RC holes.
- Check assays (coarse rejects and pulps).
- Periodic audits at the primary laboratories, Filab, and the RGM laboratory.

The mineral inventory database is monitored through GEMS 6.7 by Dassault Systemes which is supported by a centralized SQL Server 2014 database (DataShed). The DataShed database has a high security level and access is monitored by the Database Administrator and the Chief Geologist.

Database verifications consisted of monitoring all data imported into the database for errors, such as overlapping sample intervals or missing information. Monitoring of data was completed manually, and with the use of a database program.

For the Rosebel deposits, the QPs are of the opinion that the logging, sampling procedures, and data entries were completed to industry standards. It is the QPs' opinion that the drill hole database is adequate to support a Mineral Resource estimate for the Rosebel deposits.

For Saramacca, based on SRK's site visits completed in June 2017, January 2018, June 2019, and February 2021, SRK is of the opinion that drilling, logging, core handling, core storage, and analytical QC protocols used by RGM meet generally accepted industry best practices. As a result, SRK considers the exploration data collected by IAMGOLD-RGM and previous project operators to be of sufficient quality to support mineral resource evaluation. In general, the performance and precision of certain CRMs analyzed by the RGM laboratory has continued to improve since 2019. SRK strongly encourages continued diligence in monitoring analytical QC data produced by the primary laboratories and investigating poor performances to institute corrective action when required.

1.2.9 Mineral Processing and Metallurgical Testing

Significant metallurgical test work has been completed on mineralized samples from various areas of the Rosebel deposits since 1995. Metallurgical test work has historically been completed on saprolite, transition, and hard rock from the various Rosebel deposits. In addition, metallurgical test work has also been completed on lateritic and duricrust material from SM deposit.

Recent grindability and metallurgical test work were completed on Rosebel and Saramacca mineralized samples. The primary results from this test work included:

- The difference in hardness between historical data for the Rosebel pits and the samples tested in the 2021 is small with the exception of the JZ deposit mineralized material which appears to be harder at depth and PC deposit mineralized material that appears to be slightly softer than historical values. This hardness characterization program is projected to be completed in H1 2022.

- As part of the geometallurgical program, IAMGOLD wanted to assess grind size impact on metallurgical performances. Result to date indicate that the impact on gold recovery by increasing grinding product from 80% passing (P_{80}) 75 µm to P_{80} 120 µm would not significantly impact performance and that, should IAMGOLD be able to debottleneck the SAG mill throughput then the increase in mill feed throughput will compensate largely for the small loss in recovery.
- The SM deposit's hard rock and transition material present two challenges, the first being that the ore contains variable amounts of refractory gold locked in pyrite. The second being the occurrence of graphitic carbon within specific mineralized zones.
    - For the refractory gold, recoveries may be improved by 6% to 8% using sulphide flotation followed by ultrafine grinding and products cyanidation, however, the small quantities of hard rock within the SM deposit does not support the additional capital costs required to have a separate crushing-grinding-flotation plant followed by ultrafine grinding to process SM hard rock.
    - Regarding graphitic carbon, while flotation could remove a substantial amount of carbon, it will result in significant additional gold losses. Furthermore, the carbon flotation tails would still contain an amount of graphite that would impact the CIL circuit (Preg-Robbing). It has been decided that any ores containing a significant amount of graphitic material should be stockpiled until the end of the mine life and processed at that time.

1.2.10 Mineral Resources

The current Rosebel and Saramacca Mineral Resource database is composed of 6,857 DD holes, totalling 1,096,247 m for 678,987 assayed samples and 6,284 RC holes, totalling 392,907 m for 126,515 assayed samples.

There are ten block models for Rosebel and one for Saramacca. Block models for MK, ETR, Roma West (RMW), Roma East (RME) and OV were not updated because there has been no new drilling or mining at these deposits. The KH-JZ, PC, MA, RH, and RB block models have been updated using OK. SRK updated the KH-JZ, RH, and SM block models and WSP updated the PC, MA, and RB block models.

The Rosebel and Saramacca Mineral Resources estimate as of December 31, 2021 (on a 100% basis using a US$1,500/oz Au price and including Mineral Reserves) is comprised of Measured and Indicated Mineral Resources totalling 174 Mt at an average grade of 1.1 g/t Au for 6.3 Moz Au. In addition, Inferred Mineral Resources total 22 Mt at an average grade of 1.0 g/t Au for 0.7 Moz Au.

The Rosebel and Saramacca Measured and Indicated Resources decreased by 3.1 Moz Au and 160,000 oz Au, respectively, from the end of 2020. The decrease in Rosebel Mineral Resources is attributed to: 2021 production depletion, a revised optimization methodology incorporating fixed cost distribution (versus dynamic cost accounting used previously), changes to the cost model which translated in an increase in mining, processing, and G&A costs, an updated resource block model incorporating the results of infill and conversion drilling programs completed in 2021 and applying a different block model interpolation methodology (OK versus Uniform Conditioning).

The net result was a reduction in both the size and depth of resource and reserve pit shells, notably for RH and PC, with some mineralized zones excluded from the pit shells (at US$1,500/oz Au). Under different future financial conditions and commodity price assumptions, however, these excluded mineralized zones could re-enter the mine plan.

1.2.11 Mineral Reserves

The Rosebel and Saramacca Mineral Reserve estimate as of December 31, 2021 (on a 100% basis using a US$1,300/oz Au price) is 109 Mt comprised of Proven and Probable Mineral Reserves and existing stockpiles at an average grade of 1.1 g/t Au for 3.8 Moz Au. The Mineral Reserve contained ounces have decreased by approximately 0.96 Moz Au since 2020. Most of the decrease in the Mineral Reserve estimate was primarily in the Rosebel pits due to the incorporation of an updated geologic model, new cost model, pit optimization assumptions and 2021 production depletion offset by an increase in the long term gold price assumption from US$1,200/oz Au to US$1,300/oz Au.

1.2.12 Mining

The Rosebel and Saramacca operations are conventional truck and shovel, drill and blast, open pit operations. RGM runs an owner operated fleet with sub-contractors used as support for auxiliary activities. A new primary mining fleet was purchased for the SM pit.

The SM deposit is located approximately 30 km southwest of Rosebel. Due to the significant distance between the SM pit and the Rosebel Plant, a specific long haul strategy was implemented, i.e., all ore mined ex-pit is completed by a conventional rigid mine truck and shovel operation and is stockpiled at the run of mine (ROM) pad, and a front end loader then loads long haul trucks, which haul the ore to the Rosebel Plant via a purpose built haul road. A new 23 km purpose built haul road was constructed between the MA deposit and the SM deposit. Long haul trucks from SM traversing this road travel along the main Mine haul road with the other Mine traffic and terminate at the main Mine complex.

The 2022 LOMP was developed and based on revised geological models incorporating recent drilling results for the Rosebel and Saramacca deposits, and accounts for cost increases. The 2022 LOMP is conservatively constrained given the other capital requirements IAMGOLD has at the present time. Two of the key priorities for Rosebel and Saramacca relate to stripping and mill capacity to treat hard rock. Considerable stripping is required to access deep, higher grade ore in existing pits resulting in the necessity for a material capital outlay in the next five years.

The mining rate in the 2022 LOMP is estimated at a rate of 59 Mtpa in 2022 and steadily increases to a rate of 64 Mtpa from the Rosebel and Saramacca pits until 2026 through a period of increased stripping. From 2027 the mining rate will further increase to 73 Mtpa with additional loading and hauling units and will start to decline from 2031 as pits are mined out.

The 2022 LOMP (on a 100% basis) envisages a 12 year operational mine life averaging 277,223 oz Au/year, ramping up to over 300,000 oz Au/year in 2025, with a total forecast production of 3.327 Moz Au. With additional capital investment, there are opportunities to benefit from further operational efficiencies and improve the LOMP including accelerating the production ramp up, improvements to the comminution circuit, process plant expansion and targeting certain productivity and cost optimizations.

Figure 1-1 presents the annual production, reported by pit, as well as the overall stripping ratio. Figure 1-2 presents the annual mill feed by ore type as well as the feed grade.

Figure 1-1: Mining by Pit - Rosebel and Saramacca 2022 Life of Mine Plan

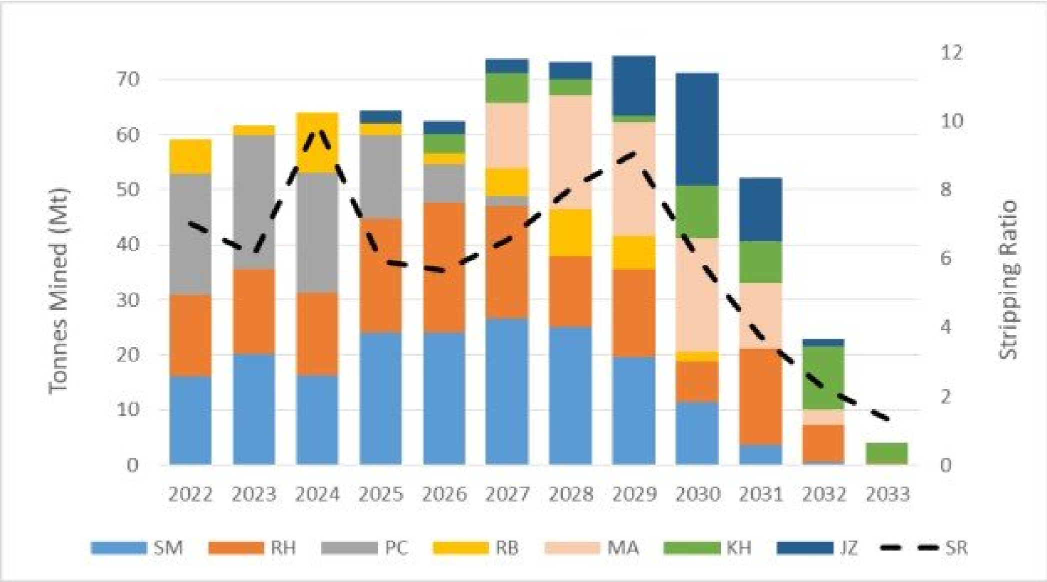


Figure 1-2: Mill Feed - Rosebel and Saramacca 2022 Life of Mine Plan

Table 1-3 provides a summary of the key operating parameters for the 2022 LOMP on a 100% basis

Table 1-3: Rosebel and Saramacca 2022 Life of Mine Plan (100% Basis)

Parameter	Units	Value
Life of Mine	yrs.	12
Rosebel		
Ore Mined	Mt	74
Waste Mined	Mt	421
Strip Ratio	W:O	5.7
Ore Grade	g/t Au	0.98
Saramacca		
Ore Mined	Mt	22
Waste Mined	Mt	165
Strip Ratio	W:O	7.6
Ore Grade	g/t Au	1.76
Processing		
Tonnes Milled	Mt	106
Head Grade	g/t Au	1.1
Recovery	%	89.2
Gold Production	000 oz Au	3,327
Gold Sales	000 oz Au	3,274
Cash Costs	US$/oz Au	993
All in Sustaining Cost (AISC)	US$/oz Au	1,350

1.2.13 Mineral Processing

The Rosebel Plant was designed to treat 12.5 Mtpa ore via a conventional cyanidation process. ROM material is processed using a conventional gyratory crusher with a secondary crusher in open circuit and a SAG-Ball milling comminution circuit followed by gravity, CIL process and associated gold recovery and carbon handling circuits to produce doré.

The 2022 LOMP was developed based on the processing rate of the Rosebel Plant which has a limit of 7.7 Mtpa of hard rock equivalent with the replacement of the secondary crusher and the replacement of the pebble crusher with larger ones. The total limit is 12.5 Mtpa depending on soft ore feed. The feed is also limited by rock hardness, which is considered through a SPI factor by pit, where fresh rock has a higher factor than soft or transition.

1.2.14 Project Infrastructure

The Mine site includes the following infrastructure:

- Access road and site roads
- Air strip
- Administration Building (includes Security, Health and Safety, Environment, Engineering, Geology, Accounting, Information Technology, Procurement, and Logistics)
- Human Resources (HR) Building (includes HR and Capital Projects)
- Mine offices
- Mine Dry/Lunchroom
- Camp (includes kitchen, gymnasium, recreation area, camp offices, rooms). The camp consists of 1,253 single and double rooms which can accommodate a maximum of 2,300 employees.
- Processing Plant Buildings (includes mill administration building, workshop, reagent storage and laboratory facilities)
- TSF
- Waste rock storage facilities (WRSFs)
- Truck Shop (includes heavy truck maintenance, heavy welding shop, haul truck tire change, dozer/shovel bay for tracked equipment, mine auxiliary equipment maintenance and repair)
- 5 MW solar power plant
- Emergency generators
- Security
- Warehouse
- Fuel Storage
- Potable water system which supplies water from the Mamanari Creek to the camp and site
- Fire protection system
- Sewage and waste disposal
- Aggregate plant
- Communication and IT Systems

The Saramacca site includes the following infrastructure:

- Access road and site roads
- ROM storage pad
- WRSFs

- Security
- Two 480 V 600 kVA generators
- Water storage for service water and fire suppression water
- Fresh water supply wells
- Sewage treatment
- Administration building
- Truck maintenance shop
- Tire change pad
- Truck wash area
- Fuel station

Power is provided from the national grid and an onsite solar power plant and is sufficient to supply the 35 MW required for the Mine until the end of mine life.

The Rosebel TSF consists of a series of earth fill dam structures, joining topographical highs. In late 2021, TSF1 (original TSF) and TSF2 (expanded TSF in 2014) merged to form a single basin. The total combined area of TSF1 and TSF2 is 725 ha and when constructed to the proposed final elevation of 565 m, a total storage capacity of approximately 287 Mt (204 Mm^3) is provided. A prefeasibility study was carried out for the design of TSF3, to the west, to accommodate the increase in Mineral Reserves and associated milled tonnage. Site investigations of proposed TSF3 dam locations were carried out in March 2021 with geotechnical drilling and core logging. A limited ESIA with baseline surface/ground water, habitat, and archaeological studies is currently ongoing to gain full permitting for the proposed TSF3 location. The limited ESIA is expected to be completed in Q2 2022.The projected storage capacity of TSF3 is 37 Mt, providing a total storage capacity of 324 Mt. The expanded TSF will be compliant with all permitting requirements and will include future recommendations from the ongoing Closure Plan updates.

1.2.15 Market Studies and Contracts

Gold is the principal commodity produced at Rosebel and Saramacca and is traded at spot prices for immediate delivery. The gold markets are mature global markets with reputable smelters and refiners located globally.

RGM produces gold doré bars which are shipped to major refineries. Existing refining agreements include terms and conditions are consistent with standard industry practices. Refining charges include treatment and transport.

RGM has existing long term or annual contracts for all major expenditures which are required for the operations. Contracts with values higher than US$5.0 million/year include fuel, lubricants, process plant reagents, grinding media, mill liners, mining components, off the road tires supply, explosives consumables and RC drilling. All existing contract terms and conditions are within industry norms.

1.2.16 Environmental Studies, Permitting and Social or Community Impact

The 2022 LOMP will result in the generation of mine tailings that exceed the capacity of the current TSF. The 2022 LOMP includes the construction of an additional TSF cell for use by 2023. A screening process was completed with NIMOS and it was advised that a Limited ESIA (Addendum to the 2013 ESIA) is required for this additional facility. ERM Consulting has been contracted for the TSF3 ESIA permitting process. RGM believes it has sufficient time to advance and complete the required assessment to submit an addendum to the 2013 ESIA and at this time does not see any reason that the required expansion to the TSF would not be approved.

While there are other changes to the Rosebel facilities that are required to support the 2022 LOMP, it is not currently anticipated that these changes will require additional permits or approval. A need for any additional permitting will be assessed in due course.

1.2.17 Capital and Operating Cost Estimates

1.2.17.1 Capital Costs

Capital costs include capitalized waste stripping, resource development costs, other sustaining capital expenditures (including mine equipment additions and replacements, TSF expansion) and expansion capital (including the crusher upgrades and completion of the development of Saramacca). A total of US$1.24 billion of capital expenditures is estimated for the remaining 12 year mine life, which equates to US$11.70/t milled or US$374/oz Au produced.

1.2.17.2 Operating Costs

The average mining cost (inclusive of waste stripping) over the mine life is estimated at US$2.70/t mined based on assumed diesel costs: 2022 at US$0.71/L, 2023 at US$0.67/L, 2024 to 2033 at US$0.66/L. The average life of mine (LOM) total milling cost (inclusive of power) is estimated to be US$10.51/t milled. Rosebel Plant consumables have experienced significant increases, as increased hard rock ratios are expected to translate to an increase in power and grinding media consumption, while the addition of saprolite and laterite from the SM pit to the Rosebel Plant has increased cyanide and lime consumption. The average G&A cost is estimated at US$4.37/t milled and assumes an average annual spend of US$39 million until 2032, after which G&A costs will gradually decrease as the operation will approach the end of its life.

1.2.18 Economic Analysis

This section is not required as the Rosebel and Saramacca deposits are currently in production and there is no material expansion of current production.

2 INTRODUCTION

This Technical Report was prepared by IAMGOLD Corporation's (IAMGOLD) subsidiary Rosebel Gold Mines N.V. (RGM), SRK Consulting (Canada) Inc. (SRK), and WSP Canada Inc. (WSP) for IAMGOLD's Rosebel Gold Mine (the Mine) and Saramacca property, located in the Republic of Suriname (the Republic). IAMGOLD holds a 95% interest in RGM, with the Republic holding the remaining 5%. The Rosebel and Saramacca land package consists of two exploitation concessions, Gross Rosebel (Rosebel) and Pikin Saramacca (Saramacca), and nine exploration concessions. Rosebel contains the following producing deposits, Royal Hill (RH), Mayo (MA), Rosebel (RB), Koolhoven-J Zone (KH-JZ), Pay Caro (PC), and East Pay Caro (EPC). Saramacca contains the producing Saramacca (SM) deposit. The purpose of this Technical Report is to support the disclosure of the December 31, 2021 Mineral Resource and Mineral Reserve estimates for Rosebel and Saramacca. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101)

IAMGOLD is a mid-tier gold mining company with three operating gold mines, a mine development project currently under construction, and a portfolio of development to early stage exploration projects located in the Americas and West Africa. IAMGOLD, through RGM, owns 95% of Rosebel, with the Republic holding the remaining 5%. The Mine has been operating commercially since February 2004.

Saramacca is held under a joint venture (JV) agreement between IAMGOLD and the Republic, whereby the Republic, through its wholly owned subsidiary Staatsolie Maatschappij Suriname N.V. (Staatsolie), holds a 30% interest and RGM holds the remaining 70%. As such IAMGOLD holds a 66.5% interest in Saramacca.

2.1 Source of Information

This Technical Report was prepared by IAMGOLD, RGM, SRK, and WSP Qualified Persons (QPs). Table 2-1 presents a summary of the QP responsibilities for this Technical Report.

Table 2-1: Summary of QP Responsibilities

Qualified Person	Company	Title/Position	Section
Alain Mouton, P.Geo.	RGM	Manager - Mine Technical Services	1.1.1.1, 1.1.2.1, 1.2.1 to 1.2.8, 1.2.10, 2 to 11, 12.1, 12.2, 12.3.1, 14.1, 14.2, 14.5, 14.7, 14.8, 23, 24, 25.1, and 26.1
Stéphane Rivard, P.Eng.	IAMGOLD	Senior Director Technical Services	1.1.1.3, 1.1.2.3, 1.2.9, 1.2.13, 13, 17, 25.3, and 26.3
Michel Dromacque, CEng, MIMMM	RGM	Chief Engineer Long Term Planning	1.1.1.2, 1.1.1.4, 1.1.2.2, 1.1.2.4, 1.2.11, 1.2.12, 1.2.14, 1.2.17, 1.2.18, 15, 16, 18, 21, 22, 25.2, 25.4, 26.2, and 26.4
Gilles Ferlatte, P.Eng.	IAMGOLD	VP International Operations	1.1.1.5, 1.1.2.5, 1.2.15, 1.2.16, 19, 20, 25.5, and 26.5
Oy Leuangthong, P.Eng., PhD	SRK	Corporate Consultant (Geostatistics)	14.3.2 to 14.3.10 and 14.6.5 to 14.6.14
Aleksandr Mitrofanov, P.Geo., PhD	Formerly with SRK	Senior Consultant (Resource Geology)	12.3.2, 14.3.1, and 14.6.1 to 14.6.4
Ian Hugh Crundwell, P.Geo.	WSP	Senior Geologist	14.4.4 to 14.4.6
Bruno Perron, P.Eng.	Formerly with WSP	Senior Engineer	12.3.3, 14.4.1 to 14.4.3, and 14.4.7
All	-	-	27

In accordance with NI 43-101 guidelines, site visits were conducted by various QPs facilitating access to IAMGOLD - RGM personnel (Table 2-2).

Table 2-2: Recent QP Site Visits

Qualified Person	Company	Title/Position	Date of Site Visit
Alain Mouton, P.Geo.	RGM	Manager - Mine Technical Services	Worked on site 2020 to 2021
Stéphane Rivard, P.Eng.	IAMGOLD	Senior Director Technical Services	December 2019
Michel Dromacque, CEng, MIMMM	IAMGOLD	Chief Engineer Long Term Planning	Worked on site 2020 to 2021
Gilles Ferlatte, P.Eng.	IAMGOLD	VP International Operations	January 2022
Aleksandr Mitrofanov, P.Geo., PhD	Formerly with SRK	Senior Consultant (Resource Geology)	June 21 to 23, 2019 February 07 to March 28, 2021
Bruno Perron, P.Eng.	Formerly with WSP	Senior Engineer	September 24 to October 01 2021

During SRK's and WSP's site visits, the following was reviewed:

- Mine exploration operations:
  - Drilling
  - Logging
  - Sampling
  - QA/QC
- On site resource operations:
  - Data management / validation
  - Modelling
  - On site updates
- Mine production:
  - Review of grade control
  - Sampling and assaying
  - Reconciliation with production

Discussions were held with the following technical personnel from IAMGOLD/RGM:

- Ravish Mohan, RGM Senior Production Geologist
- Rachella Kromowidjojo, RGM Resource Geologist
- Gilian Alimoenadi, RGM Senior Mine Exploration Geologist
- Abygail Ghafoerkhan, RGM Exploration Geologist
- Nicole Balraadjsing, RGM Production Geologist
- Safira Haime, RGM Production Geologist
- Arvin Sajat, RGM Database Administrator

The documentation reviewed, and other sources of information, are listed at the end of this Technical Report in Section 27 References.

2.2 Effective Dates

The effective date of this Technical Report on the Rosebel and Saramacca Mineral Resource and Mineral Reserve estimate is December 31, 2021.

The cut-off dates for drilling and laboratory data used in the various Mineral Resource models updated in 2021 for the Rosebel and Saramacca Mineral Resource estimates are as follow:

- MA: December 20, 2020
- KH-JZ: January 6, 2021
- PC: March 2, 2021
- RB: March 8, 2021
- RH: March 23, 2021
- SM: January 20, 2021

Block models for Mama Kreek (MK), East Tailing Road (ETR), Roma West (RMW), Roma East (RME) and Overman (OV) were not updated because there has been no new drilling or mining at these deposits. The most recent block models for these deposits are:

- RME: 2017
- RMW: 2017
- MK: 2014
- ETR: 2014
- OV: 2012

2.3 List of Abbreviations

Units of measurement used in this Technical Report conform to the metric system. All currency in this Technical Report is US dollars (US$) unless otherwise noted.

A	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C$	Canadian dollars	M	mega (million); molar
cal	calorie	m^2	square metre
cfm	cubic feet per minute	m^3	cubic metre
cm	centimetre	µ	micron
cm^2	square centimetre	MASL	metres above sea level
d	day	µg	microgram
dia	diameter	m^3/h	cubic metres per hour
dmt	dry metric tonne	mi	mile
dwt	dead-weight ton	min	minute
°F	degree Fahrenheit	µm	micrometre
ft	foot	mm	millimetre
ft^2	square foot	mph	miles per hour
ft^3	cubic foot	MVA	megavolt-amperes
ft/s	foot per second	MW	megawatt
g	gram	MWh	megawatt-hour
G	giga (billion)	oz	Troy ounce (31.1035g)
Gal	Imperial gallon	oz/st, opt	ounce per short ton
g/L	gram per litre	ppb	part per billion
Gpm	Imperial gallons per minute	ppm	part per million
g/t	gram per tonne	psia	pound per square inch absolute
gr/ft^3	grain per cubic foot	psig	pound per square inch gauge
gr/m^3	grain per cubic metre	RL	relative elevation
ha	hectare	s	second
hp	horsepower	st	short ton
hr	hour	stpa	short ton per year

Hz	hertz	stpd	short ton per day
in.	inch	t	metric tonne
in2	square inch	tpa	metric tonne per year
J	joule	tpd	metric tonne per day
k	kilo (thousand)	US$	United States dollar
kcal	kilocalorie	Usg	United States gallon
kg	kilogram	Usgpm	US gallon per minute
km	kilometre	V	volt
km^2	square kilometre	W	watt
km/h	kilometre per hour	wmt	wet metric tonne
kPa	kilopascal	wt%	weight percent
kVA	kilovolt-amperes	yd3	cubic yard
kW	kilowatt	yr	year

3 RELIANCE ON OTHER EXPERTS

This Technical Report has been prepared by IAMGOLD, RGM, SRK, and WSP. For the purpose of this Technical Report, the QPs have relied on the following subject matter experts:

- Section 4 - Property Description and Location
  - The QP has relied on ownership information provided by Mr. Michiel Raafenberg, IAMGOLD's legal counsel in Suriname, regarding title to the Rosebel and Saramacca concessions. Mr. Raafenberg provided a legal review and opinion dated August 20, 2021. This information was used in Sections 1 and 4 of this Technical Report.
- Section 20 - Environmental Studies, Permitting, and Social or Community impact
  - The QP has relied on guidance provided by Ms. Shalini Kesarsing, IAMGOLD's Health, Safety & Environment (HSE) Manager at RGM, for all environmental matters. Ms. Kesarsing provided an expert review. This information was used in Sections 1 and 20 of this Technical Report.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Land Tenure

The Rosebel and Saramacca land packages consists of two exploitation concessions, Rosebel and Saramacca, and nine exploration concessions as mentioned hereunder, all located on contiguous ground (Figure 4-2).

Current mining operations at Rosebel and Saramacca are governed by the Suriname Gold Mining Project - Mineral Agreement (the Mineral Agreement) dated April 7, 1994, as first amended, and supplemented on March 13, 2003, followed by a second amendment and supplemental agreement (the Second Amendment) on June 6, 2013. The Second Amendment of the Mineral Agreement contains the terms and conditions for the establishment of an Unincorporated Joint Venture (UJV) with the Republic to undertake exploration and possible exploitation in concessions surrounding Rosebel (the UJV Area). Saramacca is one of the areas subject to the UJV.

- **Exploitation Concessions**:
  - Rosebel concession
    - Which contains the RH, MA, RB, KH-JZ, PC, and EPC, producing deposits.
  - Saramacca concession (under the UJV Agreement):
    - Which contains the producing SM deposit.
- **Exploration Concessions**:
  - Moeroekreek concession
  - Brokolonko concession
  - Concessions under the UJV Agreement:
    - Headley's Reef concession
    - Charmagne 1
    - Charmagne 2
    - Charmagne West

- Thunder Mountain
- Anjoemara
- Lef

The Rosebel concession (Geological Mining Department (GMD) No. 468/02), which was the first exploitation concession held by RGM, covers an area of 17,000.0 ha in the north-central part of Suriname at a latitude of 5° 25' Nh and a longitude of 55° 10' W and lies in the district of Brokopondo, between the Suriname River to the east and the Saramacca River to the west, approximately 80 km south of the capital of Paramaribo (Figure 4-1).

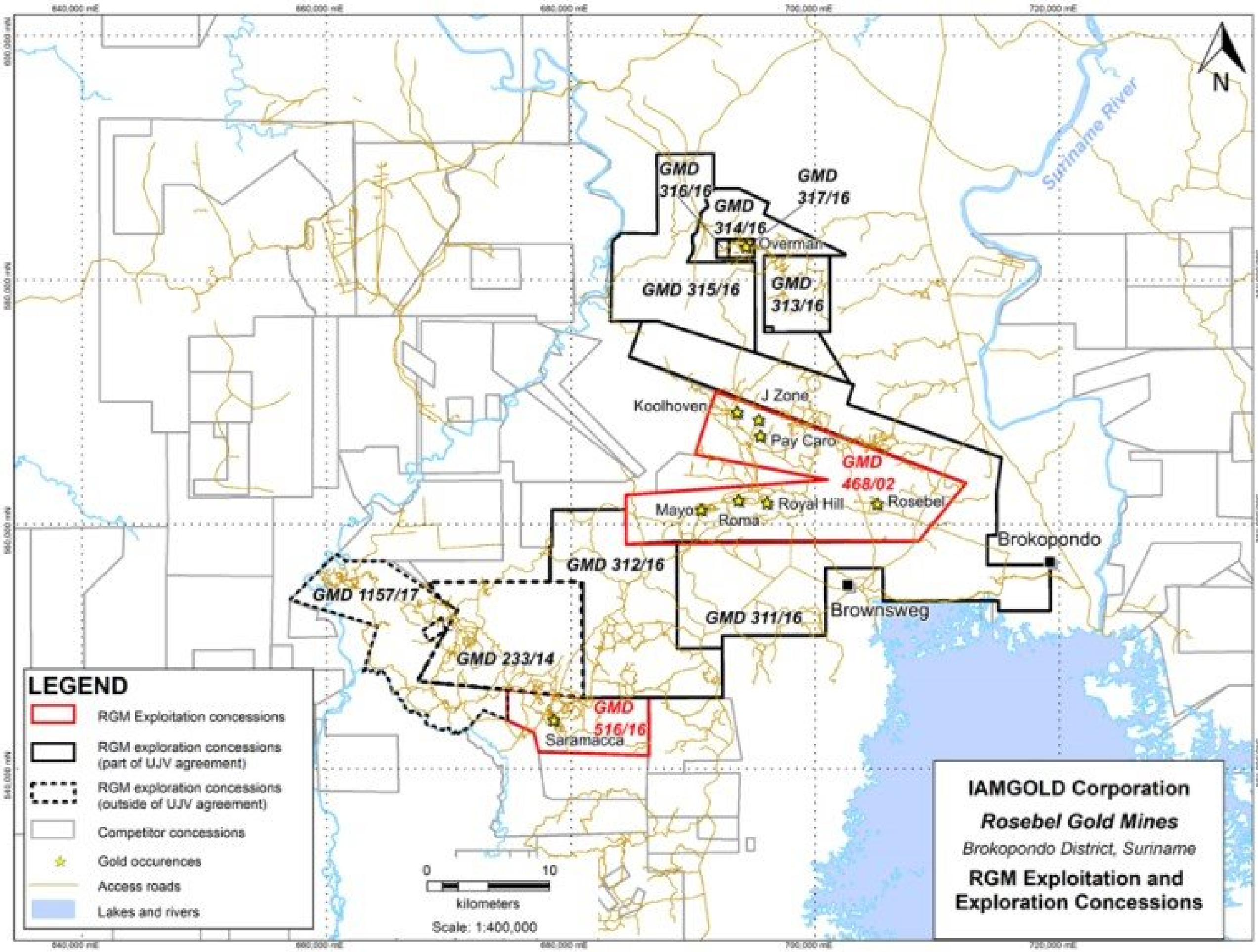
The Saramacca concession (GMD No. 201/19) covers an area of approximately 4,975 ha, straddling the Brokopondo and Sipaliwini districts of Suriname. To the northeast, Saramacca is adjoined to the Headley's Reef concession. Saramacca is also adjacent to the Moeroekreek concession.

The centre of the Saramacca property is located at an approximate latitude of 4° 55' N and a longitude of 55° 22' W.

Figure 4-1: Location Map

Source: Nations Online, 2017.

Figure 4-2: RGM Exploitation and Exploration Concessions



4.2 Exploitation Permits

4.2.1 Rosebel

On December 16, 2002, in accordance with the Mining Decree 1986 of Suriname (the Mining Decree), RGM was granted a 25 year renewable Right of Exploitation (ROE) for the Rosebel concession by the Republic, following the Government's approval. In accordance with Article 15 of the Second Amendment, the term of the Rosebel concession may be extended by a period of 15 years from its current expiration date of May 2027 until May 2042.

4.2.2 Saramacca

Saramacca is located approximately 25 km southwest of the Rosebel processing plant (the Rosebel Plant) (Figure 4-2). RGM legally obtained the ROE to Saramacca on May 2, 2019, and subsequently registered it as such with the Management Institute for Ground Registration and Land Information System (MI-GLIS).

4.3 Exploration Permits

RGM obtained seven rights of exploration, namely Charmagne 1, Charmagne 2, Charmagne West, Anjoemara, LEF, Headley's Reef and Thunder Mountain under the terms and conditions of the Second Amendment and the Mining Decree in August 2017. The seven rights of exploration under the Second Amendment expired in August 2020. RGM filed for extension of these ROE of which approval is still pending.

Upon acquisition, the Moeroekreek concession was an exploitation concession for the benefit of the previous owner, namely Sarafina NV. (Sarafina). Based on the Mineral Agreement as amended, however, RGM is not yet authorized to conduct exploitation activities pending compliance with additional requirements, including the possession of a valid ROE. This was reaffirmed by the Minister of Natural Resources in a formal letter dated December 19, 2018. In 2020, RGM applied for the right of exploration for the Moeroekreek concession. The approval process is still pending.

The Brokolonko concession was granted by the Republic to RGM on February 7, 2018, for a period of three years. RGM applied for the extension of the ROE in December 2021 and the approval process is currently pending.

The Mining Decree sets the terms and conditions for the application and extension for the rights of exploration and exploitation. It further states that exploration concessions are held for a maximum of seven years (an initial term of three years, a first extension of two years, and a second extension of two years).

Information related to the nine exploration concessions covering an area of 83,011.5 ha is listed in Table 4-1.

Table 4-1: Exploration Permit Details

Concession Name	GMD No.	Expiry Date[1] (Date of Validity)	Surface Area (ha)
Thunder Mountain	Exploration Concession GMD No. 311/16	2020-08-25	28,850
Headley's Reef	Exploration Concession GMD No. 312/16	2020-08-25	13,565
LEF	Exploration Concession GMD No. 317/16	2020-08-25	300
Charmagne 1	Exploration Concession GMD No. 314/16	2020-08-25	5,831
Charmagne 2	Exploration Concession GMD No. 313/16	2020-08-25	3,281
Anjoemara	Exploration Concession GMD No. 316/16	2020-08-25	156
Charmagne West	Exploration Concession GMD No. 315/16	2020-08-25	10,768
Brokolonko	Exploration Concession GMD No. 1157/17	2021-02-07	10,082.5
Moeroekreek	Exploration Concession GMD No. 233/14	2020-01-30	10,178
		Total Surface	83,011.5

Note:

1. Application for the extension of mining rights has been completed, RGM is currently awaiting government approval.

4.4 Surface Rights

All surface rights for exploration and exploitation concessions belong to the Republic. All the annual fees and levies pertaining to the Rosebel and Saramacca concessions have been paid to date.

4.5 Royalties

A 2% fixed royalty based on Rosebel and Saramacca production is paid in-kind to N.V. Grassalco (Grassalco), a company wholly owned by the Republic, and a 0.25% fixed royalty of Rosebel and Saramacca production is also paid in-kind to the Suriname Environmental Mining Foundation (SEMiF), a charitable foundation established in accordance with Article 20.13 of the Mineral Agreement. Further, RGM pays an excess royalty of 6.5% in case the gold price is in excess of $425/oz Au. Royalties on Rosebel production are also paid to Euro Resources SA (Euro Resources). This royalty is applicable to the first 7.0 million ounces (Moz) Au produced, with payments based on 10% of the excess gold market price above $300/oz Au for soft and transitional ore, and above $350/oz Au for hard rock ore, after deduction of paid royalties.

4.6 Taxes, Other Levies and Duties

In addition to the 5% shareholder ship in RGM and the 30% participating interest in the Saramacca UJV, held by Staatsolie, the Republic also collects various taxes, levies and duties as specified in the Mineral Agreement and its Amendments, the Mining Decree, and the applicable Tax Laws, such as corporate taxes, payroll taxes, consent, and statistic rights, as well as surface rights.

4.7 Permitting Requirements and Status of Permits

The Rosebel ROE is governed by the following major Instruments, Agreements, and National Laws:

1. The Mineral Agreement April 7, 1994, as amended and supplemented on March 13, 2003, and June 6, 2013.

2. The Mining Decree of Suriname May 8, 1986.

3. Ministerial order from the Ministry of Natural Resources granting the Rosebel ROE to RGM under ministerial order GMD No. 468/02.
4. Guidance/regulation by the National Institute for Environment and Development in Suriname (NIMOS) for the Environmental and Social Impact Assessment (ESIA).

For the Saramacca concession, the following additional documents apply:

1. Ministerial order from the Ministry of Natural Resources granting the Saramacca ROE to RGM under ministerial order GMD No. 301/19.
2. The Letter of Agreement (LOA) dated August 30, 2016.
3. Ratification Letter dated September 29, 2016.
4. Amendment to the LOA dated December 12, 2016.
5. The Notarial Deed of transfer of the Saramacca ROE dated December 12, 2016, from N.V. EEN (NV 1), to RGM.

The exploration and exploitation rights for minerals are granted by the Ministry of Natural Resources subject to terms and conditions stipulated in the Mining Decree. Following issuance of such a right the holder is required to file quarterly and annual reports with the GMD. Furthermore, the instrument granting the ROE enumerates all the conditions which need to be considered and complied with during the exploration phase. There are no specific pre-environmental requirements in this phase, however, the ROE decree stipulates that exploration activities conducted conform to Environmental Standards of the World Bank.

4.8 Discussion

Other than the royalty on the revenues from mineral production payable to the Republic as well as royalties to Euro Resources, RGM is not obliged to make payments of royalties, back-in rights, payments, or other agreements and encumbrances to which the Rosebel and Saramacca properties may be subject.

RGM is not subject to any environmental obligations or liabilities on the Rosebel and Saramacca properties except for the ones included in the Mineral Agreement, the ESIAs and applicable national legislation. RGM has all required permits to conduct the proposed work on the Rosebel and Saramacca properties. RGM is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the Rosebel and Saramacca properties.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

There are presently two access routes from Paramaribo to the Rosebel and Saramacca operations. One route utilizes a 30 km paved road which connects Paramaribo to Paranam. From Paranam, a paved road courses south following the Afobaka road. From there an unpaved road courses south and west to the Rosebel and Saramacca properties. The other route is a paved road which connects Paramaribo to the international airport at Zanderij. A paved road connects Zanderij to the Afobaka road halfway between Paranam and Afobaka. The route then follows the Afobaka, Brownsweg, and Nieuw-Koffiekamp roads until reaching the property access road. Travel distance for both routes from Paramaribo is approximately 100 km.

The SM pit is located approximately 25 km southwest of the Rosebel Plant and is accessed primarily via a purpose built 36 km mine haulage road from the Mine.

5.2 Climate and Length of Operating Season

The climate of Suriname is classified as tropical, i.e., warm during the entire year with the mean temperature of the coldest month being higher than 20°C. The average monthly rainfall is greater than 60 mm in the driest month(s). Like much of Suriname, the Rosebel and Saramacca areas are characterized by consistently warm temperatures and high humidity with little seasonal variation.

Suriname's weather is dictated mainly by a north-east and south-east wind called the Inter-Tropical Convergence (ITC) zone, also known as the Equatorial Trough. The ITC zone passes over Suriname twice a year and results in four seasons:

- Late February to late April, a short dry season.
- Late April to mid-August, a long rainy season.
- Mid-August to early December, a long dry season.
- Early December to late February, a short rainy season.

While exploration and production activities can be carried out in all seasons these can be impacted by excessive rains during the rainy season.

Based on data collected at the Mine site since 2004, the average annual precipitation was estimated to be 2,288 mm/y, and the mean annual temperature is 25.0°C. The daily fluctuation in temperature in the interior of Suriname, including the Rosebel and Saramacca areas, is approximately 10°C to 12°C. The average monthly relative humidity in the Rosebel and Saramacca areas ranges from 84.8% in February to 93.5% in June, with an annual average of 89%.

5.3 Surface Area and Physical Resources

The Rosebel and Saramacca areas currently host the small village of Nieuw-Koffiekamp, located approximately two kilometres from the former Rosebel exploration base camp and approximately one kilometre from the RH pits. Nieuw-Koffiekamp consists of approximately 500 permanent inhabitants belonging primarily to the Maroon group, who are descendants of African slaves.

The economy of the village remains dependent on the Surinamese coastal economy. Main activities include subsistence agriculture on relatively poor land, small scale gold mining, forestry, and trade.

Relations between the RGM and the villagers has occasionally been strained due primarily to the conduct of illegal mining activities on the Rosebel property by the villagers and others.

Other than the road between Paramaribo and the Mine site, the local site infrastructure consists of various access and haulage roads from the main gate to the camp, pits, tailings area, the Rosebel Plant area, and administration building area.

An existing airstrip with an approximate length of 1.2 km is available for emergency evacuation. The airstrip is located six kilometres from the administration building.

The accommodation camp complex is located approximately 0.5 km to the south of the Rosebel Plant and truck shop/administration building and includes a kitchen mess, recreation area, camp offices, and different types of dormitories with an accommodation capacity of approximately 2,300 people.

Miscellaneous outbuildings and infrastructure include core logging and storage facilities, laboratories, security gates, lunchrooms, and a 5 MW solar plant.

Electrical energy (purchased directly from the Surinamese Government) is delivered from the Afobaka hydroelectric generating station and augmented by a 5 MW solar plant operated by RGM.

Potable water and process water is supplied from water wells located along the Mamanari Creek near the camp complex.

5.4 Topography, Elevation and Vegetation

The physical geography of Suriname is divided into three areas: the Coastal Plain, the Savannah Belt, and the Guiana Shield. The Guiana Shield comprises approximately 80% to 85% of the total land area of Suriname, and extends into French Guiana to the east, Brazil to the south, and Guyana, Colombia, and Venezuela to the west. The Rosebel and Saramacca concessions are located within the Guiana Shield terrane.

The Guiana Shield is predominately low-lying (below 250 MASL) and hilly, with discrete ranges reaching 1,200 MASL. Most of the Guiana Shield is pristine and covered with extensive tropical rainforest, except where poor soil or repeated burning of the vegetation have led to the creation of savannahs.

The surficial features of Suriname are the product of a tropical and wet weathering environment resulting in generally extensive deep oxidation of the surface exposures. In general rock outcrops are generally scared and limited to road cuts and creek beds. Ground cover various from locally preserved laterite profiles including duricrust layers on ridge crests, with pisolithic clays, clays, and colluvium in lower areas.

6 HISTORY

6.1 Rosebel- Ownership, Exploration and Development History

Gold was first discovered in the area of the Rosebel property in 1879, when small scale miners (SSMs) were reported to be working on the property. Since that time, it is estimated that approximately half of the recorded production of Suriname has been produced from the district.

- Initial commercial production activities were carried out between 1885 and 1939 by various companies exploiting alluvial material, surface deposits, and veins with various levels of success, including Guyana Gold Placer Company operated dredges in Niew Foto and Groote Louis Creeks of the KH area circa 1910. Guyana Gold sub-leased some ground in the KH area to an American group, who underground mined a series of quartz veins up to five metres wide. Production was said to include a "nugget" of nearly eight ounces.
- De Jong Brothers who mined the RH area both underground and in open cuts during the 1920s and early 1930s.
- White Water Mines Ltd. Acquired the RH area from De Jong in 1935 and continued underground mining of widespread veins, until production ceased in 1939, at the start of the Second World War.
- Van Emden Gold Mines Ltd. Operated three mines in the area in the 1930s at MA, KH, and Donderbari.

6.1.1 Prior Ownership

More recently, several companies conducted various exploration and evaluation studies, and resource estimates on the Rosebel deposits.

6.1.1.1 Surplacer - 1974 to 1977

In 1974, the property was granted to Surplacer, a JV between Placer Development Ltd. (Placer) of Vancouver and the Surinamese Government. The exploration program identified gold anomalies several kilometres long, located along two major trends, one in the North and the other in the South of the Rosebel area. Detailed follow up work, involving 900 hand auger holes, four kilometres of bulldozer trenches and 43 reverse circulation (RC) drill holes, partially delineated surficial and near-surface gold mineralization in the RH, MA, and RB areas in the south and PC in the north. Placer terminated the JV in 1977.

6.1.1.2 Grassalco - 1979 to 1985

In 1979, the Rosebel property was awarded to Grassalco, which carried out a new resource estimate based on 1,500 hand auger holes and excluded the Placer data. Grassalco abandoned the property in 1985, due to an unstable political situation.

6.1.1.3 Golden Star and Cambior - 1992 to 2006

Golden Star Resources Ltd. (Golden Star) acquired the ROE to the Rosebel property pursuant to a Preliminary Mineral Agreement between Golden Star, Grassalco, and the Republic dated May 8, 1992. A finalized 1994 Mineral Agreement was agreed between the parties signed on April 7, 1994, granting Golden Star a ROE on the Rosebel property for five years.

Golden Star then entered into an agreement with Cambior Inc. (Cambior) on June 7, 1994, granting Cambior the option to earn an undivided 50% of Golden Star's interest in the 1994 Mineral Agreement and the Rosebel property. Under the terms of the agreement, Cambior could exercise its option by funding approximately US$6.1 million in exploration and development expenditures on the Rosebel property by June 30, 1996.

Cambior filed a feasibility study (FS) and an Environmental Impact Statement with the Republic in May 1997 and filed a revised FS incorporating additional drilling results in December 1997, before placing the project on care and maintenance from 1998 to 2000.

In December 2000, a prefeasibility study (PFS) was filed with the Ministry of Natural Resources envisaging an initial development involving the mining and processing of only the soft and transition ore of the Rosebel deposits, reducing the estimated capital expenditures to US$80 million from the US$175 million contemplated in the original 1997 FS. A revised FS, subsequently completed and filed in August 2002, replaced the earlier studies.

On October 26, 2001, Cambior agreed to acquire Golden Star's 50% interest in the Rosebel property, to hold a 100% interest in the property, for a total cash consideration of US$8.0 million and a gold price participation right on future production from the Mine, US$5.0 million was paid at closing (May 2002) and the remainder in three equal instalments paid over a three year period. Under its gold price participation right, Golden Star would receive a quarterly payment of an amount equal to 10% of the excess, if any, of the average quarterly market price above US$300/oz Au for gold production from the Rosebel deposits soft and transitional rock portions and above US$350/oz Au from the hard rock portion, up to a maximum of 7.0 Moz Au produced. In addition, Golden Star transferred its rights in the adjacent Headley's Reef and Thunder Mountain exploration properties.

In 2002, RGM was established in accordance with the provisions as included in the Mineral Agreement entered into by the Republic and Cambior, whereby the Republic would hold a 5% free carried interest and Cambior a 95% interest in the company.

Commercial production at the Mine was achieved in February 2004. Golden Star subsequently sold its royalty interest in production at the Rosebel property to Euro Resources (formerly Guyanor Resources SA) in 2004.

6.1.2 IAMGOLD

In November 2006, IAMGOLD acquired a 100% interest in Cambior, thereby acquiring a 95% interest in the Rosebel property.

In December 2008, IAMGOLD acquired 84.55% of the current share capital of Euro Resources.

In June 2013, IAMGOLD, RGM, Grasshopper Aluminum Company N.V., and the Republic executed the Second Amendment to the Mineral Agreement. The Second Amendment created a new UJV in which the Republic, through NV 1, a wholly owned subsidiary of the Republic, could elect to hold a paid 30% interest and RGM would hold a 70% interest. Under the terms of the Second Amendment, NV 1 was also granted an option to acquire an increased interest in production from the Rosebel concession if RGM approves a Significant Expansion of the existing Rosebel Plant and if NV 1 elects to participate in the expansion by funding 30% of the capital required for the expansion. A Significant Expansion is defined as an increase in the milling capacity of the Rosebel Plant of 3.0 million tonnes per annum (Mtpa) or as otherwise agreed by the UJV partners, NV 1, and RGM. At the present time, RGM has not approved a Significant Expansion and the UJV partners are not currently evaluating a potential Significant Expansion scenario.

In December 2015, IAMGOLD announced the closing of a simplified tender offer for Euro Resources through the Euronext Paris. At the closing of the simplified tender, in conjunction with purchases made by IAMGOLD through the facilities of the Euronext Paris since the submission of the draft offer to the French Autorité des Marchés Financiers, IAMGOLD owns and controls approximately 90% of the outstanding common shares of Euro Resources.

6.2 Saramacca- Ownership, Exploration and Development History

6.2.1 Saramacca Unincorporated Joint Venture

In 2013 IAMGOLD, RGM, Grassalco, and the Republic signed the Second Amendment with the goal among others of establishing an area of mutual interest, with a radius of 45 km from a point with the following coordinates: 694 000 East, 597 000 North, but excluding Rosebel (the UJV Area) and certain activities to be undertaken regarding the UJV Area and the establishment of an UJV between RGM and NV 1 in which NV 1 would hold 30% participating interest on behalf of the Republic and RGM would hold the remaining 70%.

In 2020, the Saramacca UJV was established between RGM and NV 1. The 30% participating interest was returned by NV 1 to the Republic, and immediately thereafter designated by the latter to be held by Staatsolie along with all the associated rights and obligations, which Staatsolie accepted. As such, IAMGOLD holds a 66.5% interest in Saramacca.

Furthermore, seven exploration concessions were brought in under the Second Amendment and are therefore, part of the UJV. All other concessions acquired within the UJV Area by the UJV parties shall be presented to the other party to potentially bring these into the UJV partnership.

In August 2006, Golden Star signed a JV with Newmont Corporation (Newmont), whereby the latter would fund all exploration activities and Golden Star would be the operator of the property. In 2009, Newmont had earned a 51% interest in Saramacca by spending US$6.0 million on exploration expenditures and took over management of the programs.

In November 2009, Golden Star agreed to sell its interest in the Saramacca JV to Newmont. In December 2012, all requirements for the sale and transfer were met, and ownership and control of Saramacca was turned over to Newmont for a total consideration of US$9.0 million in cash.

On August 31, 2013, the Saramacca ROE was issued to NV 1.

On August 30, 2016, RGM signed a LOA with the Republic to acquire the rights to Saramacca. The terms of the LOA included an initial payment of US$200,000 which enabled immediate RGM access to the property to conduct due diligence and included access to historical data from previous Saramacca exploration activity.

On September 29, 2016, RGM ratified the LOA by a Ratification Letter. An amendment to the LOA on December 12, 2016, allowed RGM to acquire a 70% interest in Saramacca by completing the agreed terms. Under the terms of the LOA, RGM subsequently paid US$10 million in cash and agreed to pay an additional adjustment amount of US$10 million in cash, as well as to issue 3,125,000 Common Shares of IAMGOLD to NV 1 in three approximately equal annual instalments on each successive anniversary of the date the right of exploration was transferred to RGM. The title to Saramacca was transferred from NV 1 to RGM on December 14, 2016. (GMD No 706/16.)

Following approval of the ESIA by the Minister of Natural Resources in February 2019, the Saramacca ROE was received on May 2, 2019.

6.2.2 Previous Exploration Work

The first recorded exploration on the SM deposit was undertaken by Golden Star in 1994. During this time, Saramacca was part of a larger grant package known as Kleine Saramacca. Much of the work focussed on the discovery and delineation of Anomaly M, which was the subject of successive auger and diamond drilling (DD) programs, with over 200 auger holes and 90 DD holes completed in the anomaly area. Anomaly M became the Saramacca project after IAMGOLD-RGM carried out exploration work in 2016 and 2017.

Table 6-1 provides a summary of exploration drilling at Saramacca since 2002. From 2016 to 2019, exploration work conducted on Saramacca was performed by RGM's Suriname Exploration Department (SurEx) which conducts exploration work outside of the Rosebel concession. In early 2018, exploration and evaluation activities were transitioned to RGM's Mine Exploration Department (MinEx) who continue to conduct the ongoing exploration activities at Saramacca.

Table 6-1: Summary of Saramacca Exploration Drilling since 2002

Hole Type	Goldstar		Golden Star/ Newmont		Golden Star/ Newmont		IAMGOLD-RGM				Total	
	2002-2005		2006-2008		2009-2010		SurEx 2016-2019		MinEx 2018-2021			
	No.	(m)	No.	(m)	No.	(m)	No.	(m)	No.	(m)	No.	(m)
Undefined	157	1,160	241	1,905	-	-	-	-	-	-	398	3,065
DD	24	1,307	30	3,566	36	4,420	309	64,468	92	25,297	538	94,872
RC	-	-	-	-	-	-	37	4,506	345	45,014	287	37,360

6.2.3 Development History

Upon the declaration of the first mineral reserves estimate for the SM deposit in September 2018, RGM commenced various technical studies and activities to support the submission of permitting applications for an eventual mine development. An ESIA was subsequently approved by the Republic on January 17, 2019, which allowed for the commencement of construction activities including, the haulage road from the Mine to the Saramacca site, timber clearing and stripping of the SM deposit area and the construction of supporting site infrastructure. In October 2019, first ore from the SM deposit was shipped to the Rosebel Plant for processing.

6.3 Past Production

Table 6-2 summarizes Rosebel and Saramacca production to 2021. From 2004 to 2021, Rosebel produced 5.65 Moz Au. From 2020 to 2021, Saramacca produced 168,000 oz Au.

Table 6-2: Past Production

Parameter	Units	Total	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Rosebel																				
Ore	Mt	196	6.3	6.9	7	7.8	8.9	12.4	13.4	13.3	14.1	13.6	13.9	14.1	14.7	15	16.1	12.3	4.2	2.4
Grade	g/t Au	0.97	1.73	1.57	1.4	1.27	1.26	1.22	1.05	0.98	0.97	0.89	0.8	0.74	0.78	0.72	0.72	0.75	0.77	0.71
Waste	Mt	667	10.6	15.1	21.6	28.2	35.5	41	38.9	39.8	43.1	47.8	49.2	49.4	49.4	47.8	48.1	41	30.1	30.5
Total	Mt	863	16.9	22.00	28.6	36	44.4	53.4	52.3	53.1	57.2	61.4	63.1	63.5	64.1	62.8	64.2	53.3	34.3	32.9
Strip Ratio		3.4	1.7	2.2	3.1	3.6	4.0	3.3	2.9	3.0	3.1	3.5	3.5	3.5	3.4	3.2	3.0	3.3	7.2	12.7
Milled	Mt	187	5.1	7.2	7.7	7.5	8.3	11.1	12.8	12.9	12.8	12.3	12.9	12.3	12.6	12.8	12.2	12.2	8.0	6.2
Ounces Produced	000 oz Au	5,654	282	339	300	277	331	412	416	406	401	386	344	302	312	318	302	264	160	102
Saramacca																				
Ore	Mt	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	3.61
Grade	g/t Au	0.94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.14	0.79
Waste	Mt	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.17	7.22
Total	Mt	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.01	10.83
Strip Ratio		1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	2.0
Milled	Mt	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	3.7
Ounces Produced	000 oz Au	168	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	83

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

Rosebel and Saramacca lie within a greenstone belt of the Paleoproterozoic Guiana Shield which extends from the Amazon River in Brazil to the Orinoco River in Venezuela, covering an area of more than 900,000 km^2. Most of the rocks of the Guiana Shield were formed during the Paleoproterozoic Transamazonian or Late-Transamazonian orogeny. In general, the Proterozoic part of the Guiana Shield exhibits a south-westward younging of units with tonalite-trondhjemite-granodiorite (TTG) and greenstone belt to the North, granitoid succession mainly in the central portion, and Late Paleoproterozoic to Mesoproterozoic volcanic, intrusive, and sedimentary rocks in the southernmost portion (Figure 7-1). Geologically, the region is well endowed for gold for which the potential for additional discoveries is favourable with continued investment in exploration.

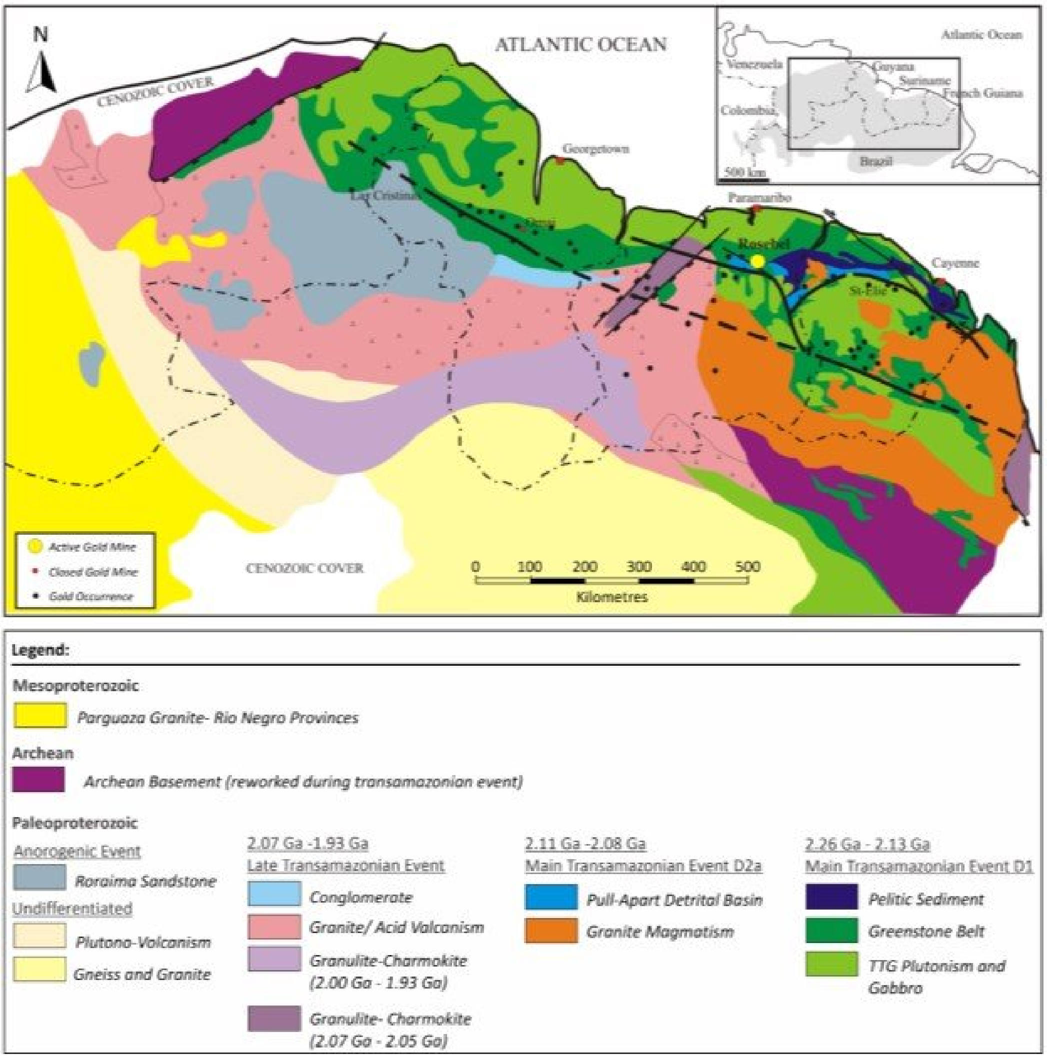
The geological evolution of the Guiana Shield is divided in four distinct stages which are either related to the formation or reworking of in-situ lithologies. The four stages are: Formation of the Archean basement - Main Transamazonian orogeny - Late Transamazonian orogeny - subsequent Proterozoic and Paleozoic anorogenic events.

The main Transamazonian orogeny (D1), constrained between 2.26 Ga to 2.08 Ga, consisted of a crustal growth event that generated the TTG - greenstone belts found North of the Guiana Shield. The evolution of the orogeny has led to the development of strike-slip structures forming pull-apart basins along the North Guiana Trough. The lithostratigraphic succession of the greenstone belts is defined by a lower unit of oceanic basalt overlain by a calc-alkaline volcanic suite including felsic to mafic members, and various sedimentary rocks including greywacke, pelite, chert, and conglomerates. In Suriname, the sedimentary and volcanic units of the greenstone belt are grouped into the Marowijne Supergroup, which is divided into two formations: the Paramaka Formation and the Armina Formation. The Paramaka Formation consists of volcanic rocks, whereas the Armina Formation consists of flysch sedimentary sequences.

The greenstone belt and the TTG sequence rocks are uncomfortably overlain by the upper detrital series of the Rosebel Formation, which is mainly represented by arenitic quartz-rich sequences interlayered with conglomerates. This sedimentary sequence is interpreted as being deposited in the intracontinental pull-apart basins formed during the latest stages of the Main Transamazonian Orogeny, between 2.11 Ga and 2.08 Ga. Synchronously with the formation of those basins, granitic magmatism took place in the eastern part of the Guiana Shield (Suriname, French Guiana, and Brazil).

The Guiana Shield has undergone prolonged chemical weathering, reflecting a humid, tropical paleoclimate that may have started as far back as the Cretaceous period. The chemical weathering has produced a laterite/saprolite profile which locally reaches up to 100 m below surface. In the Rosebel property area, fresh rock can be observed around 30 m depth in valleys, where the water table is less affected by seasonal fluctuations. The thick cover of rain forest vegetation has protected the soil from erosion, and the thin soil profile is generally preserved. The chemical effects of the deep weathering include leaching of mobile constituents (alkali and alkali earths), partial leaching of SiO_2 and Al_2O_3, formation of stable secondary minerals (clays, Fe-Ti, and Al-oxides), mobilization and partial precipitation of iron and manganese, and concentration of resistant minerals (zircon, magnetite, and quartz).

Figure 7-1: Guiana Shield - Simplified Geological Map



Source: Modified from Delor et al. 2003

7.2 Rosebel

7.2.1 Geology Overview

The Rosebel deposits are hosted by a volcano-sedimentary sequence of the Marowijne Supergroup and by the overlying detrital sedimentary sequence of the Rosebel Formation. Five types of lithologies are distinguished on the Rosebel property: felsic to mafic volcanic rocks, felsic intrusion, flysch sequence, arenitic sedimentary rocks, and late diabase dykes. Gold mineralization is predominately hosted in the sedimentary and volcanic rocks, while the intrusion rarely mineralized, and the late diabase dykes are barren.

The volcanic and the felsic intrusive lithologies are interpreted as being part of the regional greenstone-TTG suite. The volcanic assemblage, part of the Paramaka Formation, consists of andesite in the northern portion of Rosebel, and of felsic (rhyolite) to mafic (tholeiitic basalt) rock to the South. In the southern portion of Rosebel, the volcanic rocks surround a tonalite intrusion (Brinks intrusion), while in the northern portion, up to the Charmagne concession, they form bands a few kilometres thick alternating with the sedimentary rocks of the Armina Formation (Figure 7-2).

The flysch sequence pertaining to the Armina Formation is found in the northern portion of Rosebel. The sequence consists in an assemblage of greywacke alternating with finer mudstone beds interbedded with conglomerate lenses of few metres to several metres thick, continuous over a few kilometres. The sedimentary rocks of the Rosebel Formation form the central sedimentary basin unconformably overlaying the volcanic rocks. The Rosebel Formation consists of an arenitic sequence interlayered with finer sedimentary rocks and continuous conglomeratic beds.

On the eastern portion of Rosebel (near the RB deposit) the rocks are intruded by three post mineralization north-south trending diabase dykes of the Permo-Triassic Apatoe dyke swarm.

Regional metamorphism ranges from lower greenschist to greenschist facies. The main regional fabric varies from E-W in the southern portion of Rosebel to WNW-ESE to the North. Two phases of deformation are recognized at Rosebel. The first phase of deformation (D1) is characterized by the development of an early fabric and ductile shear zones which has affected only the volcanic rocks. The second phase (D2) is characterized by the development of the regional foliation, the presence of open to closed folds, and the formation of the main faults. Rosebel is marked by two major faults that have affected the volcanic and the sedimentary sequences. The fault present in the north strikes WNW-ESE and is interpreted as a dextral strike-slip shear zone which has undergone a late normal movement that has juxtaposed the volcanic units with the upper part of the sedimentary sequence of the Rosebel Formation. The fault present in the south is interpreted as a major reverse fault which has brought the volcanic rocks over the arenitic sequence (Daoust et al., 2011).

Figure 7-2: Rosebel Concession and Charmagne Exploration Concession - Geological Map

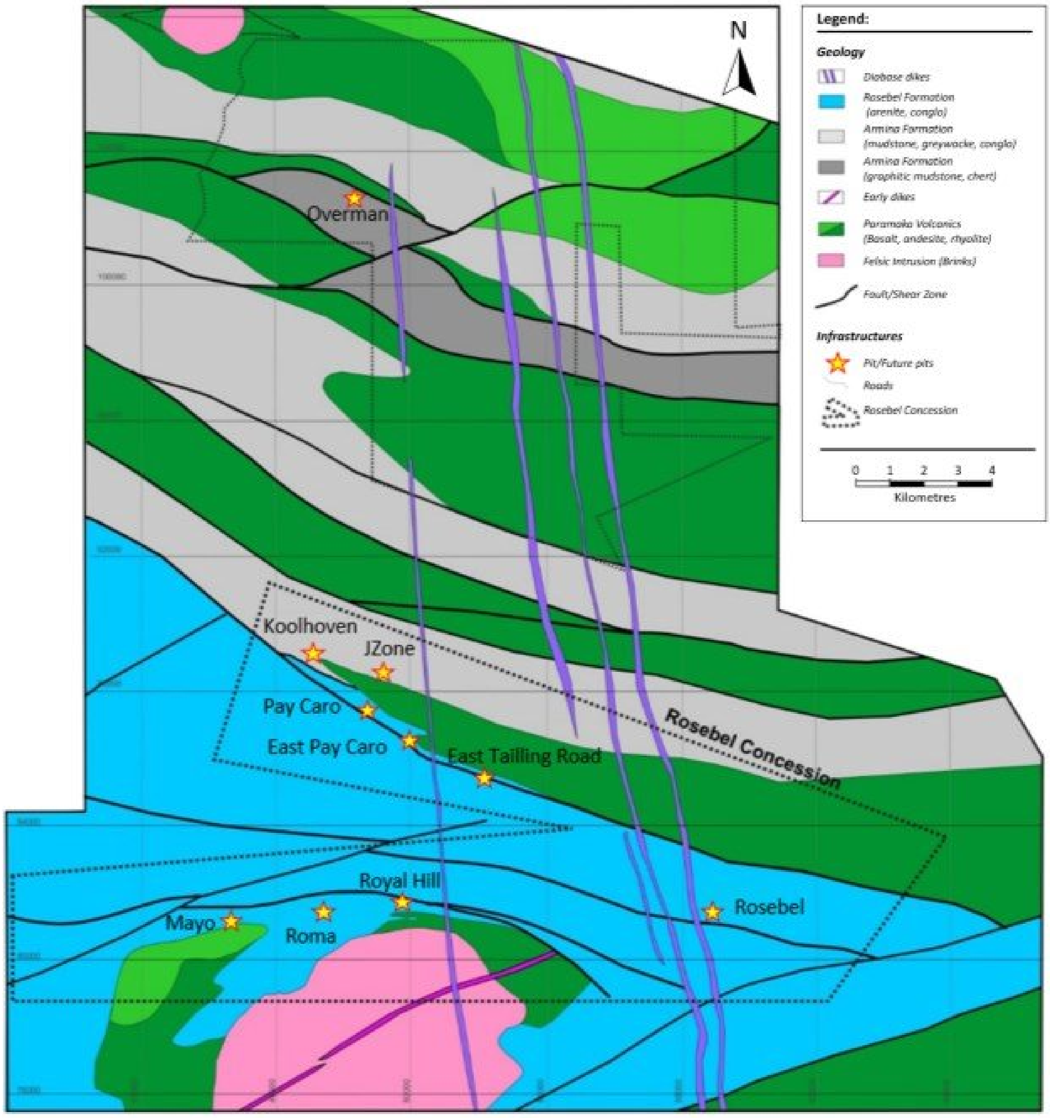
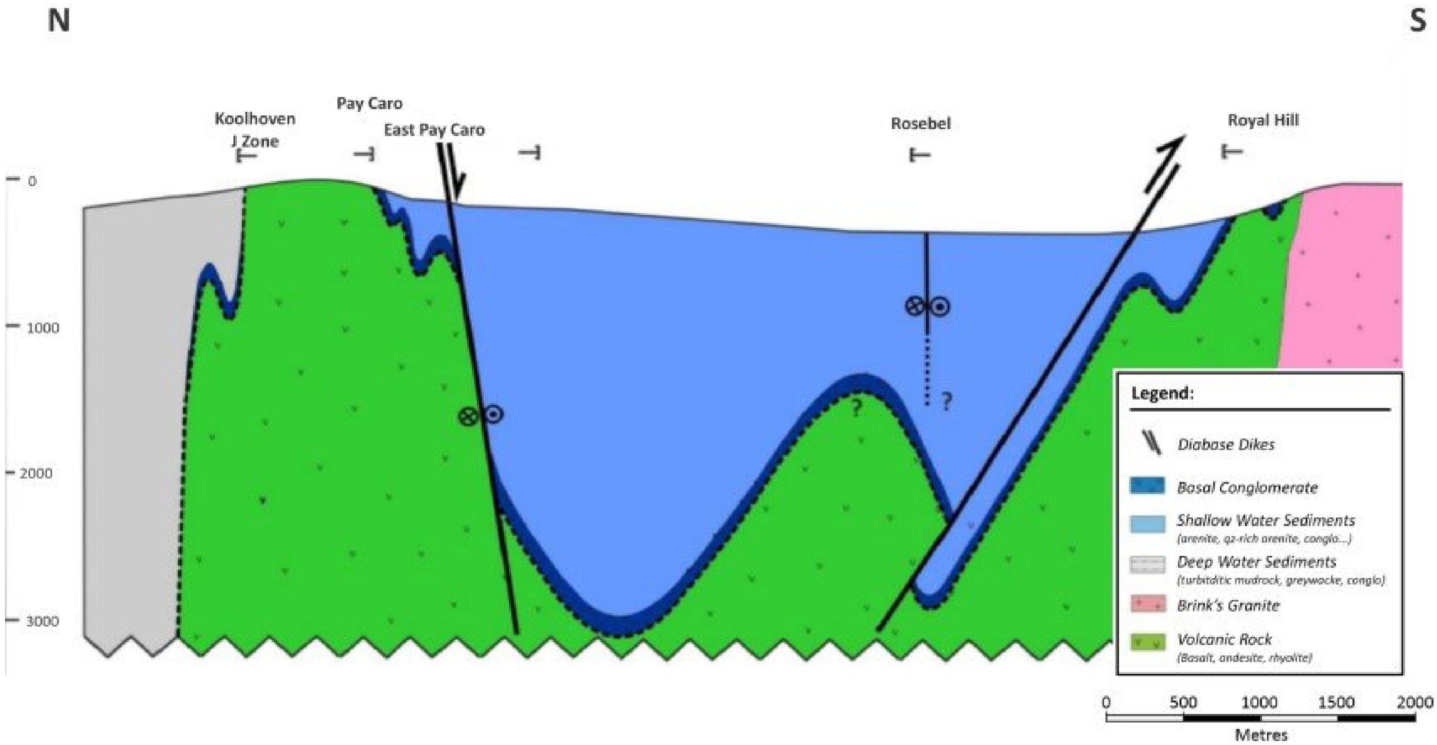


Figure 7-3: Rosebel Concession- N-S Geological Cross Section



Source: Daoust, 2016.

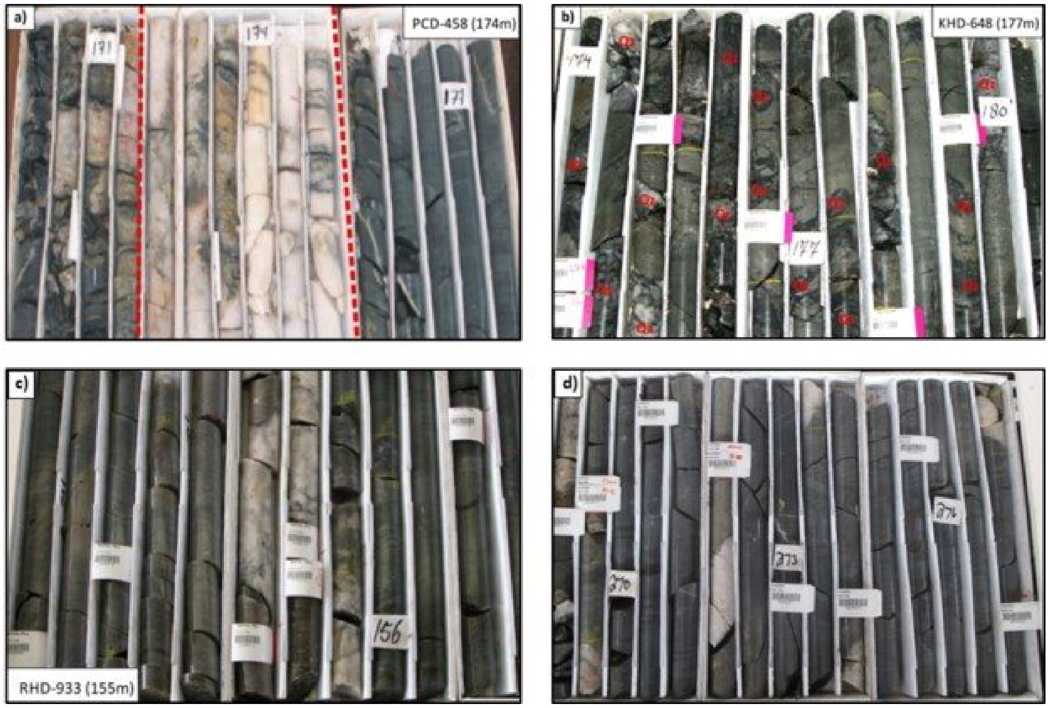
7.2.2 Mineralization

Three mineralized/structural domains are observed at Rosebel: the North, Central, and South domains. The North domain includes the KH-JZ and PC deposits located along two trends following a WNW-ESE orientation. The Central domain includes the RB deposit, which strikes E-W. The South domain is also E-W striking and hosts the MA, Roma (RM), and RH deposits.

Mineralization within the Rosebel deposits is structurally controlled and gold is hosted in both shear and tension veins which are tightly associated in space and time. Relations between veining and folding demonstrate that veining occurred after folding and has commonly borrowed pre-existent structures, such as extensional fractures, or along rock heterogeneities. As a result, elements such as an anticline hinges, lithological contacts and conglomeritic beds have provided structural traps for mineralized fluids. As the veins exhibit no significant signs of deformation, the mineralization is interpreted as being emplaced during the latest stage of the Transamazonian orogeny event.

The general vein mineralogy consists of a quartz - carbonate - tourmaline - plagioclase - pyrite/pyrrhotite assemblage. However, the proportion of the main minerals and the nature of the secondary and trace minerals vary between the different domains. In the South domain, the characteristic vein mineralogical assemblage is quartz + carbonate (calcite) + tourmaline ± chlorite ± sericite ± pyrrhotite ± pyrite, where accessory minerals comprise sphalerite, plagioclase, and magnetite. Alteration aureoles are defined by the presence of chlorite, carbonate (mostly calcite), sericite, pyrrhotite and locally tourmaline and pyrite. In the North domain, the vein mineralogy consists of in an assemblage of quartz + carbonate (calcite - ankerite) + plagioclase + hematite + chlorite ± sericite ± pyrite ± tourmaline. A zonation of vein mineralogy occurs at the deposit scale, with plagioclase and hematite constrained to the main shear zone, while all other minerals are distributed throughout the Rosebel deposits. In the Central domain, the characteristic vein mineralogical assemblage is quartz + carbonate (calcite + ankerite) ± chlorite ± sericite ± pyrite. Ankerite alteration halo is typical of the Central domain and is associated to the highest grade zones.

Figure 7-4: Example of Typical Mineralized Veins within the Rosebel Concession



Notes:

1. a) North domain, PC main mineralized shear zone with Qz-Pl assemblage, b) North domain, KH stockwork with smoky Qz veins, c) South domain, RH tension Qz vein with tourmaline, d) Central domain, RB tension vein with strong ankerite alteration halo.

7.3 Saramacca

7.3.1 Geology Overview

Saramacca is underlain by metabasalt of the Paramaka Formation. The main volcanic units are a massive basalt overlain by a thinner amygdular basalt unit and a thick unit of pillow basalts, with a southwest to northeast younging direction. Rocks have been metamorphosed to the greenschist facies and have developed an assemblage of actinolite-chlorite-epidote-plagioclase. Rare, barren, thin felsic dykes crosscut the volcanic pile.

The massive basalt is a homogeneous, green, medium grained unit in which leucoxene sporadically develops. The true thickness of the unit is unknown, exceeding 50 m. The basalt's northeastern contact with the amygdular unit is commonly obliterated by hydrothermal alteration. The amygdular basalt unit is a greenish grey to buff colour where hydrothermally altered. Quartz amygdules are generally one to three millimetres in diameter and constitute up to 5% of the rock. The pillow basalt is over 75 m thick and exhibits typical periodic arcuate selvages in the core. It is of a medium to dark green colour and is commonly moderately magnetic. Some graphitic shears appear to be spatially associated to the main mineralized structure.

The Faya Bergi fault zone is localized along the contact between the massive and pillow basalts along the thinner amygdular unit. The Faya Bergi fault zone and the Brokolonko structures represent a major brittle-ductile vertical dip-slip fault zone to which gold mineralization is associated. Various kinematics suggest that the northeast block moved up relative to the southwest block. Typical brittle features include cataclasite, gouge, fractured zones, and striated fault slip planes (Figure 7-5), while typical ductile features include shear foliation and minor folding (Figure 7-6). Several sub-parallel minor shear zones occur on either side of the fault zone.

A review of the structural geology at SM was undertaken by SRK to assist with geological interpretation and modelling (SRK, 2017a). The structural study focussed on the following aspects:

- Reviewing available core to identify and characterize the main structures controlling gold mineralization.
- Reviewing available oriented core to extract key information regarding the orientation of controlling structures and integrate the data in the geological model.
- Defining the preferential orientation and the controls on higher grade gold mineralization and determine whether high grade sub-domains should be modelled within the existing gold domains.
- Investigating the distribution, geometry, and kinematics of post-mineralization structures that could have displaced the gold domains.
- Characterizing the nature, geometry, and distribution of gold bearing breccia and vein fields to ensure that the modelled gold domains accurately reflect their distribution.

Figure 7-5: Example of Typical Brittle Features, Faya Bergi Fault

Figure 7-6: Example of Typical Ductile Features, Faya Bergi Fault (SRK, 2017A)

7.3.2 Mineralization

The SM deposit mineralization is principally hosted within a series of N-NW trending structures ranging from two metres to 40 m in width over a strike length of 2.2 km and is open along strike. Several sub-parallel structures have been identified, however, the Faya Bergi and Brokolonko structures are the primary mineralized structures over a continuous distance. The other structures are variably mineralized, though more drilling is required to test their prospectivity.

Dolomite breccias observed in the main fault zone are characterized by repeated "crack/seal" and dilatational infilling textures. These veins are also boudinated and folded, having formed within an active dip-slip environment. Higher grade gold is typically associated with dolomite breccias and pyrite mineralization, with the best gold grades located along thick fault segments to the northwest and the southeast.

The alteration pattern enclosing the fault zone shows the destruction of magnetite and the formation of leucoxene at distal ranges. Carbonate-chlorite alteration becomes more dominant with increasing proximity to the Faya Bergi fault. Within the fault zone, the protolith is destroyed by quartz-dolomite-pyrite and minor mica. The alteration footprint is commonly wider in the northeast block (pillow basalt) and can extend up to 50 m from the fault zone, while in the southwest block (amygdaloidal and massive basalt) it is observed up to 15 m to 20 m from the fault zone. The larger northeast alteration footprint may be ascribed to the presence of smaller, variably mineralized, subsidiary fault and shear zones northeast of the Faya Bergi fault.

8 DEPOSIT TYPES

Gold mineralization within the Rosebel and Saramacca deposits is structurally controlled and exhibits similar geological, structural, and metallogenic characteristics to orogenic greenstone-hosted gold deposits as described by Robert et al. (2007). Mineralization at Rosebel consists of quartz-carbonate tension and shear vein association, while mineralization at Saramacca is predominately hosted in a brecciated hydrothermal dolomite along a major fault. Rosebel hosts seven main deposits and several smaller gold occurrences in three mineralized domains. To date, the SM deposit is the only proven economic gold deposit within the Saramacca area, however, active exploration continues to evaluate the potential of mineralization located towards the northwest of the SM deposit.

8.1 Rosebel: Mineralized Domains and Deposits

8.1.1 North Domain

The North domain is formed by two sub-parallel mineralized trends striking WNW-ESE: the southern trend comprises the PC and EPC deposits (and ETR exploration area), while the northern trend includes the KH-JZ deposits (and MK exploration area). The mineralized trends are found on both flanks of an anticline exposing the volcanic rock and plunging 35° to the WNW. The volcanic rocks are overlain by the Rosebel Formation to the south, and by the Armina Formation to the North. A regional dextral strike-slip fault exhibiting late normal movement marks the southern limit of the North domain and is closely associated with the mineralization.

8.1.1.1 Pay Caro

The PC-EPC deposit (Figure 8-1 and Figure 8-2) is located along the strongly deformed south mineralized trend of the North domain. The stratigraphic sequence comprises an intermediate volcanic pile, predominantly andesitic flows and minor volcaniclastics, overlain by the sedimentary rocks of the Rosebel Formation. A polymictic conglomerate marks the base of the sedimentary sequence which evolves into a fine to medium grain well-sorted arenite locally interbedded with mudstone to the south. The volcano-sedimentary package shows z-type parasitic folding plunging approximately 30° to 50° to the WNW. The bedding and the foliation are steeply dipping to the south.

The regional dextral strike-slip fault occurs in the central portion of the PC deposit and is characterized by the abundance of shear veins, brecciation, and intense alteration of the host rocks. Tension veins are of three types: N-S west-dipping veins, E-W sub-vertical to north-dipping veins and stacks of WNW-ESE moderately (30° to 50°) north-dipping veins. All sets of veins carry a similar grade of gold. The gold mineralization in EPC is mainly hosted in the hinge of the anticline at the volcano-sedimentary contact, however, a few shear veins transect the anticline hinge and increase the amount of gold present in the hinge and along the flanks.

Figure 8-1: Cross-Section Central Pay Caro Deposit

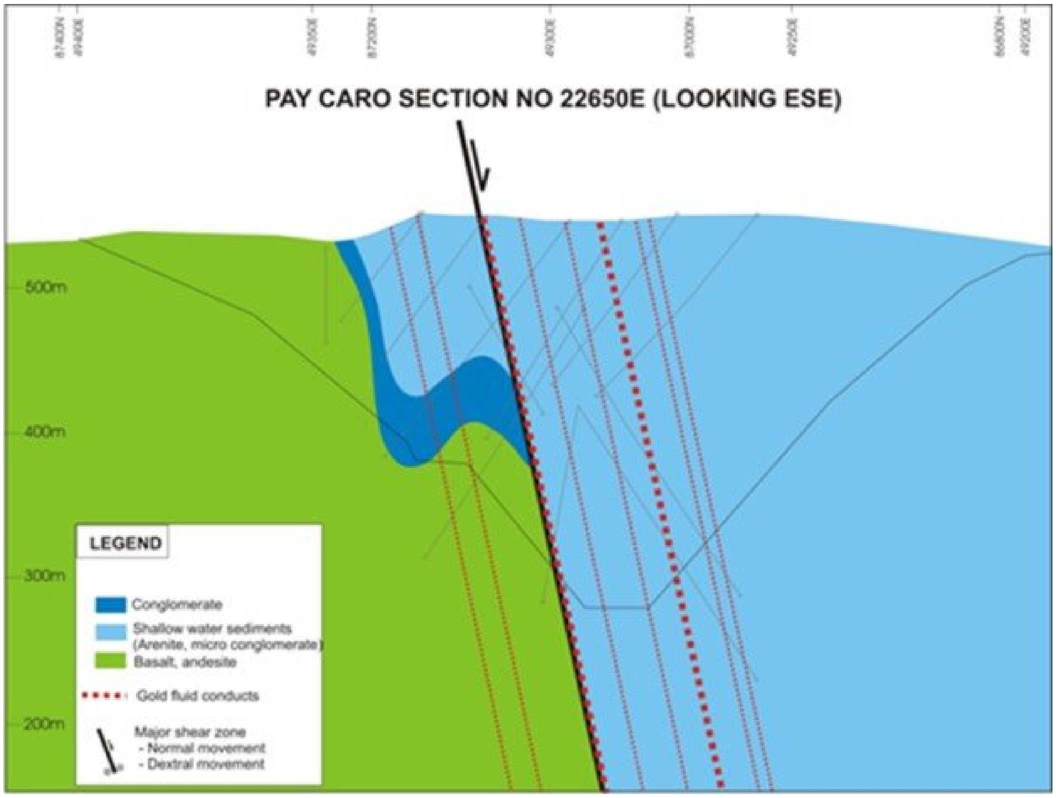
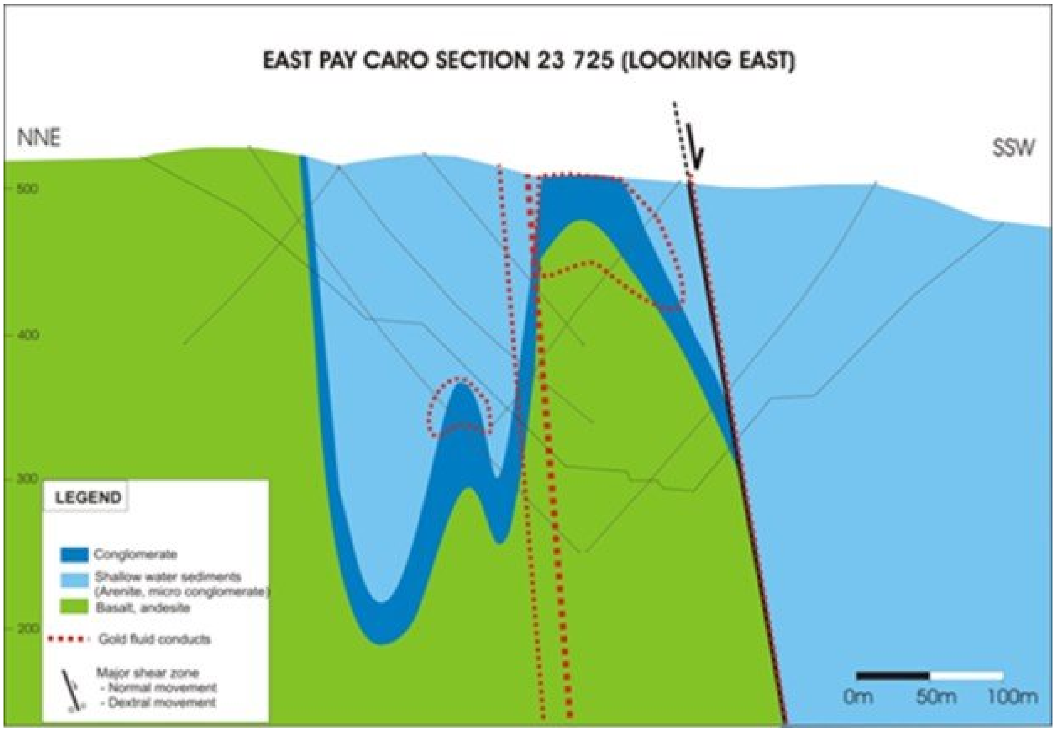


Figure 8-2: Cross-Section East Pay Caro Deposit

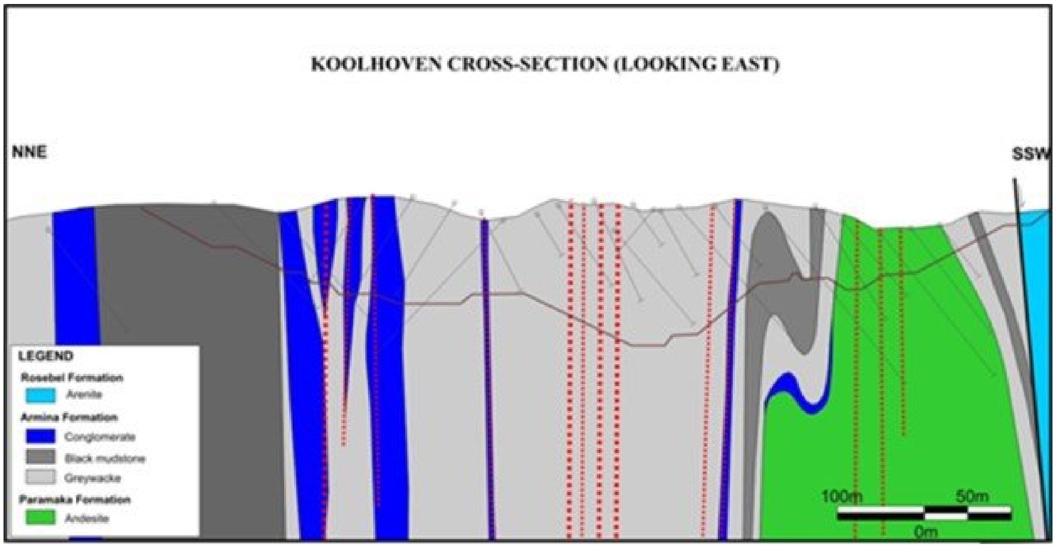


8.1.1.2 Koolhoven-J Zone

The KH-JZ deposits are hosted in a similar geological environment as the PC deposit and lie along the North trend of the North domain (Figure 8-3). The host rock consists of an intermediate volcanic and volcanoclastic assemblage to the south of the KH-JZ deposits overlain by the flysch sequence of the Armina Formation to the north. The sedimentary sequence exhibits alternating mudstone and greywacke facies locally marked by the presence of conglomeratic lenses in the northern portion of the KH-JZ deposits. The bedding is vertical and parallel to the local foliation and to the mineralized shear zones. The greywacke exhibits closed folds plunging approximately 45° to the WNW, while some mudstone units located near the shear zones indicating isoclinal folding plunging vertically.

The mineralization is observed in sets of discrete WNW-ESE vertical to steeply south dipping shear zones associated with two sets of tension veins, one dipping moderately to the north and the other oriented N-S and steeply dipping to the west. The distribution of gold bearing veins is strongly controlled by the competency of the host rocks. While the less competent, mudstone units tend to be strongly folded and do not host significant amounts of veins, the more competent greywacke and conglomerate units tend to crack more easily, and as a result are host to most of the gold bearing quartz veins.

Figure 8-3: Cross-Section Koolhoven Deposit



8.1.2 South Domain

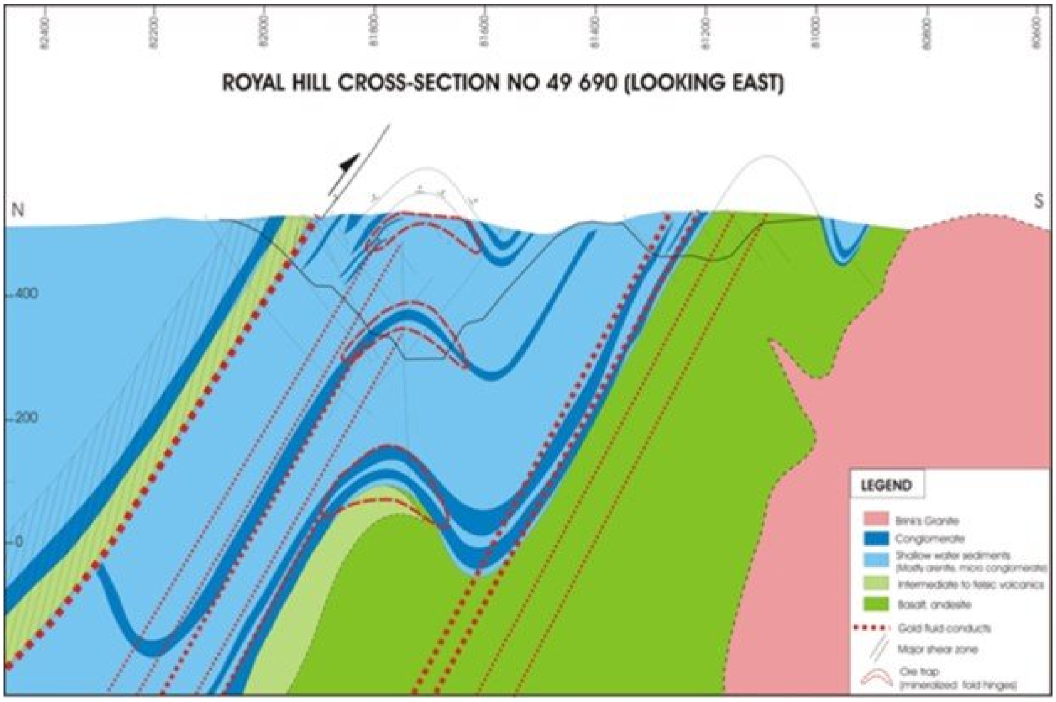
The South domain includes the MA, RM, and RH deposits. The local geology is characterized by the presence of a volcanic basement overlain by detrital sedimentary rocks of the Rosebel Formation. The MA, RM, and RH deposits are all hosted in the footwall of a major reverse fault striking E-W and which is closely related to the onset of mineralization. The sequence is folded into relatively open and slightly dipping (0 to 15°) east or west folds. Mineralization is associated with the major and\or subsidiary shear zones and in the hinges of anticlines.

8.1.2.1 Royal Hill

The RH deposit is located at the eastern portion of the South domain. The lower portion of the stratigraphic sequence consists of andesitic to basaltic volcanic rocks. Those volcanic rocks are overlain by two levels of conglomerate and by an immature arenite interlayered with other conglomerate levels (Figure 8-4). The RH deposit is bordered to the south by a tonalite intrusion. The sequence is folded in a succession of open anticlines and synclines gently plunging 10°W to 20°W. Folding has resulted in the formation of two distinct mineralized zones related to two anticlines (known as the NW pit and the SE pit) separated by a nearly barren syncline. A regional reverse fault parallel to the stratigraphy has truncated the sedimentary sequence to the north and has shifted the volcaniclastic rocks (mainly felsic tuff and lapilli tuff) on top of the sedimentary sequence.

The NW pit is bounded to the north by the regional north-dipping reverse fault. The fault is associated to mineralized shear veins, however, most of the mineralization is hosted in the footwall of the regional structure. The mineralization consists of quartz-carbonate tension veins emplaced in the hinge of the anticline near the conglomerate beds, and in stacks of north dipping to flat tension veins associated with north dipping shear zones. In the SE pit, the mineralization is hosted in E-W shear veins dipping 60° N associated with stacks of gently north dipping tension veins. These mineralized veins are more abundant near the contact between sedimentary and volcanic rocks. N-S to NNE-SSW steeply west dipping veins are also observed locally.

Figure 8-4: Cross-Section Royal Hill Deposit

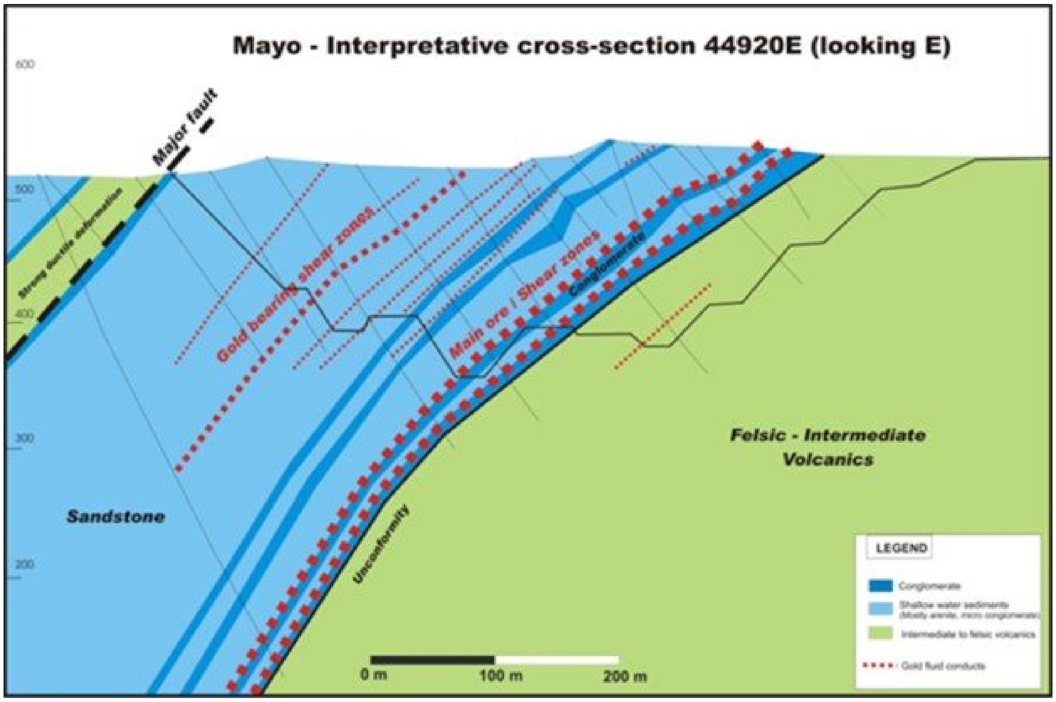


8.1.2.2 Mayo

The MA deposit lies at the western extension of the South domain. The base of the stratigraphy is a fine grained, generally featureless felsic volcanic unit. The volcanic unit is unconformably overlain by a sedimentary sequence, represented by two levels of conglomerate at the base and a thick arenitic sequence interbedded with conglomerate beds at the top, striking 260° and dipping 40°N. This sequence is truncated to the north by the same regional reverse shear as observed at RH. (Figure 8-5)

The major reverse fault is mostly barren in the MA area, with most of the mineralization hosted along subsidiary shears and associated tension veins in the footwall of the reverse fault. The subsidiary shears have been predominately formed along pre-existing lithologic contacts, such as conglomerate beds and the volcano-sedimentary contact. Two sets of tension veins are observed in association with the shear veins: 1) stack of flat to slightly north dipping veins, and 2) a set of N-S to NNE-SSW steeply west dipping veins. The strongest gold intercepts are observed in two shear veins located near the volcano-sedimentary contact along the basal conglomeratic beds.

Figure 8-5: Cross Section Mayo Deposit



8.1.2.3 Roma

The RM deposit is located between the RH and MA deposits and is divided into the RME and RMW deposits. The lithological succession encountered is the same as that observed at MA and RH with a volcanic basement overlain by conglomerates and an arenitic sequence. The RME deposit is separated from the RH deposit by a late NNW-SSE steeply west dipping fault, while the RMW deposit is on strike with the MA deposit. Both deposits are hosted in anticlinal hinges.

Mineralization is associated with small centimetric to decimetric north-dipping to flat tension veins hosted in the hinge of the folds, and locally associated with shear zones. The veins in the RMW pit are usually thicker than in the RME, exhibit a greater density, and locally have higher grades. Shear veins strike E-W to SSW-NNW, dipping 45° N and are observed in the northern portions of the RM deposits where bedding is also dipping north. A small amount of pyrite, generally less than 1% to 3%, is associated with gold mineralization.

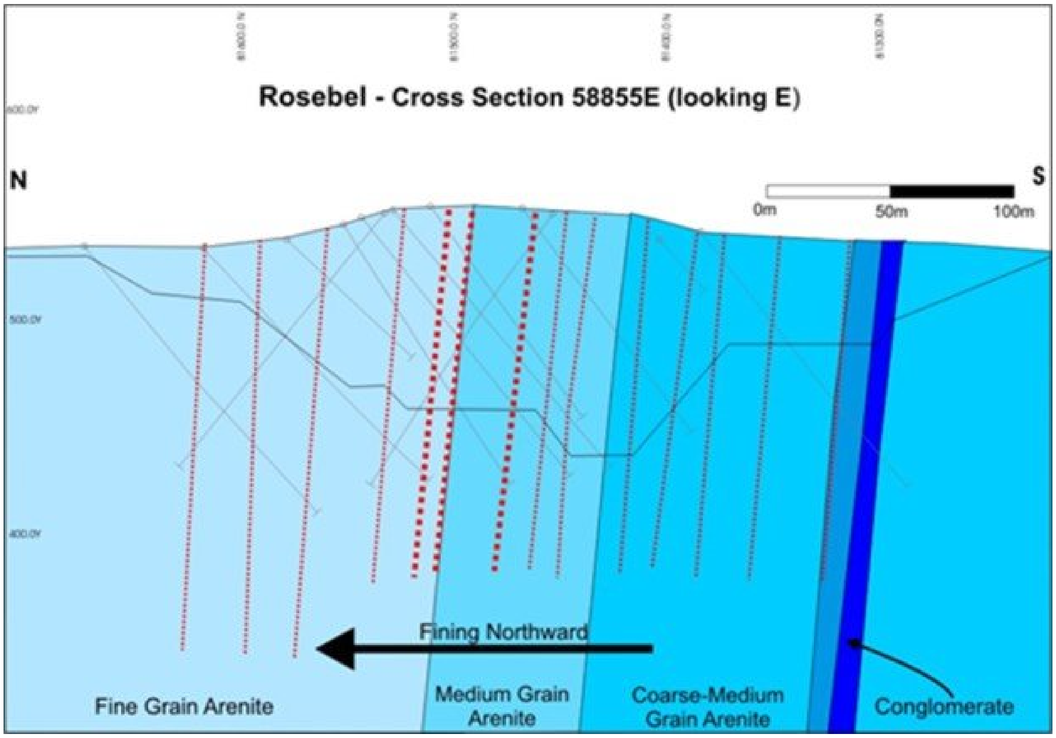
8.1.3 Central Domain

8.1.3.1 Rosebel

The RB deposit is hosted in a sedimentary sequence of siltstone and arenite of the Rosebel Formation (Figure 8-6). RB is the only deposit not located along a volcano-sedimentary contact. The southern portion of the RB pit exposes one interval of conglomerate interbedded within a coarse grained, quartz rich arenite. This sequence evolves to finer grained arenites and siltstones suggesting a general northward younging direction. The sequence strikes 100° and is sub-vertical to steeply dipping to the north. The sedimentary sequence and the mineralization are intruded by three post-mineralization, sub-vertical, north-south diabase dykes.

Gold is observed within quartz-carbonate tension veins associated with sub-vertical shear corridors that are sub-parallel to bedding. Tension veins vary in orientation and dip with N-S steeply west dipping veins in the west, moderately north and south dipping veins (conjugate system) in the central portion of RB and gently east dipping veins in the east. This latest set is associated with ankerite alteration and exhibits the highest grades. Mineralization is predominately concentrated at the contact between sedimentary rocks exhibiting different competencies (i.e., between siltstone and coarse arenite).

Figure 8-6: Cross-Section Rosebel Deposit

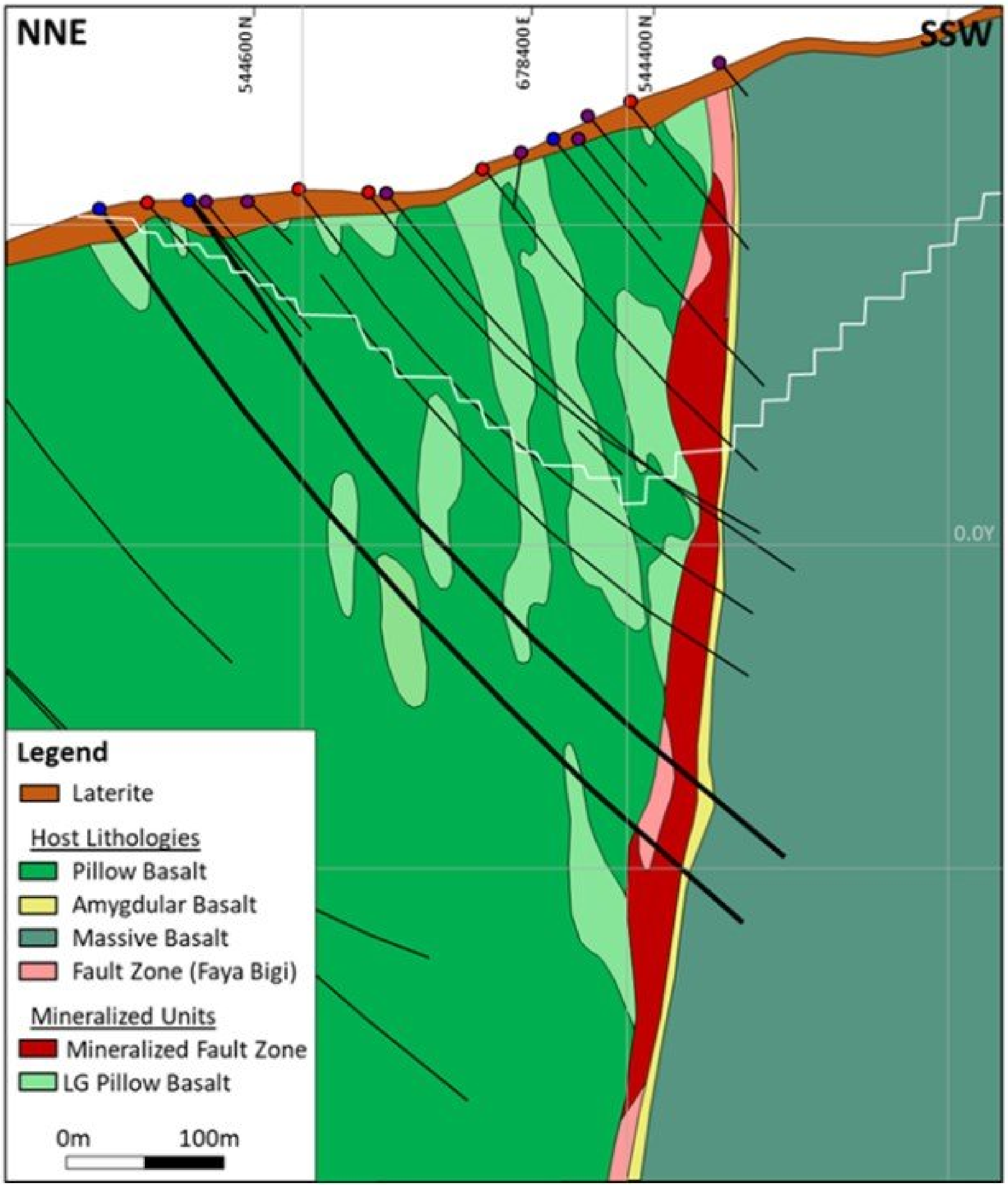


8.2 Saramacca

The SM deposit is hosted exclusively in volcanic rocks, along a major fault zone (Faya Bergi) at the contact between massive basalt to the SW and pillow basalt to the NE (Figure 8-7). The mineralized fault zone varies from few a metres to more than 50 m thick.

Most of the high grade mineralization is hosted in the main fault exhibiting brittle ductile texture with dolomite breccias hosting pyrite and minor arsenopyrite mineralization. Although the fault is continuous over several kilometres, the fault is not systematically mineralized, even within the SM deposit. Lower grade mineralization is observed in subsidiary shears within the pillow basalt unit. These form discontinuous sub-vertical mineralized lenses well developed in SE and NW portions of the SM deposit, but thinner in the central part of SM.

Figure 8-7: Cross-Section of the Saramacca Deposit



9 EXPLORATION

9.1 Summary of Exploration

In addition to drilling activities described in other sections of this Technical Report, Table 9-1 summarizes the Rosebel exploration activities work carried over the past 40 years while Table 9-2 summarizes the Saramacca exploration activities carried over the past 20 years.

Table 9-1: Summary of Exploration Work Completed on the Rosebel Concession

Year	Company	Type of Work
1976	Surplacer	Detailed follow up work, involving 900 hand auger holes, four kilometres of bulldozer trenches and 43 RC drill holes.
1979	Grassalco	Carried out 1,500 hand auger holes for a resource estimate.
2002	Cambior	Airborne 14,750 line-km survey including magnetic and radiometric lines, spaced 200 m apart.
2005	Cambior	Deep augering and small trenches completed at Compagnie Creek.
2006	Cambior	Continuation of deep augering and small trenches at Compagnie Creek.
2007	IAMGOLD	Continuation of deep augering and small trenches at Compagnie Creek.
2008	IAMGOLD	Geophysical compilation of resistivity, conductivity, and metal factor date for the RB deposit.
2010	IAMGOLD	Two exploration trenches completed at ETR and North JZ.
2010	IAMGOLD	Two deep auger programs performed in the West-KH area (65 holes of 10 m spacing in four lines totalling 383.7 m), and one in the North Tailings Pond area (six holes).
2010	IAMGOLD	Grab sampling, field reconnaissance, and mapping of outcrops in the South Triangle area during the exploration drilling campaign.
2010	IAMGOLD	Pit mapping performed in the KH, EPC, RH, and MA pits.
2011	IAMGOLD	Pit mapping, grab samples of quartz veins and surface alluvial sampling at ETR, KH, RM, MA, RB East (currently known as Rosebella), East of EPC, and Blauwe Tent.
2013	IAMGOLD	Pit mapping, grab samples of quartz veins, and surface alluvial sampling at RB pit, MK, Compagnie Creek, Spin Zone and Tailings Pond, JZ, and WPC.
2013	IAMGOLD	Grab sampling of an exposed quartz vein in the West KH area.
2013	IAMGOLD	Spin Zone grab samples collected of quartz veins along new completed road cuts.
2013	IAMGOLD	Completed three pit tests and collected 12 quartz vein grab samples in RB East and six pit tests in the RB central area.
2013	IAMGOLD	Trenching in the RMW area to test the continuation of mineralization in the projected waste rock storage facility (WRSF) area. No significant results.
2013	IAMGOLD	Detailed geological mapping of outcrops found along exposed SSM areas in the Koemboe area (within the Rosebel concession).

Year	Company	Type of Work
2014	IAMGOLD	Pit mapping, grab sampling, and pit testing in MA, PC, RH South, RM, RB, NW KH-JZ, ETR, MK, Compagnie Creek, Watapat, Brinky, and the road to Mindrineti Creek.
2014	IAMGOLD	Induced Polarization (IP) Survey of 11.7 km on eight lines with a spacing of 200 m was completed at RB East and West.
2014	IAMGOLD	Airborne Electromagnetic and Magnetometry Survey (AEM) survey (2,775 km) covering the Rosebel, Thunder Mountain, and parts of Charmagne West, Charmagne, and Headley's Reef concessions.
2014	IAMGOLD	Several IP surveys in the Rosebel concession including South RM, EPC, and RB.
2014	IAMGOLD	Manual and mechanical augering programs in the Rosebel concession including MK, Compagnie Creek, and KH West.
2015	IAMGOLD	Pit mapping in EPC, JZ, RB, and RH to determine optimal drilling directions infill and RC grade control, and new geological interpretation.
2015	IAMGOLD	Mapping and grab sampling of quartz veins in MK and Compagnie Creek.
2015	IAMGOLD	Small shallow auger program of 66 holes at RH SE pits of SSM tailings area.
2016	IAMGOLD	Pit mapping in EPC, WPC, JZ, RB, RH, RM, OV, and MA to determine optimal drilling directions for infill and RC grade control and update geological interpretation.
2017	IAMGOLD	Pit mapping, grab sampling, and pit testing in KH-JZ, WPC, and RB.
2018	IAMGOLD	Pit testing/ grab sampling and hand augering of surface soft material and SSM tailings in the ETR project.
2018	IAMGOLD	Manual augering/ Surface grab sampling of surface soft material and SSM tailings in the South-West and North West MA area.
2018	IAMGOLD	Augering sampling with a few short lines on the western extension of RB to follow up on the WNW-ESE trend and test mineralized potential at surface.
2019	IAMGOLD	Mapping/ Grab sampling of quartz veins In J-Zone West.
2019	IAMGOLD	One metre manual augering program in MA West as follow up on good results.
2020	IAMGOLD	An augering campaign of SSM tailings in East Tailing dam close to the road to MK.
2020	IAMGOLD	An augering campaign of the SSM tailings at RM.

Table 9-2: Summary of Exploration Work Completed on the Saramacca Concession

Year	Company	Type of Work
1994	Golden Star	Regional airborne magnetic and radiometric survey over Saramacca and Rosebel.
1997	Golden Star	Stream sediment sampling on 8 km^2 to 15 km^2 drainage basin Bulk Leach Extractable Gold (BLEG). Identification of anomalous alluvium in the Brokolonko Range slopes.
1998	Golden Star	Stream sediment sampling on > 6 km^2 drainage basin for BLEG.
2002-2005	Golden Star	Shallow soil sampling on 800 m by 100 m grid (locally 1,200 m x 100 m) along Brokolonko Range. Several gold anomalies highlighted, amongst them, Anomaly M, which was sampled with smaller grid defining a 4.5 km long > 100 ppb soil anomaly.
2005	Golden Star	Deep auger sampling on 200 m x 200 m grid over Anomaly M. Definition of a 2,000 m x 500 m > 200 ppb anomaly.
2005	Golden Star	24 DD holes for 1,307.24 m. Confirmation of the existence of in situ mineralization.
2006-2007	Golden Star - Newmont JV	IP survey over geochemical anomaly and drilled area. The initial gradient array survey defined a series of linear chargeability and resistivity features, trending approximately parallel to the ridge. Following this, several dipole-dipole survey lines were completed perpendicular to these features, giving a three-dimensional view of the IP characteristics of the target area.
2008	Golden Star - Newmont JV	30 DD holes drilled for 3,566.27 m. Confirmation of sub-vertical mineralized zone.
2017	IAMGOLD	Geological and regolith mapping over the SM area along road cuts and drill pads.
2017	IAMGOLD	Orientation Mobile Metal Ion sampling survey (MMI) along section line 1650NW in the SM area, to determine the MMI signature of the mineralized zone for future application.
2017-2018	IAMGOLD	Geological mapping campaign coupled with IP and MMI surveys along the southern extension of the SM area.
2018	IAMGOLD	Field mapping on the exposed duricrust layer along open road cuts and drill pads.
2019	IAMGOLD	Grab sampling program along the projected haul road to Saramacca.
2019	IAMGOLD	Grab sampling program along the projected area for the Dam construction at Saramacca.
2019	IAMGOLD	Grab sampling program in the southeast extension area along road cut.
2020	IAMGOLD	One metre augering sampling campaign on the SSM tailing area close to the SM NW extension high grade zone.
2020	IAMGOLD	Grab sampling program on the SSM tailing close to the SM NW extension zone.

9.2 Regional Exploration

As described in Section 4 of this Technical Report, RGM holds a number of exploration concessions surrounding and adjoining the Rosebel and Saramacca exploitation concessions as presented in Figure 9-1. RGM has been engaged in long term systematic exploration efforts on these exploration concessions which now include additional concessions along the SM trend.

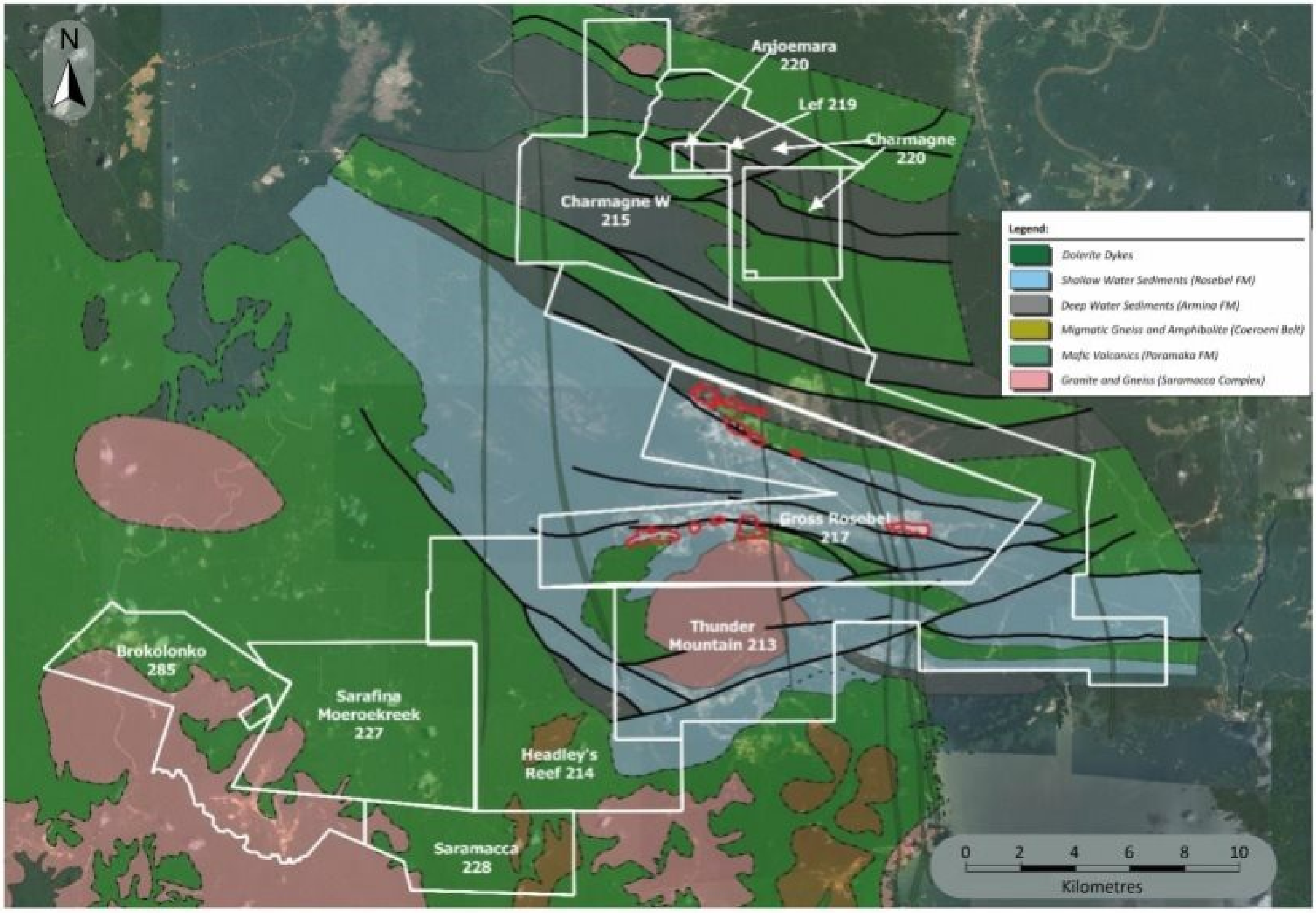
To complement existing airborne geophysical survey data previously completed on the long held Rosebel holdings, Geotech Ltd was engaged in 2018 to 2019 to complete an airborne Versatile Time Domain Electromagnetic (VTEM) survey combined with a single sensor magnetometry survey over the Saramacca belt (a 519.8 km^2 area (2,716 km)), covering the Saramacca, Brokolonko, a major portion of the Moeroekreek, and a portion of the Headley's Reef concessions.

From the processed magnetometry and VTEM survey data, a structural interpretation was completed by SRK in 2019, outlining D1 and D2 structural elements and D3 faults, intrusive bodies, and major lithology units. The interpretation aided in defining an updated exploration model used to identify targets for further exploration and drilling evaluation.

Follow up exploration activities have generally consisted of geological mapping and outcrop sampling, locating areas of previous or current SSM activities, the completion of various systematic geochemical surveys (i.e., stream, soils, auger sampling) and both airborne and ground geophysical surveys (Mag, EM, IP). Collected geochemical samples are analyzed for gold using standard fire assay (FA) techniques at either the onsite RGM laboratory or in country commercial laboratories.

A summary of exploration activities by exploration concession is provided in the following subsections.

Figure 9-1: Rosebel Concession and Adjacent Exploration Properties



9.2.1 Thunder Mountain Right of Exploration

The Thunder Mountain concession covers a V-shaped area that is continuous with the northern, eastern, and southern boundaries of Rosebel. Exploration targets occur within a similar geological setting and in part, cover the extensions of the Rosebel mineralized trends.

Exploration activities completed by RGM since 2004 have included: geochemical surveys, ground magnetometry and IP surveys. Detailed geological mapping has also been carried out over outcrops identified along cut survey lines or exposed in SSM areas. In 1990, an airborne gamma-ray spectrometry and magnetometry survey was flown by Golden Star, covering the entire Thunder Mountain concession. In 2011, another airborne gamma-ray spectrometry and magnetometry survey was flown by Aeroquest Mapcon (Aeroquest) over Rosebel with partial coverage of the Thunder Mountain concession, which was subsequently reprocessed in 2019.

Since 2013, in-house IP equipment and trained crews have been deployed to complete surveys over selected areas and this has become an important exploration targeting tool.

A large loop AEM totalling 2,775 line km was completed in 2014 covering the Rosebel, Thunder Mountain, and parts of the Charmagne West, Charmagne, and Headley's Reef concessions. The results were reprocessed in 2019 and levelled with the 2019 Saramacca VTEM survey, providing a complete, high quality dataset to assist in structural interpretation, and target identification and prioritization.

Geochemical sampling surveys have been systematically completed on a number of selected prospects / targets involving manual and mechanical augering in areas of savannah. The results were used to assess priority areas selected for their favourable geological setting and location relative to the known mineralized trends extending from Rosebel. These priority areas included: MK, Dabikwen Drainage, Compagnie Creek, and Afobaka.

MK is on the same trend as the KH-JZ deposits and straddles the Rosebel and Thunder Mountain concessions. In 2009, 35 DD holes totalling 4,850 m and 25 RC drill holes totalling 1,675 m were completed. The majority of drilling performed was within the Thunder Mountain concession and tested known near-surface mineralization, structural targets, geochemical anomalies, and anomalous geophysical responses (magnetic and IP). Drilling identified an envelope with poorly confined, scattered quartz veins generally returning low levels of gold, reducing the likelihood of significant resource potential, but mineralization remains open along strike and at depth. In 2013 and 2014, additional drilling was completed in an area to the south of the previous drill holes (see Section 10) with no significant results.

South of Rosebel, the Koemboe Creek anomaly is located near the south border of the Brinks pluton. From 2010 to 2013 a series of drill campaigns were completed to target the area of the gold anomaly and involved the completion of some 83 DD and RC drill holes totalling 8,794 m. The results were used to build a Gemcom geological and weathering model in 2013 to support initial resources estimate utilizing 50 DD holes (7,453 m total DD). Detailed geological mapping was also carried out over saprolite exposures found along exposed SSM areas. Since this time, SSM activities have significantly impacted the prospect area largely destroying the exposures hosting the gold bearing structures. Subsequent mapping and channel sampling in SSM workings identified an anomalous area east of Koemboe which was drill tested in 2012 with completion of three drill holes totalling 510 m with no significant results.

The Compagnie Creek prospect is located at the south-east limit of Rosebel. In 2012 to 2013, surface geological mapping and two shallow drilling campaigns totalling 26 DD holes (1,949 m) were completed, with no significant results returned.

In 2012, a DD campaign (16 holes, 4,000 m) was completed on the eastern extension of the actual RB pit, outside Rosebel in an area known as East Rosebel. Results again were negative.

From 2014 to 2015 exploration activities targeted the Afobaka, West Afobaka, and Dabikwen prospect areas, along the RH trend where it extends outside Rosebel towards the Afobaka dam. The initial target was an eight kilometre long, diffuse gold in soil geochemical anomaly.

Exploration activities included deep and mechanical auger sampling (1,654 holes for 10,989 m), IP (31 line km), and the completion of 36 DD and RC drill holes totalling 5,197 m. Only erratic results were obtained.

In 2019, interpretation of reprocessed AEM and airborne gamma-ray spectrometry data identified the Thunder Corner target, as a potential extension of the Koemboe mineralization. Follow up work included the collection of 1,965 deep auger geochemical samples collected on 301 stations. No significant results were returned.

A follow up program on remaining identified targets at Bami, Gowtu, and Donderbari and Blaw Tent areas is pending.

9.2.2 Headley's Reef Right of Exploration

The Headley's Reef concession lies to the southwest of Rosebel and borders the Thunder Mountain concession to the east. Exploration activities have identified that the northern portion of the Headley's Reef concession, covering the western extension of the mineralized trend, which hosts the RH, RM, and MA deposits, is underlain by a similar geology to Rosebel. The southern portion is underlain, at least in part, by volcanic and sedimentary units of the older Paramaka Formation and the granite-gneiss units of the younger Saramacca Complex.

Exploration work carried out by RGM since 2004 has involved geochemical auger sampling and geological mapping over outcrops identified along cut lines or exposed in SSM areas. Activities were guided by an airborne geophysical survey carried out in 1990 by Golden Star covering the entire Headley's Reef concession. A subsequent Aeroquest airborne magnetometry and gamma-ray spectrometry survey was flown in 2011 partly covering Headley's Reef. A total of 21,641 samples were collected in 2,988 deep auger holes in total, and 27,105 samples on 13,588 stations were collected in the historic geochemical shallow auger program since the inception of exploration on the Headley's Reef concession.

The principal targets, the Kraboe Doin "A" and "B" areas, were initially defined by anomalous stream sediment sampling results and lie close to the largest known area of SSM activity located at the common boundary of the Headley's Reef and Thunder Mountain concessions. Systematic deep auger sampling and detailed geological mapping defined several targets for DD. The southern extension of the Blauwe Tent trend (from Rosebel) and the Koemboe Creek area of Headley's Reef (direct extensions of the Koemboe Creek area of the Thunder Mountain concession and north of Kraboe Doin) are additional areas where deep auger sampling and mapping have been carried out. From 2011 to 2013, 27 DD holes totalling 4,055 m were completed at the Kraboe Doin "A" and "B" targets. In 2014, satellite photography and AEM survey coverage was obtained over the Headley's Reef concession. In 2019 the AEM and airborne gamma-ray spectrometry data was reprocessed, re-prioritizing the Kraboe Doin area (now referred to as Stonbroekoe and surrounding areas: Stonbroekoe SW, Stonbroekoe Central, K-Duplex and Thunder Corner extension).

An RC drilling program (six holes totalling 900 m) was completed which returned an intersection of 12 m grading 3.91 g/t Au in hole SBRC19-003 from a 24 m to 36 m interval, confined to regolith with quartz debris. Follow up deep auger sampling around the drilled holes did not return any significant results.

An IP resistivity survey with a gradient array over a 4.0 km^2 area was conducted on Stonbroekoe Central near the Kraboe Doin "B" area, identifying a high conductivity / high resistivity lineament, confined to a tectonic zone containing mineralization, intersected in a historic drill holes (eight metres at 1.02 g/t Au over in hole KD11-39) and associated with elevated gold values in new surface grab and historic geochemical samples. A MMI geochemistry survey identified elevated gold values, subsequently confirmed by a deep auger sampling program on the target and surrounding areas.

In 2021, a follow up drilling campaign on the Kraboe Doin / Stonbroekoe area, consisting of 1,450 m in nine RC holes was completed, which did not intersect any significant gold mineralization. A deep auger sampling was also completed on the K-Duplex and the Headley's Reef extension of the Thunder Corner targets, which also did not return any significant results.

9.2.3 Charmagne

The Charmagne/LEF concession includes the OV prospect, an exposed gold bearing silica body that has been evaluated for its resource potential as a potential satellite deposit. In 2010, a total of 10,387 m of DD in 76 holes were completed to evaluate the resource potential of the prospect.

Following the positive results of a concept study, a program totalling 10,293 m of DD in 78 holes was completed in 2011 for resource development purposes. Additional exploration activities included: a deep auger sampling program (872 holes), line cutting, MMI geochemistry, soil sampling, field mapping, airborne magnetic survey coverage by Aeroquest, and additional DD (11 holes, 1,774 m) to test the strike extension of the silica body hosting the gold mineralization.

In 2012 to 2013, additional exploration activities included: Various auger sampling programs (306 holes totalling 2,320 m), trenching, an IP ground survey (24.95 km) and the completion of 8,057 m of DD at the OV prospect and adjacent targets.

Exploration activities were essentially dormant from 2014 to 2020. In 2021, the exploration activities consisted of a reinterpretation of the existing data to determine whether additional work was merited.

9.2.4 Charmagne West

The Charmagne West concession borders the Thunder Mountain and Charmagne concessions to the south and east, respectively. Using data from the previously referenced airborne geophysical surveys, SRK completed a lithological and structural interpretation of the data, to identify key controls on the distribution of gold mineralization to aid regional exploration in the delineation of target areas for follow up exploration. One of the identified targets, interpreted as a strained intrusive, lies within the Charmagne West concession and was explored as described below.

From 2012 to 2014, exploration activities comprised a stream sediment and pan sampling program (112 samples), various deep and mechanical auger sampling programs (1,321 holes totalling 6,268 m), trenching, geological mapping, acquisition of satellite images, 23.3 line km of ground IP/resistivity surveys, and the completion of an AEM survey (HeliTEM).

In 2019, a MMI survey (206 samples) over the strained intrusive target was completed following the 2019 Target Generation session. Results were discouraging.

In 2020 to 2021 exploration activities consisted of interpretation to evaluate whether further exploration was justified.

9.2.5 Moeroekreek

The Moeroekreek concession borders the Saramacca and Headley's Reef concessions to the northwest and to the east, respectively and covers the interpreted northwest strike extension of the SM deposit. The Moeroekreek concession was being explored under a right of small scale exploitation owned by a third party (Sarafina) with which IAMGOLD negotiated an option agreement to conduct exploration work in 2014 and subsequently acquired the Moeroekreek concession in December 2018. The concession had been previously explored by Golden Star.

From 2014 to 2018, exploration activities were conducted by RGM targeting areas of historical geochemical anomalies and SSM excavations. Activities included:

- Systematic auger geochemical sampling programs along the Brokolonko ridge.
- MMI geochemical sampling surveys.
- Ground IP geophysical surveys.

- Excavation and sampling of 28 trenches over selected auger and IP anomalies which locally exposed gold bearing quartz veins.

These programs led to the identification of four target prospects referred to as Puma, Ocelot, Lynx, and Tigri. Various DD and RC drilling programs were conducted to evaluate these prospects as summarized below:

- Puma: 27 drill holes totalling 3,937 m
- Lynx: 10 drill holes totalling 1,432 m
- Tigri: 37 drill holes totalling 6,225 m
- Ocelot: 46 drill holes totalling 6,586 m
- Total: 120 drill holes totalling 18,180 m

While the drilling programs returned some encouraging intercepts, a zone of continuous mineralization was not identified.

Additional drilling was also completed in the southern portion of the Moeroekreek concession in an area covering the interpreted along strike trend of the SM deposit. Eleven RC holes totalling 1,646 m were completed which returned some anomalous results.

From 2019 to 2021 exploration activities included the completion of a 2,754-line km airborne VTEM electromagnetic survey covering the Moeroekreek, Brokolonko, and Saramacca concessions and the subsequent assessment of several new target areas identified from target generation exercises as described below.

Exploration activities on newly developed targets referred to as Y/Y-Not, Rhum Pad, Cat, Monkey, and Edge included: geological mapping, MMI sampling survey, various auger geochemical sampling programs, the completion of ground IP resistivity gradient surveys.

Follow up RC drilling programs were conducted as follows:

- Monkey: Seven RC holes totalling 978 m
- Edge: Eight RC holes totalling 1,152 m
- Cat: 21 RC holes totalling 3,150 m
- Y-Y Not: 32 RC holes totalling 5,058 m

The most significant results from the drilling programs listed were obtained at the Y-Y Not target. This target was initially identified from the VTEM survey and was interpreted to represent a possible silicified zone within a felsic intrusion in contact with mafic volcanic and pyroclastic rocks. MMI and DA sampling revealed a 1.8 km long anomalous gold in soil trend. The anomaly was tested by a series of widely spaced RC drilling fences which confirmed the presence of low grade gold mineralization in narrow quartz veins hosted by silicified felsic intrusive exhibiting potassic and carbonate alteration and pyrite , in contact with silicified pyroclastic rocks with pyrite. The best intersections included 10 m at 1.01 g/t Au, four metres at 2.19 g/t Au, and two metres at 5.35 g/t Au. Although an interesting setting for mineralization results to date has not demonstrated the presence of a significant mineralized zone and no further work is planned on this target at the current time.

Table 9-3 summarizes all exploration work completed by IAMGOLD on the Moeroekreek concession (GMD No. 233/14) since its involvement in the project area.

Table 9-3: Statistics of Moeroekreek Concession Exploration Activity by IAMGOLD-RGM

Moeroekreek Concession GMD No.233/14	Mar 6, 2014 to Feb 5, 2015	Feb 6, 2015 to Feb 5, 2016	Feb 6, 2016 to Feb 5, 2017	Feb 6, 2017 to Feb 5, 2018	Feb 6, 2018 to Feb 5, 2019	Feb 6, 2019 to Feb 5, 2020	Feb 6, 2020 to Feb 5, 2021	Feb 6, 2021 to Dec 31, 2021
Number of grab samples	129	245+	332+	-	4	-	41	36
Number of channel samples	-	-	222	-	-	-	-	-
Line Cutting (km)	37	54	10	-	9.15	44.75	23.95	25
Ground IP Survey (km)	31.75	-	7,825	-	-	-	-	14.675
VTEM (km^2)	-	-	-	-	40	89.61	-	-
MMI (No. of samples)	-	-	-	-	238	628	110	-
Deep auger (No. of holes)	512	999	76	-	-	-	13	340
Deep auger (No. of samples)	3,639	6,346	259	-	-	-	82	1057
Mechanized Auger (No. of holes/samples)	178/1,263	-	-	-	-	-	-	3/30
XRF Analyses	2,505	7,573	-	-	-	-	-	-
Trenches (quantity/total length in m)	-	-	28/1,440	-	-	-	-	-
RC (number of holes/m)	24/3,477	15/2,220	-	-	16/2,364	15/2,130	21/3,150	32/5,056
DD (number of holes/m)	11/1,614	21/3,310	19/2,700	-	20/4,056	-	-	-

9.2.6 Brokolonko

The Brokolonko concession was acquired in February 2018 due to its favourable exploration potential located regionally along the interpreted NW strike of the SM deposit trend. The Brokolonko concession is characterized with direct signs of gold mineralization (long term alluvial and SSM operations, reports of finding gold nuggets, historic shafts), encouraging results reported from after historic exploration completed by Gold Star and Golden Star-Newmont JV, which identified anomalous catchments from a regional BLEG sampling survey.

Successive exploration programs completed by IAMGOLD-RGM from 2018 to 2021 evaluated several priority targets at Pompoekampoe, NW Pompoekampoe, Anomaly K, Anomaly S Extension, Mag 1, and Broko SE. Activities included:

- Reprocessing and target analysis from a 1998 airborne gamma-ray spectrometry and magnetometry survey.
- Geologic mapping and outcrop sampling campaigns of located SSM pits and the various target areas.
- Soil and auger geochemical sampling programs.
- Completion of a 2,754-line km airborne VTEM electromagnetic survey in 2019 covering the Brokolonko, Moeroekreek, and Saramacca concessions.
- Various follow up RC and DD campaigns to the selected target areas.

In general, drilling results were disappointing, being dominated by generally narrow low grade mineralized intercepts hosted in complex, metamorphosed lithologies cut by multiple felsic and intermediate intrusions, with only minor amounts of structural tectonites, graphitic shears, and quartz veining observed in the holes. Although, two narrow high grade intercepts up to 88.55 g/t Au over a 1.1 m interval starting at 47 m were reported at Pompoekampoe, continuity of mineralization was not demonstrated from the results to date.

In 2021, a further auger sampling program was carried out to evaluate two target areas located on the southern portion of the Brokolonko concession, referred to the Brokolonko Drainage target (an area along the river, characterized by extensive SSM workings) and the Triangle Target located on the boundary with Saramacca. Neither returned significant mineralization sufficient to justify further exploration.

Table 9-4 summarizes the work carried out on the Brokolonko concession (GMD No. 1157/17) by IAMGOLD-RGM since involvement in the area.

Table 9-4: Brokolonko Concession Exploration Activity by IAMGOLD-RGM

Brokolonko Concession GMD No.1157/17	Feb 6, 2018 to Feb 5, 2019	Feb 6, 2019 to Feb 5, 2020	Feb 6, 2020 to Feb 5, 2021	Feb 6, 2021 to Dec 31, 2021
Number of Grab Samples	149	154	55	-
Number of Channel Samples	18	-	-	-
Line Cutting (km)	-	39.575	22.45	6.8
Ground IP Survey (km)	-	-	-	-
VTEM (km^2)	-	586.6	-	-
MMI (No. of samples)	-	-	-	138
Deep Auger (No. of holes)	37	342	130	164
Deep Auger (No. of samples)	192	1,901	446	660
Mechanized Auger (No. of holes/samples)	-	92/638	-	1/4
XRF Analyses	-	-	-	-
Trenches (quantity/total length in m)	-	-	-	-
RC (No. of holes/m)	20/2,942	33/4,829	22/3,158	-
DD (No. of holes/m)	25/4,109	-	7/1,485	-

9.2.7 Saramacca

Exploration activity carried out on Saramacca outside the resource area has focused on northwest striking targets parallel to the Faya Bergi fault characterized by elevated gold values from a MMI geochemical sampling survey. Other identified exploration targets include: a potential favourable contact with a pyroclastic unit situated northeast of the Faya Bergi fault and the potential continuation of the SM mineralization along the hosting fault on its southeast and northwest extensions. The targets are associated with magnetic features similar to those observed with the SM deposit.

Exploration activities conducted since 2018 have included:

- Reprocessing the 1998 airborne magnetometry and gamma-ray spectrometry surveys.
- MMI geochemical sampling surveys on the target areas.

- DD testing along the interpreted northwest extension of the Faya Bergi fault, outside of the resources area from which initial results intersected weak mineralization, which, could be a possible extension of the SM resources.

The summary of the above-described exploration activity is provided in Table 9-5.

Table 9-5: Exploration Activity by IAMGOLD-RGM on the Saramacca Concession Outside of the Saramacca Development Area

Saramacca Concession (outside of the Saramacca Development Area) GMD No.516/16	December 2017 to August 2018	Sep 2018 to May 2019
Number of Grab Samples	59	44
Number of Channel Samples	18	
Line Cutting (km)	11	
Ground IP Survey (km)	-	
VTEM (km^2)	-	
MMI (No. of Samples)	1,272	
Deep auger (No. of Holes)	-	
Deep auger (No. of Samples)	-	
Mechanized Auger (No. of Holes/Samples)	-	
XRF Analyses	-	
Trenches (Quantity/Total Length in m)	-	
RC (No. of Holes/m)[1,2]		
DD (No. of Holes/m)[2]	20 / 2,775	12 / 2,420

Notes:

1. Excluding condemnation drill holes.
2. Excluding MinEx drill holes.

The IP resistivity survey identified a potential extension of the Faya Bergi fault on the northwest extension of the SM mineralization. The follow up drilling identified continuous mineralization with significant intercepts up to 16 m at 1.12 g/t Au starting at 34.5 (SMDD 18-292), six metres at 3.90 g/t Au starting at 66 m (SMDD 18-290), 7.5 m at 4.58 g/t Au starting at 28.5 m (SMDD 18-291), coupled with positive MinEx drilling results returning up to 12 m at 2.26 g/t Au and 3.06 g/t Au starting at 220 m and 325 m, respectively (SMD-0087), 4.5 m at 19.99 g/t Au starting at 109.5 m (SMD-0082) and one metre at 111.01 g/t Au starting at 181.5 m (SMD-0092). The results indicate that the mineralization intersected by drilling may have the potential to host a resource with further drilling.

Although two narrow high grade intercepts up to 88.55g/t Au over 1.1 m interval starting at 47 m were reported at Pompoekampoe, continuity of mineralization was not demonstrated from the results to date.

Saramacca exploration was transferred to MinEx after the conversion of the exploration to exploitation rights on the concession on May 2, 2019.

10 DRILLING

10.1 Introduction

The main drilling method for exploration and resource definition used at Rosebel and Saramacca is DD. DD programs were first carried out at Rosebel by Golden Star between 1992 and 1997. Major Drilling International Inc. (Major Drilling) has been the principal drilling contractor at Rosebel since 2004. In 2014, RC drilling was used solely or in combination with DD to evaluate exploration targets given its lower costs and higher production rates.

10.2 Planning

At both Rosebel and Saramacca, drill planning takes into consideration four different purposes: infill / development, expansion, exploration, and condemnation.

The infill or development drilling is targeting improved definition and confidence in the resources and / or reserves within the Whittle shells or the pit designs and aims to improve reconciliation between the actual tonnes mined and the resource and reserve block models. The spacing for infill drilling varies between 25 m and 50 m, depending on the level of geological comprehension of the deposits, or the geological complexities related to the mineralization. On a yearly basis, the planning strategy is based on the five year mine plan, with priority put on the pits which represent most of the volume mined.

Expansion drilling programs target the extension of mineralization outside the pit designs. This includes testing lateral extensions of a deposit, or conversion of inferred resources below the pit mine design, within the resource Whittle shells which use a higher gold price. This planning is driven by either model updates that indicate new potential, or by changes in-pit designs and Whittle shells that open new areas for expansion.

Exploration drilling can take place in the extension of known deposits where no resource has yet been defined, or in new areas. For the later case, the drilling is based on preliminary geological interpretation rather than on an extension of known mineralized zones. There is no specific drill spacing, the drilling can be tight in order to follow up on encouraging results, or it can be more spread out to evaluate a larger area. The exploration drilling campaigns can be based on specific needs from the Mine (i.e., find additional soft ore), or on potential identified following results received from other exploration methods.

Condemnation drilling is carried out to ensure that there is no mineralization (or to sterilize an area) where the WRSFs or other mine infrastructure are planned to be located. The spacing is approximately 150 m to 200 m using staggered patterns or continuous fences. Condemnation drilling often provides useful information on the geology surrounding the deposits.

Drilling azimuth and dip are based on the general mineralized trend and vein measurements in the field. At Rosebel the orientation varies depending on the pit. Pits located on the North trend (PC and KH-JZ) are preferably drilled with an azimuth of 198° to intersect the sets of North dipping veins. When drilling to the south is not possible or to optimize the drilling coverage, drilling is planned towards the North with an azimuth of 18°. Between 2016 and 2018, different drilling orientations were attempted to target the N-S veins with an azimuth of 160°.

Drilling orientation in the Rosebel south pits varies depending on the deposit. The MA and RH SE pits are systematically drilled towards the south, perpendicular to the bedding and the dominant veins, with an average azimuth of 180°. In the RH NW pit, drilling considers the folded structure and thus, drill holes are planned with north to south orientation and with various dip, the steeper holes being located in the hinge of the anticline.

For the SM deposit the drill hole azimuth is typically 215°, apart from a few scissor holes designed at 035° to confirm the width or dip of the mineralized zone, test the footwall at higher elevation, and / or circumvent areas with poor ground conditions. Drill holes are generally drilled at - 50° with some between - 47° and - 55°.

10.3 Drilling Methodology

The procedure described in this section refers to all drilling carried out at Rosebel and Saramacca by Cambior and subsequently by IAMGOLD-RGM. The standard operating procedures (SOPs) are similar for both concessions with slight differences between the MinEx and SurEx teams. IAMGOLD-RGM did not receive detailed information from the Republic regarding the drilling SOPs, methodology, and approach historically used by Golden Star and Newmont at Saramacca.

It is the QP's opinion that the drilling data acquisition steps meet industry standards and are executed appropriately, and thus, mitigate the risk of potential bias in the results.

10.3.1 Drilling Equipment

For DD, Major Drilling uses UDR-200D track mounted rigs at both Rosebel and Saramacca. Production varies between 45 m/shift and 65 m/shift. Holes are drilled using HQ size wireline equipment in saprolite, reducing to NQ size in transitional to hard rock. The recovery is usually very good (>90%), and drill holes with unacceptably low recovery in mineralized zones are re-drilled until reaching an acceptable level of representativeness (minimum of 65% on short intervals and a minimum average of 75% to 80% is targeted). Core recovery in saprolite and transition material is improved by using polymer additives combined with high concentrations of bentonite.

RC drilling at Rosebel was first contracted to FTE Forage in 2014 , which used a Schramm T450 RC drill rig. The ancillary support of a Hurricane B6 booster and Sullair 1,350 cfm at 350 psi or 1,100 cfm at 500 psi compressors was added to push off groundwater. Since 2018, RC drilling has been executed by Major Drilling at both Rosebel and Saramacca. Major Drilling uses a Maxi Drill for exploration purposes. The Maxi Drill uses a detached auxiliary compressor of 1,150 cfm and 500 psi. The RC Maxi rig can drill holes up to 150 m using a compressor to collect good quality dry samples. The cuttings pass through a Metzke cyclone splitter and samples are taken every two metres and weigh in average three to five kilograms.

10.3.2 Field Preparation

The SurEx and MinEx field technicians are responsible for the preparation of the drill pads at both Rosebel and Saramacca. Before drilling a hole, the field technician locates the planned drill hole collar by using a hand held GPS or a ground based high precision Leica GPS unit. Between November 2016 and December 2017, a surveyor using a total station was contracted by SurEx to locate all the holes collars in the SM resource area. IAMGOLD-RGM uses UTM coordinates set in zone 21N, WGS 1984.

Once access and pads are completed, a pre-drilling inspection is signed off for every drill hole by a representative from IAMGOLD-RGM and a Major Drilling foreman. When approved, IAMGOLD's technicians install three front sights for the rig to align along the planned azimuth. The drill rig is mobilized to the pad under the supervision of a Major Drilling foreman, and alignment is completed under the supervision of IAMGOLD-RGM technicians. Once the rig is set up, the inclination of the mast is measured using a clinometer.

10.3.3 Drilling Procedure

10.3.3.1 Diamond Drilling

The drill crew is responsible for packing the core in plastic boxes and putting depth marks at each three metre rod. Core boxes are temporarily stored at the drill site and then transported daily to the Rosebel core shack (MinEx) or Saramacca core shack (SurEx) by RGM employees.

Since 2016, core orientation using a Reflex ACTII tool is done on DD core from Rosebel and Saramacca. The orientation point is reflected on the bottom of the core by a mark and an extended line on the side emanating from the orientation mark at the bottom. To begin measurements of structural data, the orientation mark is extended over the core, where applicable, with arrows pointing downhole using a red china marker. Core orientation measurements are mostly done by a protractor ruler and a wraparound protractor.

Drill hole surveys are completed using a Flex-IT or Reflex EZ TRAC single-shot / multi-shot instrument, which can also provide magnetometric data down the length of the hole. A single shot (one measurement) is taken at a depth of 10 m to 15 m to ensure that the orientation and dip are in line with the planned hole. If the deviation is not within reasonable limits or may divert the hole from his target (as determined by the supervising geologist), the hole is stopped and re-drilled next to the first hole. For drill holes longer than approximately 150 m, a single shot is also taken every 50 m while drilling, to monitor deviation. When a hole is completed, a multi-shot survey is carried out starting at the bottom of the hole, by taking a measurement every three metres. For the interval of survey taken inside the magnetic casing (generally less than 50 m), the trace is estimated from the last measurement before entering the casing and on the single-shot measurement that was taken after the first 15 m of the hole. Down hole surveys are downloaded from the Flex-IT or the Reflex EZ-TRAC to a computer and the file is imported directly into the main database.

Before June 2005, drill holes were surveyed at downhole intervals of approximately 50 m by using Tropari downhole survey equipment and hydrofluoric acid tube tests. Since 2005 the Tropari tool is sporadically used for downhole surveys when the Flexit and / or the Reflex tool is unavailable. The last recorded period where the Tropari was used is from April 6 to April 19, 2017, by SurEx on the SM deposit, when the Reflex EZ-TRAC became defective. IAMGOLD-RGM resorted to using a Tropari to perform the down hole surveys of the 18 drill holes drilled during this period.

10.3.3.2 Reverse Circulation Drilling

Prior to commencing drilling, the IAMGOLD-RGM technician and / or geologist provides the drilling crew with all necessary material required including pre-labelled sample bags (clearly stating the hole number and sample interval) and nylon cable ties or flagging tape. The drill crew levels the cyclone splitter prior to drilling to ensure drill cutting distribution between the four chutes (FTE Forage) or the three chutes (Major Drilling) remains constant. The cyclone splitter is completely cleaned before drilling a new hole and is cleaned using compressed air after every three samples (six metres) to minimize contamination between samples. A downhole survey is conducted when the hole is completed using a Gyro tool. Measurements are taken every 10 m.

10.3.4 Hole Completion

Once a drill hole is completed, a capped PVC pipe (SurEx) or a 75 mm x 75 mm wood post (MinEx) is inserted into the collar. The drill hole ID is written with a permanent marker and an aluminum tag engraved with the hole ID is attached. The sump containing the cutting rejects generated by the drilling processes is closed and the pad is levelled with a dozer.

The final collar survey of the hole is then measured. Prior to 2014, final collar locations of drill holes drilled by MinEx were surveyed by the RGM survey team, until MinEx acquired a ground based high precision Leica GPS unit. Since 2014, MinEx field technicians have become responsible for collar surveying. Drill holes drilled by SurEx in the SM deposit area were surveyed by contracted professional surveyors (CM-Engineering of Paramaribo, Suriname), using a Total Station. At the end of the SurEx SM drilling campaign in 2017, 20 drill holes were re-surveyed by the same surveyor as part of validation using a Differential GPS (DGPS).

10.4 Logging and Sampling Method

The IAMGOLD-RGM SurEx and MinEx teams implement for all sampling methods to be strictly followed by its staff and personnel. These SOPs are reviewed on a regular basis dependent on site conditions and other specific requirements. All logging and sample information is stored in a secure SQL database customized for IAMGOLD.

10.4.1 Diamond Drilling

All geological and geotechnical logging, as well as marking of the sample interval is performed by IAMGOLD-RGM geologists and geotechnicians at both Rosebel and Saramacca. Data entry is completed with Panasonic Toughbooks using different data entry logging software including In-house Access module (2004 to 2009), GemsLogger (MinEx 2010 to 2015 and SurEx 2016 to 2017), and LogChief (MinEx 2016 to present). The software includes validation tools to prevent nested intervals, intervals deeper than the end of a hole, and duplicate sample numbers.

All geological and geotechnical logging, splitting, and sampling completed by MinEx is performed at the Rosebel MinEx core shack facility. For the drilling campaign performed at Saramacca by SurEx, geological and geotechnical logging was completed in the Saramacca camp core shack facility. Core boxes were then transported to the Mine for splitting and sampling of half core.

Once the core is delivered to the core shack (either at the Mine or Saramacca), the core is washed to remove the drilling fluids and in the case of saprolite the top layer is peeled to expose structures in the soft material. Geotechnical logging is carried out by the geotechnician who records the core recovery, rock quality designation (RQD), rock hardness, and fracture density. Core is then logged in detail by the geologist (lithology, alteration, veins, etc.) and the sample intervals are identified. The drill holes are sampled continuously from the top to bottom of the hole, with a length generally between one metre and 1.5 m, however, in rare instances where core recovery is poor, the interval is extended to enclose fixed metre marks. Visual geological indicators, such as changes in lithology, weathering, alteration, mineralization, and structure, and changes in hole diameter are taken into consideration in the identification of sampling boundaries. Photographs of the core are systematically taken before splitting and then the samplers split the core sample intervals. The second half of the core is stored at the core yard for reference and / or further testing.

The detailed logging and sampling procedures are as follows, differences between SurEx and MinEx are mentioned when applicable:

10.4.1.1 Core Logging

Core is reassembled and cleaned, as required, and orientation lines are drawn by the geologist or geotechnicians with arrows along the line pointing downhole (SurEx) or by Major Drilling personnel (MinEx).

- Geotechnical logging is completed by IAMGOLD geotechnicians, who record core recovery, core hardness, RQD, joints, fractures, and the weathering facies into GemsLogger or LogChief software using a laptop. Metre marks are placed on the side of the core box.
- Geological logging is performed by IAMGOLD geologists who verify the geotechnical logging, mark the sampling intervals with a red china marker, assign the sample number, and insert a sample tag at the end of each sampling interval. A vertical line is drawn with a red china marker on the side of the core box at sample boundaries with two arrows on each side pointing away from the line to indicate the beginning and end of a sample interval. In fresh rock, the same markings are placed on the core. The geological features logged by the geologist include elements such as:
    - Weathering
    - Lithology
    - Veining (type, density, thickness)
    - Mineralization/sulphides
    - Alteration
    - Structures
    - Texture
    - Deformation
- A black cutting line is drawn along the core and perpendicular to the main fabric by the geologist or technicians to delineate two symmetrical halves. This line serves as a guide for core splitting at the Mine (SurEx).
- Where core orientation or a black cutting line is available, the core is split along the line, the orientation being preserved by the arrows along the line pointing downhole.
- A sampling log is prepared by geologists with required control samples (blanks and Certified Reference Materials (CRMs)) as per quality assurance/quality control (QA/QC) procedures. For the beginning of every hole, a rock blank is inserted. Then, CRMs and blanks are inserted alternately every 10 samples (SurEx) or 30 samples (MinEx).

- The location of specific gravity determination samples are marked by blue flagging tape tagged on the side of the core tray divider, on which the geologist writes the 'from' and 'to' of the specific gravity sample to later be collected at the Mine (SurEx) or by blue china marker line (MinEx).
- In the case of core logged at the Saramacca camp by SurEx, preliminary core photographs of all core boxes are taken before they are transported to the Mine. Boxes are loaded onto a truck owned by Vonkel Group of Companies N.V. (Vonkel), a long term contractor which also provides logistical field work services. The chain of custody accompanies the core boxes and is signed off at each step from the drill pad to the final delivery to a commercial laboratory.
- The completed digital geological and geotechnical logs are then sent digitally via email to the database manager to be imported into the database in the case of SurEx, or for MinEx, directly imported to the database through LogChief.

10.4.1.2 Core Splitting and Sampling

- Once at the Rosebel core shack, core boxes are sorted on logging tables.
- Sampling is carried out by samplers under the supervision of geologists and / or core shack supervisors who insert control samples and prepare shipment to an external commercial laboratory.
- Photographs of wet and dry core (SurEx) or wet only (MinEx) with inserted sample tags are taken of every core box prior to cutting.
- A machete is used to cut soft rock in two symmetrical halves, while a diamond core saw is employed for hard rock. Core is halved along cutting lines or orientation lines previously drawn.
- Half core is consistently collected from one side and put into a plastic sample bag with the sample ID marked and corresponding sample tag attached to the bag.
- Wood blocks are inserted in core trays at one metre intervals to secure the position of core in the boxes (SurEx).
- Specific gravity samples, previously identified in core trays by blue flagging tape or china marker, are collected (10 cm to 20 cm of half core) and a sample tag with a unique specific gravity sample ID is tagged to the core tray where the sample was taken. A list of all specific gravity samples taken with their sample ID and 'from' and 'to' values is recorded. The list is entered in the database by either the geologist who logged the hole or the database manager. Note that specific gravity samples are collected after assay samples are taken to ensure entire intervals are assayed and there is no gap where a specific gravity sample was collected.

- Using the sampling list provided by the geologists, the core shack leader or the geologist prepares control samples to be inserted with core samples. For SurEx the core shack leader takes a photograph of the control samples with their sample tags attached and then erases the manufacturer's labels from the aluminum foil sachets and places tagged control samples in individually labelled sample bags. MinEx uses a re-tag standard (label) with internal ID numbers.
- Control samples are sequentially inserted among samples.
- Samples are packed in groups of four in rice bags (SurEx) or put in a bin (MinEx) and labelled with the company name (RGM), the sample number interval, the internal project code number, total number of samples in the bag, and the rice bag or bin number.
- The core shack leader or geologist prepares one submittal form per drill hole so that one submittal contains only one complete drill hole and then signs the chain of custody form.
- Rice bags or bins and accompanying submittal and chain of custody forms are transported to the independent accredited Filab Suriname laboratory (Filab) (representative of ALS Limited (ALS) in Suriname, N.V. Paramaribo, Suriname) by a truck owned and operated by Vonkel (SurEx) or by warehouse transportation (MinEx). On occasion or when applicable, the bags are transported to the onsite RGM laboratory (the RGM laboratory) by RGM employees.
- The closed core boxes are piled chronologically, per hole, on a wooden pallet and kept for future reference.

10.4.2 Reverse Circulation Drilling

Sampling is supervised by an IAMGOLD-RGM geologist or technician at the drill site. Drilling personnel collect samples from the Metzke cyclone splitter, while IAMGOLD-RGM personnel are responsible for further handling of the samples including weighing, tagging, logging using GemsLogger or LogChief on a laptop or tablet, and sample handling in preparation for shipment to Filab. The sampling procedures differ slightly between MinEx and SurEx as discussed below and illustrated in Figure 10-1 and Figure 10-2.

10.4.2.1 At the Drilling Site

10.4.2.1.1 SurEx

- Three samples are collected from the cyclone splitter per two metre interval.
- The sample distribution in the cyclone splitter is arranged so that the assay sample weighs approximately three kilograms, while the remaining drill cuttings are collected as back-up samples.
- The samples are collected by the drill crew with utmost care to avoid contamination. The assay and back-up samples are collected continuously from the first and second chute, and the third chute is used every 25 samples to collect a field duplicate.
- The assay samples are weighed, tagged, and logged at the drill site (logged if a geologist is present at the drill site). A representative scoop of the sample is taken from the sample bag and placed in a chip tray for future reference.
- Back-up samples are tied, sorted in sequence with the sample bag opening folded down, covered with a tarpaulin, and left on the drill pad. Once assay results are received and QA/QC procedures are completed, the decision is made to store or discard the back-up samples.
- Assay samples are transported to the Saramacca camp by the IAMGOLD-RGM crew.
- Samples are sorted in sequence. Irregularities, such as missing samples, are reported to the IAMGOLD-RGM geologist responsible for RC drilling.
- If not already done in the field, the geologist logs the drill cuttings accordingly, paying attention to weathering, alteration, texture, structure, mineralization, and veining. Sample weight and sample numbers are entered into GemsLogger.
- Control samples are inserted into the sequence by the geologist.
- A photo of the chip trays for each drill hole is taken for future reference.
- Sample tags are assigned by the geologist.
- Sample bags are placed in rice bags. The sample number intervals and total number of samples in that bag are written on the rice bag.
- Rice bags are shipped along with accompanying submittal and chain of custody forms to Filab by a truck owned and operated by Vonkel.

10.4.2.1.2 MinEx

- Two samples are collected from the cyclone splitter per two metre interval: the assay sample is for assaying at a laboratory (RGM laboratory or commercial) and the geological sample is for logging at the core shack.
- The sample distribution in the cyclone splitter is arranged so that the assay sample weighs approximately five kilograms.
- The samples are collected by the drill crew with utmost care to avoid contamination. The assay and geological samples are collected continuously from the first and second chute, and the third chute is used every 25 samples to collect a field duplicate. A sample tag is inserted in the assay bag, while the geological bag has only the name of the hole written on it.
- The assay samples and the geological samples are transported to the Rosebel core shack facility and are then weighed, tagged, and logged.

10.4.2.2 For the Geological Reference Samples

- A scoop of material is taken and a small portion (half a spoon) of unsieved material is placed in the chip tray with the corresponding sample number. The rest of the material is put in a sieve.
- The material is then sieved with water. Coarse material that does not pass through the sieve is placed in the chip tray box.
- Where there is no remnant in soft saprolite a small scoop of unsieved material is placed in the tray.
- The geologist logs the drill cuttings according to weathering, alteration, texture, structure, mineralization, and veining. Logging information is entered into LogChief.
- A picture of the open chip tray is taken with the hole ID and the depth clearly visible.

10.4.2.3 For the Assay Samples

Control samples, including certified blanks and certified standards are inserted into the sample sequence by the geologist. Control samples are inserted together at 30 sample intervals.

- Sample bags are placed in rice bags. The sample number intervals and total number of samples in the bag are written on the rice bag.

- Rice bags are shipped along with accompanying submittal and chain of custody forms to Filab by warehouse transportation, or when applicable, are transported to the RGM laboratory by RGM employees.

Figure 10-1: Reverse Circulation Sampling Methodology - SurEx

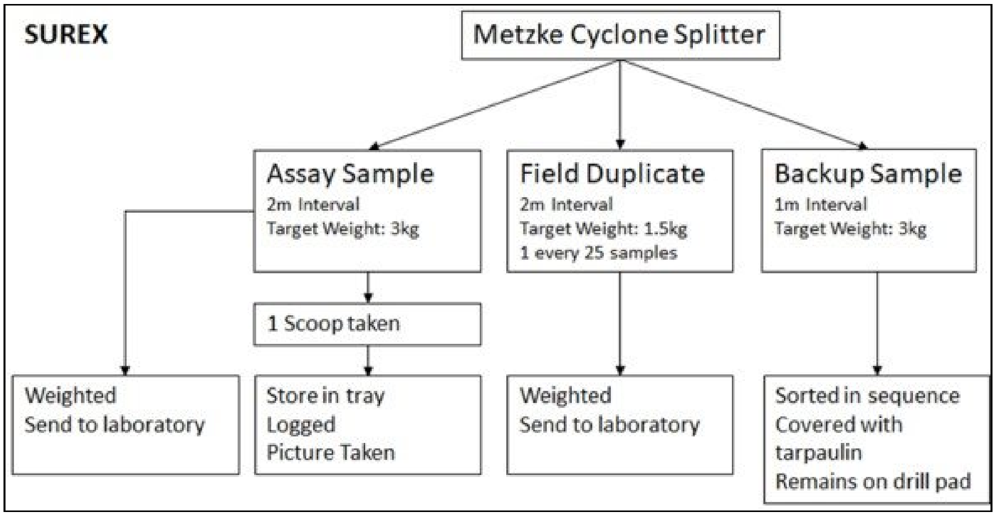
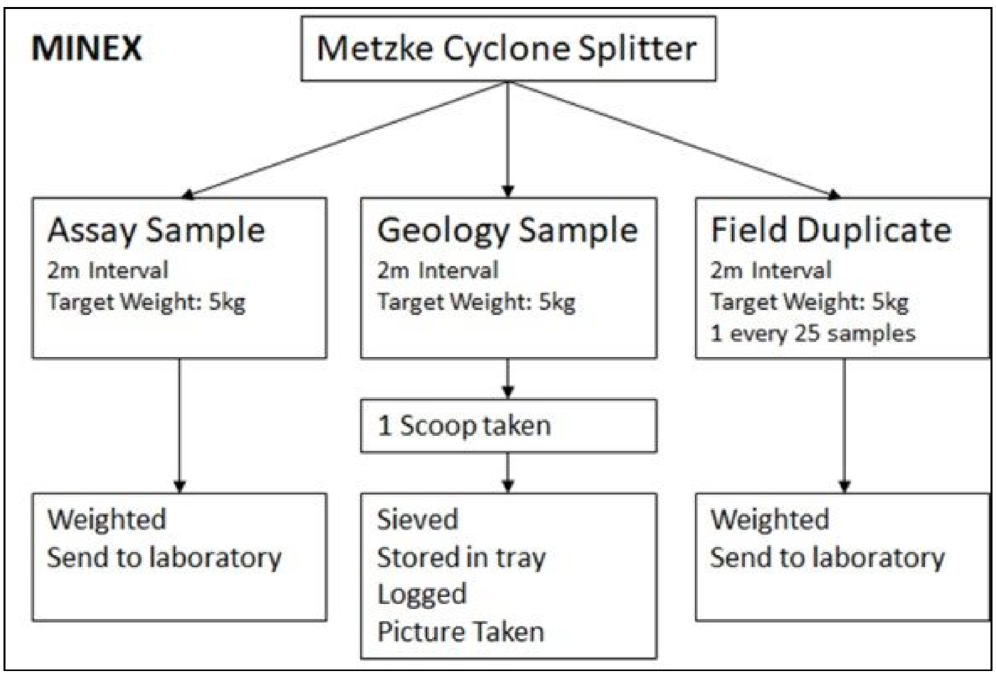


Figure 10-2: Reverse Circulation Sampling Methodology - MinEx



10.5 Specific Gravity Sampling

Specific gravity samples comprise segments of 10 cm of half core deemed representative of their respective unit. Specific gravity samples are collected from the top to the bottom of each DD hole in both mineralized and barren material. Since 2015, samples are collected from Rosebel and Saramacca by MinEx every 10 m in all material. The SurEx team collects samples every 10 m in soft oxidized material down to the transition zone, and thereafter every 25 m in fresh rock. Prior to 2015 the specific gravity samples were taken at each change in weathering type and lithology type, resulting in an average of two to three samples in saprolite and transition material, and a minimum of three samples in hard rock. The frequency may locally increase to cover rapid changes in lithology to ensure all lithotypes are sampled.

Soft samples are wrapped in plastic film and the wrapped sample with a tag is then placed inside a thick paper bag identified with a sample tag. Fresh, hard rock samples do not require wrapping.

Specific gravity is determined by the gravimetric method, where the material is covered in a paraffin wax coat and weighed in air and then suspended in water. Once specific gravity determinations are complete, the laboratory returns the samples, which are then placed back in their original core boxes. Results are transmitted electronically and entered in the database by the database manager.

10.6 Drilling Programs

10.6.1 Rosebel Drilling Program

The first DD programs were carried out at Rosebel between 1992 and 1997. Between 1998 and 2000, Rosebel remained on care and maintenance and no additional drilling was undertaken. Drilling resumed in 2002 with the objective of sterilizing the WRSF at PC, and to conduct additional geotechnical drilling at the Rosebel Plant and tailings pond. Exploration / definition drilling resumed in 2004.

From 2004 to 2021, a total of 824,439 m of DD and 67,977 m of RC drilling have been carried out by MinEx and SurEx at Rosebel. Table 10-1 lists the DD drilling and RC drilling metres by year from 2004 to 2021. Figure 10-3 presents the Rosebel drilling plan.

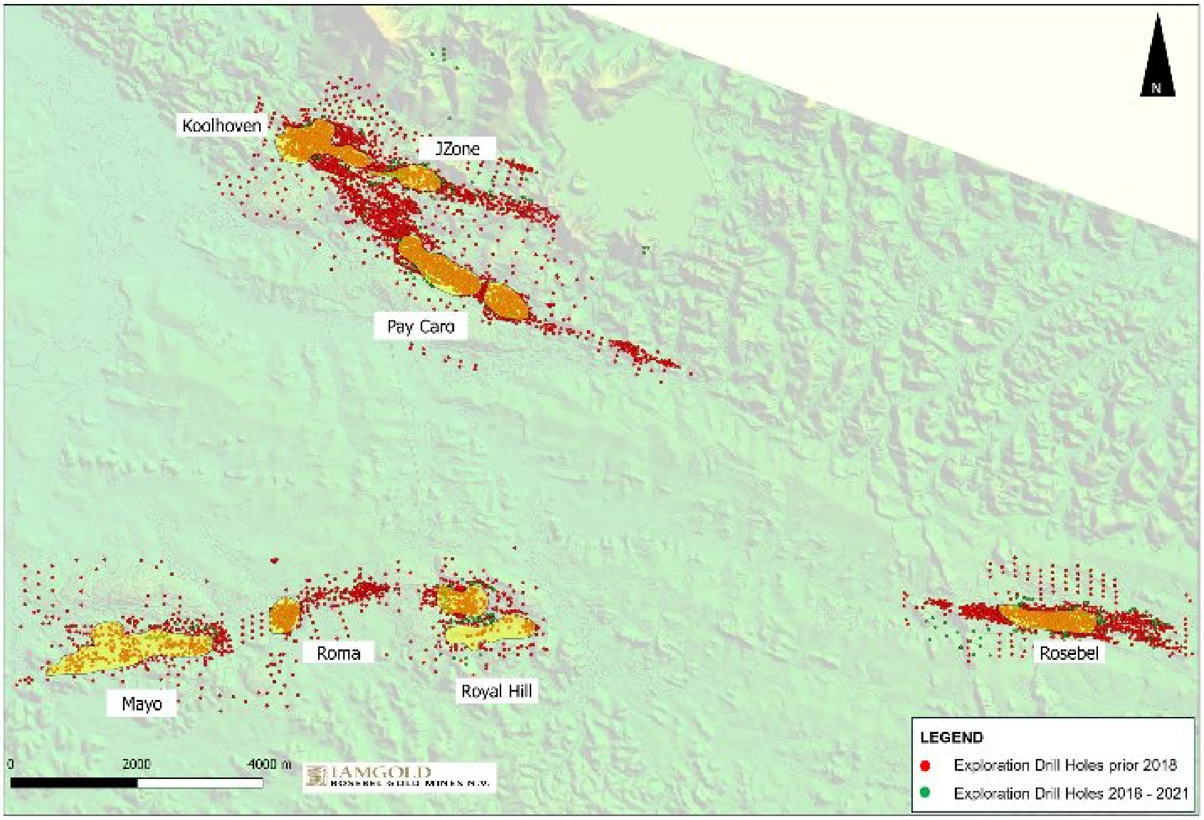
Table 10-1: Rosebel Drilling 2004 to 2021

Year	DD (m)	RC[1] (m)
2004	33,803	-
2005	54,854	-
2006	64,553	-
2007	52,914	-
2008	64,758	-
2009	85,843	-
2010	94,537	-
2011	88,706	-
2012	104,061	-
2013	65,557	-
2014	14,488	13,566
2015	12,229	6,234
2016	19,066	10,762
2017	8,442	31,945
2018	-	-
2019	9,487	4,738
2020	31,690	732
2021	19,451	-
Total	824,439	67,977

Note:

1. Excluding grade control drilling

Figure 10-3: Rosebel Drilling Plan



10.6.2 Saramacca Drilling Program

Historically, Golden Star, and later the Golden Star-Newmont JV, conducted the first phases of DD at Saramacca. Exploration activities by IAMGOLD-RGM, consisting predominately of delineation DD and RC drilling, began in October 2016 after RGM signed a LOA with the Republic to acquire the rights to Saramacca. As per the end of 2021, 126,234 m of DD and 40,518 m of RC drilling have been completed at Saramacca, with a few holes completed on peripheral deep auger or IP anomalies. A breakdown of the drilling, by period, and by company, up to the end of 2021 is presented in Table 10-2 and Figure 10-4.

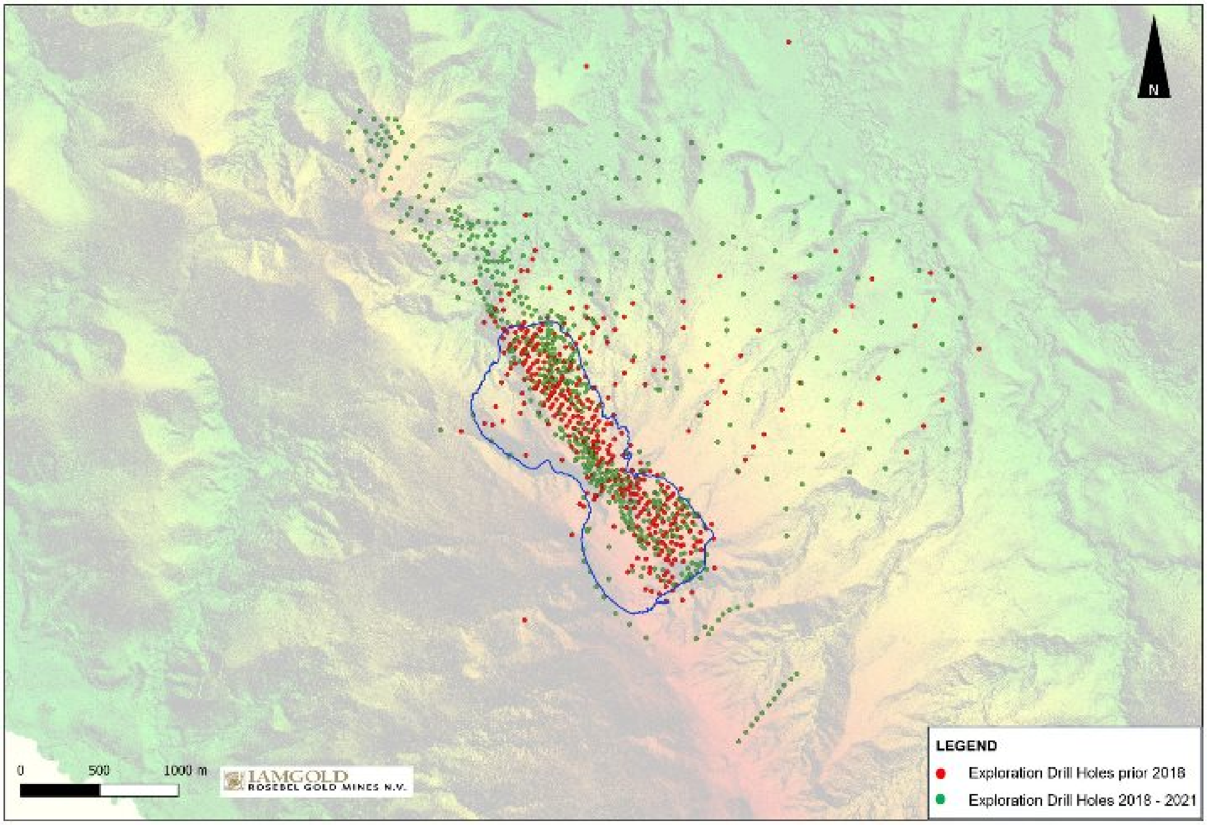
Table 10-2: Saramacca Drilling 2002 to 2021

Year/ Owner	Undefined	DD (m)	RC[1] (m)
Goldstar (2002-2005)	1,160	1,307	-
Goldstar/Newmont (2006-2008)	1,905	3,566	-
Goldstar/Newmont (2009-2010)	-	4,420	-
IAMGOLD-SurEx/MinEx (2016-2018)	-	76,173	4,986
IAMGOLD-MinEx (2018-2021)	-	40,768	35,532
Total	3,065	126,234	40,518

Note:

1. Excluding grade control drilling.

Figure 10-4: Saramacca Drilling Plan



10.6.2.1 Golden Star and Newmont (2005 to 2010)

An initial program of 24 shallow DD holes totalling 1,307 m was carried out on soil Anomaly M during 2005 by Golden Star. Drill holes were 50 m to 70 m in vertical depth and did not exceed 81 m in drilled depth. Drill orientations were 215°E (grid south), except for MA020 and MA021 which were at 035° (grid north) and MA023 and MA024 which were at 250.5°. Drill hole inclinations were - 45° except for MA001, MA002, and MA022 which were at - 55°, and MA023 and MA024 which were at - 50°. Several drill holes reported intersecting mineralized shear zones.

Following geological mapping and an intensive deep auger program, a second phase of DD was carried out from May to November 2008 under Golden Star-Newmont JV (Figure 10-1). A set of 30 DD holes totalling 3,566 m tested the strike and depth extension of the mineralized shears encountered in previous drill holes, the main IP anomalies, and other geochemical targets at Saramacca. The deepest drill hole was 200.8 m.

Newmont completed a third phase of DD comprising 36 holes totalling 4,420 m between May and November 2010 covering the extent of the mineralized footprint (Figure 10-1). Drill orientations were 215°E (grid south), except for GMDH-033 and GMDH-034 which were at 035° (grid north). Drill hole inclinations were systematically - 50°. The maximum drill hole depth was 198 m, while the average drill hole depth was 123 m. Drilling included three short drill holes (GMDH-051 to GMDH-054) that were less than 13.5 m deep to collect duricrust samples for metallurgical tests.

Although geological and assay data were available in the data package provided by the Republic, there is no documentation on the drilling and sampling processes.

10.6.2.2 IAMGOLD (2016 to May 2018)

IAMGOLD-RGM (SurEx) drilled 180 DD holes totalling 34,225 m and 37 RC holes totalling 4,506 m in a two phase drilling program executed between October 2016 and April 2017.

Included in the first phase of drilling, IAMGOLD-RGM twinned 17 of the 90 historical drill holes with DD holes as part of a due diligence process from October to December 2016. The program aimed to expand the mineralized footprint by testing the continuity along strike at a 50 m x 100 m spacing. From January to April 2017, IAMGOLD-RGM followed up on 2016 drilling results and initiated an infill DD program at a 50 m x 50 m spacing, with focus on delineating a potential saprolite resource. One additional historical drill hole was twinned to ensure good spatial distribution of IAMGOLD-RGM drill holes across the mineralized footprint. IAMGOLD-RGM (SurEx) has drilled an additional 26,476 m of DD and 480 m of RC drilling after the initial Mineral Resource estimate was disclosed publicly by IAMGOLD-RGM in a news release dated September 5, 2017 (Table 10-3). MinEx took over the Saramacca project in January 2018 and added another 15,472 m to the total DD metres. The database was closed on May 22, 2018, for the 2018 NI 43-101 (IAMGOLD, 2018).

Table 10-3: Drilling Performed by IAMGOLD-RGM - Between October 2016 and May 2018

Department	DD (m)	RC[1] (m)
SurEx (Oct 2016-Apr 2017)	34,225	4,506
SurEx (Aug 2017-Dec 2017)	26,476	480
MinEx (Jan 2018- May 2018)	15,472	-
Total	76,173	4,986

Note:

1. Excluding grade control drilling.

10.6.2.3 IAMGOLD (June 2018 to 2021)

Following the 2018 NI 43-101 (IAMGOLD, 2018), MinEx has continuously drilled the SM deposit for different purposes including: condemnation, exploration, expansion, and infill. A total of 25,297 m of DD, and 45,014 m of RC drilling have been drilled between June 2018 and the latest model update (excluding grade control drilling). Core recovery is generally good with 90% of the data collected exceeding 75% or higher core recovery. The correlation between gold grades and core recovery is less than ±0.05. Furthermore, no spatial correlation is apparent between areas of poor recovery and higher-grade areas.

Table 10-4 and Table 10-5 summarize the drilling by year and by purpose.

Table 10-4: IAMGOLD-RGM Saramacca Drilling June 2018 to December 2021

Year	**DD (m)**	**RC[1] (m)**
2018	1,311	9,482
2019	14,462	5,720
2020	-	14,732
2021	9,524	15,080
Total	25,297	45,014

Note:

1. Excluding grade control drilling.

Table 10-5: IAMGOLD-RGM Saramacca Drilling by Purpose June 2018 to December 2021

Purpose	**DD (m)**	**RC[1] (m)**
Condemnation	-	9,482
Underground potential	11,168	-
Exploration - NW Extension	1,407	1,508
Exploration - SE Extension	-	2,114
Infill/Expansion	12,722	31,910
Total	25,297	45,014

Note:

1. Excluding grade control drilling.

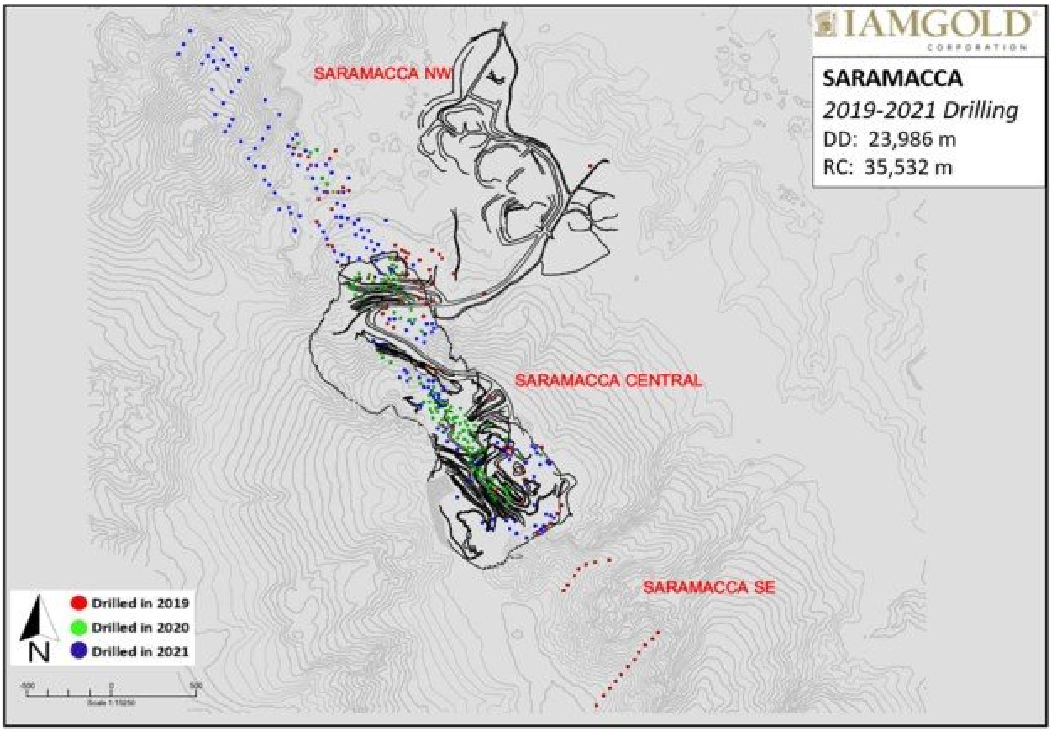
In October 2018 the condemnation program for the SM WRSF was initiated using an RC drill and the program was completed by December 2018 (9,482 m). Several mineralized intercepts were encountered in the proposed WRSF area in the NW extension of the current SM pit (Figure 10). In 2019, drilling comprised of DD and RC drilling was conducted with a total of 1,407 m of DD and 620 m of RC drilling completed as follow up to the condemnation drilling. The length of the area covered by drilling was approximately 500 m along strike. In May 2020 an additional 888 m of RC infill drilling was completed along the mineralized NW extension to upgrade the inferred resource to indicated. In 2021 a total of 8,032 m of RC drilling was completed on the NW extension. Drilling was divided into three areas from which two mineralized zones exhibited encouraging results which will warrant additional drilling.

In November 2018, deeper drilling to assess the underground potential was completed in the NW SM pit area. Two DD holes of more than 600 m were drilled at the end of 2018 (1,311 m). Positive results at depth resulted in the continuation of the underground potential drilling program in the first two quarters of 2019. An additional 9,857 m was drilled, with many of the holes returning positive results. Mineralization, however, did not appear to be continuous below a vertical depth of approximately 550 m and further drilling to assess the underground potential has since been placed on hold.

Infill and expansion drilling with both DD and RC drilling was performed intermittently between Q1 2019 and 2021 (Figure 10). The objective of these drilling campaigns was to increase the confidence in the block model by de-risking the higher grade areas and to follow up on previous positive results (expansion) with the potential to increase the resource shell. A total of 11,768 m of RC drilling and 34,148 m of DD have been drilled from 2019 to 2021.

Systematic infill drilling at 25 m spacing was completed in the SE SM pit, in the area which was planned to be mined in the next three years. Overall, the results confirmed the current model, de-risking the area for which mining started in October 2019. A series of infill scissor holes have also been completed in the NW and the SE SM pits where holes drilled to the SSW appeared to be drilled down dip on small very high grade zones. In all of the cases the holes drilled to the NNE confirmed the presence of very high grade mineralization and helped to constrain the mineralized boundaries and better control smearing of high grade blocks.

Figure 10-5: 2019 to 2021 Saramacca Deposit Reverse Circulation and Diamond Drilling Program



11 SAMPLE PREPARATION, ANALYSIS AND SECURITY

11.1 Summary

Two analytical methods are used to analyze Rosebel and Saramacca DD and RC samples from: FA and Pulverize and Leach (PAL). Samples are processed in two different laboratories: the RGM laboratory and the independent Filab laboratory. Umpire testing of samples from both MinEx and SurEx are conducted through ALS in Vancouver, Canada. Since 2014, Filab and ENZA Analytical Services (ENZA) have been used as check laboratories by the RGM laboratory for the FA process and check assays have been sent to ALS. For PAL samples, the RGM laboratory uses CRS Laboratories Oy-Activation Laboratoires Ltd., Newmont's Merian Gold Mine laboratory in Suriname, and ENZA, as external laboratories.

Filab and ALS are autonomous, commercial geochemical laboratories that operate independently of IAMGOLD-RGM. The RGM laboratory is an internal mine laboratory operated by IAMGOLD-RGM. The RGM laboratory can perform both FA and PAL, while Filab only performs FA.

Filab and ALS are accredited to ISO/IEC 17025 for geochemical analyses, including those used by IAMGOLD-RGM. Filab and the RGM laboratory are audited, at a minimum bimonthly, by IAMGOLD-RGM staff. ALS is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation, Inc. (CARLA) with registration number A1719, including those used by IAMGOLD-RGM. The RGM laboratory has been accredited to ISO 17025 (accreditation number A3711) and has been audited by IAMGOLD-RGM staff a total of 53 times between April 2018 and June 2021.

Prior to 2009 all IAMGOLD-RGM MinEx samples were processed at the RGM laboratory. Since 2009 IAMGOLD-RGM MinEx samples are either processed through the RGM laboratory or Filab, the destination of the sample depends on the availability of the RGM laboratory. For Saramacca, exploration samples collected by IAMGOLD-RGM SurEx from 2016 to 2018 were submitted to Filab, while starting in 2018 the samples collected by IAMGOLD-RGM MinEx were submitted to the RGM laboratory and Filab. Since March 2020 all FA samples from IAMGOLD-RGM MinEx have been sent to Filab for processing.

Rosebel samples can be analyzed using PAL or FA, in most cases the grade control RC samples and exploration RC samples are analyzed through PAL, while the DD samples are analyzed with FA. Saramacca samples (grade control and exploration) are systematically analyzed with FA due to the lower metallurgical recoveries observed with the SM deposit.

For Saramacca, no historical information exists regarding laboratories used by Golden Star and Newmont for exploration samples collected between 2005 and 2010. Sample preparation, analysis, QA/QC, and security procedures for samples taken by Golden Star and Newmont from 2005 to 2010 are also undocumented and therefore unavailable for review. However, as previously mentioned, IAMGOLD-RGM did twin a number of historic drill holes and was able to duplicate the previous results. As such, IAMGOLD-RGM believes the historical data can be used for resource estimation purposes.

In the QP's opinion, the sample preparation, analysis, and security procedures at Rosebel and Saramacca are adequate for use in the estimation of Mineral Resources.

11.2 Sample Security

All samples are collected by, or under the secure supervision of IAMGOLD-RGM personnel, from the time of sampling through to receipt at the primary laboratory.

Samples are transported exclusively by IAMGOLD-RGM personnel or by an independent contractor, Vonkel, between the drill site, Saramacca camp or Rosebel core shack facility, RGM laboratory, and Filab. The samples are recorded on the chain of custody form, grouped by drill hole and signed off by both parties.

The signed chain of custody forms are scanned, filed, and stored, both digitally and as hard copies. Reference halved core pulp, and rejects are stored within a secured perimeter at the Mine.

After the samples have been split and placed in pre-identified plastic bags, they are delivered by core shack personnel to the RGM laboratory or transported by a contractor (Vonkel, SurEx) or RGM Warehouse employee to Filab in Paramaribo (since 2009).

The RGM laboratory is fenced, and has security posted at the entrance. As soon as the samples arrive at the laboratory site, samples are registered using a scanner into the Laboratory Information Management System (LIMS, RGM), or given an internal ID (Filab) and are then stored. To ensure the integrity of each sample shipment, the core shack supervisor/geologist from MinEx, using the submittal sheet, verifies that all samples are accounted for when the samples are shipped out. A submittal sheet is forwarded to the laboratories to verify, at the receiving end, that no samples are missing.

11.3 Sample Preparation and Analysis

11.3.1 Sample Preparation

11.3.1.1 Sample Preparation for Fire Assay (RGM and Filab)

For FA samples preparation, whole samples (four kilogram) are placed in large drying pans in the dryer for approximately four hours at 105˚C to be completely dried. Cooled samples are first crushed to approximately 75% passing - 8 mesh (Bico-Badger crusher) and then one in every 21 samples is screened for percentage passing - 8 mesh. After this first step of comminution, this material is referred to as a coarse sample.

The samples are then riffle split to approximately 800 g and the remainder of the coarse sample is kept by the laboratory conducting the analysis until the Geology department decides which coarse rejects can be discarded. The coarse samples are then pulverized to approximately 95% passing - 170 mesh (Bico UA pulverizer), this material is referred to as pulp. One in every 21 samples is screened for percentage passing - 170 mesh. Material is homogenized by rolling and 30 g (RGM laboratory) or 50 g (Filab) of pulp are sampled, with the remainder of the pulp sample kept by the laboratory conducting the analysis until the Geology department decides which pulp rejects can be discarded. A sand wash is used between pulverizing samples to clean the tool surfaces and prevent contamination.

The excess material coarse rejects and pulp of DD and RC samples are returned to IAMGOLD-RGM and stored securely onsite. A portion of these samples (approximately 8% of total samples) are selected for check assay testing either randomly or to corroborate specific assay results at the umpire laboratory.

11.3.1.2 Sample Preparation for Pulverize and Leach (RGM)

For PAL sample preparation, whole samples (five kilograms) are placed in large drying pans in the dryer for approximately four hours at 105˚C to be completely dried. Cooled samples are first crushed to approximately 75% passing - 8 mesh, and one in every 52 samples is screened for percentage passing - 8 mesh. After this first step of comminution, this material is referred to as a coarse sample. The samples are then riffle split to approximately 800 g and the remainder is kept by the RGM laboratory until the Geology department decides which rejects can be discarded. Three hundred grams of coarse material is sampled for assaying.

11.3.2 Analysis

11.3.2.1 Fire Assay (RGM and Filab)

Approximately 30 g (RGM) or 50 g (Filab) of the pulp at 95% passing 170 mesh is used for the FA analysis. This pulp material is mixed with the appropriate flux and silver nitrate solution and is placed in a crucible. Fusion of the sample occurs in a furnace for 45 minutes at 900˚C. When cooled, the lead button containing gold is separated and placed in a pre-fired cupel which is positioned in the furnace for 30 minutes at approximately 950˚C. When no more molten lead is visible, the gold-silver bead remains in the cupel. The sample is analyzed with atomic absorption (AA) finish to a detection limit of 0.005 g/t Au (Filab code FA50) or 0.014 g/t Au (RGM method code FA-AAS). After 2017, samples exceeding 5 ppm were reanalyzed with a gravimetric finish.

11.3.2.2 Pulverize and Leach System (RGM)

Approximately 300 g of the coarse material greater than 75% passing 8 mesh is precisely measured and used for PAL manipulation. This material is placed in an iron container with 1,000 ml of water, two cyanide assay tabs, and steel balls (two balls of 36 mm, four balls of 27 mm, and 1 kg of 12 mm). The PAL machine grinds and leaches the material for 90 minutes. An aliquot of 10 ml is collected per pot (the PAL system runs 52 pots simultaneously). The aliquot is sent for AA analysis after having filtered out the grinding media.

11.3.2.3 Atomic Absorption and Gravimetry

Most of the analytical results are obtained by AA. This technique makes use of absorption spectrometry to assess the concentration of an analyte in a sample.

For FA, the gold is analyzed in solution. The sample is placed in test tubes and digested into HNO_3 HCL (aqua regia) before readings on the AA spectrometer.

For PAL, the solution collected out of the PAL process is read by the AA spectrometer by direct aspiration.

In case of a high concentration of gold, the sample may be subject to gravimetric finishing by directly weighing the gold. A computer is connected to the machine and records all the collected assays.

11.4 Quality Assurance and Quality Control

QA/QC programs are typically established to ensure the reliability and trustworthiness of the exploration data. These include written field procedures and independent verifications of aspects such as drilling, surveying, sampling, and assaying, data management, and database integrity. Appropriate documentation of quality control (QC) measures and regular analysis of data are important as a safeguard for the project data and form the basis for the quality assurance (QA) program implemented during exploration.

Analytical control measures typically involve internal and external laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying. They are also important to prevent sample mix-ups and for monitoring the voluntary or inadvertent contamination of samples. Assaying protocols typically involve regular duplicate and replicate assays and insertion of QC samples. Check assaying is typically performed as an additional reliability test of assay results. This typically involves re-assaying a set number of rejects and pulps at a secondary umpire laboratory.

Three parameters are assessed to evaluate the quality (sampling and assaying) of secondary laboratories:

1. The contamination usually occurs during the sampling steps. The comminution steps (pulverizing, crushing) are particularly monitored. The contamination issues are detected through the insertion of blanks in each batch of samples or during the sampling process.
2. The accuracy describes how close to a known reference value the laboratory can be. The insertion of standard reference materials (SRMs) or the use of check assay is used to evaluate the accuracy.
3. The precision describes the ability for the laboratory to replicate the grade assay from a duplicate sample. This feature is evaluated by the insertion of duplicates.

IAMGOLD-RGM follows a QA/QC protocol which involves:

- The insertion of CRMs.
- The insertion of certified pulp and rock blanks.
- The insertion of uncertified commercial rock blanks, which were tested to be barren.
- Field duplicates in RC holes.
- Check assays (coarse rejects and pulps).
- Periodic audits at the primary laboratories (Filab and the RGM laboratory).

IAMGOLD-RGM's procedures for QC sample insertion rates are outlined and separate for SurEx and MinEx as the insertion rates differ slightly between the two departments.

11.4.1 Blanks

Since 2014, blank material from Sunway Lab Supplies is used, prior to this barren core material from condemnation drilling was used as blank checks. Blank materials 24c and 26b utilized by SurEx in 2016 and 2017 were sourced from Ore Research & Exploration Pty Ltd of Australia (OREAS) with a certified value of 0.01 g/t Au. A field blank material was also locally sourced for SurEx from an intrusive sill known to be barren with respect to gold and is considered a coarse blank.

The safety limit for blanks is defined as two times the detection limit for pulp blanks and three times the detection limit for coarse blanks. The RGM laboratory detection limit is 0.014 g/t Au, while the Filab detection limit is 0.005 g/t Au.

If any blank is higher than any of these defined safety limits, a contamination issue is detected and the batch or the sequence of samples related to this contaminated blank must be re-assayed.

A contamination period is considered when 10% of the coarse blanks or 5% of the pulp blanks exceed the safety limit. In that case, all the assays between the identified blanks have to be re-assayed and a review investigation completed.

11.4.2 Standard Reference Material

Commercial CRMs are sourced from OREAS for SurEx and Rocklabs Ltd. of Auckland, New Zealand for MinEx. IAMGOLD-RGM has used a total of 13 CRM types between 2017 and 2021 ranging from 0.20 g/t Au to 14.18 g/t Au and these include both the oxide and sulphide facies, summarized in Table 11-1.

Different charts are used to analyze the SRM assays:

- A classical control chart, plotting the results in chronological order as well as the SRM value, the experimental mean, and the experimental standard deviation (σ). This initial chart is usually useful for quickly detecting outliers (all values outside the interval defined by the experimental mean +/- 3σ).
- A bias chart with moving average of the assays plotting within confidence intervals. This visual approach highlights the portions of the moving average exceeding the limits of the confidence interval and indicates the batches that need to be re-analyzed.

If any standard fails, all the samples between this SRM and the next and previous one must be re-assayed. If a trend or bias is observed, an investigation must be run to solve the origin of this abnormal behaviour.

Table 11-1: Summary of Certified Reference Materials Used by IAMGOLD-RGM from 2017 to 2021

Low Grade Au CRM (0 ppm to 1 ppm)				Low Grade Au CRM (1 ppm to 5 ppm)				Low Grade Au CRM (>5 ppm)			
CRM ID	**Expected Value**	**SD**	**Inserts**	**CRM ID**	**Expected Value**	**SD**	**Inserts**	**CRM ID**	**Expected Value**	**SD**	**Inserts**
SurEx				SurEx				SurEx			
250	0.309	0.013	288	209	1.58	0.044	296	210	5.49	0.152	126
252	0.674	0.022	228	254	2.55	0.076	30	257	14.18	0.264	7
202	0.752	0.026	385	-	-	-	-				
MinEx				MinEx							
OxC88	0.203	0.010	1	OxH82	1.278	0.029	24				
OxD87	0.417	0.013	364	SG56	1.027	0.033	136				
SE86	0.595	0.015	189	SG84	1.026	0.025	182				
SE29	0.597	0.016	1	SH55	1.375	0.045	303				
SE101	0.606	0.013	79	SJ53	2.637	0.048	240				
OxE86	0.613	0.021	202	SJ32	2.645	0.068	1				
SF85	0.848	0.018	343	HiSil K2	3.474	0.087	55				
OREAS 220	0.853	0.034	73	OxK94	3.562	0.131	5				
SF100	0.860	0.016	75	-	-	-	-				

Notes:

1. Standard Deviation

11.4.3 Duplicates and Check Assays

Systematic check assaying of coarse reject and pulp material is performed on approximately 2% of MinEx samples at the primary laboratory (either the RGM laboratory or Filab), chosen randomly or to corroborate specific assay results. Approximately 3% of SurEx coarse duplicate samples are submitted for similar check assaying to the primary laboratory.

Two different graphs are used to plot this kind of control:

- The first is a scatter plot of the duplicate/check assays versus the original sample assays to visually detect outliers. All the pairs of data outside the two rejected curves are considered outliers.
- The second is a relative difference control chart. The relative difference is computed with the original sample assays and the duplicate/check assays. It is plotted as a function of the original sample grades. A moving average is also calculated to assist in reading the chart.

As part of the analytical data verification, SurEx and MinEx submit sample pulps to external laboratories (Filab, Chemex, or ALS in Vancouver) for umpire check assay testing. The samples cover a range of gold values and are assayed by FA with an AA finish.

In addition to the inserted control samples, IAMGOLD-RGM SurEx collected one field duplicate every 25 samples from RC holes. No field duplicates were systematically collected in drill core.

11.4.4 Mine Geology Department Quality Control Procedures

Though the needs of the MinEx department and Mine Geology Department differ to some extent, the bulk of the procedure is the same as for the MinEx department. While the QC process exhibits slight differences, the overall goal remains the same, to ensure that both departments can rely on the assay results.

The RGM laboratory QC is made internally and by the client (Mine Geology Department) to maintain the highest possible standard controls. QC is provided by the Mine Geology Department for the RC and blast hole samples by requiring regular re-tagged coarse reject duplicates and by submitting field duplicates. Since the blast hole assays are not used in resource and reserve estimations, the QA/QC results will be developed only for the RC assays (Table 11-2):

- Coarse Reject Duplicates: 1% of the unused fraction of the crushed rock sample has been retagged. These are used to evaluate the reproducibility of results.
- RC Field Duplicates: 3% to 5% of the remaining half-split of an RC sample is mixed/split and retagged with a different number. These are used to verify the homogeneity of a sample after splitting in the field.
- SRM: 0.2% of the samples sent to the RGM laboratory are SRMs used to check the QA/QC of the RGM laboratory.

Table 11-2: Pulverize and Leach Standard Reference Material Summary - Mine Geology

Mine Geology Department Quality Control	
Type of samples	RC
Assaying Method	PAL
Number of Sample	541,143
Number of SRM	837
% of SRM	0.15%
Number of SRM Outlier	69
% of SRM Outlier	8,24%
Number of Coarse Reject Duplicate	1,705
% of Coarse Reject Duplicate	0,32%
Number of Coarse Reject Duplicate Outliers	76
% of Coarse Reject Duplicate Outliers	4,46%
Number of Field Duplicate	631
% of Field Duplicate	5,29%
Number of Field Duplicate Outliers	769
% of Field Duplicate Outliers	2,69%

12 DATA VERIFICATION

12.1 Database Organization

The mineral inventory database is monitored through GEMS 6.7 by Dassault Systemes which is supported by a centralized SQL Server 2014 database (DataShed). This SQL database is hosted on a virtual SQL server under the responsibility of the IT department while the database is under the responsibility of the database administrator.

GEMS is mainly used by the geologists for management of the drilling campaign and packet design. Reserve and resource estimations are made using various software, including LEAPFROG GEO and GEMS. The geological modelling was previously made in GEMS, still current for the nonoperational properties and is currently being transferred into LEAPFROG. The mine planners and the surveyors are using MINESIGHT to complete pit designs, short term planning, Whittle shells and to record spatial information.

Each deposit forms a distinct Mineral Resources project which is hosted within the DataShed database. The historical GEMS projects are made of different workspaces which are a grouping of data within a project on the basis of type, such as points, drill holes, polylines, polygons, and triangulation (solids and surfaces). Workspaces are organized into tables, with each workspace consisting of at least one header table and potentially an unlimited number of sub-tables. Projects that are being transferred into LEAPFROG use the same data hierarchy.

The DataShed database has a high security level administered in SQL via SQL Server Management Studio, a graphical interface of SQL 2014. The mine employees requiring the use of DataShed must ask permissions. Permissions are one per user basis and are obtained through a form which needs to be signed by the department head and the Database Administrator. Only after this has been completed the user will be assigned a role within DataShed. All individuals have read access, but only selected users may have written access to other departments data within Mine Technical Services. In DataShed, for each project there are six main roles having distinct permissions for each workspace (BLOCK, SUR, PLN, GEO, ENG, and OC). When a user is added to a role, he / she automatically gets the permissions attributed to this role. Special restrictions are applied for critical data: 1) the block model workspaces can only be modified by the resource geologists and the database administrator, 2) the assays table from drill holes are read-only once the results have been imported. The management of those permissions is monitored by the Database Administrator and the Chief Geologist.

Backups of the databases are made daily under the supervision of the database administrator. These backups are part of a back-up plan that automatically runs every night. Daily backups are kept for six days, weekly backups are kept for two weeks, and monthly backups are kept for two months. These backups are full backups and are kept on a separate storage disk.

12.2 Drill Hole Validation

The geological data from the exploration program is imported in the database via LogChief, a logging software provided by Maxwell Geoservices, which is linked to the central database.

After the logging and assaying information have been imported into GEMS through the logger, the geologist who logged the hole and their supervisor are responsible to do a validation of the data including 1) visual validation of the drill hole in Gems, 2) cross-check for overlapping and missing intervals using the Gemcom validation tool, 3) do the QC check on the samples when the results are received.

When the QC has been completed and all of the data has been validated, confidence in this data is considered adequate to be used in the Mineral Resource estimations. Beyond this, an extra validation is completed by the resource geologist to ensure the integrity of the data used.

It is the QP's opinion that the logging, sampling procedures, and data entries were completed to industry standards. It is the QP's opinion that the database is adequate to support a Mineral Resource estimate on the Rosebel concessions.

12.3 Data Verification

12.3.1 Verifications by IAMGOLD-RGM

IAMGOLD-RGM employed QA/QC actions to provide adequate confidence in data collection and processing. During drilling, experienced IAMGOLD-RGM geologists implemented industry standard measures designed to ensure the reliability and trustworthiness of exploration data.

Database verifications consisted of monitoring all data imported into the database for errors, such as overlapping sample intervals or missing information. Monitoring of data was completed manually, and with the use of a database program.

Regular analysis of analytical QC data was undertaken by IAMGOLD-RGM following the IAMGOLD FA Guidelines. These guidelines state that when a QC failure occurs, all samples between two acceptable standards surrounding the failure must have their rejects and pulps re-assayed with new control samples, and the project geologist is notified of the failure. A QC failure was defined by IAMGOLD-RGM as, for any given sample batch, the analysis of two standard samples outside of two standard deviations, or one standard sample outside of three standard deviations.

As part of the analytical data verification, IAMGOLD submitted a selection of sample pulps and coarse rejects to a selection of external laboratories for umpire testing. The samples selected represented a range of gold values and were analyzed by FA with an AA finish.

12.3.2 Verification by SRK

12.3.2.1 Site Visit

Dr. Mitrofanov first visited the property between June 21 and June 23, 2019, and most recently between February 7 to March 28, 2021.The purpose of the site visit was to review the updated exploration database and validation procedures, review exploration procedures, examine drill core, interview project personnel, reassess geological modelling procedures, update the geological model, and collect all relevant information for the preparation of a revised Mineral Resource model and the compilation of a technical report.

SRK was given full access to relevant data and conducted interviews with IAMGOLD-RGM personnel to obtain information on the past exploration work, to understand procedures used to collect, record, store and analyze historical and current exploration data.

12.3.2.2 Verifications of Resources Database for Saramacca

IAMGOLD provided the resource database as comma-separated values (CSV) files. The first set of header, down-hole survey, lithology, alteration, structure and geotechnical logging intervals, and assay results were received on January 7, 2021. SRK and IAMGOLD worked together to clean and fix some technical issues and missed intervals in the database so the final database for this updated resource estimate was developed on January 21, 2021. The drilling database comprises 90 historical drill holes, 359 drill holes drilled by IAMGOLD's SurEx group, 478 drill holes drilled by IAMGOLD's MinEx group, and 6,876 grade control drill holes. Included are three new exploration drill holes and 6,876 grade control drill holes since the 2020 internal mineral resource model. Historical drill holes were drilled by Golden Star (2008 to 2010) and Newmont (2005). Table 12-1 provides a summary of available drill holes. The effective date of the drilling database is January 21, 2021, with SMRC-0236 as the last drill hole added to the exploration database.

All drill hole collars were surveyed according to UTM coordinates (Zone 21N) with elevation (Z) lifted to +500 m to avoid negative elevation values in the pit levels. Golden Star completed downhole surveys at intervals of approximately 50 m. IAMGOLD's downhole surveys were completed, using a Reflex EZ-TRAC downhole survey tool for the DD holes. For RC holes, IAMGOLD completed downhole surveys at 10 m intervals using a gyroscopic downhole survey tool.

Core recovery is generally good with 90% of the data collected exceeding 75% or higher core recovery. The correlation between gold grades and core recovery is less than ±0.05. Further, no spatial correlation is apparent between areas of poor recovery and higher grade areas.

SRK was provided with 208,563 assayed intervals (372,841 m) which represents 137% increase in comparison with the database used for 2020 mineral resource model. The difference is mostly comprised by the grade control samples, the overall increase in the exploration sampled length is 0.3%.

IAMGOLD provided two types of grade control data: shorter grade control RC holes that are drilled to a depth of 38 m, and longer, infill-type holes that are drilled deeper than 38 m. SRK understands that after February 2020, sample intervals deeper than 38 m of the infill holes followed similar analytical QC protocols as the exploration holes. As such, SRK considers that all the grade control assay values may be useful for contouring of the mineralization zones, however, only those grade control infill hole intervals deeper than 38 m and drilled after February 2020 may be considered as conditioning data for mineral resource estimation. Table 12-1 presents the database distribution.

Table 12-1: Saramacca Drilling Database as of January 21, 2021

Company	Diamond		Reverse Circulation		Total	
	Number	Metres	Number	Metres	Number	Metres
Golden Star	66	7,986	-	-	66	7,986
Newmont	24	1,307	-	-	24	1,307
IAMGOLD - SurEx	318	66,666	41	4,986	359	71,652
IAMGOLD - MinEx	162	37,968	316	40,908	478	78,876
IAMGOLD - Grade Control	-	-	6,876	297,195	6,876	297,195
Total	570	113,927	7,233	343,089	7,803	457,016

12.3.2.2.1 <u>Verifications of Analytical Quality Control Data Saramacca</u>

SRK reviewed the analytical QC data produced by IAMGOLD from the drilling programs conducted on the SM deposit. All data were provided to SRK in Microsoft Excel spreadsheets. SRK aggregated the assay results of the external analytical control samples for further analysis. Control samples (blanks and CRMs) were summarized on time series plots to highlight their performance. Paired data (preparation, pulp, umpire, and laboratory internal pulp duplicate assays) were analyzed using bias charts, quantile-quantile, and relative precision plots. The type of analytical QC data collected, and their associated performances are discussed below and summarized in Table 12-1.

SRK analyzed the QC data produced for the SM deposit prior to 2019, summarized in 2017 and 2019 technical reports, as well as an internal report presented to IAMGOLD on August 6, 2020. Analytical QC data results produced for the SM deposit from 2018 to 2020 are discussed below and summarized in Table 12-2.

Table 12-2: Summary of the Saramacca Analytical Control Data (2018 to 2020)

	Mine Exploration				Mine Grade Control			
	DD	**(%)**	**RC**	**(%)**	**RC (Infill)**	**(%)**	**RC (No Infill)**	**(%)**
Sample Count	28,502		18,098		19,346		26,431	
Blanks	1,065	3.7%	440	2.4%	449	2.3%	6	0.0%
QC samples	787	2.8%	278	1.5%	488	2.5%	10	0.0%
Field Duplicates	-	-	567	3.1%	572	3.0%	1,898	7.2%
Total QC Samples	1,852	6.5%	1,285	7.1%	1,509	7.8%	1,914	7.2%
Coarse Reject Duplicates								
ALS	467	1.6%	-	-	-	-	-	-
Filab	118	0.4%	-	-	-	-	-	-
SGS	-	-	163	0.9%	-	-	-	-
Pulp Duplicates								
ENZA	466	1.6%	-	-	-	-	-	-
ALS	-	-	-	-	-	-	-	-
Filab	98	0.3%	98	0.5%	-	-	-	-
SGS	-	-	127	0.7%	-	-	-	-

In general, analyses of blank samples consistently yielded gold values near or below the detection limit of the primary laboratories (RGM laboratory and Filab). The performance of blank samples between 2018 and 2020 is acceptable with little to no sample contamination detected and less than 0.5% returning values above 10 times the detection limit.

IAMGOLD used a total of 15 certified SRM types for the SM deposit between 2018 and 2020 with a variable range of expected gold values. Overall, the performance of samples analyzed at the RGM laboratory exhibited lower overall accuracy and precision than those analyzed at Filab, except for standard OxD87 which exhibits a positive bias at Filab and should be investigated. In general, the performances of materials at both labs are acceptable with failure rates ranging from 0% to 35%. Many extreme outliers for certain reference materials are attributed to the mislabeling of standards in the logging stage.

Four standards had failure rates of over 20%, which were reviewed closely and discussed with IAMGOLD in June 2020. Prior to 2020, standards OxD87, SG56, SH55 and SJ53 demonstrated poor performances with biases indicating potential improper calibration of laboratory equipment at the RGM laboratory. The performances of these standards show improvement in the second half of 2019. The use of SRMs SG56, SH55 and SJ53 have been discontinued by IAMGOLD. Although the overall precision has improved, standard OxD87 demonstrates a positive bias for discrete time periods in September and November 2020, which should be investigated further.

IAMGOLD submitted sample pulps and coarse rejects originally assayed by the RGM laboratory to ENZA, Filab and ALS for umpire laboratory testing, representing approximately 6% of DD samples between 2018 and 2020, and 4% of RC exploration samples between 2019 and 2020.

Rank half absolute difference (HARD) plots show for the available data sets that between approximately 40% and 66% of coarse reject samples, and 44% to 63% of pulp samples had HARD values is below 10% Although the percentage of umpire pulp duplicate samples below 10% is low for this type of sample, the correlation coefficients were between 0.86 and 0.98. Reproducibility of assays from pulp material between Filab and the RGM laboratory during 2019 reveals a positive bias for grades over 0.1 g/t Au. This issue is not reflective in the pulp replicates from coarse reject material analyzed at the same laboratory for the same period, indicating a potential mixing issue within the sample preparation stage at one of the laboratories.

12.3.2.2.2 SRK Comments on Saramacca

Based on SRK's site visits completed in June 2017, January 2018, June 2019, and February 2021, SRK believes that drilling, logging, core handling, core storage, and analytical QC protocols used by IAMGOLD meet generally accepted industry best practices. As a result, SRK considers that the exploration data collected by IAMGOLD and previous project operators are of sufficient quality to support mineral resource estimation.

In general, the performance and precision of certain reference materials analyzed by the RGM laboratory has continued to improve since 2019. SRK strongly encourages continued diligence in monitoring analytical QC data produced by the primary laboratories and investigating poor performances to institute corrective action when required.

12.3.2.3 Verifications of Resources Database for Koolhoven-J Zone

IAMGOLD provided the resource database as comma-separated values (CSV) files. The first set of headers, downhole survey, lithology, alteration, structure and geotechnical logging intervals, and assay results was received on January 7, 2021. SRK and IAMGOLD worked together to clean and fix some technical issues and missed intervals for 2016 grade control drilling in the database so the final database for this December 31, 2021 resource estimate was developed on February 10, 2021. The drilling database comprises 1,343 DD (198,622 m) and 52 RC (6,956 m) exploration drill holes as well as 9,112 (380,071 m) grade control RC drill holes. This represents a 40% increase in drilled metres in comparison with the database used for the 2018 mineral resource estimate.

Table 12-3 provides a summary of available drill holes. The effective date of the drilling database is January 7, 2021, with KH-JZ KHD-805 and JZD-472 as the last DD holes, and JZ558-RC002-U-11 as the last RC drill hole, added to the exploration database.

All drill hole collars were surveyed according to the local mine grid using a ground based high precision Leica GPS unit. Drill-hole surveys are completed using Flex-IT/Reflex single shot/multishot instrument which can also provide magnetometric data down the length of the hole for DD holes. For RC holes, IAMGOLD completed downhole surveys at 10 m intervals using a gyroscopic downhole survey tool.

Core recovery is generally good with 90%t of the data collected exceeding 75% or higher core recovery. The correlation between gold grades and core recovery is less than ±0.05. Further, no spatial correlation is apparent between areas of poor recovery and higher grade areas.

SRK was provided with 300,775 assayed intervals (585,648 m) which represents a 35% increase in comparison with the database used for the 2018 mineral resource model (Table 12-2). SRK corrected several insignificant technical errors in the database.

IAMGOLD provided two types of grade control data: shorter grade control RC holes that are drilled to a depth of 38 m, and longer, infill-type holes that are drilled deeper than 38 m. SRK understands that after February 2020, sample intervals deeper than 38 m of the infill holes followed similar analytical QC protocols as the exploration holes. As such, SRK considers that all the grade control assay values may be useful for contouring of the mineralization zones, however, only those grade control infill hole intervals deeper than 38 m and drilled after February 2020 may be considered as conditioning data for mineral resource estimation.

Table 12-3: Koolhoven-J Zone Drilling Database

Year	Project	Data	DD	RC			Total
			EXP	EXP	GC	Total RC	
2018 TR Reported	KH	Collars	838	-	-	9	847
		Drilled Metres	117,282	-	-	1,278	118,560
		Assays	77,893	-	-	639	78,532
	JZ	Collars	456	-	-	5,157	5,613
		Drilled Metres	65,147	-	-	234,741	299,888
		Assays	43,195	-	-	101,372	144,567
	Total	Collars	1,294	-	-	5,166	6,460
		Drilled Metres	182,429	-	-	236,019	418,448
		Assays	121,088	-	-	102,011	223,099
2021 SRK Provided	KH	Collars	853	9	-	9	862
		Drilled Metres	124,655	1,278	-	1,278	125,933
		Assays	82,993	638	-	638	83,631
	JZ	Collars	490	43	9,112	9,155	9,645
		Drilled Metres	73,967	5,678	380,071	385,749	459,715
		Assays	50,045	2,836	164,263	167,099	217,144
	Total	Collars	1,343	52	9,112	9,164	10,507
		Drilled Metres	198,622	6,956	380,071	387,027	585,648
		Assays	133,038	3,474	164,263	167,737	300,775
2021 Addition %	KH	Collars	1.8%	-	-	0.0%	1.8%
		Drilled Metres	6.3%	-	-	0.0%	6.2%
		Assays	6.5%	-	-	-0.2%	6.5%
	JZ	Collars	7.5%	-	-	77.5%	71.8%
		Drilled Metres	13.5%	-	-	64.3%	53.3%
		Assays	15.9%	-	-	64.8%	50.2%
	Total	Collars	3.8%	-	-	77.4%	62.6%
		Drilled Metres	8.9%	-	-	64.0%	40.0%
		Assays	9.9%	-	-	64.4%	34.8%

Notes:

1. EXP = exploration, GC = grade control

12.3.2.3.1 SRK Verifications of Analytical Quality Control Data for Koolhoven-J Zone

SRK reviewed the analytical QC data produced by IAMGOLD from the drilling programs conducted at KH-JZ. All data were provided to SRK in Microsoft Excel spreadsheets. SRK aggregated the assay results of the external analytical control samples for further analysis. Control samples (blanks and CRMs) were summarized on time series plots to highlight their performance. Paired data (preparation, pulp, umpire, and laboratory internal pulp duplicate assays) were analyzed using bias charts, quantile-quantile, and relative precision plots.

A summary of analytical QC data produced by IAMGOLD for KH-JZ is shown in Table 12-4. IAMGOLD has used a large number of SRMs between 2009 and 2020, totalling over 40.

Overall, the performance for the majority of these materials is acceptable with failure rates typically below 5% for those samples used most recently. However, overall failure rates for standards ranged from 0% to 87%. Although biases for certain materials may indicate issues in laboratory analyses, standard materials exhibiting failure rates higher than 20% often had sample counts lower than 50 due to discontinued use, and therefore the statistical performance of some of these materials may be unevolved or undetermined. Additionally, samples analyzed at the RGM laboratory exhibited lower accuracy and precision which resulted in higher failure rates than those that were analyzed at Filab for the same time period. The poorer performances observed at the RGM laboratory demonstrate a need for close observation of analytical QC assay results and diligent corrective action when appropriate.

In general, analyses of blank samples consistently yielded gold values near or below the detection limit of the primary laboratory, with less than 2% of samples returning assay results above 10 times the detection limit. Similar to the performance of SRM, the performance of blank samples at both the RGM laboratory and Filab has improved significantly since 2009, most notably after 2012. Certain reference materials with poor performances (i.e., SH55, SG56, SJ39) have been discontinued by IAMGOLD.

A selection of DD samples analyzed by Filab were chosen randomly by IAMGOLD staff for repeat analysis at the RGM laboratory and various umpire laboratories from additional pulp and coarse reject material, representing less than 1% of total samples taken since 2009.

Table 12-4: Summary of Analytical Quality Control Data Produced for Koolhoven-J Zone (2009 to 2020)

	Mine Exploration				Mine Grade Control			
	DD	**(%)**	**RC**	**(%)**	**RC (Infill)**	**(%)**	**RC (No Infill)**	**(%)**
Sample Count	133,026		3,474		17,828		100,328	
Blanks	1,454	1.1%	196	5.6%	-	-	-	-
QC samples	1,573	1.2%	127	3.7%	-	-	36	0.1%
Field Duplicates	-	-	131	3.8%	268	1.5%	4,034	4.0%
Coarse Reject Duplicates	290	0.2%	-	-	-	-	-	-
Pulp Duplicates	55	0.0%	-	-	-	-	-	-
Total QC Samples	3,372	2.5%	454	13.1%	268	1.5%	4,070	4.1%
Coarse Reject Duplicates								
ENZA	25	0.0%	-	-	-	-	-	-
Filab	25	0.0%	-	-	-	-	-	-
Pulp Duplicates								
ENZA	16	0.0%	-	-	-	-	-	-
ALS	118		-	-	-	-	-	-
Filab	61	0.0%	-	-	-	-	-	-
SGS	46	0.0%	-	-	-	-	-	-

Reproducibility of core assays from pulp material at the RGM laboratory was generally satisfactory with correlation coefficients between 0.93 and 0.99 and no obvious evidence of analytical bias.

Paired coarse reject data demonstrates poor reproducibility between samples and laboratories with between 13% and 33% of sample pairs with HARD values below 10%, indicating small scale grade variability for these coarse samples.

Half Absolute Relative Difference (HARD) plots suggested that between 33% and 61% of the umpire check assays conducted on pulps had HARD values below 10%. This is typically considered low for this type of data and may indicate an opportunity to improve the homogeneity of pulp material at the sample preparation stage. The available datasets for this type of analytical QC sample were small with less than 120 sample pairs available for analysis for each grouping. Despite this, there was no evidence indicating significant analytical bias and 80% of data returned HARD values below 30%, suggesting mostly moderate reproducibility between the primary and umpire laboratories used.

12.3.2.3.2 SRK Comments on Koolhoven-J Zone

Based on SRK's site visit completed in February-March 2021 focused on KH-JZ and numerous site visits in 2017-2019 (related to the Saramacca project with similar data collection methods), SRK believes that drilling, logging, core handling, core storage, and analytical QC protocols used by IAMGOLD meet generally accepted industry best practices. As a result, SRK considers that the exploration data collected by IAMGOLD are of sufficient quality to support mineral resource evaluation.

The high number of SRMs used on KH-JZ makes it in part difficult to assess their performances due to small sample populations resulting in undeveloped statistical trends. SRK strongly encourages consistency in keeping a select number of reference materials over a range of appropriate gold grades in order to develop a meaningful statistical performance going forward.

In general, the performance and precision of certain reference materials analyzed by the RGM laboratory has continued to improve since 2019. However, samples analyzed at the RGM laboratory demonstrate assay results with notably lower accuracy and precision when compared with results produced by Filab for similar time periods. SRK strongly encourages continued diligence in monitoring analytical QC data produced by the primary laboratories and investigating poor performances to institute corrective action when required.

12.3.2.4 Verifications of Resource Database for Royal Hill

IAMGOLD provided the mineral resource database as comma-separated values (CSV) files. The first set of header, downhole survey, lithology, alteration, structure and geotechnical logging intervals, and assay results was received on March 4, 2021. SRK and IAMGOLD collaborated to clean and remediate some technical issues and missing intervals for grade control drilling in the database so the final database for this updated resource estimate was finalized on March 6, 2021. Specific gravity information was provided on March 23, 2021, due to delays in receiving the results from the RGM laboratory. The drilling database comprises 1,130 DD (175,771 m) and 19 RC (2,722 m) exploration drill holes as well as 9,802 (401,445 m) grade control RC drill holes. This represents a 69% increase in drilled metres in comparison with the database used for the latest publicly disclosed mineral resource estimate effective September 23, 2018. Table 12-5 tabulates a summary of available drill holes. The effective date of the drilling database is March 6, 2021, with RHD-1052 and RH513-RC004-Z-14 as the last DD and RC drill holes, respectively, added to the exploration database.

Table 12-5: Royal Hill Drilling Database

Year	Data	DD	RC			Total
		Exploration	Exploration	Grade Control	Total RC	
2018 TR Reported	Collars	1,087	-	-	3,920	5,007
	Drilled Metres	164,528	-	-	178,768	343,296
	Assays	117,298	-	-	76,373	193,671
2021 SRK Provided	Collars	1,130	19	9,802	9,821	10,951
	Drilled Metres	175,771	2,722	401,445	404,167	579,938
	Assays	125,663	1,345	166,530	167,875	293,538
2021 Addition %	Collars	4.0%	-	-	150.5%	118.7%
	Drilled Metres	6.8%	-	-	126.1%	68.9%
	Assays	7.1%	-	-	119.8%	51.6%

All drill hole collars were surveyed according to the local mine grid using a ground based high precision Leica GPS unit. Drill-hole surveys are completed using Flex-IT/Reflex single shot/multishot instrument which can also provide magnetometric data down the length of the hole for DD holes. For RC holes, IAMGOLD completed downhole surveys at 10 m intervals using a gyroscopic downhole survey tool.

Core recovery is generally good with 90% of the data collected exceeding 75% or higher core recovery. The correlation between gold grades and core recovery is less than ±0.01. Furthermore, no spatial correlation is apparent between areas of poor recovery and higher grade areas.

SRK was provided with 293,538 assayed intervals (579,938 m) which represents a 52% increase in comparison with the database used for the 2018 mineral resource model, most of which comes from RC holes. SRK corrected several insignificant technical errors in the database prior to finalization and communicated these issues with RGM staff.

IAMGOLD provided two types of grade control data: shorter grade control RC holes that are drilled to a depth of 38 m, and longer, infill-type holes that are drilled deeper than 38 m. SRK understands that after February 2020, sample intervals deeper than 38 m of the infill holes followed similar analytical QC protocols as the exploration holes. As such, SRK considers that all the grade control assay values may be useful for contouring of the mineralization zones, however, only those grade control infill hole intervals deeper than 38 m and drilled after February 2020 may be considered as conditioning data for mineral resource estimation. IAMGOLD provided a list of 128 infill grade control RC holes that satisfies both criteria. These 128 drill holes are included in the estimation database.

12.3.2.4.1 Verifications of Analytical Quality Control Data for Royal Hill

SRK reviewed the analytical QC data produced by IAMGOLD from the drilling programs conducted at RH. All data were provided to SRK in Microsoft Excel spreadsheets. SRK aggregated the assay results of the external analytical control samples for further analysis. Control samples (blanks and CRMs) were summarized on time series plots to highlight their performance. Paired data (preparation, pulp, umpire, and laboratory internal pulp duplicate assays) were analyzed using bias charts, quantile-quantile, and relative precision plots.

A summary of analytical QC data produced by IAMGOLD for RH is shown in Table 12-6. Similar to KH-JZ, IAMGOLD used a large number of certified reference materials between 2009 and 2020 for RH, with a majority of sample counts below 50 due to discontinued use.

Many failures are a result of the mislabeling of standards in the logging process. However, some poor performances exhibited at the RGM laboratory (such as poor precision and calibration drift) have improved in recent years. The majority of SRMs that exhibited poor performances were discontinued by IAMGOLD, such as SG56, SJ53 and OxP61, which had demonstrated failure rates between 43% and 46% due to the poor results returned from the RGM laboratory.

Table 12-6: Summary of Royal Hill Analytical Quality Control Data (2009 to 2020)

	Mine Exploration				Mine Grade Control	
	DD	**(%)**	**RC**	**(%)**	**RC**	**(%)**
Sample Count	125,663		1,345		166,530	
Blanks	1,011	0.8%	76	5.7%	52	0.0%
QC samples	1,189	0.9%	52	3.9%	21	0.0%
Field Duplicates	-	-	50	3.7%	3,687	2.2%
Coarse Reject Duplicates	183	0.1%	-	-	-	-
Pulp Duplicates	63	0.1%	-	-	-	-
Total QC Samples	2,446	1.9%	178	13.2%	3,760	2.3%
Coarse Reject Duplicates						
ENZA	66	0.1%	-	-	-	-
ALS	40	0.0%	-	-	-	-
Filab	30	0.0%	-	-	-	-
SGS	66	0.1%	-	-	-	-
Pulp Duplicates						
ENZA	71	0.1%	-	-	-	-
ALS	138	0.1%	-	-	-	-
Filab	33	0.0%	-	-	-	-
SGS	76	0.1%	-	-	-	-

The performance of blank samples consistently yielded gold values near or below the detection limit of the primary laboratory, with less than 4% of samples returning assay results above 10 times the detection limit. Similar to the performance of SRM, the performance of blank samples at both the RGM laboratory and Filab has improved significantly after 2012.

Less than 1% of DD samples were chosen randomly by RGM staff from additional coarse reject and pulp material and sent to RGM laboratory as well as various umpire laboratories for repeat analysis.

Considering a sample size of 63 samples, reproducibility of core assays from pulp material at the RGM laboratory was generally satisfactory with a correlation coefficient of 0.90 and no obvious evidence of analytical bias.

Paired coarse reject data demonstrates poor reproducibility between samples and laboratories with between 13% and 33% of sample pairs with HARD values below 10%, indicating small scale grade variability for these samples.

Paired data suggested that between 24% and 61% of the umpire check assays conducted on pulps had HARD below 10%, which is typically considered low. However, there was no evidence indicating significant analytical bias and the correlation coefficients for these datasets were between 0.66 and 0.99, suggesting moderate reproducibility between the primary and umpire laboratories. The available datasets for this type of analytical QC sample were small with less than 125 sample pairs available for analysis for each paired group.

12.3.2.4.2 SRK Comments on Royal Hill

Based on SRK's site visit completed in February-March 2021 which was partially focused on RH, and numerous site visits in 2017-2019 (related to the Saramacca project with similar data collection methods), SRK believes that drilling, logging, core handling, core storage, and analytical QC protocols used by IAMGOLD meet generally accepted industry best practices. As a result, SRK considers that the exploration data collected by IAMGOLD are of sufficient quality to support mineral resource evaluation.

The high number of SRMs used at both KH-JZ and RH make it in part difficult to assess their performances due to small sample populations resulting in undeveloped statistical trends. SRK strongly emphasizes consistency in keeping a select number of reference materials over a range of appropriate gold grades in order to develop a meaningful statistical performance going forward.

SRK encourages continued diligence investigating and instituting corrective action for poor analytical performances of QC data and when required.

12.3.3 Verification of Resource Database by WSP for: Pay Caro, Rosebel, Mayo, Overman

In 2020, WSP completed a resource update on PC, RB, and MA deposits. For this exercise, RGM provided all the drill hole data in a CSV format and the surfaces and solids in a DXF format.

WSP conducted a site visit of the Rosebel property on September 24 to October 1, 2021. During this visit, the following pits were visited:

- RB
- PC
- MA

RH was also visited to observe the operation of an RC drill.

During the site visit, WSP completed the following activities:

- Review Core Shack operations:
  - Collar staking procedure
  - Core preparation
  - Logging
  - Sample selection and splitting
  - Core photography
  - Insertions of standards and blanks
  - Organization and storage of the data.
- Visited selected DDH locations - compare collar vs. database.
- Reviewed Logs and assay certificates against WSP's resource database.
- Observed drilling and sampling (exploration and operation).
- Reviewed the QA/QC implementation .
- Reviewed data entry procedures.
- Reviewed grade control against resource wireframes.

12.3.3.1 Data Acquisition

The drill hole data was extracted from RGM's GEMS database. WSP did a desktop validation of the data received from RGM against its rebuilt database. The site validation was conducted during a site visit (September 24 to October 1, 2021) on the new data added since the last resource update (2019 to early 2021). During the site visit, the database verifications consisted in comparing QP's database with the consolidated files coming from the assay laboratory (Filab). The consolidated file, prepared by RGM personnel, was compared with the original files from the assay laboratory by the QP. WSP completed a validation of the drill hole dataset against the onsite original logs and assay certificates for the holes added since the last technical report. Table 12-7 presents the new holes within the 2021 Mineral Resource update

Table 12-7: New Holes within 2021 Mineral Resource Update

Pit	2019		2020	2021		Total	
	DDH	RC	DDH	Inside WSP Res	Outside	Inside WSP Res	Outside 2021 Res
PC	3	4	19	0	1	26	1
RB	10	19	33	1	21	63	21
MA	-	-	-	-	20	-	20

12.3.3.2 <u>Collar Validation</u>

During the site visit, three holes from PC and five holes from RB were visited and casing coordinates were checked using a handheld GPS from both WSP and RGM and then compared to the database DGPS coordinates (Table 12-9). The low number of PC drill holes was due to either the drill locations were mucked out, or they were under water at the time of the visit. MA did not have any new holes since the last resource update of 2018. All the holes fell within the GPS level of precision (three metres) in Easting and Northing (Table 12-8). The variation in elevation was showing higher difference with WSP elevation recorded. Still, for a handheld GPS, it is still within the level of precision (+ / - three metres).

Table 12-8: Onsite Collar Validation

Pit	2019		2020	2021		Total		Audited
	DDH	RC	DDH	Inside WSP Res	Outside	Inside WSP Res	Outside	Ratio DDH
PC	3	4	19	-	1	26	1	-
PC Check	-	-	3	-	-	3	-	13.6%
RB	10	19	33	1	21	63	21	-
RB Check	-	-	5	-	-	5	-	11.4%
MA	-	-	-	-	20	-	20	-
MA Check	-	-	-	-	-	-	-	0.0%

Table 12-9: Survey - In field Collar Survey Checks

Hole ID	System Coord	Point of Survey	RGM			WSP			Database (DGPS)		
			N	E	Z	N	E	Z	X	Y	Z
PCD-1088	UTM	Mined out	-	-	-	-	-	-	695,316	567,355	0.487
	MG		-	-	-	-	-	-	49,043	86,960	500.24
PCD-1091	UTM	Approx.	695,075	567,245	12	695,075	567,245	8	695,072	567,244	11,389
	Var		3	1	0.611	3	1	-3.389	-	-	-
	MG		-	-	-	-	-	-	48,799	87,002	511,142
PCD-1094	UTM	Approx.	694,984	567,343	3	694,983	567,344	4	694,987	567,345	1,516
	Var		(3)	(2)	1,484	(4)	(1)	2,484	-	-	-
	MG		-	-	-	-	-	-	48,714	8,103	501,269
PCD-1103	UTM	Wall failure	-	-	-	-	-	-	694,891	567,626	-26,303
	MG		-	-	-	-	-	-	48,619	8,385	473.45
PCD-1106	UTM	Collar	695,381	567,052	18	69,381	567,054	11	695,381	567,053	14,973
	Var		(0)	(1)	3,027	(0)	1	-3,973	-	-	-
	MG		-	-	-	-	-	-	49,108	86,810	514,726
PCRC-143	UTM	Area flooded	-	-	-	-	-	-	50,365	86,320	455,659
	Var		-	-	-	-	-	-	-	-	-
	MG		-	-	-	-	-	-	-	-	-
PCRC-144	UTM	Area flooded	-	-	-	-	-	-	50,418	86,311	461,077
	Var		-	-	-	-	-	-	-	-	-
	MG		-	-	-	-	-	-	-	-	-
BD-779A	UTM	Approx.	705,812	561,782	-26	705,814	561,783	-32	705,812	561,784	-30,325
	Var		(0)	(2)	4.325	2	(1)	-1,675	-	-	-
	MG		-	-	-	-	-	-	59,529	81,519	469.72
RBD-784	UTM	Approx.	705,812	561,782	-26	705,814	561,783	-32	705,812	561,785	-30,295
	Var		(0)	(3)	4,295	2	(2)	-1,705	-	-	-
	MG		-	-	-	-	-	-	59,529	81,520	469.75
RBD-795	UTM	Collar	706,033	561,831	33	706,032	561,832	26	706,034	561,830	29,435
	Var		(1)	1	3,565	(2)	2	-3,435	-	-	-
	MG		-	-	-	-	-	-	59, 751	81,564	529.48
RBD-796	UTM	Collar	706,009	561,863	33	70,009	561,864	29	706,010	561,862	31,195
	Var		(1)	1	1,805	(1)	2	-2,195	-	-	-
	MG		-	-	-	-	-	-	59,727	81,596	531.24
RBD-805	UTM	Collar	705,404	561,929	22	705,404	561,930	22	705,405	561,928	25,445
	Var		(1)	1	-3,445	(1)	2	-3,445	-	-	-
	MG		-	-	-	-	-	-	59,122	81,664	525.49

12.3.3.3 Mine Exploration (MinEx)

A total of five holes consisting of 1,753 assays in PC, and five holes consisting of 1,099 assays in RB were reviewed for assays and assay to core. It represents a ratio of 29% for PC and 17.6% for RB (Table 12-10). No new holes have been drilled for MA since 2018. The holes were randomly selected. At site, RGM provided the logs and assay certificates from the chosen holes.

For those 10 holes, all these logs were compared against the original core to assess lithology description. This was performed against the core photographs taken by RGM in its usual workflow. The core photographs display three boxes at a time. The core photographs were taken in high definition. The sample grades were compared against the core using the tag numbers from the core photographs. In general, the core pictures reflected the grades with the presence of quartz veins and typical alteration (for RB).

Table 12-10: Assays Validation

Pit	2019		2020	2021		Total		Audited Ratio (DDH)
	DDH	RC		In WSP Res	Outside	In WSP Res	Outside	
PC	697	244	5,560	-	96	6,257	96	-
PC Check	-	-	1,753	-	-	1,753	-	29.2%
RB	2,225	1,107	4,908	233	2,764	7,366	2,764	-
RB Check	-	-	866	233	-	1,099	-	17.6%
MA	-	-	-	-	3,933	-	3,933	-
MA Check	-	-	-	-	-	-	-	0.0%

The final verification occurred when reviewing the solids provided by RGM. The ore solids were extracted from Leapfrog as DXF and imported in GEMS (license provided by RGM). The surfaces (topo, shells, and pits) were extracted from GEMS and were imported in dedicated workspaces in WSP database.

Once all the data were imported in WSP's database, a visual check was done by flipping sections. All the holes were plotted and checked for:

- Unusual location = wrong Easting/Northing.
- Collar location to topo = hole located above topo of drilled era.
- Unusual deviation = wrong survey producing kinks or inappropriate dip.

- Matching of assays = Au grade to ore zones designed.

It was noticed that Leapfrog solids were not always matching above cut-off samples. The gaps were noted and sent to RGM for review and correction. For PC and RB, few iterations were needed to clean the Leapfrog solids.

12.3.3.4 <u>Verifications of Analytical Quality Control Data by WSP for: Pay Caro, Rosebel, Mayo</u>

WSP completed an independent assessment of the QA/QC data. The standards and blanks were plotted, first for the 2019 to 2021 drill campaign results, and secondly for the whole database for each project. The review showed a good correlation with the certified results of each standard except for two (SF85-Figure 12-1 and SJ53-Figure 12-2). These standards were used in the PC and RB 2020 data.

They both displayed a break between the results coming from the certificate of September 15, 2020, and from the certificate from December 7, 2020. It is worth mentioning that the results are essentially within an acceptable range, however, a change occurred between these two periods from a negative discrepancy to a positive discrepancy suggesting a change in the process.

Figure 12-1: SF85 Performance Chart

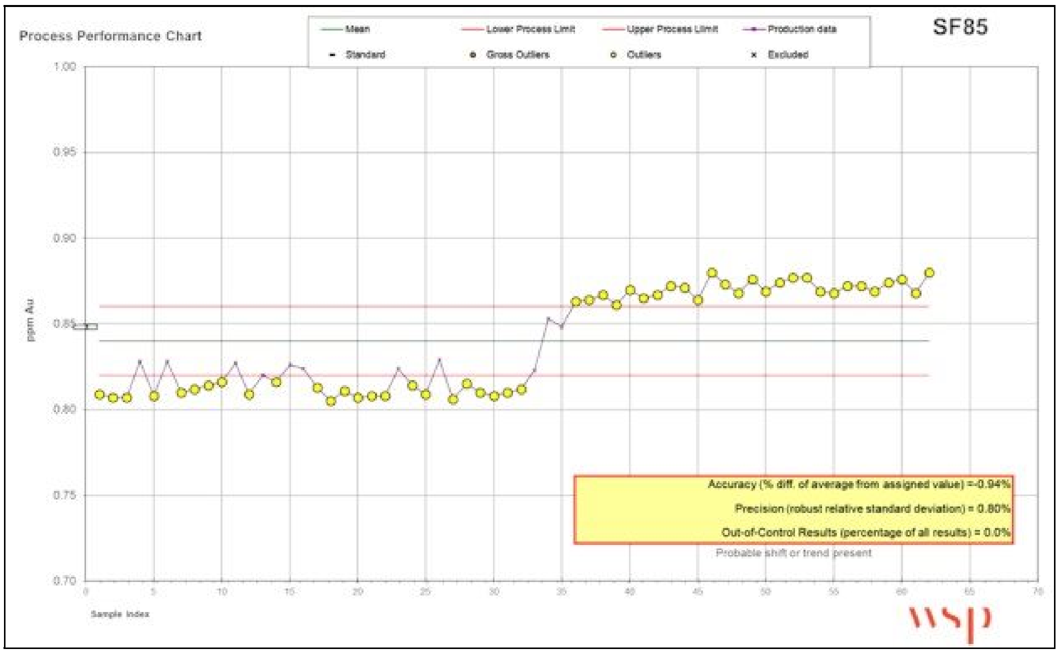
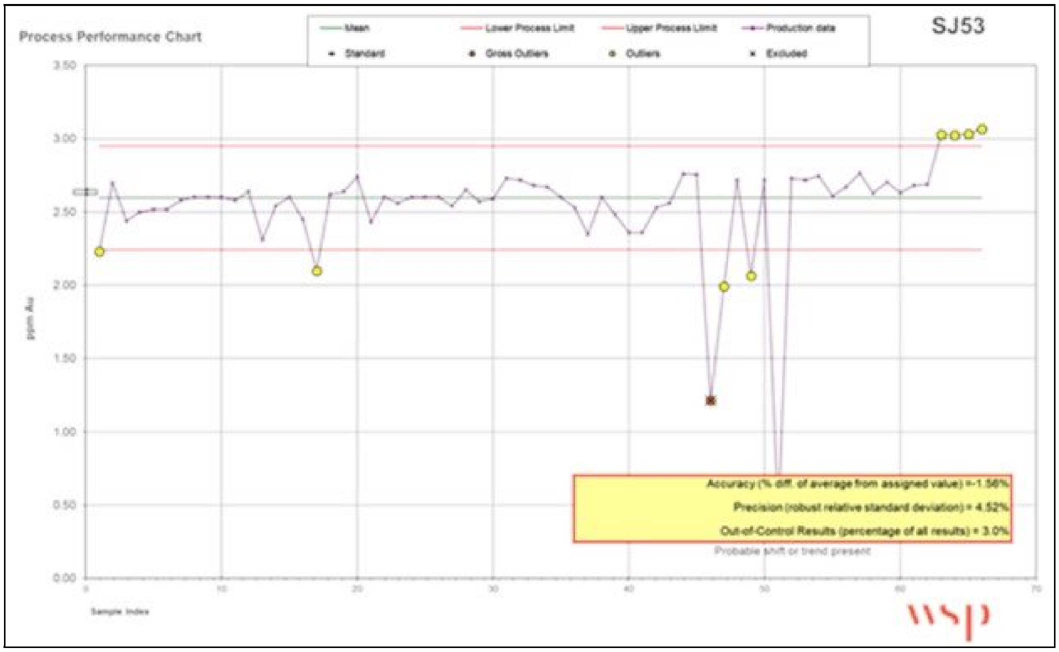


Figure 12-2: SJ53 Performance Chart



A further review indicated that Filab made an upgrade to a reading device. This had an impact on two standards (SF85-Figure 12-1 and SJ53-Figure 12-2) but was not observed on the other standards used at the same period. To ensure the quality of the sample results, a subset of 400 rejects were re-assayed in Filab and the results were within acceptable variance from the original.

WSP observed that for the check assays to a third party laboratory, one third of the selected assays were sent back to the original laboratory (Filab). These do not meet the intentions for a third-party assessment of the grade. In WSP's opinion, even without Filab check assays removed, the number sent to ALS Chemex (406 checks for 3.0%) and SGS laboratories (364 checks for 2.7%) for a total of 770 third party check assays (5.7%) are enough to get the confidence in the validity of the original results (Table 12-11).

Table 12-11: Check Assays - ALS and SGS

Pit	Total In WSP Res	RGM Rejects Check Assay to Third Party			
PC	6,257	Location	ALS	SGS	Total
RB	7,366	PC	204	246	450
Total	13,623	RB	110	27	137
		MA	92	91	183
		Ratio All	3.0%	2.7%	5.7%

12.3.3.5 <u>WSP Comments</u>

During the visit, all the expected points of interest were visited. RGM personnel's contribution was good and no restrictions, besides field conditions, were brought.

All along the process, the data was verified against WSP's database on collar location, assay results and certificates, indication on core of high grade occurrences (quartz veins - alteration) and QA/QC. In general, all the reviewed information was consistent with the data used for PC, RB and MA resource update conducted by WSP.

It is the opinion of the QP that the data acquisition, manipulation, validation, and final release is adequate to support subsequent modelling and resource evaluation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Metallurgical testing on the Rosebel deposits has been carried out since 1995 in order to understand the metallurgical characteristics of the deposits. Metallurgical test work has historically been completed on saprolite, transition, and hard rock from the various Rosebel deposits. Furthermore, since 2017, three exhaustive metallurgical test work programs were conducted on the SM deposit. Variability and composites samples from different weathering profiles were tested to assess hardness and metallurgical response of duricrust, laterite, saprolite, transition, and hard rock materials. The Mine has been in operation since 2004, hence this section summarizes recent test work programs completed to define the metallurgical characteristics of current and remaining ores in the Rosebel deposits. Detailed summaries of previous metallurgical test work program on Rosebel ores can be found in the 2018 NI 43-101 (IAMGOLD, 2018).

Recent grindability and metallurgical test work programs were completed on Rosebel and Saramacca mineralized samples. The results and analysis from these metallurgical test programs are summarized and discussed in this section.

The primary results from this test work included.

- The difference in hardness between historical data for the Rosebel pits and the samples tested in the 2021 is small with the exception of the JZ deposit mineralized material which appears to be harder at depth and PC deposit mineralized material that appears to be slightly softer than historical values. This hardness characterization program is projected to be completed in H1 2022.
- As part of the geometallurgical program, IAMGOLD wanted to assess grind size impact on metallurgical performances. Result to date indicate that the impact on gold recovery by increasing grinding product from 80% passing (P_{80}) 75 µm to P_{80} 120 µm would not significantly impact performance and that, should IAMGOLD be able to debottleneck the SAG mill throughput then the increase in mill feed throughput will compensate largely for the small loss in recovery.
- The SM deposit's hard rock and transition material present two challenges, the first being that the ore contains variable amounts of refractory gold locked in pyrite. The second being the occurrence of graphitic carbon within specific mineralized zones.

- For the refractory gold, recoveries may be improved by 6% to 8% using sulphide flotation followed by ultrafine grinding and products cyanidation, however, the small quantities of hard rock within the SM deposit does not support the additional capital costs required to have a separate crushing-grinding-flotation plant followed by ultrafine grinding to process SM hard rock.
- Regarding graphitic carbon, while flotation could remove a substantial amount of carbon, it will result in significant additional gold losses. Furthermore, the carbon flotation tails would still contain an amount of graphite that would impact the CIL circuit (Preg-Robbing). It has been decided that any ores containing a significant amount of graphitic material should be stockpiled until the end of the mine life and processed at that time.

Table 13-1 summarizes the optimization metallurgical test work performed from 2008 to 2018.

Table 13-1: Optimization Metallurgical Testwork Performed 2008 to 2018 on Rosebel Ores

From	Report	Title	Date (DD-MM-YY)	Information
SGS[1]	11700-001 - Final Report	An Investigation into the Grindability Characteristics of Samples	27-Feb-08	Grindability tests (Bond Work Index (BWi), AL, CWI, RWi)
SGS	12322-001 - Final Report #2	A Plant Audit Investigation into the Rosebel Concentrator	06-Dec-10	This report covers the grinding audit activities (Audit 1 and 2) and is an update of the report issued on 23-Dec-09
SGS	12322-001 - Report 3	An Investigation into the Efficiency of the Rosebel CIL Plant Operation	09-Dec-10	Test work was conducted on carbon and pulp samples from the carbon in leach (CIL) plant at Rosebel to determine the activity of plant regenerated carbon relative to fresh carbon samples, and to conduct bench-scale characterization test work (including comminution, mineralogy, and chemical analysis) and metallurgical variability testing (including gravity separation and cyanidation).
SGS	12322-002 - Final	The Characterization of Rosebel Ore Types	08-Dec-10	-
SGS	12322-004 - Final Report	An Investigation into the Capacity of the Rosebel Grinding Circuit Throughout the Life of Mine	23-Feb-11	The results of the surveys performed under SGS project 123322-001 were used to develop a comminution production forecast model
SGS	13249-002	An Investigation into the Grindability Characteristics of Three Samples from Rosebel Mine	28-Jun-12	Bond low energy impact testing of three rock samples from Rosebel deposit
SGS	13249-001 - Final Report	Forecasting and Optimization of the Rosebel Concentrator Using CEET™	31-Mar-14	Geology study for sample selection, grindability test work, geostatistical analysis of the data and distribution to the mine blocks, reconciliation of the CEET™ model using historical data and throughput forecasting based on the mine plan.
Sepro[2]	-	IAMGOLD Rosebel Mine Gravity Circuit Audit	10-Dec-10	Determine the amount of gold and the deportment of gold within the gravity circuit, as well as the proportion of gravity recoverable free gold at various places within the circuit
Knelson[3]	101220-0600-143	Gravity Circuit Considerations	10-Dec-10	Gravity circuit modelling
PICA[4]	-	PICA Carbon Testing and Circuit Auditing Circuit	14-Dec-10	Audit on activated carbon quality, acid washing, elution, regeneration, and gold adsorption properties
SGS	13249-003 - Final Report	The Grinding Circuit Benchmarking and CEET2 Model Development for the Rosebel Concentrator	10-Jul-18	Survey of the grinding circuit, update the CEET2 model and revise the life of mine (LOM) throughput forecasting simulations

Notes:

1. SGS Lakefield Research Limited (SGS Lakefield)
2. Sepro Mineral Systems Corp. (Sepro)
3. Knelson Gravity Solutions (Knelson - now FLSmidth Knelson)
4. PICA SASU (now Jacobi Carbons)

13.2 Grindability Test Work

From 2004 to 2021, semi-autogenous grinding (SAG) Power Index (SPI) testing and SMC testing, drop weightiest, were performed on the hard rock samples from all the different pits. The SMC test is an abbreviated version of the standard JKTech drop weight. Table 13-2 illustrates overall grindability statistics prior to 2021, Table 13-3 illustrates average grindability by rock types prior to 2021. Table 13-4 illustrates A x b and BWi per pit in function of the type of ore prior to 2021.

Table 13-2: Overall Grindability Statistics Prior to 2021

	BWi (kWh/t)[1]	BWi (kWh/t)[2]	Ai (g)	Relative Density	Parameter			MacPherson		AWI (kWh/t)	CWI (kWh/t)	CEET™ Ci	SPI (min)	Mod Bond (kWh/t)
					A x b[3]	A x b[4]	ta	Test (kg/h)	Test (kg/h)					
Average	12.0	10.1	0.235	2.71	50.1	78.2	0.33	18.49	4.69	7.10	19.52	8.41	101.42	12.84
Standard Deviation	3.5	4.5	0.143	0.21	10.7	183.3	0.12	7.11	1.40	4.10	1.52	9.57	77.74	3.75
Minimum	2.7	0.8	-	1.77	37.7	22.4	0.21	13.35	3.15	2.72	18.37	0.59	0.27	1.26
10th percentile	7.2	2.7	0.058	2.64	41.3	25.4	0.23	13.78	3.53	3.72	18.51	1.41	5.98	8.64
25th percentile	10.5	6.4	0.133	2.73	46.7	26.9	0.25	14.44	4.09	5.22	18.72	1.98	23.68	10.77
Medium	12.6	11.7	0.229	2.76	55.6	31.4	0.28	15.53	5.03	7.71	18.98	3.64	101.72	13.90
75th percentile	14.1	13.3	0.305	2.80	56.2	38.8	0.35	21.06	5.46	9.28	19.78	12.44	167.45	15.56
90th percentile	15.0	14.6	0.414	2.82	56.6	66.7	0.55	24.39	5.72	10.23	20.96	21.90	210.38	16.22
Maximum	21.5	17.9	0.618	2.84	56.8	851.5	0.61	26.60	5.89	10.85	21.75	45.90	262.83	17.07

Notes:

1. Measured work Index
2. Recalculated work Index with fines
3. A x b from DWT
4. A x b from SMC

Table 13-3: Average Grindability Results per Rock Type prior to 2021

Rock Type	Number of Samples	BWi (kWh/t)[1]	BWi (kWh/t)[2]	Ai (g)
Saprolite	4	19.1	5.0	0.148
Transition	22	8.7	4.2	0.071
Hard Rock	37	13.1	13.0	0.267

Notes:

1. Measured Work Index
2. Recalculated Work Index with fines

Table 13-4: A x b and Bond Work Index per Pit in Function of the Type of Ore prior to 2021

Pit	A x b	BWi (kWh/t)		
		Hard Rock	Saprolite	Transition
PC	28.2	13.2	2.6	4.7
EPC	29.0	13.3	2.6	6.9
KH	36.8	12.7	2.6	5.1
JZ	60.9	9.5	2.6	4.7
RH	28.5	13.4	2.3	4.7
MA	25.5	15.9	2.9	4.0
RM	26.5	14.6	2.6	4.7
RB	27.1	12.0	2.6	4.7

From the whole grindability test results, the following conclusions were made:

- The average relative density ranged from 1.77 to 2.84.
- Rock hardness, Axb, varied from 25.5 to 36.8 (very hard to hard) with one sample at 60.9. According to these grindability results:
    - The BWi of hard rock varied from 9.5 kWh/t to 15.9 kWh/t (medium to hard).
    - The recalculated BWi of transition with fines ranged from 4.0 kWh/t to 6.9 kWh/t (very soft to soft).
    - The recalculated BWi of saprolite with fines ranged from 2.3 kWh/t to 2.9 kWh/t (very soft).
    - Abrasion Index, Ai, varies between 0.2 and 0.45 for hard rock with an average of 0.267. This was used to evaluate the steel consumption.

In 2021, RGM initiated a grindability test work program where 74 variability samples of Hard Rock were selected by pit and by lithology and were sent to SGS Chile for testing. The summary of these results are presented in Table 13-5, Table 13-6 and Table 13-7 below. Those tables also include comparative values with past test work data.

Prior to 2021, data was a blend of weathering material whereas 2021 data was obtained on hard rock only, for the three tables below.

Table 13-5: SPI Comparison between 2021 and prior to 2021 Results

Year	Pit	Quantity	Min SPI (minutes)	Average SPI (minutes)	Max SPI (minutes)	Standard Deviation
2021	RB	18	74	166	230	43
	RH	16	79	131	196	28
	MH	3	78	116	137	33
	PC	13	57	107	150	28
	JZ	24	39	106	194	37
All data Prior to 2021			0,27	101	263	78

Table 13-6: MBWI Comparison between 2021 and prior to 2021 Results

Year	Pit	Quantity	Min MBWi (kWh/mt)	Average MBWi (kWh/mt)	Max MBWi (kWh/mt)	Standard Deviation
2021	RB	18	8.31	13.41	15.75	2.04
	RH	16	11.55	13.79	16.46	1.40
	MH	3	12.50	13.52	14.64	1.07
	PC	13	10.85	13.13	14.57	1.06
	JZ	24	8.53	13.13	15.28	1.66
All data Prior to 2021			0.80	10.10	17.90	4.50

Table 13-7: BWi and A x b Comparison between 2021 and prior to 2021 Results

Hard Rock Only						
Sample ID	**2021**			**Prior to 2021**		
	SPI (minutes)	**Axb**	**MBWi Avg (kWh/t)**	**SPI Avg (minutes)**	**Axb**	**BWi Avg (kWh/t)**
CMP-RH-Arenite	164.0	26.4	13.8	101,42	28.5	13.4
CMP-RH-Blend	164.5	28.2				
CMP-RB-Arenite	184.0	25.8	13.4		27.1	12.0
CMP-RB-Grey	153.0	28.8				
CMP-PC-Arenite	97.8	40.1	13.1		28.2	13.2
CMP-PC-Grey	124.8	39.3				
CMP-MH	164.2	28.7	13.5		25.5	15.9
CMP-JZ-Grey	135.6	33.7	13.1		60.9	9.5
CMP-JZ-SittMud	106.3	34.7				

It is noted that the difference between all historical data and the samples tested in the 2021 is small. Most of the results are quite similar for the Rosebel deposits, with the exception of the JZ deposit mineralized material which appears to be harder at depth and PC deposit mineralized material that appears to be somewhat slightly softer than historical values. IAMGOLD notes that the deposits not tested and compared against old data in 2021 were deemed depleted at the time of writing this Technical Report.

13.3 Geometallurgical Test Work

A metallurgical characterization program was performed on thirty-six representative variability samples (composites) in order to update the geometallurgical information (20 hard rock samples, eight transition samples and eight soft rock samples). The samples were collected as per the 2020 life of mine plan (LOMP) and were somewhat deemed representative of the Rosebel Plant feed for 2021 and 2022 (separately by lithologies, by weathering and by pit). Samples selection was performed in collaboration with RGM Geology team.

A total of 220 interval samples (approximately 825 kg) were received at SGS Lakefield on September 16, 2019, further details can be found in SGS (2020a). Table 13-8 below illustrate samples received by pit, weathering, and the involved lithology. A sample list is shown in table below.

Table 13-8: Scoping Study Recoveries per Rock Types

Rock Type	Pits					No. of Samples
	RB	JZ	PC	RH	SA	
	SGS Composite Numbers					
Arenite - Saprolite	10-11	-	-	-	-	2
Arenite - Transition	12-13	4-7	17-18	-	-	8
Arenite - Rock	1 -3, 14 - 16	8-9	22-25	26-29	-	16
Conglomerate - Rock	-	-	-	30	-	1
Andesite - Rock	-	-	19-21	-	-	3
Laterite	-	-	-	-	31	1
Fault Zone -Saprolite	-	-	-	-	32	1
Pillow Basalt - Saprolite	-	-	-	-	33-34	2
Fault Zone - Transition	-	-	-	-	35	1
Pillow Basalt - Transition	-	-	-	-	36	1
Totals	10	6	9	5	6	36

The main objectives of the geometallurgical test work program were:

- Head ore characterization on 36 composites.
  - Head assay by gold (direct FA, screened metallic and size fraction analysis at 75 µm) Ag, S, As, C(g) and S.G.
  - ICP scan was performed
- Particle size distribution (PSD) characterization of soft rock (laterite and saprolite) and to determine if a portion or all of this fine material could by-pass the grinding circuit and be fed directly to the Leach-CIL circuit or if it requires some attrition in order to do so, or to simply feed the cyclone feed pump, by-passing then the SAG mill and partially the Ball mills
- Leaching capabilities analysis at 80% passing (P_{80}) of 75 µm (whole ore leaching (WOL) versus gravity + gravity tail leaching)
- Leaching capabilities analysis at P_{80} of 75 µm, 106 µm, and 120 µm (gravity + gravity tail leaching)

It is believed that the impact on gold recovery by increasing grinding product size would not significantly impact the performance and that the increase in mill feed throughput will compensate largely for the small loss in recovery.

13.3.1 Head Assay Characterization

Table 13-9 below illustrate statistics of all the composites head assays for the element of interest, gold, silver, sulfur, arsenic, and graphitic carbon.

Table 13-9: Head Assay Summary per Weathering

Statistic	(FA) (g/t Au)	SFA 75 µm (g/t Au)	SM (g/t Au)	Average (g/t Au)	Ag g/t	S %	As %	C(g) %	Specific Gravity
Hard Rock									
Minimum	0.08	0.14	0.17	0.22	<0.05	0.23	0.002	<0.05	2.73
Average	2.13	1.83	2.16	2.06	<0.05	0.9	<0.001	<0.05	2.81
Maximum	11.3	10.8	7.69	8.36	0.7	2.19	0.003	<0.05	2.87
Standard Deviation	2.6	2.32	1.85	1.9	<0.05	0.52	0.001	-	0.04
25th Percentile	0.61	0.64	1.02	0.71	<0.05	0.57	0.002	-	2.78
75th Percentile	2.24	1.71	2.56	2.39	<0.05	1.26	0.003	-	2.83
Transition									
Minimum	0.11	0.25	0.18	0.17	<0.05	0.03	0.001	<0.05	2.73
Average	1.09	1.01	1.05	1.06	<0.05	0.5	0.003	<0.05	2.82
Maximum	5.08	1.69	2.01	2.1	<0.05	1.07	0.005	<0.05	2.92
Standard Deviation	1.14	0.47	0.59	0.58	-	0.38	0.002	-	0.07
25th Percentile	0.54	0.72	0.69	0.77	-	0.21	0.002	-	2.76
75th Percentile	1.17	1.4	1.45	1.33	-	0.74	0.004	-	2.85
Soft Rock									
Minimum	0.71	0.73	0.68	0.84	<0.05	0.04	<0.001	<0.05	2.73
Average	2.19	2.08	2.01	2.12	<0.05	0.2	0.087	<0.05	2.96
Maximum	4.14	3.89	3.95	3.69	1.5	0.7	0.2	<0.05	3.38
Standard Deviation	1.18	1.17	1.24	1.09	-	0.25	0.089	-	0.21
25th Percentile	1.25	1.04	0.99	1.45	-	0.06	0.013	-	2.83
75th Percentile	3.05	3	2.88	2.99	-	0.17	0.17	-	3.05

IAMGOLD has also performed ICP scan for all composites and results are shown from Table 13-10 to Table 13-12.

Table 13-10 : Hard Rock Head ICP Scan

Element	Sample ID									
	Comp 1	Comp 2	Comp 3	Comp 8	Comp 9	Comp 14	Comp 15	Comp 16	Comp 19	Comp 20
	Assay (g/t)									
Al	78500	94900	90700	96500	79500	69300	102000	101000	63900	56400
Ba	543	711	674	386	396	737	734	795	242	278
Be	1.51	1.78	1.66	1.42	0.86	1.18	1.82	2.02	0.68	0.46
Bi	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Ca	16800	17500	11700	474	1650	9010	8160	6600	51900	45800
Cd	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Co	21	20	19	67	48	11	25	23	40	25
Cr	87.5	86.8	86.7	106	93.3	148	115	102	78.8	89.9
Cu	32.5	52.5	41.3	110	57	34.1	40.7	54.8	86.9	60
Fe	40800	48300	45000	113000	64800	32200	59800	54000	73300	50000
K	15900	23100	21100	11800	10900	18500	28400	22000	6070	4510
Li	32.5	28	32.3	34.5	29.3	18.5	36.9	44.7	7.8	15.8
Mg	9510	10400	9800	5690	7220	7700	13500	11500	22100	28000
Mn	592	643	537	2510	1300	598	699	596	981	751
Mo	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Na	17400	20800	20700	12800	13100	19900	12000	21100	18300	17200
Ni	40	44	42	74	77	29	53	48	71	86
P	599	554	524	1400	453	317	549	571	761	523
Pb	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sb	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Se	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sn	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Sr	259	255	214	148	101	124	175	289	122	110
Ti	3470	3580	3420	4320	4470	2270	4160	4320	5760	3710
Tl	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
U	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
V	81.8	92.3	88.6	132	145	60	125	105	172	125
Y	14.7	14.5	14	9.5	5.7	10	19.4	16.7	10.7	6.4
Zn	73	90	85	157	99	55	89	77	88	61
Te	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4

Element	Sample ID									
	Comp 21	Comp 22	Comp 23	Comp 24	Comp 25	Comp 26	Comp 27	Comp 28	Comp 29	Comp 30
	Assay (g/t)									
Al	76600	73500	82300	56300	77000	81200	62800	83400	75000	92100
Ba	601	508	520	549	487	861	708	487	803	1050
Be	0.76	1.24	1.34	1.02	1.12	1.04	0.94	0.76	1	1.1
Bi	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Ca	1680	18000	12700	14100	14200	37700	26500	4290	35500	41200
Cd	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Co	40	22	25	22	25	32	25	43	27	47
Cr	96.7	119	91.3	94.7	121	118	99.9	79.9	126	152
Cu	84.1	91.7	50.7	35.4	38.1	30.1	54.8	123	29.1	97.3
Fe	57600	48200	52100	36300	49300	55700	42600	59500	55200	75100
K	18600	14700	18000	13500	15600	13200	14400	8970	10600	17100
Li	14.1	28.2	26.2	6.9	16.9	< 5	< 5	< 5	8	< 5
Mg	2530	9960	11000	6460	10500	22000	8630	3120	20000	17400
Mn	1040	857	830	876	721	773	961	2260	752	1250
Mo	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Na	8470	13200	14900	17000	23900	25100	17300	47500	23900	22900
Ni	74	40	39	24	38	42	24	39	42	50
P	364	379	409	259	406	558	366	876	622	811
Pb	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sb	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Se	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sn	< 20	< 20	< 20	< 20	41	< 20	< 20	< 20	< 20	< 20
Sr	69	218	186	77.6	109	428	293	157	444	272
Ti	3850	4220	4400	3690	4190	3460	3220	4190	3610	5010
Tl	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
U	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
V	137	114	126	88.4	114	141	122	100	137	213
Y	11.7	9.9	11.9	8.4	9.2	8.4	11.9	10.4	9.3	10.2
Zn	85	73	74	49	74	72	72	92	83	114
Te	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4

For the Hard Rock Composites, the average calcium assay was 18,800 g/t Ca, however Comps 19, 20, 26, 27, 29, and 30 all had values greater than 20,000 g/t Ca. The sodium and aluminum were also high which may be an indication of the presence of feldspar. If the calcium is present as carbonates there may be a deleterious effect on carbon loading. If the carbon is not washed/eluted properly the calcium will build up and result in carbon fouling. The copper and zinc assays were low and would not have an effect on the leaching response. Tellurium was low, less than 4.0 g/t Te, indicating that the gold is not present as gold telluride. The iron was quite high in some composites (Comps 8, 9, 19, and 30) indicating that aeration may be beneficial for these samples. .

Table 13-11: Transition Head ICP Scan

Element	Sample ID							
	Comp 4	Comp 5	Comp 6	Comp 7	Comp 12	Comp 13	Comp 17	Comp 18
	Assay (g/t)							
Al	110000	59200	10900	93700	59400	47600	101000	70000
Ba	382	299	409	353	824	767	541	352
Be	1.16	0.7	1.26	1.12	0.88	0.9	1.1	0.74
Bi	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Ca	308	2510	453	1230	188	306	429	375
Cd	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Co	29	29	4	39	11	10	16	<4
Cr	94.8	163	101	155	142	160	134	160
Cu	80.3	33	66.5	89.6	16.2	18.7	116	25
Fe	61200	48100	47500	80200	31300	27000	42200	35100
K	12000	14500	14400	13700	15900	16000	14400	9440
Li	62.4	14.4	32	39.5	7	6.9	27.1	14.8
Mg	9750	2760	667	7110	1570	1310	2800	416
Mn	204	1110	46.1	1610	51.5	190	67.7	19.8
Mo	< 10	42	< 10	< 10	< 10	< 10	< 10	< 10
Na	13800	7390	18000	15100	8100	8640	14100	11500
Ni	63	50	23	93	< 20	< 20	35	< 20
P	< 50	784	< 50	181	67	160	< 50	< 50
Pb	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sb	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Se	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sn	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Sr	133	69.5	160	120	66.3	96.2	171	139
Ti	5150	2350	4830	4420	3750	2190	5280	3390
Tl	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
U	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
V	151	83.4	147	132	77.8	57.5	140	85.8
Y	6.7	4.6	7	6.6	15.5	4.5	8	2.7
Zn	116	71	62	143	31	27	41	14
Te	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4

For the Transition composites the average calcium values were low, 605 g/t Ca. The copper, zinc, and tellurium values were low. The iron values in Comps 4 and 7 were in excess of 60,000 g/t Fe.

Table 13-12: Soft Rock Head ICP Scan

Element	Sample ID							
	Comp 10	Comp 11	Comp 31	Comp 32	Comp 33	Comp 34	Comp 35	Comp 36
	Assay (g/t)							
Al	66600	88400	95000	144000	135000	135000	68500	76300
Ba	669	932	31	104	54.9	110	31.5	137
Be	0.96	1.76	0.5	0.68	0.58	0.52	0.44	0.56
Bi	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Ca	207	272	207	200	253	92	115	140
Cd	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7
Co	< 10	< 10	20	< 10	100	25	< 10	32
Cr	52	88	414	129	166	520	127	164
Cu	19.7	40.1	100	96.1	182	135	168	145
Fe	26300	45300	346000	83200	144000	172000	41600	66300
K	18700	25700	8700	28300	6360	22400	17300	22300
Li	< 20	< 20	< 20	< 20	26	< 20	< 20	< 20
Mg	1720	4150	422	482	326	389	417	11700
Mn	83.2	174	314	111	1080	967	10.7	116
Mo	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Na	1261	3858	1781	7196	17138	8532	2226	964
Ni	< 20	23	69	70	126	87	36	97
P	175	349	567	305	393	611	175	< 50
Pb	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Sb	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80
Se	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Sn	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Sr	47.3	86.8	31.6	96.2	142	77	27.2	11.9
Ti	2310	3720	11800	15000	7720	7360	6900	5790
Tl	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
U	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
V	55	94	791	545	442	458	341	286
Y	5.6	13.3	25.8	37.1	22.8	23.7	46.9	20
Zn	34	59	100	36	56	74	18	71
Te	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4

The Soft composites had low Ca, Cu, Zn, and Te content. The iron was high in Comps 31, 32, 33, and 34. The iron in these samples would be present as oxides. These high iron values would have an effect on lime consumption.

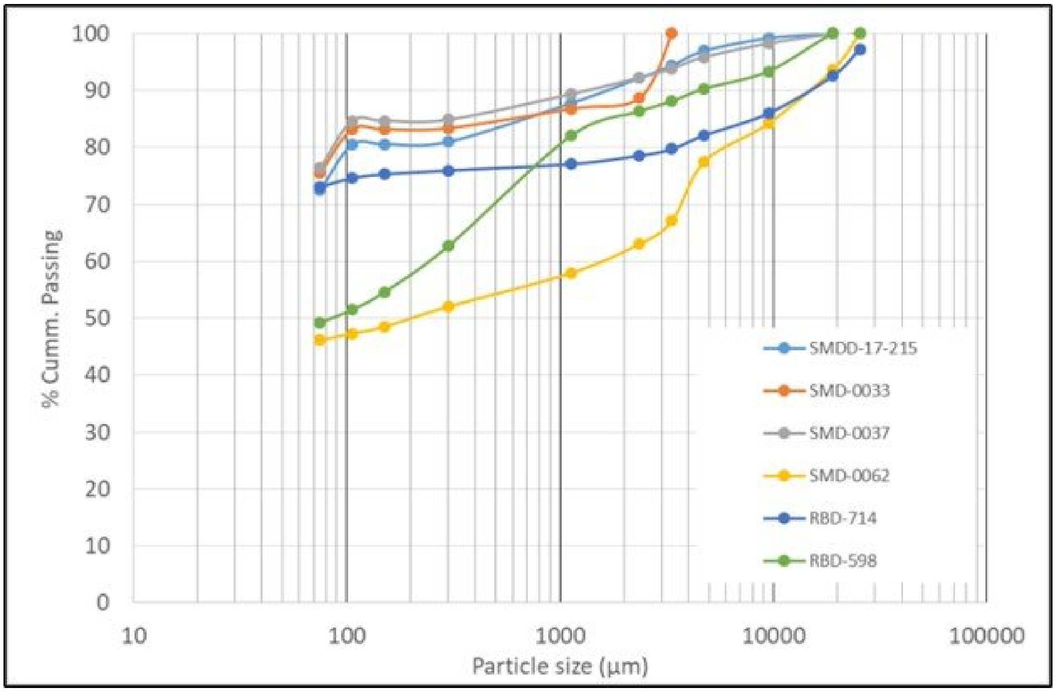
13.3.2 Soft Ore Characterization and Attrition Testing

The objective was to investigate a method of breaking up the aggregates in the Soft Rock ore by varying the intensity of washing, mixing/agitation. Four methods were investigated: simple pulping, pulping with manual mixing using a plunger, mechanical agitation with an agitator and baffled mixing vessel and mechanical agitation using an attritor impellor in a baffled vessel. The discharge from each of these tests was screened (depending upon coarseness of sample) at 25 mm, 19 mm, 9.5 mm, 6.3 mm, 6, 8, 16, 48, 100, 150, and 200 mesh and a particle size distribution determined.

The best method tested was to stir samples to 35% solids in a baffled mechanical attrition reactor, running at 500 rpm for five minutes. At these condition and shown in Figure 13-1:

- 70%+ of the sample is finer than 75 µm (four out of six samples ready for leaching).
- For the remaining two samples, over 45% of the sample is below 75 µm.

Figure 13-1: Product Particle Size Distribution



As such, while results were somewhat encouraging the following tests were put on hold as the remaining Soft material quantities were marginal.

13.3.3 Leaching Capabilities at 75 µm (WOL versus Gravity + Gravity Tail Leaching)

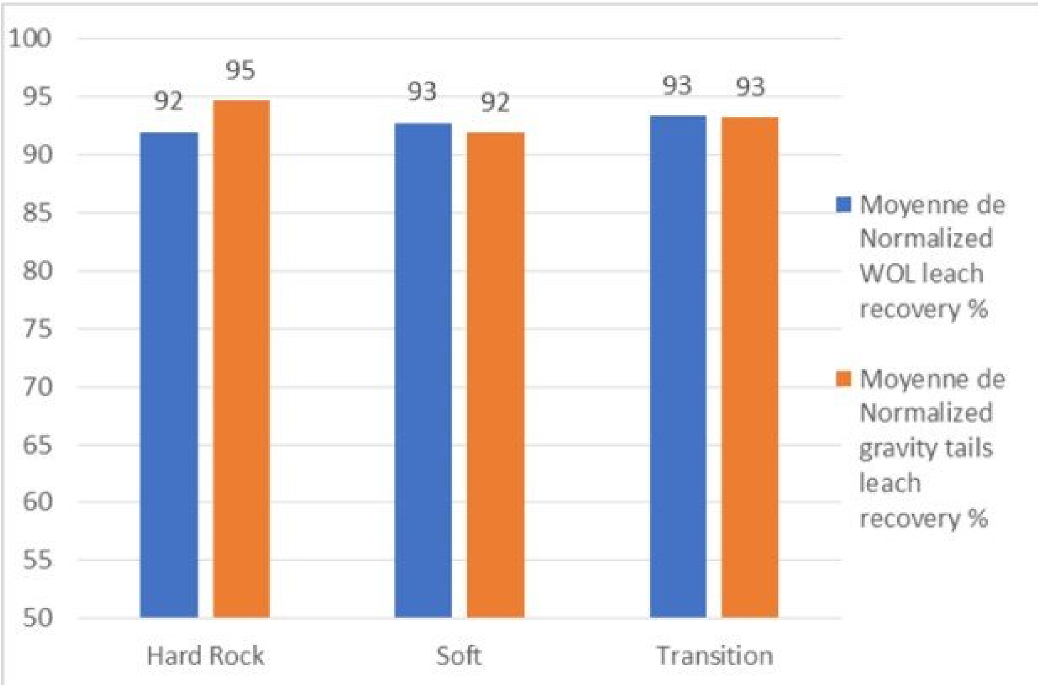
For the Hard Rock, the average gold extraction was 89%, ranging from 74.4% to 95.4%. The average overall gravity plus tailing cyanidation recovery was 93.9%, ranging from 85.2% to 98.1%. The average NaCN consumption was low at 0.20 kg/t NaCN and the CaO consumption was 1.42 kg/t CaO. The CaO consumption varied widely from 0.70 kg/t CaO to 10.2 kg/t CaO.

The average gold extraction for the Transition composites was 88.1%, ranging from 79.7% to 94.7%. The average overall gravity plus tailing cyanidation recovery was 92.3%, ranging from 85.7% to 97.0%. The average NaCN consumption was low at 0.15 kg/t NaCN and the average CaO consumption was 1.77 kg/t CaO.

The average gold extraction for the Soft composites was 89.7%, ranging from 84.4% to 97.5%. The average overall gravity plus tailing cyanidation recovery was 92.0%, ranging from 86.0% to 98.5%. The average NaCN consumption was low at 0.14 kg/t NaCN and the average CaO consumption was 3.59 kg/t CaO.

Using normalized extraction data, the WOL extractions came pretty close to the Gravity + Gravity tail leaching extractions are pretty close. Figure 13-2 illustrates the weighted average differences.

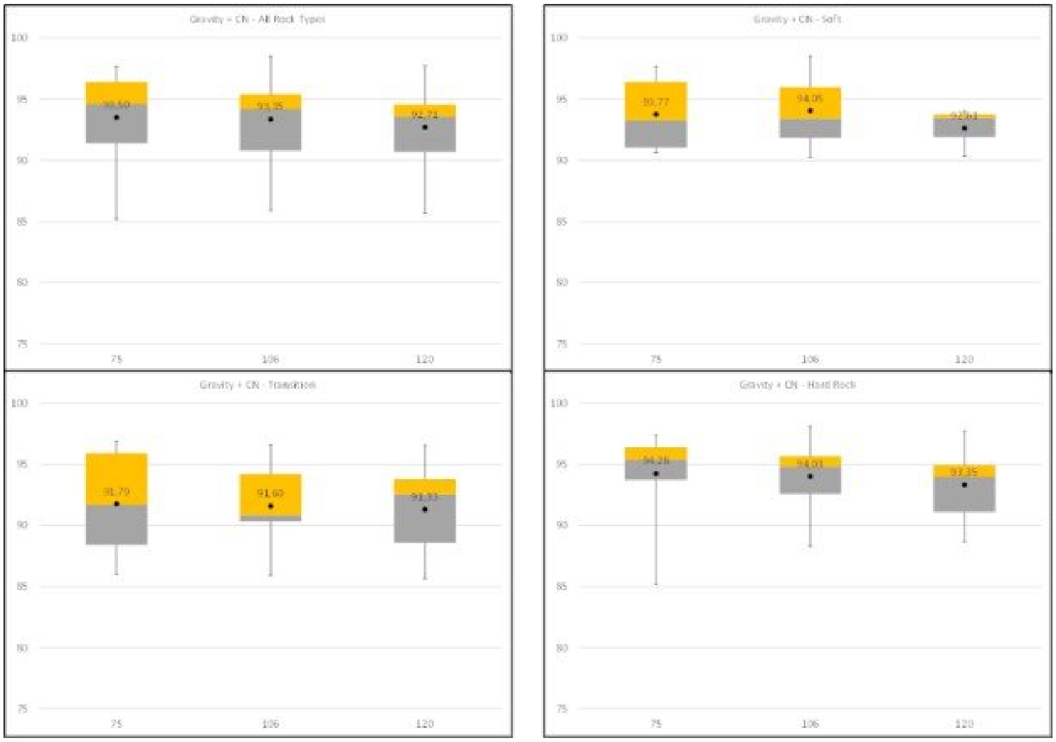
Figure 13-2 Extraction by Weathering (Normalized Values)



13.3.4 Leaching Capabilities at P_{80} of 75 µm, 106 µm and 120 µm (Gravity + Gravity Tail Leaching)

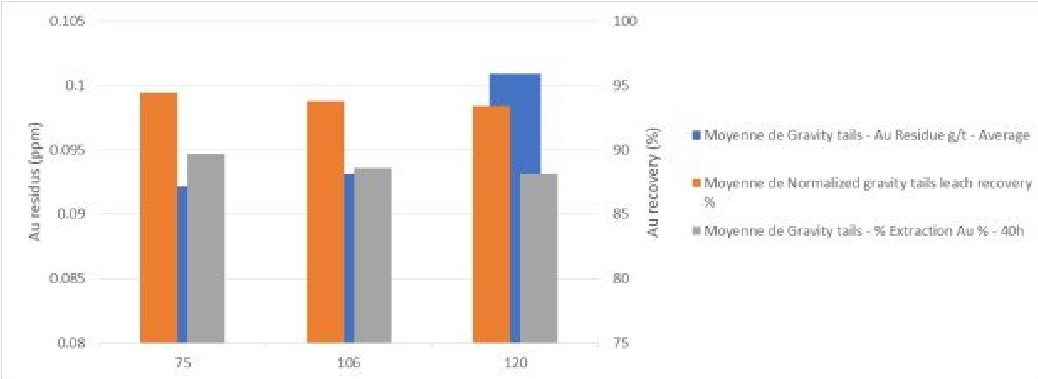
Combined results (gravity+gravity tail leaching) for different P_{80} are presented in Figure 13-3.

Figure 13-3: Combined Recoveries (Gravity + Gravity Tail Leaching) at Different P_{80}, by Weathering



Results do not indicate a significant difference for the recoveries with P_{80} ranging from 75 µm to 120 µm, however, Figure 13-4 shows higher gold residue at 120 µm.

Figure 13-4: Overall Combined Recoveries (Gravity + Gravity Tail Leaching) at Different P_{80}, by Weathering



The QP is of the opinion that assuming the SAG is not the throughput bottleneck, this could represent an excellent opportunity to increase throughput with little negative impact on gold recoveries. IAMGOLD will continue to investigate this route to better define throughput opportunities.

13.4 Saramacca Metallurgical Test Work

13.4.1 Phase II

At the end of 2018 following the completion of Phase I test work, the results of which are presented in detail in the 2018 NI 43-101 (IAMGOLD, 2018), IAMGOLD elected to pursue the investigation of alternatives to improve hard rock recoveries, gravity recovery, optimize reagent consumption and collect more information to validate engineering data. While the results of the Phase II test work are summarized below, further details may be found in SGS (2019)

The objectives of the Phase II optimization test work program were:

- To optimize recoveries, mainly for the HR.
- To optimize reagents consumption, mainly for the laterite.
- To validate the comminution characteristics obtained during the feasibility test work, mainly for the HR.
- To validate if ore oxidation has an impact on the metallurgical performances using the flotation circuit.

- To validate the metallurgical performances of the blend between mineralized material from the Rosebel and Saramacca concessions.

In order to do so, a detailed metallurgical program was carried out at SGS Minerals Services on samples from the SM deposit.

The primary focus of the metallurgical program was to evaluate potential flowsheet options by conducting standard batch test work on the available ROCK TYPE and variability composites. This test work included gravity, direct cyanidation, CIL cyanidation, froth flotation, fine grinding, and concentrate and tailings cyanidation.

Initial starting conditions for the test work were provided by the client and were based on previous test work results on the Rosebel deposits and SM composites. Feed to the metallurgical test work consisted of the TWIN, ROCK TYPE, COREM, VARIABILITY, and ROSEBEL BLEND composites. The number of tests performed on each composite are provided in Table 13-13.

In an effort to improve overall gold recovery, the application of sulphide flotation to Saramacca composite samples was investigated. The resulting sulphide concentrate was finely ground prior to cyanidation in order to improve leach recovery from gold particles predominately locked in pyrite. Leach tests were also carried out on flotation tailings samples.

Lime consumption tests, as well as static and dynamic settling tests, were conducted on composites prepared by blending laterite and saprolite from the SM deposit with samples from the Rosebel deposits.

Table 13-13: Testwork Outline

Test	Twins HR	Saramacca Composites LAT, SAP, TRANS	Saramacca Composites HR	Rosebel Composites TRNAS, HR	Rosebel + Saramacca Blend	Variability Met and Comminution LAT, SAP, TRANS, HR	Total Tests
	Number of samples						
	3	**5**	**2**		**4**	**23**	
	Number of Tests						
Sample receipt and Preparation	3	5	2			23	33
Head Analysis	3	5	2			23	33
Mineralogy		5	2				7
SPI			2			7	9
AI			2			7	9
BWI			2			7	9
Mill Calibration	3	5	2			23	33
e-GRG			2				2
Gravity		5	2		1		8
Gravity Tail CN		5	2		4		11
Whole Ore CN	3	5	2	1		23	34
Flotation	12						12
Flotation Conc Regrind CN	9		4			31	44
Flotation Tailing CN	9		2			21	32
Preg-robbing Assessment		5	2			3	10
Solid/Liquid Separation					3		3
Lime Consumption Optimization					3		3
Flot Conc CN Solution Assays - Cu, Ni, Co, Zn, As						24	24
Flot Conc CN Residue/Carbon Assays - Cu, Ni, Co, Zn, As						2	2
SFA - F10-F12 - Twins Ro Conc	3						3

The samples were used to generate 33 individual composites and four blended composites as indicated in Table 13-14.

Table 13-14: Sample Composites Preparation

Composite Group	#	Source	Purpose
TWIN	3	Twinned met sampling	Compare metallurgical performance of fresh ore to oxidized ore (2017, 2018)
ROCK TYPE	7	Zone sampling	Metallurgical performance by rock type
COREM	6	COREM met program samples	Met variability
VARIABILITY	17	Variability sampling	Grindability and met variability
ROSEBEL	4	Rosebel Gold Mine sampling	Blended with laterite and saprolite composites for metallurgical testing, lime consumption and settling tests.

Other composites prepared from phase 1 remaining material at COREM were also prepared, tested, and compared with. Blends of Rosebel Composites were also prepared.

13.4.1.1 Head Assays

Head sample analysis of the composites included gold determination by duplicate assays and screen metallics, as well as silver, total sulphur, graphitic carbon, ICP scan, Whole Rock Analysis, and specific gravity. Gold head grades ranged from 0.2 g/t Au to 6.7 g/t Au. Graphitic carbon was measured at below detection limit for all but three of the samples tested. Total sulphur ranged from 0.02% to 3.9%.

Table 13-15: Rock Type Composites Head Assays

Element/Units	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7
Au, g/t	1.34	1.56	2.04	2.26	2.24	2.82	2.45
Ag, g/t	< 0.5	1.4	< 0.5	< 0.5	1	< 0.5	< 0.5
S_{tot}, %	0.03	0.08	0.45	0.02	0.33	1.54	2.15
Fe, %	29.2	26.6	12.8	4.87	19.7	7.54	8.03
As, %	0.11	0.053	0.11	0.072	0.078	0.023	0.078
S_{2-}, %	0.07	0.06	0.51	< 0.05	0.33	1.37	1.85
C(g), %	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05

Element/Units	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7
Al_2O_3, %	26.3	30.5	18.2	23.7	12.7	10.8	10.1
As, g/t	953	504	944	651	659	< 80	< 80
Ba, g/t	41.4	25.1	55	80.2	113	68.8	43.5
Be, g/t	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.32	0.32
Bi, g/t	< 20	< 20	< 20	< 20	< 20	< 20	< 20
CaO, %	0.023	0.022	4.84	0.1	0.39	10.2	10.3
Cd, g/t	< 6	< 6	< 6	< 6	< 6	< 2	< 2
Co, g/t	31	23	60	< 20	291	42	46
Cr_2O_3, %	0.061	0.087	0.037	0.04	0.025	0.015	0.012
Cu, g/t	150	88	141	154	263	99.9	94.1
Fe_2O_3, %	44	36.3	18.2	7.26	27.9	10.5	11.1
K_2O, %	0.41	0.18	1.35	2.08	1.15	1.18	1.06
Li, g/t	< 30	< 30	< 30	< 30	34	10	< 5
MgO, %	0.037	0.035	2.62	0.17	0.48	4.75	5.42
MnO, %	0.075	0.01	0.15	0.006	0.83	0.16	0.15
Mo, g/t	< 10	< 10	< 10	< 10	< 10	< 6	< 6
Na_2O, %	0.4	0.17	0.91	0.59	0.87	0.84	0.76
Ni, g/t	84	42	107	85	154	<90	<90
P_2O_5, %	0.17	< 0.08	< 0.08	<0.08	0.25	0.059	0.047
Pb, g/t	< 80	< 80	< 80	< 80	< 80	< 60	< 60
Sb, g/t	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Se, g/t	< 70	< 70	< 70	< 70	< 70	< 40	< 40
Sn, g/t	47	< 50	< 50	< 50	< 50	< 60	< 60
Sr, g/t	32.6	29.3	83.8	46.8	78.3	94.6	86.5
TiO_2, %	1.84	2.73	1.46	1.62	0.85	0.77	0.68
Tl, g/t	< 30	< 30	< 30	< 30	< 30	< 30	< 30
U, g/t	31	27	< 20	< 20	< 20	< 20	< 20
V_2O_5, %	0.1	0.16	0.071	0.079	0.047	0.039	0.037
Y, g/t	7	6.5	7.2	7.7	10.9	5.8	4.6
Zn, g/t	136	61	80	< 40	209	80	78
SiO_2, %	10.7	9.3	35.1	53.7	46.5	43.1	41.4

Table 13-16:Composites from COREM Head Assays

Element/Units	CM017	CM018	CM019	CM020	CM022	CM023
Au, g/t	4.9	4.57	2.57	3.03	5.4	0.77
Ag, g/t	0.6	0.6	< 0.5	< 0.5	1.3	< 0.5
S, %	2.91	0.88	0.95	1.44	3.82	0.85
C (t), %	---	2.99	4.38	3.84	6.24	4.06
$C_{(g)}$, %	< 0.05	1.59	0.06	< 0.05	< 0.05	< 0.05
Sp. Grav	2.94	2.84	2.91	2.89	2.97	2.89
SiO_2, %	58.1	65.1	41.8	48.5	28.5	41.8
Al_2O_3, %	11.9	10.8	11.4	9.45	4.58	12
Fe_2O_3, %	15.8	12.4	10.8	9.66	11.1	10.9
MgO, %	0.79	1.08	5.3	5.1	9.12	4.8
CaO, %	0.099	0.23	10.4	8.52	16.8	10.3
Na_2O, %	0.47	0.56	0.85	0.32	0.26	0.85
K_2O, %	1.56	1.4	1.26	1.42	0.81	1.49
TiO_2, %	0.91	0.83	0.86	0.69	0.35	0.81
P_2O_5, %	0.11	0.1	0.07	0.06	0.04	0.07
MnO, %	0.03	0.03	0.16	0.15	0.18	0.22
Cr_2O_3, %	---	0.02	0.02	0.02	0.02	0.03
V_2O_5, %	0.047	0.04	0.05	0.04	0.02	0.04
LOl, %	---	6.4	15.3	13.5	21	14.8
Sum, %	---	99	98.3	97.4	92.8	98.1
As, %	1780	906	< 200	455	< 200	< 200
Ba, g/t	37.5	61.6	36.1	27.5	17.1	78.9
Be, g/t	0.46	0.44	0.34	0.24	0.18	0.38
Bi, g/t	< 20	< 20	< 20	< 20	< 20	< 20
Cd, g/t	< 8	< 4	< 4	< 4	< 4	< 4
Co, g/t	44	< 50	< 50	< 50	< 50	< 50
Cu, g/t	124	197	110	96.9	81.7	120
Li, g/t	8	< 30	< 30	< 30	< 30	< 30
Mo, g/t	< 5	< 20	< 20	< 20	< 20	< 20
Ni, g/t	137	92	96	86	87	98
Pb, g/t	< 30	< 60	< 60	< 60	< 60	< 60

Element/Units	CM017	CM018	CM019	CM020	CM022	CM023
Sb, g/t	< 60	< 20	< 20	< 20	< 20	< 20
Se, g/t	< 30	< 30	< 30	< 30	< 30	< 30
Sn, g/t	< 20	< 30	< 30	< 30	< 30	< 30
Sr, g/t	32.5	44.9	125	61.1	74.8	115
Tl, g/t	< 30	< 30	< 30	< 30	< 30	< 30
U, g/t	< 20	< 20	< 20	< 20	< 20	< 20
Y, g/t	9.3	13.6	4	5.2	7	10
Zn, g/t	106	121	79	75	60	92

Table 13-17: Variability Composites Head Assays

Element/ Units	VT 102A	VT 102B	VT 103A	VT 103B	CT 108	CT 109	VT 107	VT 108	VT 109	VT 110	VT 112	VT 113	VT 114	VT 115	VT 117	VT 118	VT 119
Au, g/t	1.71	3.08	0.2	0.71	2.35	1.3	2.53	2.48	1.03	1.24	2.86	4.14	6.51	1.73	0.66	6.7	2.46
Ag, g/t	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	0.8	< 0.5	< 0.5	< 0.5	< 0.5	0.5	0.6	< 0.5	< 0.5	1	< 0.5
S_{tot}, %	1.08	1.03	0.53	1.04	0.61	1.33	3.89	1.3	1.65	0.82	3.13	2.22	1.08	1.85	0.45	1.9	1.64
$C_{(g)}$, %	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Al_2O_3, %	13.2	13.3	15.6	15.3	14.7	11.8	8.93	11.6	11.9	11.4	9.82	7.98	11.5	11.4	11.6	13.8	12.2
As, g/t	< 90	< 90	< 90	< 90	741	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 40	< 90
Ba, g/t	42.1	177	114	137	44.8	38.6	34.1	38.6	77.6	77.4	45.9	19.2	42.1	27	42.9	46.7	81.9
Be, g/t	0.3	0.46	0.34	0.36	0.44	0.36	0.3	0.38	0.42	0.42	0.3	0.2	0.42	0.42	0.3	0.4	0.3
Bi, g/t	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
CaO, %	3.78	4.12	0.87	0.86	0.13	9.07	8.32	10.7	9.89	9.9	10	11.3	9.6	8.78	7.94	1.67	8.48
Cd, g/t	< 5	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 2	< 50
Co, g/t	65	65	67	67	39	35	30	40	39	42	35	27	39	44	45	48	41
Cr_2O_3, %	0.016	0.016	0.027	0.024	0.024	0.012	0.019	0.013	0.02	0.015	0.011	0.008	0.008	0.011	0.022	0.018	0.019
Cu, g/t	124	125	132	129	155	108	31.9	114	106	94.4	88.9	58.9	106	102	114	135	96.5
Fe_2O_3, %	16.2	16.1	16	15.7	12.9	11.3	8.36	11.4	11.2	10.9	12.7	10.5	10.9	11.2	11.3	16.5	10.6
K_2O, %	0.51	0.54	0.82	1.19	2.02	1.58	1	1.14	1.66	1.6	1.34	1.28	1.6	1.64	0.77	1.22	1.03
Li, g/t	3	40	54	50	22	8		13	13	11	< 8	< 8	< 8	< 8	12	31	24
MgO, %	3.24	3.41	7.27	7.05	1.25	4.75	4.02	5.7	3.95	5.34	5.37	6.88	5.14	4.42	4.31	2.21	4.69
MnO, %	0.3	0.29	0.14	0.13	0.093	0.15	0.14	0.16	0.2	0.15	0.17	0.14	0.16	0.16	0.16	0.37	0.15
Mo, g/t	< 7	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Na_2O, %	1.48	1.49	0.31	0.24	0.61	0.66	1.07	0.99	0.87	0.81	0.4	0.18	0.48	0.49	0.86	1.27	2.09

Element/ Units	VT 102A	VT 102B	VT 103A	VT 103B	CT 108	CT 109	VT 107	VT 108	VT 109	VT 110	VT 112	VT 113	VT 114	VT 115	VT 117	VT 118	VT 119
Ni, g/t	119	123	117	102	102	93	68	98	83	84	110	71	86	112	113	114	104
P_2O_5, %	0.11	0.1	0.09	0.09	< 0.05	< 0.05	< 0.05	0.05	0.06	0.06	< 0.05	< 0.05	< 0.05	< 0.05	0.06	0.084	< 0.05
Pb, g/t	< 40	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 20	< 50
Sb, g/t	<50	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 20	< 40
Se, g/t	< 60	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 70	< 30	< 70
Sn, g/t	< 20	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 70	< 80
Sr, g/t	104	117	6.11	5.86	47.7	80.7	125	117	97.6	80.7	66.2	53.3	58.4	58.9	86.5	80.3	121
TiO_2, %	0.8	0.91	1.39	1.37	1.05	0.81	0.63	0.77	0.88	0.96	0.66	0.73	0.81	0.78	0.94	0.21	0.77
Tl, g/t	< 40	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	38	< 30	< 30	< 30	< 30	< 30
U, g/t	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
V_2O_5, %	0.048	0.048	0.067	0.065	0.054	0.044	0.021	0.043	0.047	0.046	0.037	0.034	0.041	0.041	0.045	0.046	0.042
Y, g/t	17.9	5.5	24.9	24.4	8.7	4	3.8	3.7	3.4	5.2	5.2	6.8	4.4	5	6.8	4.2	3
Zn, g/t	121	133	131	124	135	93	100	100	101	70	86	73	90	86	99	108	98
SiO_2, %	47.4	47.7	50.8	52.5	61.5	45.6	40.1	40.1	45.5	45.7	43.5	42.7	43.9	45.8	49.5	49.6	45.3
Sp. Grav	2.95	2.95	2.84	2.87	2.88	2.91	2.92	2.92	2.88	2.89	2.94	2.9	2.9	2.92	2.91	2.96	2.88

Table 13-18:Rosebel Blended Composites Head Assays

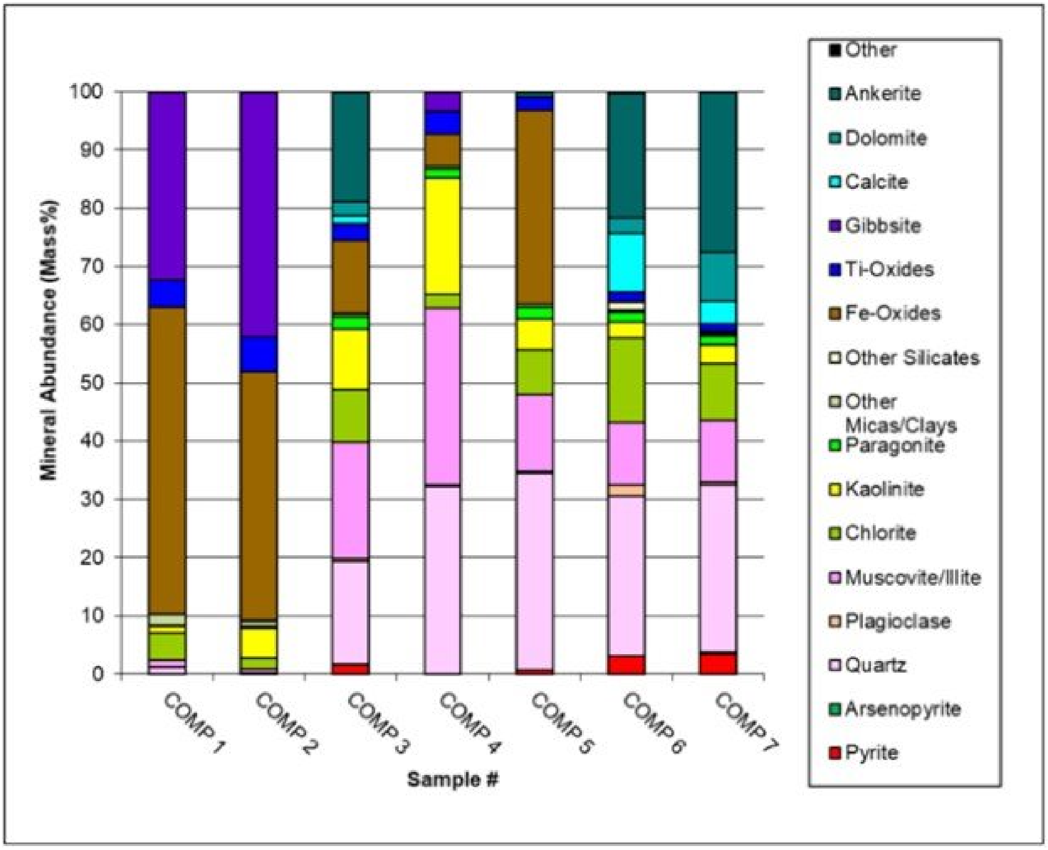
Element/Units	Blend 1	Blend 2	Blend 3	Blend 4
Au, g/t	0.71	0.36	0.43	0.76
Ag, g/t	< 0.5	< 0.5	< 0.5	< 0.5
S_{tot}, %	0.64	0.29	0.28	0.43
$C_{(g)}$, %	< 0.05	< 0.05	< 0.05	< 0.05
Al_2O_3, %	12.8	14.1	16.3	14.8
As, g/t	< 200	< 200	< 200	< 200
Ba, g/t	566	890	712	716
Be, g/t	0.96	1.02	0.86	0.88
Bi, g/t	< 20	< 20	< 20	< 20
CaO, %	3.63	1.91	1.56	2.57
Cd, g/t	< 2	< 2	< 2	< 2
Co, g/t	26	22	22	34
Cr_2O_3, %	0.007	0.004	0.012	0.008
Cu, g/t	58.2	159	166	158
Fe_2O_3, %	6.16	5.31	12.4	7.82
K_2O, %	1.72	2.28	1.81	2.13
Li, g/t	20	18	13	16
MgO, %	2.14	1.55	1.26	1.78
MnO, %	0.11	0.11	0.1	0.13
Mo, g/t	< 20	< 20	< 20	< 20
Na_2O, %	1.86	2.69	2.21	2.29
Ni, g/t	44	43	52	59
P_2O_5, %	0.14	0.09	0.11	0.088
Pb, g/t	< 60	< 60	< 60	< 60
Sb, g/t	< 30	< 30	< 30	< 30
Se, g/t	< 60	< 60	< 60	< 60
Sn, g/t	< 60	< 60	< 60	< 60
Sr, g/t	169	169	142	152
TiO_2, %	0.63	0.55	0.83	0.71
Tl, g/t	< 30	< 30	< 30	< 30
U, g/t	< 40	< 40	< 40	< 40

Element/Units	Blend 1	Blend 2	Blend 3	Blend 4
V_2O_5, %	0.019	0.016	0.034	0.027
Y, g/t	11.4	12.3	11.1	11
Zn, g/t	64	88	94	88
SiO_2, %	63.7	66.7	55	62.3
Sp. Grav	2.8	2.76	2.86	2.82

13.4.1.2 Mineralogy

Preliminary mineralogical characterization was carried out on the ROCK TYPE composites by semi quantitative, automated rapid mineral scan (QEM-ARMS) of a single size fraction (Figure 13-5). Results varied depending on the lithology of the composite with the two laterite composites (Comp 1 and Comp 2) containing no sulphides, lower quantities of silicates, and being primarily comprised of iron oxides and gibbsite. The saprolite composites (Comp 3 and Comp 4) contained more silicates and less iron oxides. The transition zone sample (Comp 5) includes iron oxides and quartz, but no gibbsite or sulphides, whereas the two hard rock samples, Comp 6 and Comp 7, are made up of sulphides and silicates, with elevated levels of calcite, dolomite, and ankerite.

Figure 13-5: Modal Abundance for Rock Type Composites



13.4.1.3 Grindability

Grindability test work, consisting of SPI, BWi, and Abrasion Index (AI), was carried out on two ROCK TYPE and seven VARIABILITY composites. Results of the SPI tests are presented in comparison to the SGS database shown in Figure 13-6 below. The results indicate significant variability, with most results in the hard to very hard range which is quite similar to the Rosebel pits. BWi and AI results were found to be less variable and closer to the database average, Figure 13-7 and Figure 13-8, respectively.

Figure 13-6: SPI Results

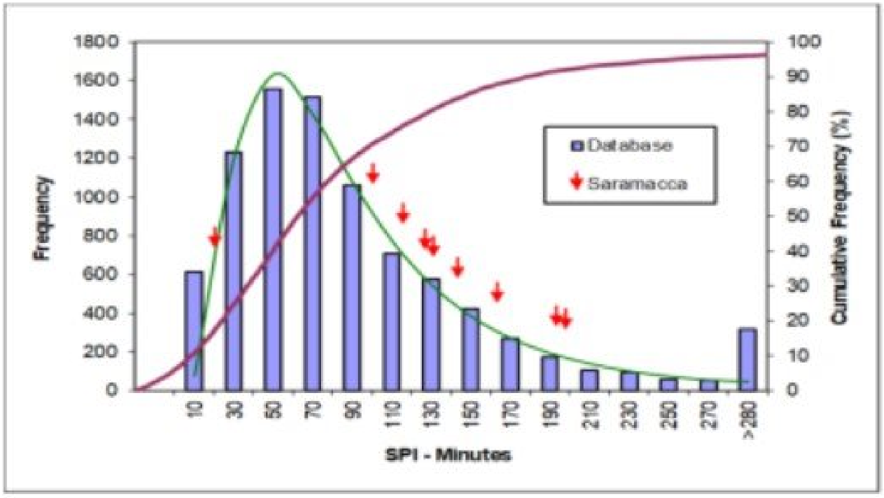


Figure 13-7: BWi Results

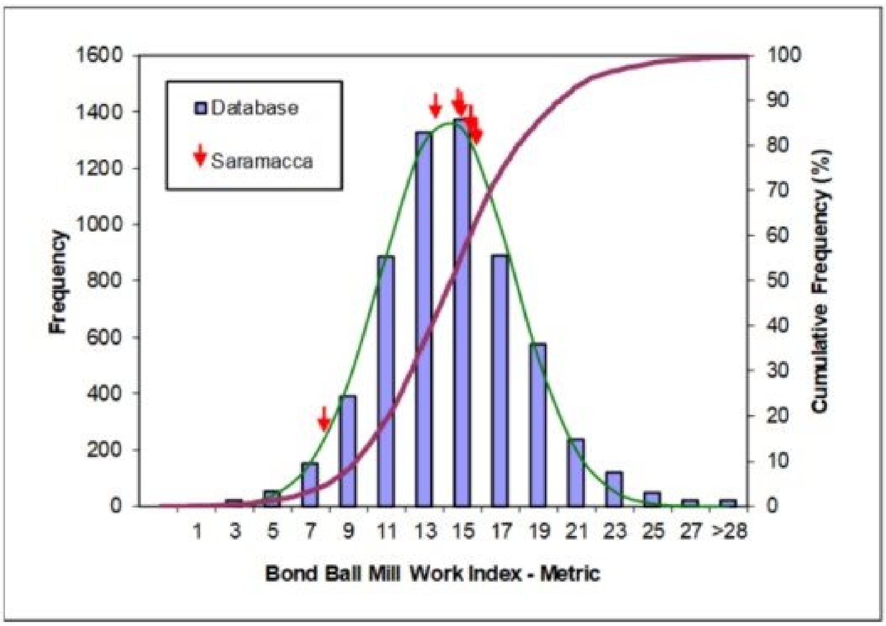
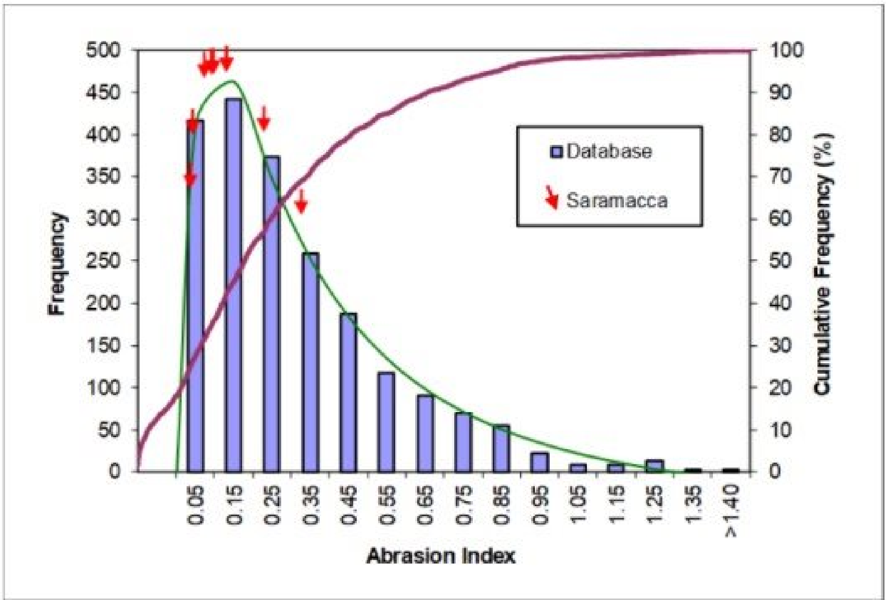


Figure 13-8: Ai Results



13.4.1.4 Gravity Recovery

Gravity concentration using a Knelson Concentrator followed by Mozley tabling of the Knelson concentrate was undertaken on the ROCK TYPE and Blend 1 composites and yielded a wide range of results presented in Table 13-20. For the ROCK TYPE samples, the three composites with significant sulphide mineralization achieved the best gold recovery, with concentrate grades up to 1,033 g/t Au. See results in Table 13-19 E-GRG test work was also conducted on Comp 6 and Comp 7 and returned GRG values of 52.1 and 49.9, respectively. The results were submitted to FLSmidth for gravity circuit modelling.

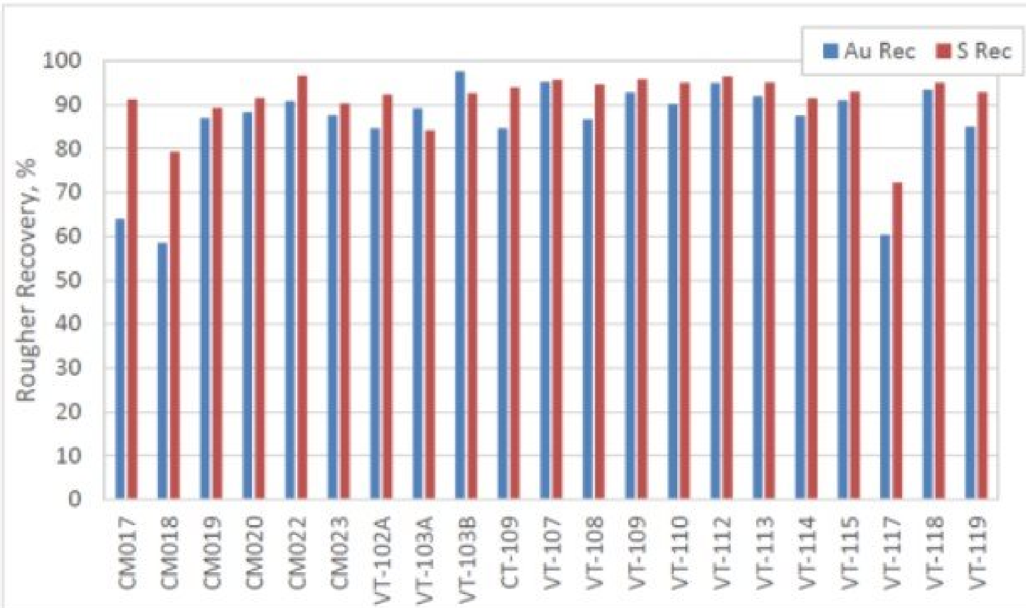
Table 13-19: Gravity Concentration Results on Composites Sample

Test No.	Comp	Grind P_{80} µm	Gravity Concentrate					Tailing Assay		Calculated		Direct Head	
			Wt %	Assay Au, g/t	Au %	Assay Ag, g/t	Ag %	Au g/t	Ag g/t	Au g/t	Ag g/t	Au g/t	Ag g/t
G1	Comp 1	68	0.054	74.4	3.06	18.6	1.16	1.27	0.85	1.31	0.86	1.34	< 0.5
G2	Comp 2	78	0.134	7.47	0.61	7.47	0.39	1.62	2.59	1.63	1.4	1.56	1.4
G3	Comp 3	73	0.118	193	11.9	22.6	3.06	1.68	0.84	1.9	0.87	2.04	< 0.5
G4	Comp 4	60	0.087	200	7.64	16.7	1.55	2.1	0.92	2.27	0.93	2.26	< 0.5
G5	Comp 5	83	0.075	165	5.94	58	2.43	1.95	1.73	2.07	1.77	2.24	1
G6	Comp 6	95	0.092	241	9.91	42	5.21	2.02	0.71	2.24	0.75	2.82	< 0.5
G7	Comp 7	72	0.062	1033	27.4	104	8.91	1.75	0.68	2.41	0.75	2.45	< 0.5
G8	Blend 1	79	0.076	1031	61.7	-	-	0.49	-	1.26	-	0.71	< 0.5

13.4.1.5 Flotation

Gold recovery to a flotation concentrate was evaluated on the TWIN, ROCK TYPE (Comp 6 and Comp 7 only), COREM, and VARIABILITY composites. The test procedure consisted of open circuit flotation to produce a rougher concentrate and flotation tailings for cyanidation test work. Figure 13-9 compares gold and sulphur recovery for the COREM (CM) and VARIABILITY (VT, CT) composites, and indicates that high sulphide recovery was achieved for most samples and that the majority of gold followed the sulphur.

Figure 13-9: Gold and Sulphur Recovery



Initial test work to determine baseline flotation and cyanidation conditions was performed on the TWIN composites. Cyanidation test work sought to compare four potential flowsheet options: whole ore leach, gravity concentration + gravity tailings leach, flotation concentrates fine grind/leach, flotation concentrates fine grind/leach + float tailings leach. Whole ore leaching of the TWIN composites under standard conditions (0.35 g/L NaCN, 50% solids, 48 hrs) achieved an average gold extraction of 73.2%. For the Comp samples, whole ore leaching averaged 86.0% gold extraction, whereas gravity + tailings leach resulted in a slight improvement in overall gold extraction of 86.9%.

Flotation concentrates from Comp 6 and Comp 7, as well as the COREM and VARIABILITY composites, were ground to a P_{80} of approximately 10 µm and leached at 2 g/L NaCN. The combined gold extractions (concentrate leach + tailings leach) averaged 76.1%: ~12% higher than the equivalent whole ore leach tests.

Two of the variability samples (VT117 and CM018) achieved remarkably low gold extractions expected to be the result of "preg-robbing" graphitic carbon contained in a shear zone of the deposit and locked gold in sulphides. Head assays and diagnostic testing confirmed this assumption for composite CM018.

Lime consumption and settling test work was carried out on Rosebel composite blends and indicated an average lime consumption of 0.85 kg/t and good settling properties. Blending in high iron oxide ores with the hard rock or transition ores should help to reduce lime consumptions.

Recommendations for further study include additional characterization of potential preg-robbing/refractory material, development of a cleaner flotation circuit to improve concentrate grade and reduce mass recovery, optimization of the concentrate regrind size, and intensive leaching of the flotation concentrates.

13.4.2 Phase III

In 2019, Phase III of test work was initiated on 46 variability samples at SGS and completed in the first half of 2020. Further details can be found in SGS (2020b). Table 13-20 lists the Phase III samples tested by weathering. The objective of Phase III was to:

- To optimize recoveries, mainly for the transition and HR.
- To populate the comminution characteristics for the HR.
- To test standard flowsheet (gravity and CIL) on additional soft ores samples according to the new mine plan.
  - Duricrust
  - Laterite
  - Saprolite.

- To test gravity, flotation, fine grinding and leach of the flotation concentrate and leach of the tails on additional samples located in, close or far of the contact zones and graphitic shears:
    - Transition
    - Hard Rock
- Test flotation of graphite to identify if the gold is recovered with the graphite or not.
- Perform size by size analysis and intensive leach on selected samples.
- To perform mineralogy and diagnostic leach on selected samples.
- To increase quantities of samples tested, hence increasing confidence level.

Table 13-20: Variability Sample List Phase III

Rock Type	VT	Hole ID	From (m)	To (m)	Length (m)	Zone	Location	Sample Weight (kg)
HARD ROCK	VT-201	SMD-0067	520	539	19	NW	HR NW	40.74
	VT-202	SMD-0066A	530	544.5	13	NW	HR NW	30.3
	VT-203	SMD-0005	310	329	19	NW	HR NW	38
	VT-204	SMD-0038	258	274.5	16.5	NW	HR NW	31.76
	VT-205	SMD-0005	359	374	15	NW	HR NW	30.66
	VT-206	SMD-0005	383	399.5	16.5	NW	HR NW	31.38
	VT-207	SMDD17-213	381	396.5	15.5	NW	HR NW	37.01
	VT-208	SMDD17-227	463.5	481	17.5	NW	HR NW	34.77
	VT-209	SMD-0038	327	343.5	16.5	NW	HR NW	32.35
	VT-210	SMDD17-182	350	365	15	SE	HR SE	32.37
	VT-211	SMDD17-072	157.5	176.4	18.9	MIDDLE	HR MIDDLE	41.5
	VT-212	SMD-0022	325.5	340.5	15	SE	HR SE	31.77
	VT-213	SMDD17-248	274.5	291	16.5	SE	HR SE	39.25
	VT-214	SMDD17-200	154.5	171	16.5	MIDDLE	HR MIDDLE	37.1
TRANSITION	VT-215	SMDD17-107	111	120	9	SE	TRANSITION SE	27.05
	VT-216	SMDD17-126	138	144.5	6.5	SE	TRANSITION SE	15.5
	VT-217	SMDD17-101	257.5	260	2.5	SE	TRANSITION SE	15.05
	VT-218	SMD-0020	229.5	234	4.5	SE	TRANSITION SE	19.6
	VT-219	SMD-0023	84.2	91.5	7.3	SE	TRANSITION SE	20.15
	VT-222	SMD-0007	97.5	104	6.5	NW	TRANSITION NW	19.9
	VT-223	SMDD17-084	150.5	164.3	13.8	NW	TRANSITION NW	11.95

Rock Type	VT	Hole ID	From (m)	To (m)	Length (m)	Zone	Location	Sample Weight (kg)
SAPROLITE	VT-224	SMDD17-188	94.55	104.5	9.95	SE	SAPROLITE SE	27.25
	VT-225	SMDD17-101	191	202	11	SE	SAPROLITE SE	23.95
	VT-226	SMD-0054	28.5	37.5	9	SE	SAPROLITE SE	21.8
	VT-227	SMD-0036	58	66	8	NW	SAPROLITE NW	18.67
	VT-228	SMDD17-233	58.5	64.5	6	NW	SAPROLITE NW	21.05
	VT-229	SMDD16-012	52.5	61.5	9	NW	SAPROLITE NW	20
	VT-230	SMD-0036	25.5	36	10.5	NW	SAPROLITE NW	15.24
	VT-231	SMD-0006	75	81	6	NW	SAPROLITE NW	17.87
LATERITE	VT-232	SMD-0028	2.7	11.3	15	SE	LATERITE SE	18.8
	VT-233	SMD-0049	9	16.5	7.5	SE	LATERITE SE	16.2
	VT-234	SMD-0034	12	21	9	NW	LATERITE NW	18.75
	VT-235	SMD-0002	0	10	10	NW	LATERITE NW	16.85
DURICRUST	VT-236	SMDD17-183	0	9	9	NW	DURICRUST NW	22
	VT-237	SMDD17-107	0	9	9	NW	DURICRUST NW	16.4
	VT-238	SMDD17-159	1.2	9	7.8	SE	DURICRUST SE	18.95
	VT-239	SMDD17-253	0	9	9	SE	DURICRUST SE	16.75
TRANSITION	VT-240	SMDD17-272	25.5	33	7.5	NW	TRANSITION NW	18.95
	VT-241	SMDD17-215	75	82.5	7.5	NW	TRANSITION NW	17.9
	VT-242	SMDD17-224	49.5	58.5	9	NW	TRANSITION NW	24.3
	VT-243	SMDD16-012	61.5	69	7.5	NW	TRANSITION NW	20.95
	VT-244	SMDD17-078	112.5	119.6	7.1	NW	TRANSITION NW	16.2
	VT-245	SMD-0063	134.3	142.5	8.2	SE	TRANSITION SE	18.35
	VT-246	SMDD17-185	61.5	69	7.5	SE	TRANSITION SE	20.35
	VT-247	SMDD17-185	78	84	6	SE	TRANSITION SE	19
	VT-248	SMDD17-270	142.5	150	7.5	SE	TRANSITION SE	16.2

13.4.2.1 Head Assays

Head assaying was carried out on each of the variability samples. Each sample was submitted for chemical analysis for gold by the screened metallics protocol, Ag by AA, total sulphur (ST), graphitic carbon (Cg), arsenic (As), and WRA Whole Rock Analysis. A summary of the results is shown respectively in Table 13-21, Table 13-22, and Table 13-23 below.

Table 13-21: Metallic Screen Assays

Sample ID	Head Grade (g/t Au)	+150 Mesh		-150 Mesh			% Au Distribution	
		(% Mass)	(g/t Au)	(% Mass)	(g/t Au)		+150 Mesh	-150 Mesh
					a	b		
VT-201	7.32	2.7	9.83	97.3	7.11	7.4	3.6	96.4
VT-202	2.02	2.8	3.18	97.2	2.01	1.96	4.4	95.6
VT-203	0.82	2.6	0.95	97.4	1.04	0.6	3	97
VT-204	3.7	2.8	24.8	97.2	3.2	2.97	19	81
VT-205	3.47	3.1	8.68	96.9	3.31	3.3	7.8	92.2
VT-206	4.02	2.6	6.96	97.4	4.06	3.83	4.5	95.5
VT-207	3.76	2.5	5.91	97.5	3.85	3.56	3.9	96.1
VT-208	2.52	2.9	6.66	97.1	2.22	2.58	7.6	92.4
VT-209	11.8	3	28.5	97	10.8	11.8	7.2	92.8
VT-210	2.33	2.9	3.01	97.1	2.27	2.34	3.7	96.3
VT-211	1.6	2.8	3.04	97.2	1.44	1.67	5.3	94.7
VT-212	1.57	2.4	1.77	97.6	1.56	1.57	2.8	97.2
VT-213	4.54	2.3	10.3	97.7	4.43	4.39	5.1	94.9
VT-214	2.63	2.9	5.34	97.1	2.46	2.64	5.9	94.1
VT-215	3.17	2.9	1.55	97.1	3.15	3.28	1.4	98.6
VT-216	2.79	2	1.74	98	2.89	2.73	1.2	98.8
VT-217	4.35	2.8	5.67	97.2	4.33	4.3	3.6	96.4
VT-218	1.09	2.6	0.36	97.4	1.14	1.07	0.9	99.1
VT-219	2.28	2.9	3.55	97.1	2.2	2.29	4.5	95.5
VT-222	0.69	2.9	2.1	97.1	0.66	0.64	8.8	91.2
VT-223	1.67	2.7	0.91	97.3	1.61	1.78	1.5	98.5
VT-224	5.48	2.5	2.64	97.5	5.59	5.52	1.2	98.8
VT-225	5.62	2.8	2.66	97.2	5.57	5.84	1.3	98.7
VT-226	1.97	2.6	2.18	97.4	1.93	2	2.9	97.1
VT-227	7.3	1.9	17.8	98.1	7.05	7.15	4.5	95.5
VT-228	2.33	3.1	2.33	96.9	2.37	2.3	3	97
VT-229	4.87	3.1	10.9	96.9	4.95	4.41	6.9	93.1
VT-230	6.87	3.4	13.5	96.6	6.49	6.79	6.7	93.3
VT-231	0.03	2.9	0.05	97.1	0.03	0.02	5.7	94.3

Sample ID	Head Grade (g/t Au)	+150 Mesh		-150 Mesh			% Au Distribution	
		(% Mass)	(g/t Au)	(% Mass)	(g/t Au)		+150 Mesh	-150 Mesh
					a	b		
VT-232	2.77	3.3	1.51	96.7	2.77	2.86	1.8	98.2
VT-233	4.72	2.8	9.35	97.2	4.71	4.45	5.6	94.4
VT-234	4.72	2.9	7.32	97.1	4.55	4.74	4.5	95.5
VT-235	4.38	3.2	3.22	96.8	4.29	4.54	2.4	97.6
VT-236	1.18	2.9	0.95	97.1	1.18	1.2	2.3	97.7
VT-237	5.97	2.8	5.44	97.2	5.97	6.01	2.6	97.4
VT-238	8.2	3	12.4	97	7.97	8.17	4.6	95.4
VT-239	1.36	3	0.95	97	1.39	1.35	2.1	97.9
VT-240	1.39	2.9	2.35	97.1	1.26	1.47	4.9	95.1
VT-241	4.79	2.9	19.2	97.1	4.34	4.39	11.5	88.5
VT-242	3.37	3.1	7.09	96.9	3.2	3.31	6.5	93.5
VT-243	0.86	2.3	1.63	97.7	0.91	0.78	4.3	95.7
VT-244	1.91	3.1	1.08	96.9	1.85	2.02	1.7	98.3
VT-245	2.01	2.8	1.89	97.2	1.97	2.06	2.7	97.3
VT-246	3.12	2.4	24.2	97.6	2.52	2.67	18.8	81.2
VT-247	3.41	2.1	12.2	97.9	3.27	3.17	7.5	92.5
VT-248	5.19	2.9	5.8	97.1	5.56	4.78	3.3	96.7
Minimum	0.03	1.86	0.05	96.6	0.03	0.02	0.87	81
Maximum	11.8	3.4	28.5	98.1	10.8	11.8	19	99.1
Average	3.52	2.78	6.59	97.2	3.42	3.45	4.89	95.10

Table 13-22: Graphitic Carbon and Arsenic Analysis

Sample ID	Au g/t (SM)	Ag g/t (AA)	S (%)	C(g) %	As %
VT-201	7.32	0.7	1.44	0.2	0.19
VT-202	2.02	<0.5	0.97	<0.05	0.18
VT-203	0.82	<0.5	0.37	<0.05	0.005
VT-204	3.7	<0.5	0.16	<0.05	0.015
VT-205	3.47	0.8	2.47	<0.05	0.15
VT-206	4.02	0.8	3.27	<0.05	0.24

Sample ID	Au g/t (SM)	Ag g/t (AA)	S (%)	C(g) %	As %
VT-207	3.76	0.7	3.13	<0.05	0.25
VT-208	2.52	0.6	3.03	<0.05	0.15
VT-209	11.8	2.3	3.13	<0.05	0.11
VT-210	2.33	<0.5	0.82	<0.05	0.28
VT-211	1.6	<0.5	0.74	<0.05	0.14
VT-212	1.57	<0.5	0.45	<0.05	0.19
VT-213	4.54	0.7	1.88	<0.05	0.02
VT-214	2.63	<0.5	1.34	<0.05	0.01
VT-215	3.17	<0.5	1	0.14	0.36
VT-216	2.79	<0.5	0.01	0.11	0.12
VT-217	4.35	0.8	0.17	<0.05	0.35
VT-218	1.09	<0.5	0.29	<0.05	0.24
VT-219	2.28	<0.5	<0.01	<0.05	0.067
VT-222	0.69	<0.5	1.2	0.13	0.028
VT-223	1.67	1.8	0.1	<0.05	0.18
VT-224	5.48	<0.5	<0.01	<0.05	0.18
VT-225	5.62	<0.5	<0.01	0.1	0.13
VT-226	1.97	<0.5	0.02	<0.05	0.004
VT-227	7.3	0.6	<0.01	<0.05	0.15
VT-228	2.33	1.1	<0.01	<0.05	0.19
VT-229	4.87	0.8	<0.01	0.1	0.032
VT-230	6.87	<0.5	0.01	<0.05	0.26
VT-231	0.03	<0.5	0.13	<0.05	0.004
VT-232	2.77	<0.5	0.06	<0.05	0.04
VT-233	4.72	<0.5	0.02	<0.05	0.21
VT-234	4.72	<0.5	0.02	<0.05	0.2
VT-235	4.38	2.3	0.03	0.11	0.31
VT-236	1.18	4.5	0.12	0.14	0.078
VT-237	5.97	0.6	0.18	<0.05	0.25
VT-238	8.2	<0.5	0.08	0.11	0.21
VT-239	1.36	<0.5	0.15	0.12	0.17
VT-240	1.39	1	0.04	0.12	0.1

Sample ID	Au g/t (SM)	Ag g/t (AA)	S (%)	C(g) %	As %
VT-241	4.79	0.6	<0.01	<0.05	0.013
VT-242	3.37	<0.5	<0.01	<0.05	0.019
VT-243	0.86	<0.5	<0.01	<0.05	0.06
VT-244	1.91	<0.5	<0.01	<0.05	0.017
VT-245	2.01	<0.5	<0.01	<0.05	0.20
VT-246	3.12	0.7	2.49	<0.05	0.019
VT-247	3.41	0.8	2.46	<0.05	0.009
VT-248	5.19	0.8	0.01	<0.05	0.008
Minimum	0.03	<0.5	<0.01	<0.05	0.004
Maximum	11.8	4.5	3.27	0.2	0.36
Average	3.52	0.78	0.69	0.07	0.13

Table 13-23: WRA

Sample ID	SiO_2 %	Al_2O_3 %	Fe_2O_3 %	MgO %	CaO %	K_2O g/t	TiO_2 g/t	MnO g/t	Cr_2O_3 g/t	V_2O_5 g/t	Na_2O g/t	P_2O_5 g/t
VT-237	1.92	17.2	58.6	0.023	< 0.08	400	17900	150	990	1700	510	1100
VT-241	55.6	16.3	16.5	0.27	< 0.08	1.61	14300	2300	370	770	570	1300
VT-247	71.8	9.19	8.4	1.4	< 0.08	2.5	6100	950	260	290	720	< 30
VT-201	48	9.52	10.3	4.86	9.96	11022	7640	1588	311	368	5971	534
VT-202	42.4	10.3	10	5.32	12	12287	7523	1640	189	366	7586	616
VT-203	43.5	11.3	11.1	5.24	10.8	5035	8991	1614	273	446	16848	653
VT-204	43.3	11.5	11.2	5.47	10.8	4228	8457	1640	317	436	17657	628
VT-205	45.7	10.5	11.4	4.78	9.43	16142	8824	1524	289	446	4569	607
VT-206	41.7	9.54	12	5.08	9.37	13251	8457	1653	330	404	5432	694
VT-207	43.4	10.6	13.1	5.51	9.23	13853	9575	1666	199	459	4583	751
VT-208	37.4	6.44	10.1	7.28	13.8	10733	4837	1718	139	289	3316	< 458
VT-209	43.8	7.81	11.1	5.55	11.3	15539	7540	1666	145	371	2426	586
VT-210	41.8	9.88	10.1	6	12.4	13371	7840	1485	297	375	4866	465
VT-211	45.4	11.2	10.8	4.98	9.04	14455	8424	1343	338	443	4542	637
VT-212	27.6	6.2	8.2	6.84	19	10757	4921	1524	222	239	3733	< 458
VT-213	46.3	11.7	10.5	4.66	10.4	17587	9141	1395	373	441	16848	685
VT-214	43.9	11.5	11.5	4.59	10.4	13371	8957	1537	305	454	9799	602
VT-215	74.8	11.8	7.05	0.35	< 0.08	19394	8324	115	443	446	4529	< 687
VT-216	69.3	15.8	8.73	0.072	0.12	25538	13111	41	308	639	3760	< 687

Sample ID	SiO_2 %	Al_2O_3 %	Fe_2O_3 %	MgO %	CaO %	K_2O g/t	TiO_2 g/t	MnO g/t	Cr_2O_3 g/t	V_2O_5 g/t	Na_2O g/t	P_2O_5 g/t
VT-217	58.6	15.6	17.5	0.19	< 0.08	27947	11793	83	105	963	5836	983
VT-218	66.5	15.8	8.52	0.5	0.2	23490	12410	949	494	602	8842	< 687
VT-219	65.9	21.8	2.04	0.072	< 0.08	22044	16197	< 26	406	882	12400	< 687
VT-222	59.3	15.4	15.1	2.31	0.58	11624	12194	2686	273	632	8303	852
VT-223	44.5	26.8	34.7	0.53	0.76	35536	17848	9492	732	950	4515	1127
VT-224	73.5	10.7	10.1	0.058	0.17	11540	8224	75	611	393	6860	< 687
VT-225	68.5	18.3	3.6	0.12	< 0.08	27465	14045	< 26	284	670	8330	< 687
VT-226	37.5	30.6	12.6	0.18	< 0.08	14817	22519	40	643	1413	1134	2160
VT-227	40.2	29.9	11.3	0.053	0.11	28429	32027	200	398	1252	19004	< 687
VT-228	44.1	23.6	17.6	0.049	0.18	10179	20851	3551	422	866	15635	< 687
VT-229	72.6	10.9	9.49	0.042	0.1	11865	8724	2118	273	423	9623	< 687
VT-230	39.7	30.3	12.9	0.091	< 0.08	43486	31693	37	419	1054	9637	< 687
VT-231	42.3	15.3	20	7.23	1.53	546	12177	3590	190	591	334	742
VT-232	1.22	44.9	17.3	0.064	< 0.08	675	25021	116	1120	1082	505	1583
VT-233	24.5	29.8	23.3	0.06	< 0.08	13853	27356	138	617	1602	5068	737
VT-234	15.4	21.6	38.6	0.04	< 0.08	18792	22519	14593	343	839	4219	2240
VT-235	20.6	25.3	33.6	0.052	< 0.08	16383	19016	886	263	913	3653	1193
VT-236	5.46	18.1	55.9	0.017	< 0.08	< 482	28190	46	1188	2107	433	< 687
VT-238	7.62	31	36	0.092	0.09	7962	21685	271	849	1282	1321	< 687
VT-239	2.65	19.5	59.1	0.015	0.1	1155	26689	201	934	1689	391	808
VT-240	5.01	25.9	47	0.039	0.16	2445	26022	939	741	1111	1496	1853
VT-242	56.7	16.9	14	0.099	0.14	23128	12043	1236	500	648	2534	< 687
VT-243	58.5	16.4	14.9	0.06	0.2	11624	12677	1588	284	646	10756	747
VT-244	58.5	16	13.6	0.51	0.18	9107	11877	1614	320	621	14287	< 687
VT-245	58.8	16	16.1	0.058	0.1	23610	11760	120	387	639	3976	1138
VT-246	64.8	13.2	8.7	2.28	0.09	27585	9324	102	133	441	884	< 687
VT-248	77.3	10.7	7.56	0.16	0.11	16142	6722	36	433	336	708	< 687

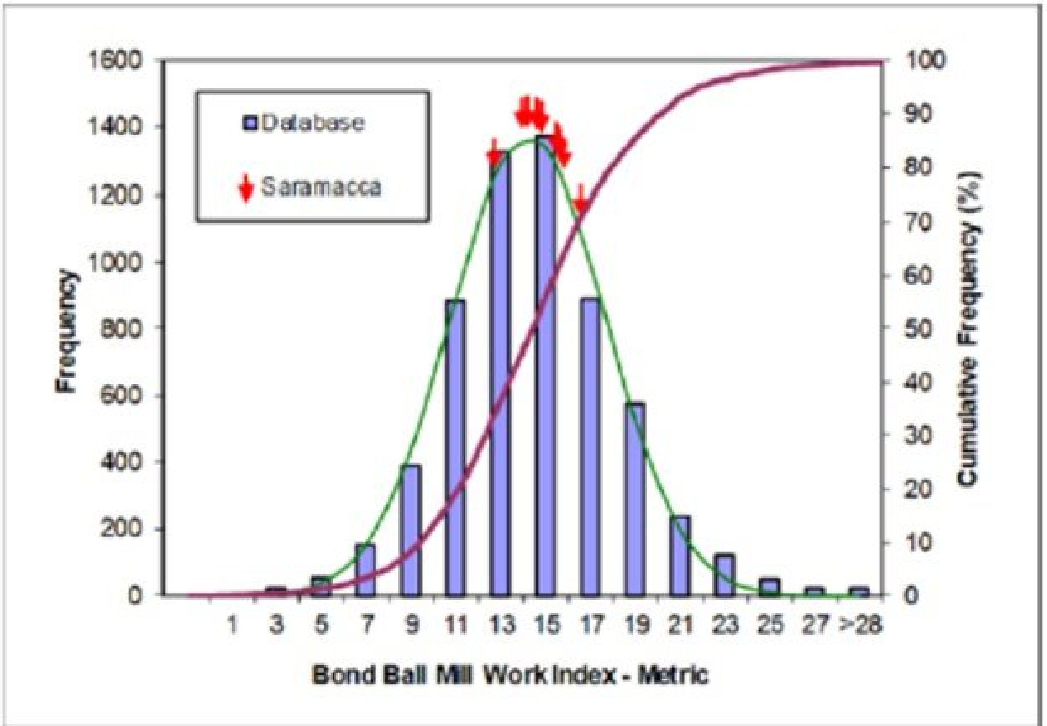
13.4.2.2 Grindability

The fourteen Hard Rock samples were submitted for Bond ball mill work index testing at a closing size of 150 mesh (106 µm). Test results are summarized in Table 13-24 and the hardness of the samples is compared with the SGS database in Figure 13-10. The samples were classified as moderately hard, with an average BWi value of 14.8 kWh/t.

Table 13-24: BWi Results

Sample ID	Mesh Size	F_{80} (mm)	P_{80} (mm)	Gram per Revolution	Work Index (kWh/t)	Hardness Percentile
VT-201	150	2340	79	1.3	14.8	54
VT-202	150	2142	79	1.33	14.6	53
VT-203	150	2279	76	1.16	15.8	66
VT-204	150	2418	77	1.11	16.5	73
VT-205	150	2344	77	1.26	14.8	55
VT-206	150	2340	73	1.24	14.6	53
VT-207	150	2403	76	1.31	14.2	48
VT-208	150	2340	80	1.39	14.1	48
VT-209	150	2385	77	1.34	14.1	48
VT-210	150	2570	76	1.17	15.5	63
VT-211	150	2404	76	1.18	15.6	64
VT-212	150	2539	77	1.52	12.7	32
VT-213	150	2507	75	1.33	13.9	45
VT-214	150	2401	76	1.19	15.4	62

Figure 13-10: Results Compared with SGS Database



13.4.2.3 Metallurgical Testing

The main objectives of the metallurgical testing program were to compare two flowsheet options by conducting standard bench scale laboratory tests on the various rock type samples and to improve the recovery/extraction of the graphitic carbon shear zone samples. The test work included gravity separation, gravity tailing CIL, gravity tailing flotation followed by CIL of the flotation concentrate and tailings, and carbon flotation on the graphitic carbon samples.

13.4.2.3.1 Gravity Separation Testing

The variability in gold recovery through gravity concentration was investigated by standard amenability testing on the forty-six samples. The mill discharge was passed through a Knelson MD-3 Concentrator and the Knelson concentrate was further upgraded on a Mozley Mineral Separator table. Approximately 1.0 g to 2.0 g of Mozley concentrate was collected from each test and assayed to extinction. The combined Knelson and Mozley tailings assays were back calculated from the corresponding cyanidation test. The results are summarized in Table 13-25.

Table 13-25: Gravity Separation Test Results Summary

Sample	Rock Type	Test No.	Grind P_{80} µm	Gravity Concentrate					Tailing		Head		Head	
				Wt	Assay, g/t		Recovery, %		Assay, g/t		(calc), g/t		(direct), g/t	
				%	Au	Ag	Au	Ag	Au	Ag	Au	Ag	Au	Ag
VT-205	Hard Rock	G4A	76	0.139	404	41.1	15.5	7.5	3.07	0.7	3.63	0.8	3.47	0.8
		G4B		0.179	297	36	15.9		2.83		3.36			
VT-206		G5A	71	0.113	458	58.7	12.5	7.3	3.65	0.9	4.16	0.9	4.02	0.8
		G5B		0.119	380	51.8	12.3		3.23		3.68			
VT-207		G6A	71	0.1	594	57.8	15.7	8.2	3.22	0.7	3.81	0.7	3.76	0.7
		G6B		0.046	551	57.1	7		3.32		3.57			
VT-208		G7A	76	0.135	320	36.7	18.6	7.6	1.89	0.6	2.32	0.6	2.52	0.6
		G7B		0.105	155	25.8	7.4		2.04		2.2			
VT-209		G8A	75	0.066	2649	222	10.3	8.4	15.3	1.6	17	1.7	11.8	2.3
		G8B		0.104	4374	345	39.1		7.1		11.6			
VT-212		G9A	73	0.076	573	55.9	19.8	7.8	1.76	<0.5	2.19	0.5	1.57	<0.5
		G9B		0.099	307	45.3	21.3		1.13		1.43			
VT-213		G10A	71	0.098	593	80.9	14.2	10.2	3.51	0.7	4.08	0.8	4.54	0.7
		G10B		0.108	1062	118	27.4		3.05		4.2			
VT-214		G11A	73	0.072	796	93.6	17	8.7	2.79	0.7	3.35	0.8	2.63	<0.5
		G11B		0.079	1267	132	34.5		1.9		2.9			
VT-217	Transition	G12A	71	0.077	249	179	4.7	12.1	3.89	1	4.07	1.1	4.35	0.8
		G12B		0.1	332	61.3	8.1		3.77	0.8	4.1			
VT-218		G13A	72	0.061	64	27.9	4	---	0.93	<0.5	0.97	---	1.09	<0.5
		G13B		0.101	93.9	23.7	9.3		0.93		1.02			
VT-219		G23A	20	0.065	151	77.1	4.5	---	2.1	<0.5	2.2		2.28	<0.5
		G23B		0.152	66.7	32.9	4.5		2.14	<0.8	2.24	<0.8		
VT-222		G14A	70	0.07	77	45.3	7	---	0.72	<0.5	0.77	---	0.69	<0.5
		G14B		0.164	62.1	13.1	14.9		0.58		0.68			
VT-223		G20A	68	0.095	173	35.7	9.7	1.7	1.54	2	1.7	2	1.67	1.8
		G20B		0.078	133	64	6.2	2.1	1.55	2.3	1.65	2.3		

Sample	Rock Type	Test No.	Grind P_{80} µm	Gravity Concentrate					Tailing		Head		Head	
				Wt	Assay, g/t		Recovery, %		Assay, g/t		(calc), g/t		(direct), g/t	
				%	Au	Ag	Au	Ag	Au	Ag	Au	Ag	Au	Ag
VT-240		G21A	79	0.055	157	49.1	6.1	3.1	1.33	0.9	1.42	0.9	1.39	1
		G21B		0.091	98.1	55.1	6	2.7	1.39	1.8	1.48	1.8		
VT-241		G2A	78	0.116	858	75.1	24.7	12.7	3.04	0.6	4.02	0.7	4.79	0.6
		G2B		0.117	677	84.3	17.9	9.1	3.63	1	4.42	1.1		
VT-242		G15A	64	0.067	315	43	5.8	---	3.45	<0.5	3.65	0.5	3.37	<0.5
		G15B		0.117	799	67.8	35.3	10.9	1.72	0.7	2.65	0.7		
VT-243		G16A	52	0.084	278	404	25.5	---	0.69	<0.5	0.92		0.86	<0.5
		G16B		0.144	95.7	20.8	28.9	2.4	0.34	1.2	0.48	1.2		
VT-244		G18A	70	0.043	955	160	22.2		1.45		1.86		1.91	<0.5
		G18B		0.105	191	27.2	10.6	4.3	1.69	0.6	1.89	0.7		
VT-245		G22A	81	0.146	62.2	30.8	4.8		1.81	<0.5	1.89		2.01	<0.5
		G22B		0.118	61.8	42.3	3.8	5.9	1.86	0.8	1.93	0.5		
VT-246		G17A	59	0.096	408	56.8	18.7		1.7		2.09		3.12	0.7
		G17B		0.149	300	44.3	15	6.1	2.54	1	2.98	1.1		
VT-247		G3A	58	0.112	373	53.6	10.8	6.3	3.44	0.9	3.85	1	3.41	0.8
		G3B		0.163	115	18.8	5.8	2.2	3.04	1.4	3.22	1.4		
VT-248		G19A	67	0.085	2345	240	51.3		1.9		3.89		5.19	0.8
		G19B		0.113	1499	135	44.2	15.5	2.15	0.8	3.85	1	5.19	
VT-225	Saprolite	G24	63	0.109	453	26.6	9.1	---	4.96	<0.5	5.44	---	5.62	<0.5
VT-226		G25	17	0.194	143	90.7	14.9	---	1.59	<0.5	1.86	---	1.97	<0.5
VT-229		G26	75	0.173	873	94.5	31.6	---	3.28	<0.5	4.79	---	4.87	0.8
VT-230		G27	16	0.168	258	27.9	7.2	---	5.64	<0.5	6.07	---	6.87	<0.5
VT-233	Laterite	G28	71	0.06	31.1	<42	0.4	---	4.39	<0.5	4.41	---	4.72	<0.5
VT-235		G29	82	0.06	19.1	<41	0.2	1.5	4.86	1.6	4.86	1.6	4.38	2.3
VT-237	Duricrust	G1AR	74	0.107	114	24.8	2	---	6.12	<0.5	6.23	---	5.97	0.6
VT-236		G30	88	0.176	27.6	779	3.6	22.2	1.32	4.8	1.37	6.2	1.18	4.5
VT-238		G31	68	0.106	363	19.4	4.5	---	8.09	<0.5	8.47	---	8.2	<0.5
VT-239		G32	80	0.219	8.46	<11	1.3	---	1.44	<0.5	1.45	---	1.36	<0.5

Sample	Rock Type	Test No.	Grind P_{80} µm	Gravity Concentrate					Tailing		Head		Head	
				Wt	Assay, g/t		Recovery, %		Assay, g/t		(calc), g/t		(direct), g/t	
				%	Au	Ag	Au	Ag	Au	Ag	Au	Ag	Au	Ag
Overall Statistics														
Minimum			16	0.043	8.46	11	0.2	1.5	0.34	0.5	0.48	0.5	0.69	0.6
Average			68	0.109	512	87.4	14.1	7.3	2.96	1.1	3.47	1.2	3.73	1.2
Maximum			125	0.219	4374	779	51.3	22.2	15.3	4.8	17	6.2	11.8	4.5
Std. Deviation			20	0.039	744	122	11.6	4.8	2.37	0.9	2.73	1.1	2.36	1
25^{th} percentile			67	0.078	106	31.9	5.8	3.4	1.57	0.7	1.86	0.7	1.93	0.7
75^{th} percentile			76	0.128	583	82.6	18.7	9	3.48	1.2	4.09	1.2	4.85	1

Gold recovery to the gravity concentrates ranged from 0.2% to 51%, indicating that gravity gold is presenting some zones and not others. The average gravity recoverable gold for the 46 samples was 14% with an average grade of 512 g/t Au. The lowest gravity recoverable gold was observed in the Laterite and Duricrust rock types. Table 13-26 presents the statistics by rock type.

Table 13-26: Rock Type Statistics Results Summary

Statistics	Grind P80 µm	Gravity Concentrate					Tailing		Head		Head	
		Wt	Assay, g/t		Recovery, %		Assay, g/t		(calc), g/t		(direct), g/t	
		%	Au	Ag	Au	Ag	Au	Ag	Au	Ag	Au	Ag
Hard Rock Statistics												
Minimum	71	0.046	155	25.8	7	7.3	1.13	0.5	1.43	0.5	1.57	0.6
Average	73	0.102	924	91.1	18	8.2	3.73	0.8	4.59	0.9	4.29	1
Maximum	76	0.179	4374	345	39.1	10.2	15.3	1.6	17	1.7	11.8	2.3
Std. Deviation	2	0.032	1096	83.7	9	0.9	3.34	0.3	4	0.4	3.19	0.6
25th percentile	71	0.078	365	44.2	12.4	7.6	2.01	0.6	2.75	0.7	2.6	0.7
75th percentile	75	0.115	862	99.6	20.2	8.5	3.37	0.7	4.1	0.8	4.15	0.8
Transition Statistics												
Minimum	20	0.043	61.8	13.1	3.8	1.7	0.34	0.6	0.48	0.5	0.69	0.6
Average	65	0.103	392	77.4	14.7	6.5	1.97	1.1	2.35	1.1	2.75	0.9
Maximum	81	0.164	2345	404	51.3	15.5	3.89	2.3	4.42	2.3	5.19	1.8
Std. Deviation	15	0.033	514	82.9	12.7	4.5	1.02	0.5	1.23	0.5	1.57	0.4
25th percentile	60	0.078	95.3	32.4	5.8	2.6	1.38	0.8	1.47	0.7	1.53	0.8
75th percentile	72	0.117	382	75.6	19.6	10	2.66	1.2	3.7	1.2	3.88	0.9
Saprolite Statistics												
Minimum	16	0.109	143	26.6	7.2	---	1.59	---	1.86	---	1.97	---
Average	43	0.161	432	59.9	15.7	---	3.87	---	4.54	---	4.83	---
Maximum	75	0.194	873	94.5	31.6	---	5.64	---	6.07	---	6.87	---
Std. Deviation	31	0.036	321	37.8	11.1	---	1.81	---	1.86	---	2.08	---
25th percentile	17	0.153	229	27.6	8.6	---	2.86	---	4.06	---	4.15	---
75th percentile	66	0.178	558	91.7	19.1	---	5.13	---	5.6	---	5.93	---
Duricrust Statistics												
Minimum	68	0.106	8.46	11	1.3	---	1.32	---	1.37	---	1.18	---
Average	78	0.152	128	209	2.9	---	4.24	---	4.38	---	4.18	---
Maximum	88	0.219	363	779	4.5	---	8.09	---	8.47	---	8.2	---
Std. Deviation	9	0.055	163	380	1.5	---	3.4	---	3.55	---	3.48	---
25th percentile	73	0.107	22.8	17.3	1.8	---	1.41	---	1.43	---	1.32	---
75th percentile	82	0.187	176	213	3.8	---	6.61	---	6.79	---	6.53	---

13.4.2.3.2 Flotation Testing

Rougher flotation test work was conducted on the gravity tailing from the Hard Rock and Transition samples. The primary objectives were to maximize gold recovery to a sulphide concentrate and provide feed for downstream cyanidation testing.

The flotation conditions are shown in Table 13-27.

Table 13-27: Flotation Conditions

Stage	Reagents added, grams per tonne				Time, min	
	$CuSO_4$	PAX	R_20_8	MIBC	Cond.	Froth
	10%	1%	100%	100%		
Grind/Gravity						
Condition	-	25	15	-	2	
Rougher 1	-	-	-	as required	1	2
Rougher 2	-	25	10	as required	1	2
Rougher 3	-	25	10	-	1	2
Rougher 4	-	25	10	-	1	2
Rougher 5	150	25	10	-	2+1	2
Total	150	125	55		9	10

Five stages of rougher flotation were completed at natural pH, for a total of 10 minutes. Potassium Amyl Xanthate (PAX) and the dithiocarbamate R208 were added as collectors along with methyl isobutyl carbinol (MIBC) as frother. Prior to the fifth stage, copper sulphate (CuSO4) was added as an activator to enhance sulphide flotation.

A summary of the results is provided in Table 13-28.

Table 13-28: Summary of Flotation Test Results

Sample	Rock Type	Test No.	K_{80} µm	Gravity Recov, % Au	Flotation Conc				Flotation Tail				Head Assays, direct feed to gravity	
					Wt %	Assay Au, g/t	% Dist Au	Overall % Dist Grav + Flot, Au	Wt %	Assays		% Dist Au	Au, g/t	S, %
										Au, g/t	S, %			
VT-205	Hard Rock	F3	70	15.9	12.9	20.5	93.8	94.8	87.1	0.2	0.09	6.2	3.47	2.47
VT-206		F4	71	12.3	14.8	20.7	95	95.6	85.2	0.19	0.1	5	4.02	3.27
VT-207		F5	71	7	13.9	22.7	95.1	95.4	86.1	0.19	0.08	4.9	3.76	3.13
VT-208		F6	76	7.4	11.8	16.5	95.7	96	88.2	0.1	0.06	4.3	2.52	3.03
VT-209		F7	75	39.1	14.6	45.8	94.6	96.7	85.4	0.45	0.1	5.4	11.8	3.13
VT-212		F8	73	21.3	8.1	12.4	88.7	91.1	91.9	0.14	0.02	11.3	1.57	0.45
VT-213		F9	66	25.1	11.6	24.5	93.3	95	88.4	0.23	0.06	6.7	4.54	1.88
VT-214		F10	70	34.5	9.5	18.2	91.4	94.4	90.5	0.18	0.04	8.6	2.63	1.34
VT-217	Transition	F11	71	8.1	7	26.1	48.2	52.4	93	2.1	0.02	51.8	4.35	0.17
VT-218		F12	72	9.3	11.1	4.19	50.1	54.7	88.9	0.52	0.02	49.9	1.09	0.29
VT-219		F22	19	4.5	19.3	7.8	69.8	71.2	80.7	0.8	<0.01	30.2	2.28	<0.01
VT-222		F13	70	14.9	12	4.37	89.5	91.1	88	0.07	0.04	10.5	0.69	1.2
VT-223		F19	68	6.2	14.2	6.7	61.3	63.7	85.8	0.7	0.07	38.7	1.67	0.1
VT-240		F20	79	6	24.2	1.6	27.9	32.2	75.8	1.32	0.03	72.1	1.39	0.04
VT-241		F1	78	17.9	7.2	17.1	34.1	45.9	92.8	2.58	0.01	65.9	4.79	<0.01
VT-242		F14	64	35.3	11.1	9.97	64.8	77.2	88.9	0.68	<0.01	35.2	3.37	<0.01
VT-243		F15	52	28.9	13.8	0.07	2.9	31	86.2	0.38	<0.01	97.1	0.86	<0.01

Sample	Rock Type	Test No.	K_{80} µm	Gravity Recov, % Au			Flotation Conc		Flotation Tail				Head Assays, direct feed to gravity	
					Wt %	Assay Au, g/t	% Dist Au	Overall % Dist Grav + Flot, Au	Wt %	Assays Au, g/t	Assays S, %	% Dist Au	Au, g/t	S, %
VT-244		F17	70	10.6	13.5	8.18	65.2	68.9	86.5	0.68	<0.01	34.8	1.91	<0.01
VT-245		F21	81	3.8	10.8	8.6	50	51.9	89.2	1.04	<0.01	50	2.01	<0.01
VT-246		F16	59	15	19.1	12.7	95.5	96.2	80.9	0.14	0.06	4.5	3.12	2.49
VT-247		F2	58	5.8	13.5	20	89.2	89.8	86.5	0.38	0.18	10.8	3.41	2.46
VT-248		F18	67	44.2	12.1	13.9	78.3	87.9	87.9	0.53	<0.01	21.7	5.19	0.01
Overall Statistics														
Minimum			19	3.8	7	0.07	2.9	31	75.8	0.07	0.01	4.3	0.69	<0.01
Average			67	17	13	14.7	71.6	76	87	0.62	0.05	28.4	3.2	1.16
Maximum			81	44.2	24.2	45.8	95.7	96.7	93	2.58	0.18	97.1	11.8	3.27
Standard Deviation			13	12.3	4	10.2	26.6	22.4	4	0.65	0.04	26.6	2.33	1.3
25^{th} percentile			66	7.1	11.1	7.9	52.9	57	85.9	0.19	0.01	6.3	1.73	0.01
75^{th} percentile			73	24.2	14.1	20.4	93.7	94.9	88.9	0.7	0.07	47.1	3.96	2.47

Gold recovery to the combined rougher concentrate was high for all the Hard Rock samples, ranging from 88.7% to 95.7% with an average of 93.5%. The concentrate gold head grades ranged from 12.4 g/t Au to 45.8 g/t Au.

Gold recovery for the Transition samples was considerably lower than the Hard Rock samples, ranging from 2.9% to 95.5% with an average of 59.1%. The sulphur content of the Transition samples was lower than the Hard Rock samples, which would account for the lower recoveries to the sulphide concentrate. Since most of the gold appeared to be associated with sulphur in the Hard Rock samples, it was readily recovered to a sulphide concentrate. Figure 13-11 and Figure 13-12 illustrates the relationship between gold recovery and the sulphide head grade of the samples and with concentrate grade respectively.

Figure 13-11: Gold Recovery vs. Sulphur Head Grade

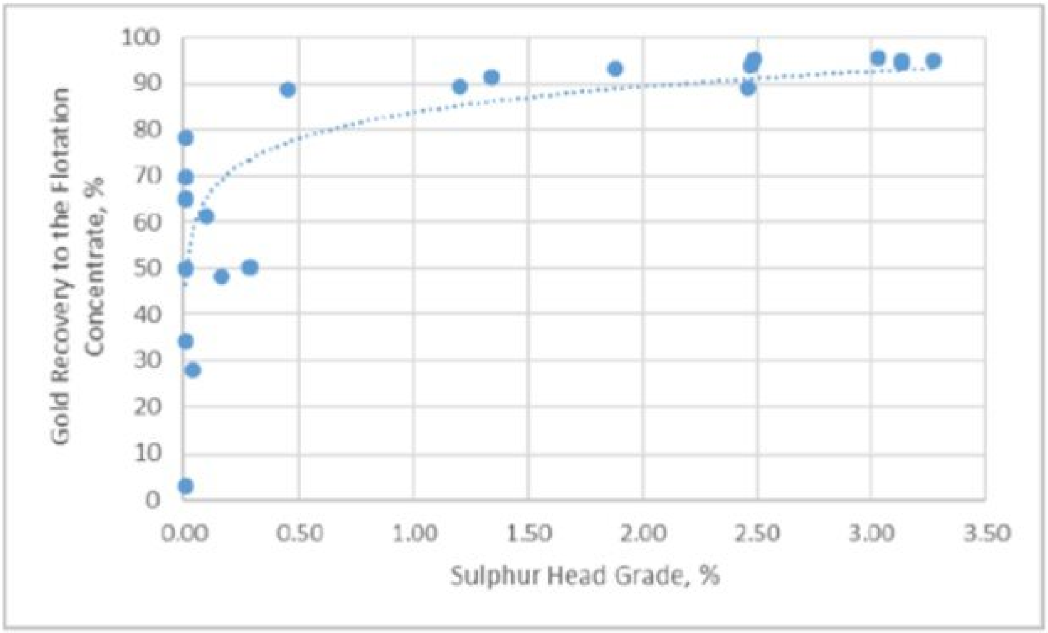
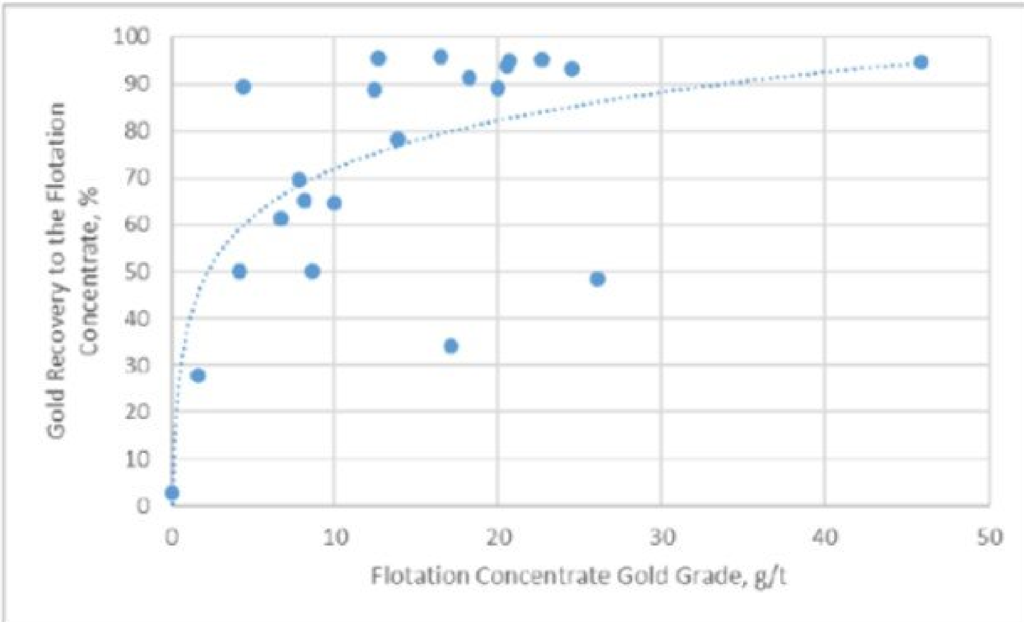


Figure 13-12: Gold Recovery vs. Gold Grade



13.4.2.3.3 Cyanidation Testing

Bottle roll CIL test work was completed to evaluate the variability in response to cyanide leaching of the samples. Tests were conducted on the gravity tailing and on the ultrafine reground flotation concentrates and on Flotation tailings. Results are presented in Table 13-29 and Table 13-30.

The overall gravity + flotation product CIL recoveries and reagent consumptions are provided in Table 13-31.

Table 13-29: Gravity Tails CIL Results

Statistic	Feed Size	Reagent Addition kg/t of CN Feed		Reagent Cons. kg/t of CN Feed		Au Recovery/Extraction, %			Au Residue, g/t				Ag Assays g/t, mg/L		Grav Tail Au, g/t		Head, Au, g/t (feed to gravity)	
	P_{80}, µm	NaCN	CaO	NaCN	CaO	Gravity	CN	Overall Gravity + CN	A	B	C	Avg.	Carbon	Barren	Calc.	Grav.	Calc.	Direct
Hard Rock Statistics																		
Minimum	71	0.42	1.27	0.12	1.25	10.3	50.3	58	0.25	0.23	0.26	0.3	11	<0.03	1.5	1.76	2.19	1.57
Average	74	0.45	1.44	0.18	1.42	15.5	63.8	69.5	1.21	1.31	1.25	1.3	34	<0.03	3.71	4.4	5.07	4.29
Maximum	85	0.51	1.6	0.21	1.59	19.8	87.1	89.3	2.84	3.48	3.05	3.1	72	<0.03	11	15.3	17	11.8
Std. Deviation	5	0.03	0.2	0.03	0.12	3.1	13.3	10.9	0.77	0.97	0.83	0.9	18	0	3.04	4.46	4.88	3.18
25th percentile	71	0.43	1.36	0.18	1.34	13.8	55.6	62	0.76	0.78	0.78	0.8	25	<0.03	2	2.57	3.09	2.6
75th percentile	75	0.46	1.53	0.2	1.51	17.4	72.9	75.9	1.41	1.44	1.42	1.4	39	<0.03	3.4	3.55	4.1	4.15
Transition Statistics																		
Minimum	20	0.45	1.3	0.1	1.29	4	43.6	46.3	0.03	0.04	0.03	0	11.3	<0.03	0.63	0.69	0.77	0.69
Average	65	0.59	2.63	0.26	2.6	14.2	84	85.6	0.4	0.39	0.4	0.4	36.5	0.07	2.04	2	2.38	2.58
Maximum	81	1.72	5.08	1.53	5.06	51.3	98.4	99.2	2.29	2.21	2.23	2.2	130	0.15	3.98	3.89	4.07	5.19
Std. Deviation	81	1.72	5.08	1.53	5.06	51.3	98.4	99.2	2.29	2.21	2.23	2.2	130	0.15	3.98	3.89	4.07	5.19
25th percentile	60	0.47	2.02	0.12	2.01	5.1	77	79.2	0.08	0.1	0.08	0.1	17.4	0.07	1.35	1.36	1.49	1.46
75th percentile	72	0.5	3.05	0.2	3	21.3	95	95.5	0.33	0.42	0.57	0.4	37	<0.08	2.79	2.81	3.8	3.4
Saprolite Statistics																		
Minimum	16	0.35	1.74	0.08	1.72	7.2	95.3	95.7	0.12	0.02	0.02	0.1	13.4	<0.08	1.55	1.59	1.86	1.97
Average	43	0.54	3.11	0.14	3.08	15.7	96.5	97	0.16	0.14	0.13	0.1	24.1	0.17	4.14	3.87	4.54	4.83
Maximum	75	0.83	6.46	0.28	6.38	31.6	97.6	97.8	0.24	0.25	0.24	0.2	35.8	0.42	6.26	5.64	6.07	6.87
Std. Deviation	31	0.21	2.24	0.09	2.21	11.1	0.9	1	0.05	0.09	0.09	0.1	12	0.17	2.04	1.81	1.86	2.08
25th percentile	17	0.42	1.94	0.1	1.91	8.6	96.1	96.6	0.13	0.1	0.1	0.1	13.9	<0.08	3.11	2.86	4.06	4.15
75th percentile	66	0.6	3.3	0.15	3.27	19.1	96.9	97.8	0.17	0.18	0.17	0.2	33.8	0.17	5.41	5.13	5.6	5.93

Statistic	Feed Size	Reagent Addition kg/t of CN Feed		Reagent Cons. kg/t of CN Feed		Au Recovery/Extraction, %			Au Residue, g/t				Ag Assays g/t, mg/L		Grav Tail Au, g/t		Head, Au, g/t (feed to gravity)	
	P_{80}, µm	NaCN	CaO	NaCN	CaO	Gravity	CN	Overall Gravity + CN	A	B	C	Avg.	Carbon	Barren	Calc.	Grav.	Calc.	Direct
Duricrust Statistics																		
Minimum	68	0.47	8.22	0.14	8.18	1.3	94.1	94.2	0.02	0.03	0.03	0	11.4	<0.08	1.32	1.32	1.37	1.18
Average	87	0.58	11.4	0.27	11.4	2.7	96.3	96.4	0.23	0.21	0.26	0.2	99.1	<0.08	4.8	4.63	4.76	4.54
Maximum	125	0.69	13.7	0.34	13.7	4.5	98.2	98.3	0.44	0.42	0.43	0.4	354	<0.08	9.14	8.09	8.47	8.2
Std. Deviation	22	0.09	2.08	0.08	2.09	1.3	1.8	1.7	0.2	0.18	0.17	0.2	170	0	3.36	3.07	3.19	3.12
25th percentile	74	0.51	11.1	0.22	11	1.9	95.3	95.5	0.03	0.03	0.2	0	12.9	<0.08	1.47	1.44	1.45	1.36
75th percentile	88	0.66	12.7	0.32	12.7	3.6	98	98	0.41	0.33	0.34	0.4	102	<0.08	6.19	6.16	6.27	5.97

Table 13-30: Flotation Products CIL Results

Statistic	Flotation Concentrate Leach results							Flotation Tailing Leach Results					
	D80	Reag. Add'n kg/t		Reag. Cons. kg/t		% Extraction	Residue g/t	Reag. Add'n kg/t		Reag. Cons. kg/t		% Extraction	Residue g/t
	µm	NaCN	CaO	NaCN	CaO	Au	Au	NaCN	CaO	NaCN	CaO	Au	Au
Hard Rock Statistics													
Minimum	10.3	3.85	2.74	2.72	2.66	64.4	0.8	0.46	0.68	0.21	0.59	46.4	0.05
Average	12.7	4.27	3.35	3.28	3.27	76.1	5.36	0.5	1.32	0.25	1.14	64.1	0.08
Maximum	14.4	4.85	3.99	4.29	3.89	95.6	9.82	0.54	1.52	0.31	1.28	74.8	0.13
Std. Deviation	1.4	0.35	0.46	0.52	0.47	11.1	2.98	0.03	0.27	0.03	0.23	9.3	0.03
25^{th} percentile	12	4.04	3.13	3.06	3.01	67	3.14	0.48	1.34	0.24	1.17	61.2	0.06
75^{th} percentile	13.6	4.42	3.59	3.35	3.53	82.4	7.01	0.52	1.46	0.26	1.26	70.9	0.09
Transition Statistics													
Minimum	8.7	3	2.76	0.62	2.71	44.8	0.02	0.49	0.85	0.14	0.76	12.9	0.02
Average	11.3	5.45	4.93	3.01	4.86	87.6	1.44	0.65	2.56	0.31	2.53	65.3	0.25
Maximum	13.9	23.38	8.46	20.7	8.36	99.8	14.4	1.12	6.13	0.81	5.99	92.8	0.91
Std. Deviation	1.3	5.23	1.65	5.15	1.59	17.9	3.79	0.16	1.33	0.18	1.31	27.2	0.29
25^{th} percentile	10.8	3.58	3.9	1.06	3.85	85.8	0.05	0.57	1.66	0.23	1.84	60.6	0.07
75^{th} percentile	11.5	4.78	5.66	2.22	5.61	99.3	99.3	0.63	2.76	0.32	2.74	82.4	0.34

Table 13-31: Overall Gravity Flotation CN Test Results

Sample	Rock Type	Flotation Conc	Flotation Tail	Conc CN	Tail CN	Overall		% Overall Recovery		Comb. Tail Assay, g/t Au	Head Direct, g/t Au
		% Distribution	% Distribution	% Recovery	% Recovery	Reag. Cons. kg/t		CN	Gravity + Flot + CN		
		Au	Au	Au	Au	NaCN	CaO	Au	Au		
VT-205	Hard Rock	93.8	6.2	65.8	3.9	0.56	1.69	69.7	74.5	0.87	3.47
VT-206		95	5	64.1	3.6	0.74	1.75	67.7	71.7	1.05	4.02
VT-207		95.1	4.9	62.4	3.7	0.69	1.77	66.1	68.4	1.14	3.76
VT-208		95.7	4.3	61.6	2.7	1.13	1.57	64.3	67	0.74	2.52
VT-209		94.6	5.4	74.4	3.8	0.63	1.53	78.2	86.7	1.54	11.8
VT-212		88.7	11.3	71.9	5.2	0.59	1.49	77.2	82	0.27	1.57
VT-213		93.3	6.7	80.3	4.5	0.57	1.49	84.8	88.6	0.47	4.54
VT-214		91.4	8.6	87.4	4.9	0.58	1.55	92.2	94.9	0.17	2.63
VT-217	Transition	48.2	51.8	21.6	34.4	2.2	2.23	56	59.6	1.7	4.35
VT-218		50.1	49.9	48.8	40.4	0.62	2.29	89.2	90.2	0.1	1.09
VT-219		69.8	30.2	69.5	25.2	0.31	1.14	94.7	94.9	0.12	2.28
VT-222		89.5	10.5	62.8	7.9	0.6	2.11	70.7	75.1	0.17	0.69
VT-223		61.3	.8.7	61.7	33	0.47	2.99	93.8	94.1	0.1	1.67
VT-240		27.9	72.1	23.7	19.6	0.42	4.79	43.3	46.7	0.75	1.39
VT-241		34.1	65.9	34	48	0.55	6.16	82	85.2	0.55	4.79
VT-242		64.8	35.2	64.7	28.5	0.34	3.32	93.2	95.6	0.12	3.37
VT-243		2.9	97.1	1.6	80.4	0.3	2.96	82	87.2	0.06	0.86
VT-244		65.2	34.8	64.8	4.7	0.33	2.9	69.5	72.8	0.08	1.91
VT-245		50	50	49.3	49.3	0.41	1.76	78.6	79.4	0.38	2.01
VT-246		95.5	4.5	84.8	0.6	0.53	1.98	85.4	87.6	0.29	3.12
VT-247		89.2	10.8	80.1	8.7	1.07	2.31	88.8	89.4	0.34	3.41
VT-248		78.3	21.7	76.8	20.1	0.68	2.42	96.9	98.3	0.07	5.19

Sample	Rock Type	Flotation Conc	Flotation Tail	Conc CN	Tail CN	Overall		% Overall Recovery		Comb. Tail Assay, g/t Au	Head Direct, g/t Au
		% Distribution	% Distribution	% Recovery	% Recovery	Reag. Cons. kg/t		CN	Gravity + Flot + CN		
		Au	Au	Au	Au	NaCN	CaO	Au	Au		
Overall Statistics											
Minimum		95.7	97.1	87.4	80.4	2.2	6.16	96.9	98.3	1.7	11.8
Average		71.6	28.4	59.6	18.8	0.65	2.37	78.4	81.4	0.5	3.2
Maximum		2.9	4.3	1.6	0.6	0.3	1.14	43.3	46.7	0.06	0.69
Std. Deviation		26.6	26.6	22	19.9	0.41	1.18	13.8	13.2	0.49	2.33
25th percentile		93.7	47.1	73.8	29.1	0.66	2.78	89.1	90	0.75	3.96
75th percentile		52.9	6.3	52.2	4	0.43	1.6	69.6	73.2	0.12	1.73
Hard Rock Statistics											
Minimum		95.7	11.3	87.4	5.2	1.13	1.77	92.2	94.9	1.54	11.8
Average		93.5	6.69	71	4	0.68	1.61	75	79.2	0.78	4.29
Maximum		88.7	4.3	61.6	2.7	0.56	1.49	64.3	67	0.17	1.57
Std. Deviation		2.3	2.3	9.3	0.8	0.19	0.11	9.9	10.3	0.47	3.18
25th percentile		95	7.2	75.8	4.6	0.7	1.7	79.8	87.2	1.07	4.15
75th percentile		92.8	5	63.7	3.7	0.58	1.52	67.3	70.9	0.42	2.6
Transition Statistics											
Minimum		95.5	97.1	84.8	80.4	2.2	6.16	96.9	98.3	1.7	5.19
Average		59.1	40.9	53.1	27.2	0.63	2.81	80.3	82.6	0.34	2.58
Maximum		2.9	4.5	1.6	0.6	0.3	1.14	43.3	46.7	0.06	0.69
Std. Deviation		25.9	25.9	24.6	20.7	0.49	1.29	15.7	14.8	0.44	1.48
25th percentile		76.2	51.4	68.3	34.1	0.62	2.98	92.2	93.2	0.37	3.4
75th percentile		48.7	23.8	37.7	11.4	0.36	2.14	72.7	76.2	0.1	1.46

The overall average gravity+flotation product cyanidation gold recovery was 81%. The average NaCN consumption was reasonably low, at 0.65 kg/t NaCN of gravity feed, and CaO average consumption was moderate at 2.37 kg/t CaO. The Hard Rock average gold recovery was 79% and the Transition rock type was 83%.

13.4.2.3.4 Graphitic Carbon Samples Testwork

In some specific areas of the SM deposit, there are graphitic carbon shears containing gold or really close to the gold mineralization. IAMGOLD wanted to investigate if that material could be problematic or if the material has to be segregated hence not sent to the Rosebel Plant.

Composite samples representing the graphitic carbon shear zones or at the contact zones next to the shear zones were sent to SGS for investigation, which included head chemical analysis, gravity, flotation with graphitic carbon pre-flotation, and gravity tailing CIL. The Composite head analysis are presented in Table 13-32 below.

Table 13-32: Graphic Carbon Composite Head Assays

Element	Sample ID							
Units	VT-249	VT-250	VT-251	VT-252	VT-253	VT-254	VT-255	VT-215
Au, g/t (SM)	7.72	13.5	4.36	1.16	1.14	1.87	14.2	3.17
Ag g/t	<0.5	1.4	0.6	<0.5	<0.5	<0.5	0.8	<0.5
SiO_2 %	60.6	58.3	56.9	47.7	74.2	67.2	63.3	74.8
Al_2O_3 %	6.91	5.41	9.04	9.29	8.62	9.93	8.96	11.8
Fe_2O_3 %	4.63	5.47	7.17	6.52	5.98	8.06	13.7	7.05
MgO %	2.54	3.8	3.51	5	0.65	1.38	0.43	0.35
CaO %	5.48	8.45	6.09	9.95	0.13	1.76	0.09	< 0.08
K2O %	1.11	1.02	1.18	0.51	1.07	1.1	1.25	1.94
TiO_2 %	0.64	0.34	0.81	0.68	0.53	0.6	0.78	0.83
MnO %	0.13	0.16	0.12	0.14	0.014	0.042	0.27	0.011
Cr_2O_3 %	0.017	0.022	0.018	0.027	0.025	0.026	0.015	0.044
V_2O_5 %	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.045
Na_2O %	0.47	0.32	0.53	0.99	0.44	0.67	0.57	0.45
P_2O_5 %	0.06	< 0.02	0.06	0.06	0.06	0.05	0.2	0.07
S %	2.55	2.29	2.36	0.29	0.13	1.62	0.5	1
As %	0.2	0.52	0.24	0.018	0.04	0.11	0.22	0.36
C(g) %	2.5	0.27	0.16	0.21	3.24	0.1	0.11	0.14

Carbon pre-flotation, prior to the rougher sulphide flotation stage, was investigated in a series of tests on the combined Knelson and Mozley gravity tailings. Carbon pre-flotation tests with MIBC only were completed on the eight variability samples and tests with a combination of MIBC and diesel fuel oil were completed on samples VT-215 and VT-249. After the carbon pre-float, standard rougher flotation with $CuSO_4$, PAX and R208 was performed. The results are shown in Table 13-33.

Table 13-33: Flotation Results including Carbon Pre Float

Comp	Test No.	Ro Tail		Reagents (g/t)				Product	Wt %	Assay C(g), %	Au (g/t)	Distribution (%)	
		P_{80} µm	$CuSO_4$	PAX	R208	Diesel	MIBC			Au	C (g)	Au	C(g)
VT-250	F24	72	150	125	55	-	205	Mozley Conc	0.1	1887		24.3	
								Carbon Conc	7.0	8.28	1.4	6.1	33.0
								Rougher Conc	16.8	37.2	0.65	64.9	36.5
								Rougher Tails	76.0	0.60	0.12	4.7	30.5
								Head (calc)	100.0	9.63	0.30	100.0	100.0
								Head (Direct)	-	13.5	0.27	-	-
VT-251	F 25	72	150	125	55	-	205	Mozley Conc	0.1	235	-	4.8	-
								Carbon Conc	7.8	4.43	0.43	8.0	30.2
								Rougher Conc	14.2	24.9	0.16	81.4	20.5
								Rougher Tails	78.0	0.32	0.07	5.8	49.3
								Head (calc)	100.0	4.33	0.11	100.0	100.0
								Head (Direct)	-	4.36	0.16	-	-
VT-254	F26	76	150	125	55	-	205	Mozley Conc	0.2	64.4	-	4.9	-
								Carbon Conc	6.0	2.45	0.15	7.4	14.8
								Rougher Conc	12.1	12.8	0.09	77.9	17.9
								Rougher Tails	81.7	0.24	0.05	9.9	67.3
								Head (calc)	100.0	1.99	0.06	100.0	100
								Head (Direct)	-	1.87	0.10	-	-

Comp	Test No.	Ro Tail		Reagents (g/t)				Product	Wt %	Assay C(g), %	Au (g/t)	Distribution (%)	
		P_{80} µm	$CuSO_4$	PAX	R208	Diesel	MIBC			Au	C (g)	Au	C(g)
VT-255	F27	92	150	125	55	-	205	Mozley Conc	0.2	1972	-	21.1	-
								Carbon Conc	7.6	34.6	0.06	18.3	9.0
								Rougher Conc	33.5	18.5	0.05	43.0	33.1
								Rougher Tails	58.7	4.30	0.05	17.5	57.9
								Head (calc)	100.0	14.4	0.05	100.0	100.0
								Head (Direct)	-	14.2	0.11	-	-
VT-252	F29	78	150	125	55	-	205	Mozley Conc	0.1	343	-	15.7	-
								Carbon Conc	6.6	1.96	0.92	11.8	38.6
								Rougher Conc	6.2	10.5	0.71	59.0	27.9
								Rougher Tails	87.2	0.17	0.06	13.5	33.4
								Head (calc)	100.0	1.09	0.16	100.0	100.0
								Head (Direct)	-	1.16	0.21	-	-
VT-253	F30	84	150	125	55	-	630	Mozley Conc	0.1	404	-	27.2	-
								Carbon Conc	10.3	3.60	2.29	29.3	29.6
								Rougher Conc	12.4	1.72	1.24	16.8	19.2
								Rougher Tails	77.2	0.44	0.53	26.8	51.2
								Head (calc)	100.0	1.27	0.80	100.0	100.0
								Head (Direct)	-	1.14	3.24	-	-

Comp	Test No.	Ro Tail		Reagents (g/t)				Product	Wt %	Assay C(g), %	Au (g/t)	Distribution (%)	
		P_{80} µm	$CuSO_4$	PAX	R208	Diesel	MIBC			Au	C (g)	Au	C(g)
VT-215	F31	79	150	125	55	-	205	Mozley Conc	0.1	290	-	5.6	-
								Carbon Conc	7.6	13.0	<0.05	28.7	7.6
								Rougher Conc	11.4	13.0	<0.05	43.1	11.4
								Rougher Tails	80.9	0.96	<0.05	22.6	81.0
								Head (calc)	100.0	3.44	<0.05	100.0	100.0
								Head (Direct)	-	3.17	0.14	-	-
VT-215	F32	79	150	125	55	45	40	Mozley Conc	0.1	77.9	-	2.0	-
								Carbon Conc 1-5	4.9	27.8	0.19	42.0	15.8
								Rougher Conc 1-5	8.0	12.8	0.06	31.3	8.7
								Rougher Tails	87.0	0.92	0.06	24.7	75.5
								Head (calc)	100.0	3.25	0.058	100.0	100.0
								Head (Direct)	-	3.17	0.14	-	-
VT-249	F28	86	150	125	55	-	580	Mozley Conc	0.1	3206	-	30.7	-
								Carbon Conc	13.1	1.77	5.17	3.9	35.0
								Rougher Conc	16.8	20.8	2.13	59.6	18.6
								Rougher Tails	70.0	0.48	1.28	5.7	46.5
								Head (calc)	100.0	5.87	1.93	100.0	100.0
								Head (Direct)	-	7.72	2.50	-	-

Comp	Test No.	Ro Tail		Reagents (g/t)				Product	Wt %	Assay C(g), %	Au (g/t)	Distribution (%)	
		P_{80} µm	$CuSO_4$	PAX	R208	Diesel	MIBC			Au	C (g)	Au	C(g)
VT-249	F33	86	150	125	55	270	385	Mozley Conc	0.1	1652	-	37.2	-
								Carbon Conc 1-5	24.0	1.81	6.61	7.0	62.7
								Rougher Conc 1-5	17.2	18.8	2.34	51.7	16.0
								Rougher Tails	58.6	0.44	0.92	4.1	21.3
								Head (calc)	100.0	6.26	2.53	100.0	100.0
								Head (Direct)	-	7.22	2.50	-	-
VT-249	F34	86	150	125	55	400	385	Mozley Conc	0.05	5836	-	38.0	-
								Carbon Conc 1-5	30.4	1.95	5.27	8.2	74.8
								Rougher Conc 1-5	12.2	29.3	1.28	49.6	7.3
								Rougher Tails	57.3	0.53	0.67	4.2	17.9
								Head (calc)	100.0	7.22	2.14	100.0	100.0
								Head (Direct)	-	7.72	2.50	-	-

Carbon flotation with MIBC was not promising, with only 35% carbon recovery. The tests on sample VT 249 with diesel fuel along with MIBC increased the carbon recovery dramatically, to 74.8% at the highest dosage of diesel (400 g/t). Gold losses to the carbon concentrate increased with increasing carbon recovery. At 74.8% carbon recovery, the resultant gold loss was 8.2%. The mass pull to the carbon concentrate increased from 17% with MIBC alone to 30% at the highest diesel fuel oil amount added. Figure 13-13 below shows the relationship between mass pull and carbon recovery.

Figure 13-13: Relationship between Mass Pull and Carbon Recovery

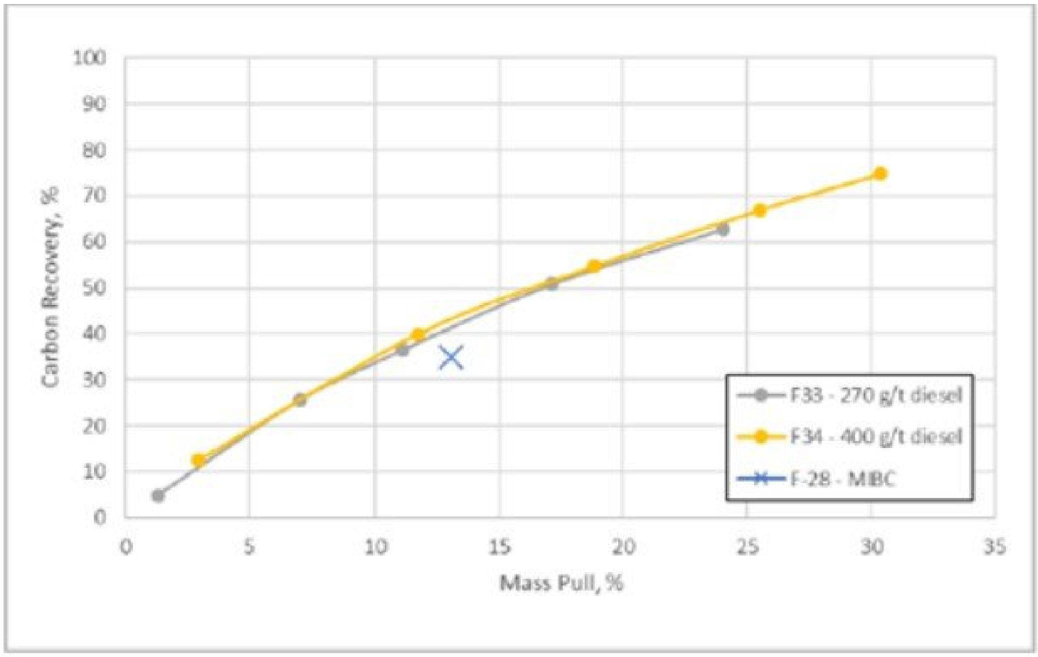
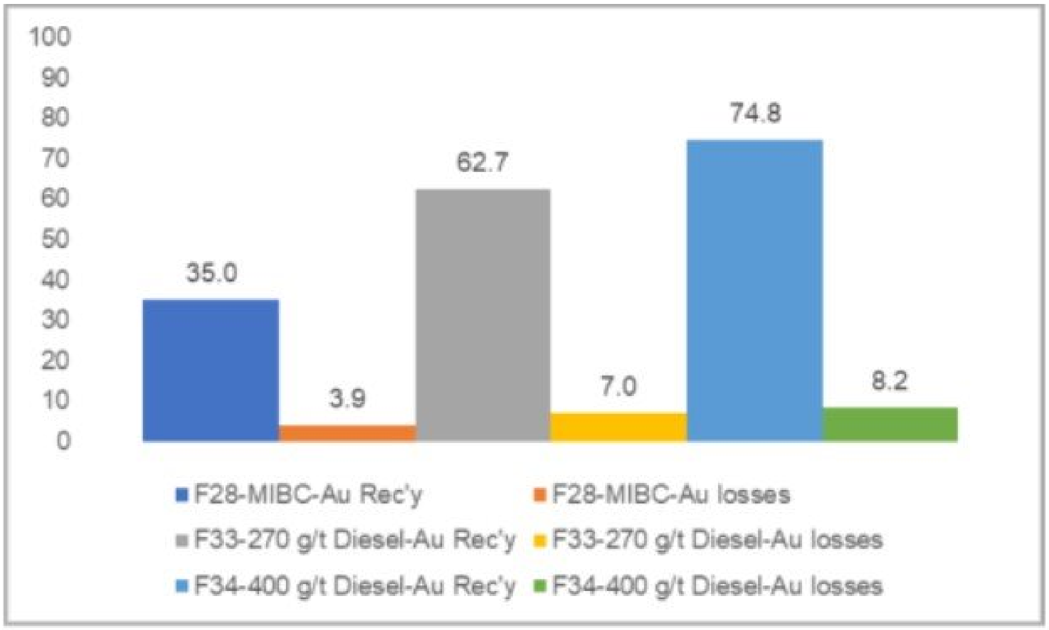


Figure 13-14 below illustrates the carbon recovery to the carbon concentrate and the corresponding gold losses.

Figure 13-14: Gold Losses vs. Cg% Recovery



Following the Phase II and Phase III test work programs completion, it has been identified that the refractory gold recoveries may be improved by 6% to 8%, however, the small quantities of hard rock available from the SM deposit does not support the additional capital costs required to have a separate crushing-grinding-flotation plant followed by ultrafine grinding to process the SM hard rock. Regarding graphitic carbon, while the flotation could remove a substantial amount of carbon, it will result in significant additional gold losses. Furthermore, the carbon flotation tails would still contain an amount of graphite that would impact the CIL circuit (Preg-Robbing). It has been decided that any ores containing a significant amount of graphitic material should be stockpiled until the end of the mine life and processed at that time.

14 MINERAL RESOURCE ESTIMATE

14.1 Summary

The Rosebel and Saramacca Mineral Resource estimate, as of December 31, 2021, is summarized in Table 14-1 and is reported on a 100% basis and attributable metal. The Rosebel Mineral Resource estimate was prepared under the supervision of Alain Mouton, P.Geo. The SM, KH-JZ, and RH Mineral Resource estimates were prepared by, or under immediate supervision of, Oy Leuangthong, Ph.D., P.Eng., of SRK and Aleksandr Mitrofanov, Ph.D., P.Geo., formerly of SRK. The PC, MA, and RB Mineral Resource estimates were prepared by, or under immediate supervision of Ian Hugh Crundwell, P.Geo of WSP and Bruno Perron, P. Eng. formerly of WSP. Messrs. Mouton, Crundwell, and Perron and Drs. Mitrofanov and Leuangthong are QPs as defined by NI 43-101. Section 14 has been divided into three areas of responsibility:

- Section 14.1, 14.2, and 14.5 (RGM)
- Section 14.3 and 14.6 (SRK)
- Section 14.4 (WSP)

Mineral Resources and Mineral Reserves have been prepared in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 19, 2014 (CIM (2014) definitions) and CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines dated November 29, 2019.

Table 14-1: Rosebel and Saramacca Mineral Resource Estimates as of December 31, 2021

Classification	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au) 100% Basis	Attributable Contained Metal (000 oz Au)
Measured	11,235	0.64	232	218
Indicated	162,481	1.16	6,074	5,341
Measured + Indicated	173,715	1.13	6,305	5,558
Inferred	22,017	0.97	687	587

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Attributable ounces have been calculated as 95% for Rosebel and 66.5% for Saramacca.
3. Mineral Resources are estimated at a cut-off grade which varies between 0.18 g/t Au to 0.54 g/t Au, depending on the material and pit. Mineral Resources are estimated using an average long term gold price of US$1,500/oz Au.
4. Mineral Resources are constrained by Whittle optimized pit shells.
5. A minimum mining width of five metres was used.
6. Bulk density was estimated by Ordinary Kriging (OK) by weathering type except for PC, RB, and MA, which utilizes a mean value based on density data.
7. Mineral Resources are inclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not demonstrate economic viability.
9. Numbers may not add due to rounding.

The QPs are not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

14.2 Rosebel

For the present Rosebel Mineral Resource estimate, the MK, ETR, RMW, RME and OV block models were not updated. These block models from 2012 to 2017 did not require updating because there has been no new drilling or mining at these deposits.

The MK, ETR, RMW, RME and OV block models will subsequently be referred to as the not-updated models and are under RGM QP. The following block models have been updated by SRK and WSP, and will be referred to as the updated models:

- WSP: PC, MA, and RB.
- SRK: KH-JZ and RH.

More information on these models can be found in Sections 14.3 and 14.4. Two different interpolation approaches were used, depending on the area:

- For MK, ETR, RMW, RME, and OV (not-updated models): an Inverse Distance cubed (ID^3) interpolator was used
- For MA, KH-JZ, PC, RB, and RH (updated models): OK grade estimation was performed

14.2.1 Database

The Rosebel Mineral Resources are estimated using DD hole and RC hole data. All holes have been established on a local grid and the final collar locations have been surveyed and reported in UTM WGS84 zone 21N. The current Mineral Resource database for Rosebel and Saramacca is composed of 6,857 DD holes, totalling 1,096,247 m for 678,987 assayed samples and 6,284 RC holes, totalling 392,907 m for 126,515 assayed samples (Table 14-2). The resource database includes DD holes and RC holes located either within or close to the pit area.

Table 14-2: Rosebel and Saramacca Drill Hole Data Used for Resources Estimation

Pit	Diamond Drill			Reverse Circulation		
	No. of Holes	Metres (m)	Intervals1	No. of Holes	Metres (m)	Samples
RM	290	44,343	31,956	3,991	192,761	62,174
ETR	90	12,078	8,424	-	-	-
OV	250	32,167	21,810	-	-	-
MK	118	11,461	15,779	25	1,677	1,086
Total RGM	748	100,049	77,969	4,016	194,438	63,260
KH	853	124,655	82,993	9	1,278	638
JZ	490	73,967	50,045	43	5,678	2,836
RH	1,130	175,771	125,663	19	2,722	1,345
SM	570	113,927	79,712	354	45,456	22,725
Total SRK	3,043	488,320	338,413	425	55,134	27,544
PC	1,006	184,448	131,869	426	41,488	16,559
MA	1,197	201,731	50,296	1,119	75,125	6,368
RB	863	121,699	80,440	298	26,722	12,784
Total WSP	3,066	507,878	262,605	1,843	143,335	35,711
Total	6,857	1,096,247	678,987	6,284	392,907	126,515

Notes:

1. Some intervals do not have assay results due to core loss or equivalent

The drill hole database contains information including, collar information, downhole deviation surveys, gold assays, multi-elements-ICP assays, lithological descriptions, alteration, structural data, mineralization, major textures, specific gravity measurements, and vein descriptions.

The GEMS database validation routines were applied to the resource database. No errors were detected in the data tables. Based on this assessment, and the checks described in Section 12, it is the QPs' opinion that the drill hole database is appropriate to form the basis of the Rosebel Mineral Resource estimate.

14.2.2 Bulk Density

Table 14-3 presents the bulk density values applied for the not-updated models.

Table 14-3: Bulk Density Values Applied for the Not-Updated Models

Pit	Laterite (t/m^3)	Saprolite (t/m^3)	Transition (t/m^3)	Hard Rock (t/m^3)
RME	1.72	1.76	2.34	2.69
RMW	1.73	1.74	2.29	2.7
OV	1.87	1.72	2.3	2.66
ETR	1.73	1.79	2.31	2.79
MK	1.66	1.71	2.3	2.8

14.2.3 Compositing, Statistics, and Capping

14.2.3.1 Not-Updated Block Models

Three metre composites were generated from DD hole uncapped assays for ETR, MK, RMW, RME, and OV.

The choice of composite length is mainly based on the following criteria: height of mining bench, mineralized zone thickness, length of assays, and reconciliation with production numbers. All composites are constrained within the mineralized zone and laterite solids first, and secondly, within the lithology and weathering solid limits. Poorly representative composites are not taken into consideration for resource estimation. These can include composites which are missing more than 50% of assays and/or where the composites that are less than one metre (for five metre composites) or 0.6 m (for three metre composites). The smaller composites were generally created at the end of a solid interval or at the bottom of a hole. They were discarded from the composite data set.

The MK deposit differs from that last rule on the minimum length of a composite. In order to ensure representative composites, if the last interval is less than the composite length, the composite length is adjusted to make all intervals equal. For MK, all composites, constrained in the mineralized zones, are used unless they are missing more than 50% of the assays.

14.2.4 Block Model and Estimation Parameters

Block size properties and extensions are selected to cover all the interpreted mineralized zones and in accordance with RGM mining equipment and practices. Block model properties for the non-updated models are presented in Table 14-4.

All block models are coded for lithology, weathering, and mineralized zones using a unique rock code assigned when at least 50% of the blocks are located inside a solid or the centroid block is inside the solid.

Table 14-4: Block Model Origin, Rotation, Size and Dimensions for the Not-Updated Models

Pit	Origin (m)				Size (m)			Number of Blocks		
	X	Y	Z	Orient	Column X	Row Y	Level Z	Column Count	Row Count	Level Count
RME	47,300	81,050	602	0	10	4	4	150	313	138
RMW	46,575	80,643	602	30	10	5	6	140	220	91
ETR	51,766	85,533	700	-18	10	4	4	140	175	150
OV	47,367	102,657	620	-26	10	5	5	40	165	60
MK	57,000	86,250	650	-15	10	5	6	313	240	100

The last block model updates for the ETR, OV, MK, RME, and RW deposits vary from 2012 to 2017 (Table 14-5).

Table 14-5: Model Updates for the Not-Updated Models

Area	Year	By
OV	2012	RGM
ETR	2014	RGM
MK	2014	RGM
RMW	2017	RGM
RME	2017	RGM

Interpolations are performed in GEMS software using a conventional anisotropic ID^3 interpolation. The gold grade estimates are generally generated from five metre composites (OV) or three metre composites (ETR, MK, RME, and RMW). To avoid smearing gold grades from one mineralized zone to another or into the host rock, geologic and mineralized contacts were considered as hard boundaries.

A three pass interpolation strategy is performed with relaxing search parameters after each pass. The first pass ellipsoid size was generally approximately 50 m in the two main directions and 25 m in the minor direction. The second pass is selected as 75 m in the major and the intermediate direction and as 37.5 m in the minor direction. The third pass is set as the double of the second pass. Ellipsoid directions were orientated according to the interpreted mineralized zones or the main grade orientation (mineralized shoot). A spherical search method was preferred to interpolate for:

- The lateritic portion of each deposit to follow the original topography of the deposit.
- ETR deposit due to the folding shapes of the mineralized zones.

For ETR, OV, RME and MK, interpolation was performed using ID^3, with a maximum number of composites varying by pit from 12 to 20 in order to control smoothing. For each pass, the minimum number of composites is decreased to increase the number of blocks estimated. A maximum of two or three composites, from the same hole, is set to limit grade smearing. The parameters used to estimate gold grade in the block models are shown in Table 14-6.

Table 14-6: Block Model Interpolation Parameters

Pit	Interpolation Parameters ID^3						
	Composites			Restricting Search Grade	Ellipsoid Radii (m)		
	Min (Pass 1- P2-P3)	Max	Max per Hole		Pass 1	Pass 2	Pass 3
ETR	1 - 5 - 8	20	3	None	50/50/50	75/75/75	150/150/150
OV	1 - 3 - 5	12	3	None	50/20/50	75/25/75	150/50/150
MK	1 - 4 - 7	20	3	None	50/25/50	75/37.5/75	150/75/150

14.3 Koolhoven-J Zone and Royal Hill by SRK

For KH-JZ and RH, SRK used Leapfrog Geo™ software (version 6.0.4) to construct the geological solids. A combination of Leapfrog Edge™, and GSLib™ software were used to prepare assay data for geostatistical analysis, construct the block model, and estimate gold grades.

14.3.1 Geological Interpretation and Modelling

14.3.1.1 Koolhoven-J Zone

The KH-JZ mineral resource model is based on substantial structural geology investigation documented in published reports (Daoust, 2016; Allan et al, 2015) as well as on the mining results of eight years of production (2010-2018). Gold mineralization is associated with major west-northwest striking brittle-ductile zones within the subvertical reverse and strike-slip complex fault network formed within a north-south tension environment.

The lithology control is limited without any substantial grade anomaly associated with the specific rock type (Figure 14-1). The mudstone lithology is characterized by slightly elevated average gold grade, however, the review of the contacts between mudstone and other rock types in the core confirms that the mineralization zones can gradually follow through the lithology contacts with no substantial change in the morphology. Therefore, SRK did not use the lithology domains as a basis for estimation domains.

The logged veins in the exploration dataset have predictably demonstrated the anomaly in the grade distribution (Figure 14-2, left), however, the various vein types were not substantially different from the (Figure 14-2, right) and therefore were not split in the domain modelling.

Figure 14-1: Gold Distribution in the Different Lithology Types of the Koolhoven-J Zone Deposit

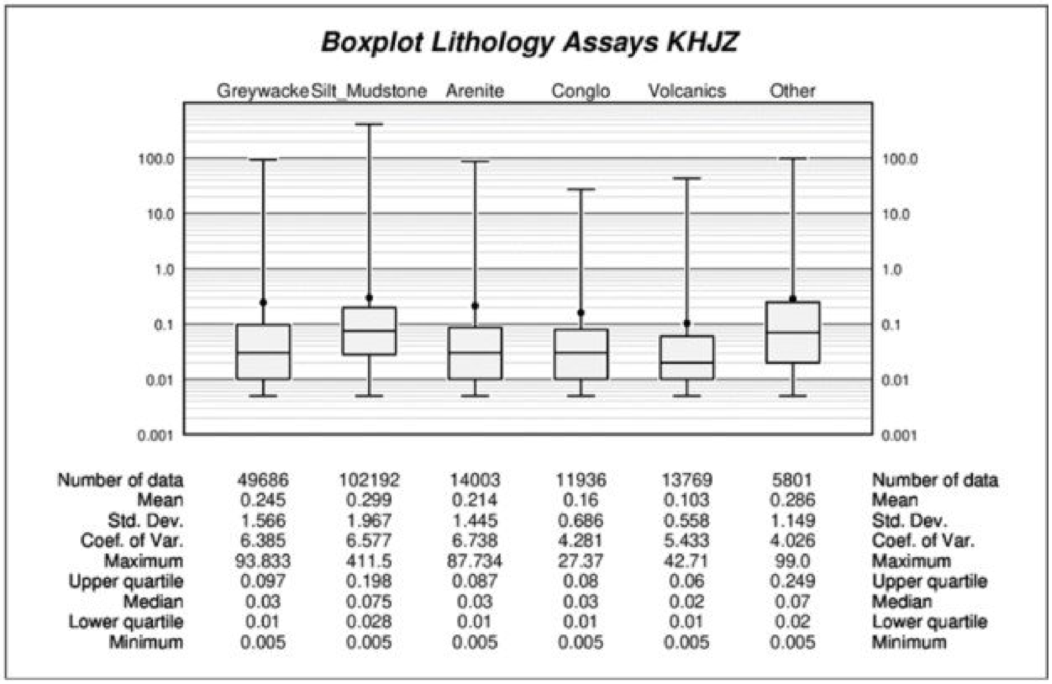
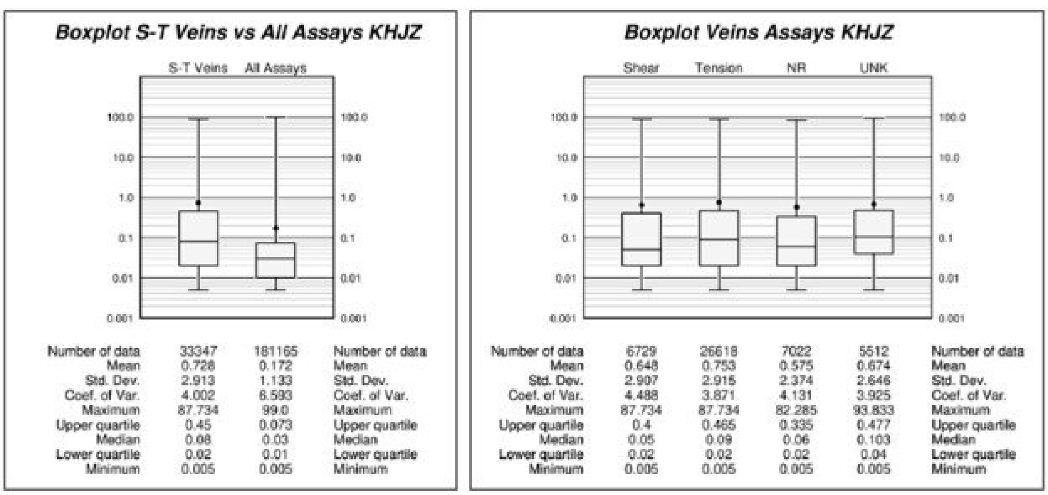


Figure 14-2: Comparison of the S+T Veins Dataset and All Assays (left) and Breakdown Between the Different Logged Vein Types (right)

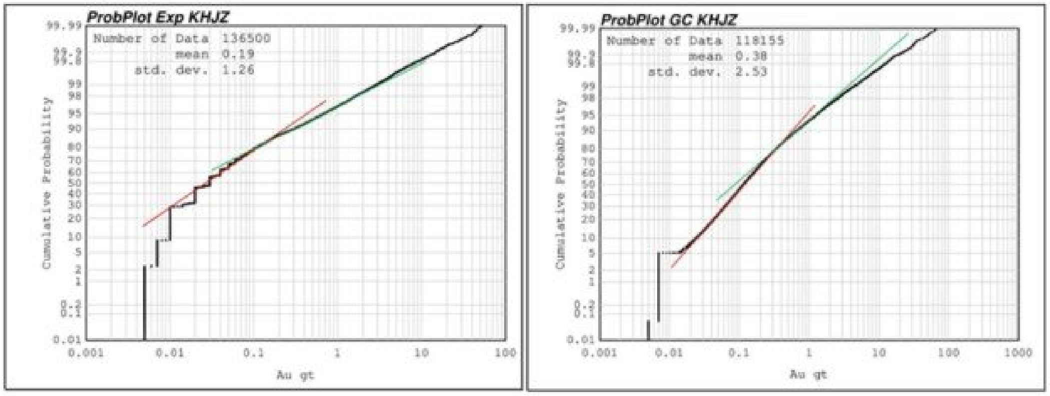


Notes:

1. S - Shear Veins, T - Tension Veins, NR - Not Recorded, UNK - Unknown Type

The gold grade estimation domains were constructed using three-dimensional implicit modelling along identified structural trends. Domains were created within the extent of the drilling and based on a grade threshold of 0.15 g/t Au for exploration drill holes and 0.3 g/t Au for RC grade control (GC) drilling (Figure 14-3). The grade thresholds were selected based on the apparent inflection of the mineralized population on the assay probability plot and on the observation that below this threshold the mineralized veinlets rarely occur in the core. The additional rationale for selecting the higher threshold for GC data is that historically grade control assay data demonstrated a consistent positive bias in comparison with the exploration drilling data. The gold grade domains were modelled as an indicator interpolant above the selected threshold and were not implicitly modelled on grade. These domains were interpolated along steep structural trends consistent with the orientation of the major shear zones. Smaller domains supported by two or fewer drill holes were removed from the final domains. The grade domains are shown in Figure 14-4 in plan view (top) and on a long section looking north-northeast (bottom). Three representative vertical cross sections are shown in Figure 14-5.

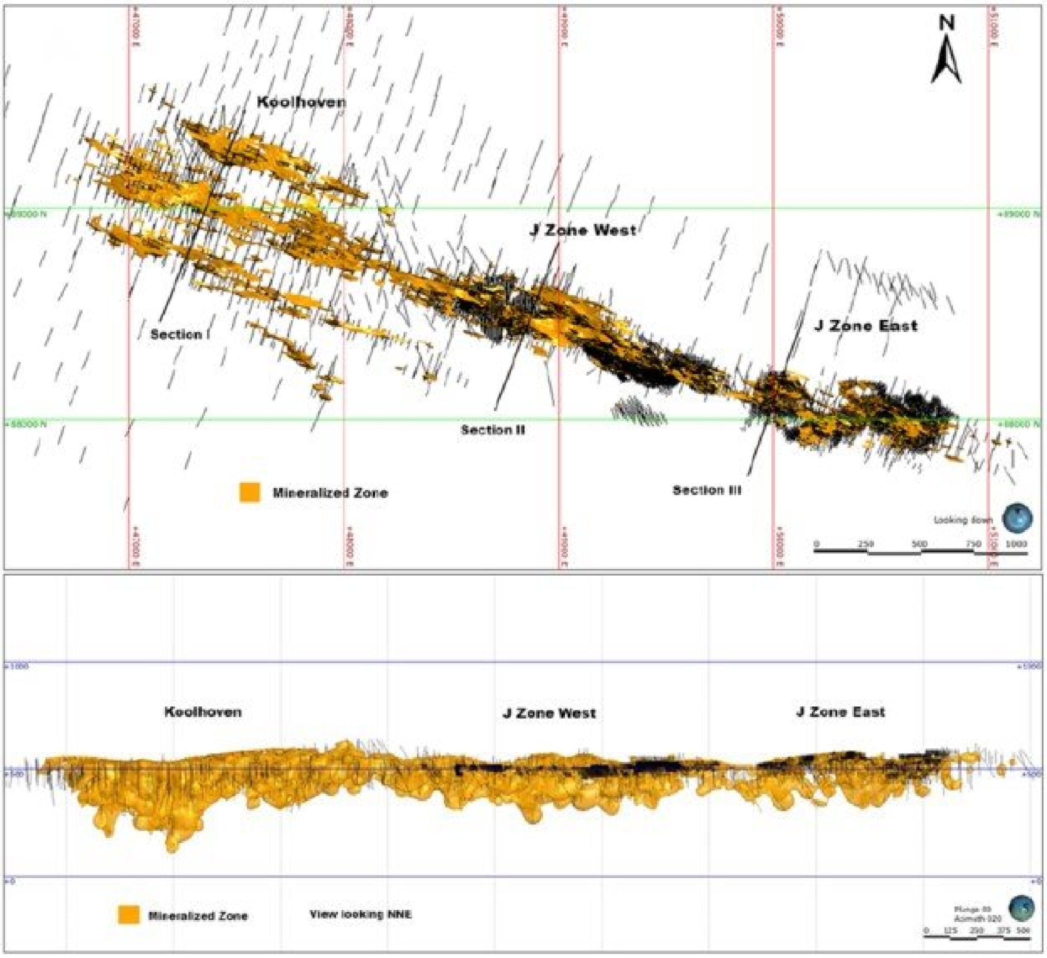
Figure 14-3: Probability Plots for Exploration Data (left) and Grade-Control Data (right)



Notes:

1. The intersection between the green and red lines marks the boundary between mineralized and non-mineralized populations.

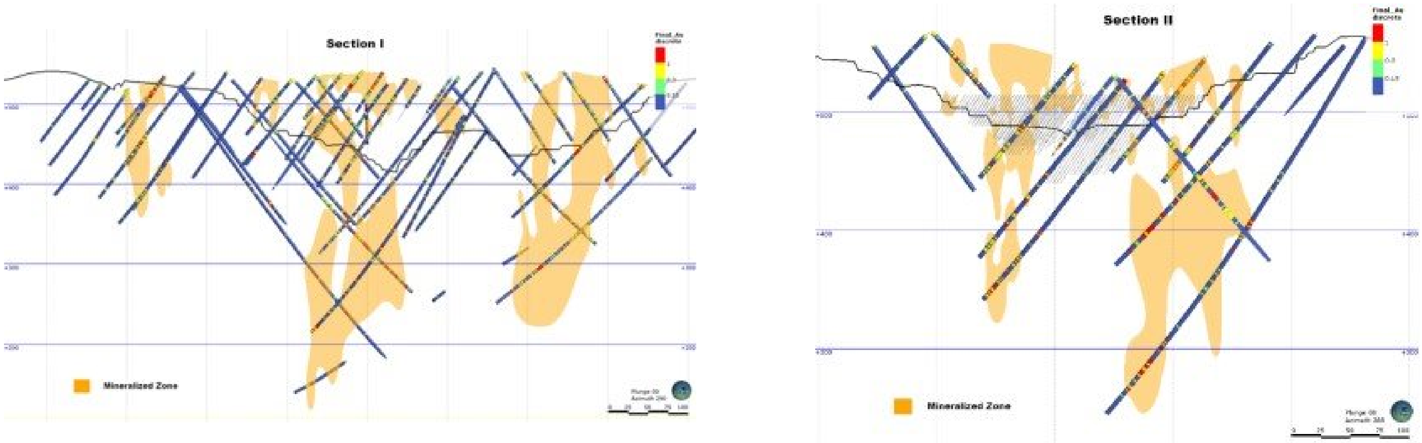
Figure 14-4: Plan and Longitudinal Section Showing the Modelled Koolhoven-J Zone Deposit Grade Domain

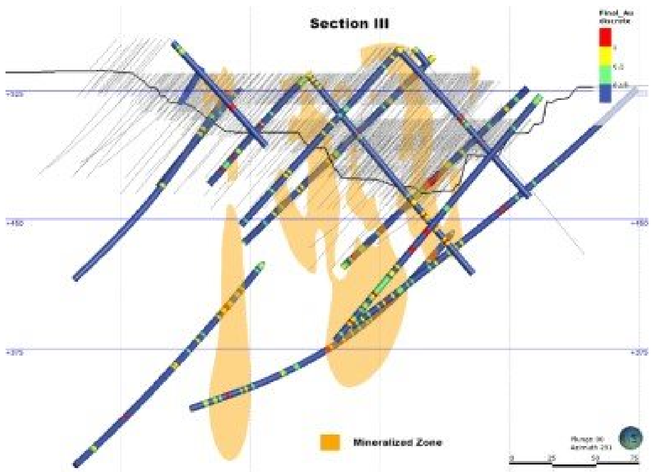


Notes:

1. Plan View of Grade Domain
2. Longitudinal Section Looking NNE of Grade Domain

Figure 14-5: Vertical Sections Showing Modelled Koolhoven-J Zone Deposit Grade Domain in Relation to Drilling





Notes:

1. Top - Section 1 - KH
2. Bottom Left - Section II - JZ West
3. Bottom Right - Section III - JZ East
4. Grade control drill hole traces are shown in grey

To assess the quality of the mineralization domains, SRK coded the assay intervals into groups based on the grade threshold and their location inside/outside of the mineralized zones and analyzed the length distribution of the intervals constrained within the domains. Overall, the proportion of the non-mineralized intervals in the exploration dataset (<0.15 g/t Au) within the mineralized zone is 39% of the total assay length. More than 88% of all the intervals above 2.0 g/t Au were included in the mineralized zone. This corresponds well with the observed erratic distribution of the mineralized veinlets in the core and fits the purpose of developing continuous mineralization envelopes. The low grade portion inside the mineralized zones and nests of the high grade outside of the domains will be accommodated in the estimation process.

SRK also updated the weathering profile model based on the geotechnical logged downhole data and core photographs. Overall, the weathering profile includes laterite, saprolite, transition zone, and fresh rock. Laterite is built based on the lithology logging data whereas the rest of the domains are modelled using the hardness codes from the geotechnical log:

- Saprolite - S0-S4 codes
- Transition zone - S5-R1 codes
- Fresh rock - R2-R6 codes

SRK notes that the boundary between laterite and saprolite and between the transition zone and fresh rock can usually be easily distinguished. However, this is not the case for the change from saprolite to transition zone. The saprolite volumes appear to have irregular shapes representing clusters and artifacts in the rock mass. Therefore, SRK did not use the saprolite-transition zone boundary as a hard boundary for specific gravity estimation and only utilized it for mineral resource reporting purposes.

Domain codes used in the project are tabulated in Table 14-7.

Table 14-7: Weathering and Mineral Resource Domain Codes

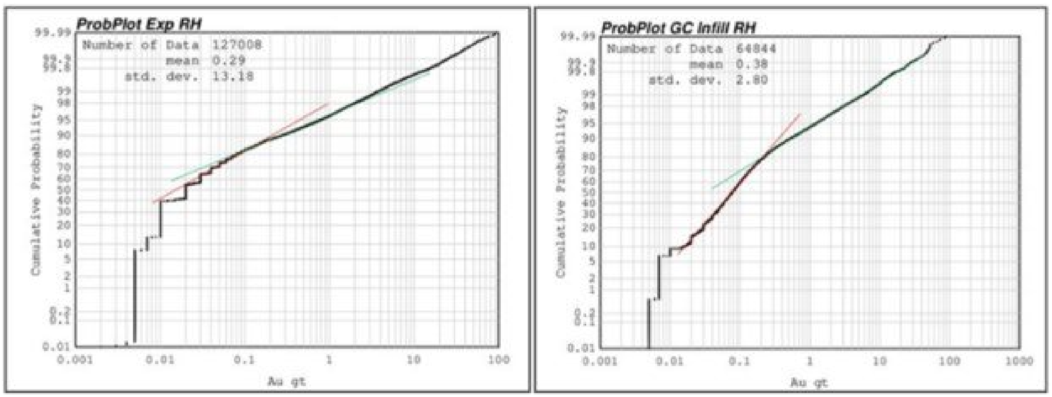
Domain	Code
Laterite	10
Saprolite	20
Transition	30
Fresh	40
Outside Mineralization (WST)	100
Mineralization (MZ)	200

14.3.1.2 <u>Royal Hill</u>

The mineral resource model for RH is based on substantial structural geology investigations documented in published reports (Daoust, 2016; Allan et al, 2015) as well as from more than 15 years of production from two open pits. The gold mineralization mostly occurs in two major structural environments including continuous shear-hosted zones in the south and north areas and more discontinuous tension veins associated with the contrast lithology contacts between arenite and conglomerates in proximity to the hinge of the antiform in the central area.

SRK used a grade threshold of 0.15 g/t Au for exploration drill holes and 0.25 g/t Au for RC grade control (GC) drilling (Figure 14-6). The grade thresholds were selected based on the apparent inflection of the mineralized population on a gold probability plot. The additional rationale for selecting the higher threshold for GC data is that historically grade control assay data demonstrated a consistent positive bias in comparison with the exploration drilling data. In addition to the 'hard' grade criteria, SRK used the 'soft' criteria including logging of the veins and the occasion presence of the visible gold in order to preserve the continuity of the mineralization zones in cases of no apparent grade anomaly.

Figure 14-6: Probability Plots for Exploration Data (left) and Grade-Control Data (right)



Notes:

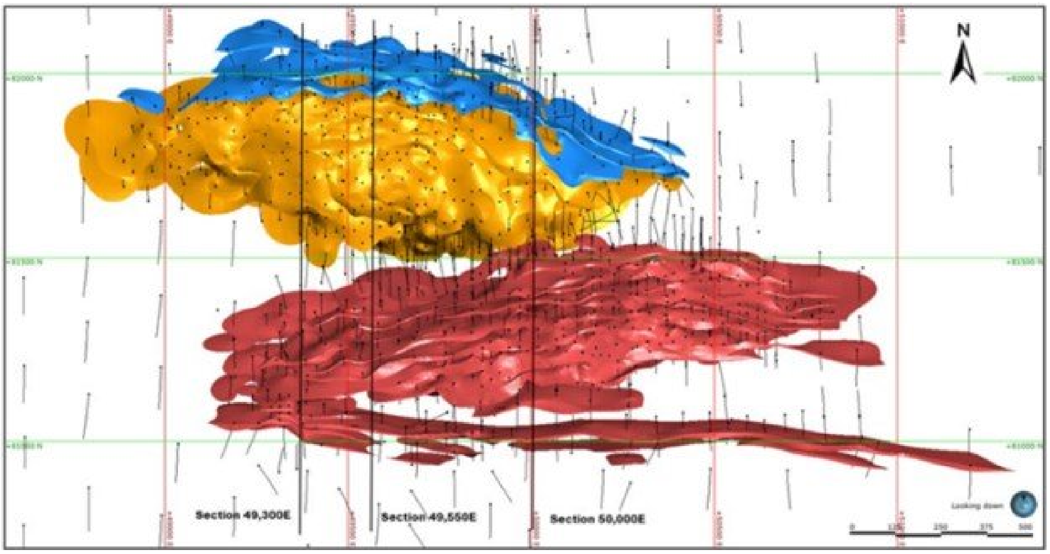
1. The intersection between the green and red lines marks the boundary between mineralized and non-mineralized populations.

The modelling of the estimation domains was conducted in two steps. First, continuous 'mineralized envelopes' were developed to encompass most of the mineralization allowing a substantial portion of the intervals (approximately 55%) to be below the modelling threshold. SRK modelled 30 envelopes and coded them based on the mineralization type and area of the Project:

- Shear hosted mineralization:
  - North Zone domains were coded numerically from 101 to 104.
  - South Zone domains were coded numerically from 301 to 314.
- Tension veins associated with the fold hinge in the Central area, these domains were numerically coded as 201 to 212.

Second, each mineralization envelope was then further sub-domained into internal mineralized and barren domains using an indicator interpolant above the selected threshold. The purpose of these mineralized subdomains is to avoid excessive dilution and further refinement of each domain using the assay data from both exploration and infill grade control holes. These domains were interpolated along the structural trends consistent with the orientation of the respective envelopes. The mineralization envelopes and subdomains are shown in plan view in Figure 14-7, and on three representative north-south cross-sections in Figure 14-8.

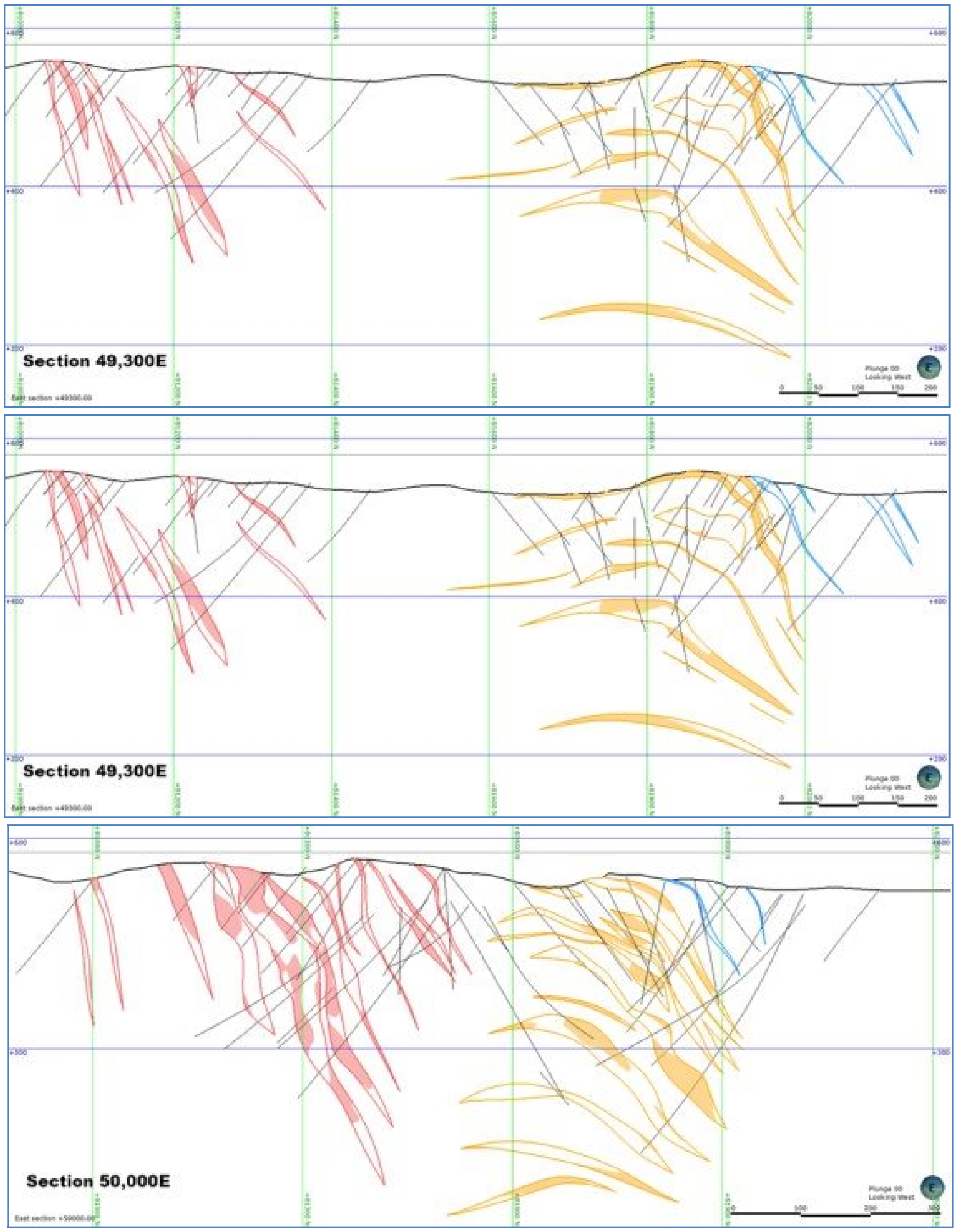
Figure 14-7: Plan View Showing the Modelled Royal Hill Estimation Domains



Notes:

1. North domains are in blue.
2. Central domains are in orange.
3. South domains are in red.
4. Black traces represent exploration drill holes.

Figure 14-8: Cross-Sections Showing the Modelled Royal Hill Estimation Domains



Notes:

1. North domains are in blue. Central domains are in orange. South domains are in red. Black traces represent exploration drill holes.
2. The contours represent the mineralized envelopes, while the filled regions represent the mineralized subdomains.

To assess the quality of the mineralization domains, SRK coded the assay intervals into groups based on the grade threshold and their location inside/outside of the mineralized zones and analyzed the length distribution of the intervals constrained within the domains. Overall, the proportion of non-mineralized intervals (<0.15 g/t Au) within the mineralized subdomains is 35% of the total assay length constrained in the domains. More than 94% of all the intervals above 2.0 g/t Au were included in the mineralized envelopes with the majority (88%) further constrained inside the mineralized subdomains. The low grade portion inside of the envelopes and nests of the high grade outside of the domains will be accommodated in the estimation process.

To simplify the estimation process, both mineralization envelopes and subdomains were then combined into eight groups (11-12, 21-23 and 31-33) with the overview of the grouping and the volume of the domains provided in Table 14-8. All mineralized and envelope subdomains are further identified by a 400 and 500 series code, respectively. For example, 411 corresponds to the north grouped mineralized subdomains. Finally, areas outside the mineralized domains are coded as 999.

Table 14-8: Royal Hill Mineralization Domains

Domain	Area	Group for Estimation	Envelope Volume (m^3)	% of Total	MZ Subdomain Volume (m^3)	% of Total
101	North	11	642,690	0.7%	294,530	0.7%
102		12	597,640	0.7%	253,430	0.6%
103		11	237,010	0.3%	62,626	0.1%
104		12	63,487	0.1%	36,191	0.1%
201	Central	22	8,763,900	9.6%	4,626,900	10.3%
202		21	8,102,100	8.9%	4,215,700	9.4%
203		23	3,343,500	3.7%	1,500,400	3.3%
204		22	1,358,000	1.5%	772,520	1.7%
205		21	4,515,900	4.9%	939,650	2.1%
206		23	2,037,500	2.2%	691,780	1.5%
207		23	1,897,500	2.1%	727,800	1.6%
208		21	3,916,000	4.3%	1,689,700	3.8%
209		22	2,813,800	3.1%	1,374,900	3.1%
210		23	2,108,400	2.3%	1,479,700	3.3%
211		22	2,055,400	2.3%	385,930	0.9%
212		21	1,577,500	1.7%	1,166,000	2.6%
301	South	33	16,555,000	18.1%	10,344,000	23.1%
302		32	9,494,000	10.4%	4,159,900	9.3%
303		31	6,278,000	6.9%	3,549,000	7.9%
304		32	3,152,900	3.5%	2,069,300	4.6%
305		31	2,237,900	2.5%	1,185,900	2.6%
306		32	1,081,700	1.2%	470,700	1.0%
307		33	804,160	0.9%	408,300	0.9%
308		31	389,980	0.4%	244,590	0.5%
309		33	515,030	0.6%	174,870	0.4%
310		32	41,679	0.0%	28,045	0.1%
311		33	3,280,800	3.6%	855,050	1.9%
312		32	1,714,600	1.9%	474,710	1.1%
313		31	463,020	0.5%	128,730	0.3%
314		31	1,197,000	1.3%	528,020	1.2%
	Total		91,236,096		44,968,305	

Notes:

1. Envelope volumes are inclusive of mineralized subdomain volumes

SRK also updated the weathering profile model based on geotechnical logged downhole data and on interpretations provided by the site geology team. Overall, the weathering profile includes laterite, saprolite, transition zones, and fresh rock. Laterite is built based on the lithology logging data whereas the rest of the domains are modelled using the following hardness codes from the geotechnical log:

- Saprolite - S0-S4 codes
- Transition zone - S5-R1 codes
- Fresh rock - R2-R6 codes

14.3.2 Bulk Density for KH-JZ and RH

In-situ bulk density samples are taken from DD holes for each weathering type (laterite, saprolite, transition, and rock) and for specific lithology units in each project. Specific gravity was measured at the RGM laboratory using a standard weight in water/weight in air methodology on core from complete sample intervals. The density is calculated by the RGM laboratory by using the wax method for soft and transitional material.

In KH-JZ, the 2021 specific gravity database contains 5,543 measurements across all weathering zones, representing a 21% increase in specific gravity measurements since an internal RGM 2020 mineral resource model.

Similarly, in RH, the 2021 specific gravity database contains 4,803 measurements across all weathering zones, representing a 39% increase in specific gravity measurements since an RGM internal 2020 mineral resource model.

Unlike the 2018 model, SRK chose to estimate specific gravity based on the database size and geospatial distribution. As such, specific gravity data were capped, by weathering zone, to avoid any extreme low and/or high values for estimation (see Table 14-9 for KH-JZ, and Table 14-10 for RH). The impact of capping of specific gravity is 1% and 0% in KH-JZ and RH, respectively.

Table 14-9: Koolhoven-J Zone Cap Values for Specific Gravity

Weathering Zone	Mean	SD	Minimum	Maximum	CV	No. Capped
Laterite	1.76	0.27	1.20	2.80	0.16	6
Saprolite	1.73	0.30	1.30	2.90	0.17	11
Transition	2.27	0.32	1.40	3.00	0.14	21
Fresh Rock	2.73	0.23	1.60	3.40	0.08	19

Table 14-10: Royal Hill Cap Values for Specific Gravity

Weathering Zone	Mean	SD	Minimum	Maximum	CV	No. Capped
Laterite	1.66	0.2	1.21	2.27	0.12	0
Saprolite	1.72	0.3	1.23	2.85	0.17	0
Transition	2.26	0.35	1.4	3	0.16	4
Fresh Rock	2.74	0.21	1.6	3.4	0.08	23

14.3.3 Compositing, Statistics, and Capping

The total length of assayed intervals in the exploration dataset covered 88% and 99% of the total drilled length for KH-JZ and RH, respectively. For most of the short unsampled intervals in the exploration dataset, SRK replaced the assay values with the background value (0.0001 g/t Au). The absent intervals in the grade control dataset were considered to be non-sampled and therefore, was excluded from the estimation

In KH-JZ and RH, over 90% of assay samples measure 1.5 m or less, with approximately 55% to -60% of these assays sampled at 1.5 m. A composite length of three metres was selected, and residual composites greater than or equal to 1.5 m were retained for resource estimation.

To further limit the influence of high gold grade outliers during grade estimation, SRK chose to cap composites, as these are the data used explicitly in estimation. Capping was performed for each area (north, central, and south in RH) and for the mineralized, unmineralized and envelop subdomains, separately. SRK relied on a combination of probability plots, decile analysis, and capping sensitivity plots. Separation of grade populations characterized by inflections in the probability plot or gaps in the high tail of the grade distribution were indicators of potential capping values. Decile analysis was then used to confirm the reasonableness of capped threshold. A visual review of the spatial distribution of these potential capped values was also performed. The chosen capped values, along with the uncapped and capped composite statistics are provided in Table 14-11 and Table 14-12 for KH-JZ and RH, respectively.

Table 14-11: Koolhoven-J Zone Uncapped and Capped Composite Statistics

Area	Domain	Zone	Uncapped Composites							Capped Composites							% Difference	
			No. Data	Mean	SD	Min	Med	Max	CV	Cap Value	Perc.	No. Cap	Mean	SD	Max	SV	Mean	Var
All	WST	100	54,613	0.06	0.30	0.00	0.03	38.46	4.97	4	99.9%	30	0.06	0.17	4.00	2.95	-5%	-44%
	MZ	200	12,571	0.73	1.76	0.00	0.31	47.51	2.41	20	99.9%	16	0.72	1.49	20.00	2.09	-2%	-15%
JZ	WST	100	22,185	0.07	0.30	0.00	0.03	24.60	4.43	4	99.9%	13	0.06	0.18	4.00	2.73	-4%	-41%
	MZ	200	5,558	0.69	1.66	0.00	0.30	47.51	2.41	20	99.9%	6	0.67	1.38	20.00	2.04	-2%	-17%
KH	WST	100	32,428	0.05	0.30	0.00	0.02	38.46	5.54	4	99.9%	17	0.05	0.16	4.00	3.12	-4%	-46%
	MZ	200	7,013	0.77	1.84	0.00	0.31	42.40	2.41	20	99.9%	10	0.75	1.58	20.00	2.11	-2%	-14%

Notes:

1. SD = Standard Deviation, Min = Minimum, Med = Median, Max = Maximum, CV = Coefficient of Variation

Table 14-12: Royal Hill Uncapped and Capped Composite Statistics

Domain	Zone	Uncapped Composites							Capped Composites							% Difference	
		No. Data	Mean	SD	Min	Med	Max	SV	Cap Value	Perc.	No. Capped	Mean	SD	Max	CV	Mean	Var
All MZ	400	10,408	1.39	16.26	0	0.43	1427.12	11.69		99.8%	25	1.12	2.51	30.00	2.25	-20%	-85%
North	411	157	0.87	2.06	0	0.31	15.02	2.35	15.00	99.4%	1	0.87	2.05	15.00	2.35	0%	0%
	412	128	0.86	2.76	0	0.24	24.08	3.20	15.00	99.2%	1	0.79	2.23	15.00	2.82	-8%	-19%
Central	421	1,948	1.57	3.91	0	0.55	80.05	2.49	28.00	99.6%	8	1.51	3.15	28.00	2.08	-4%	-20%
	422	1,954	2.38	36.21	0	0.48	1427.12	15.20	28.00	99.6%	8	1.25	2.72	28.00	2.18	-48%	-92%
	423	1,243	1.33	3.57	0	0.46	81.63	2.68	28.00	99.9%	1	1.29	2.85	28.00	2.21	-3%	-20%
South	431	1,320	1.00	2.79	0	0.36	47.50	2.78	30.00	99.8%	2	0.98	2.44	30.00	2.49	-2%	-13%
	432	1,552	1.13	8.86	0	0.39	298.41	7.84	30.00	99.8%	3	0.85	1.84	30.00	2.17	-25%	-79%
	433	2,106	0.84	1.83	0	0.40	33.37	2.16	30.00	100.0%	1	0.84	1.80	30.00	2.14	0%	-1%
All ENV	500	6,482	0.15	0.77	0	0.04	25.76	5.23	-	99.8%	13	0.13	0.48	7.00	3.57	-10%	-39%
North	511	103	0.10	0.41	0	0.03	4.08	4.05	1.00	99.0%	1	0.07	0.14	1.00	2.01	-30%	-65%
	512	77	0.07	0.10	0	0.03	0.68	1.47	1.00	100.0%	0	0.07	0.10	0.68	1.47	0%	0%
Central	521	1,621	0.19	1.04	0	0.03	21.63	5.51	7.00	99.7%	5	0.16	0.59	7.00	3.64	-14%	-43%
	522	1,131	0.17	0.87	0	0.05	25.76	5.25	7.00	99.9%	1	0.15	0.47	7.00	3.16	-10%	-46%
	523	989	0.18	0.78	0	0.03	13.34	4.42	7.00	99.7%	3	0.16	0.60	7.00	3.66	-7%	-23%
South	531	560	0.13	0.86	0	0.04	19.18	6.40	5.00	99.8%	1	0.11	0.36	5.00	3.31	-19%	-58%
	532	997	0.11	0.37	0	0.04	5.47	3.42	5.00	99.8%	2	0.11	0.35	5.00	3.34	-1%	-3%
	533	1,004	0.09	0.30	0	0.04	4.85	3.23	5.00	100.0%	0	0.09	0.30	4.85	3.23	0%	0%
	999	43,857	0.04	0.21	0	0.02	21.30	5.58	2.00	99.9%	63	0.03	0.11	2.00	3.12	-11%	-50%

Notes:

1. SD = Standard Deviation, Min = Minimum, Med = Median, Max = Maximum, CV = Coefficient of Variation

14.3.4 Variography

SRK used the Geostatistical Software Library (GSLib, Deutsch and Journel, 1998) to calculate and model gold variograms for the unmineralized and mineralized domains for KH-JZ, and for the mineralized domains for RH. For each domain, SRK assessed three different spatial metrics: (1) traditional semi variogram of gold, (2) correlogram of gold, and (3) traditional semi variogram of normal scores of gold. Downhole variograms were calculated to determine the nugget effect.

In case of RH, SRK considered the mineralized and envelop sub-domains separately, but found the combination of the two sub-domains yielded the most stable variogram structures. For the Central area, SRK also investigated several orientations with consideration for the anticline structure and the two primary orientations of the north and south limbs of these mineralized domains. The final model selected yielded the most stable variogram model, though SRK recommends that future updates consider an unfolding of the anticline structure to improve variogram definition for this region.

The variograms modeled for KH-JZ are summarized in Table 14-13 and shown in Figure 14-9. Similarly, the variograms for RH are given in Table 14-14 and shown in Figure 14-10.

Table 14-13: Koolhoven-J Zone Gold Variograms by Domain

Rock Code	LeapFrog Angles			Nugget	Variogram Model					
	Dip Azm (°)	Dip (°)	Plunge (°)		Str. No.[1]	Type	CC[2]	X Range (m)	Y Range (m)	Z Range (m)
WST (100)	19	90	0	0.20	1	Exponential	0.70	15	15	7
					2	Spherical	0.10	60	60	10
MZ (200)	19	90	0	0.20	1	Exponential	0.60	15	35	8
					2	Spherical	0.20	70	70	10

Notes:

1. Str. No. = structure number
2. CC = variance contribution

Figure 14-9: Koolhoven-J Zone Unmineralized (top) and Mineralized Domain (bottom) Gold Variograms

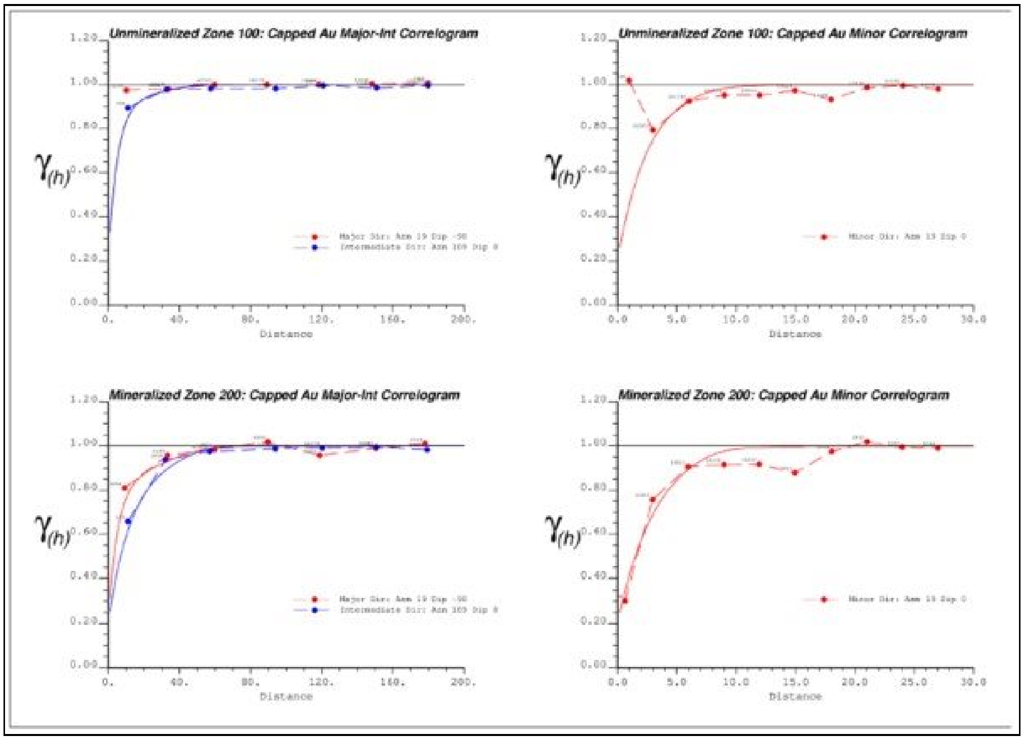


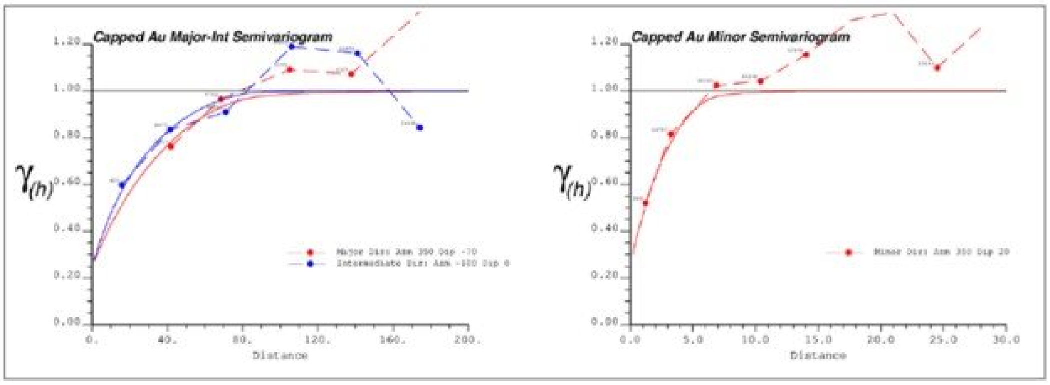
Table 14-14: Royal Hill Gold Variograms by Domain

Area	Rock Code	LeapFrog Angles			Nugget	Variogram Model					
		Dip Azm (°)	Dip (°)	Plunge (°)		Str. No.[1]	Type	CC[2]	X Range (m)	Y Range (m)	Z Range (m)
North	MZ+ENV	15	50	0	0.20	1	Exponential	0.60	40	40	7
						2	Spherical	0.20	70	70	7
Central	MZ+ENV	15	50	0	0.30	1	Exponential	0.30	50	50	8
						2	Spherical	0.40	90	90	8
South	MZ+ENV	350	70	0	0.25	1	Exponential	0.45	90	60	7
						2	Spherical	0.30	90	90	7

Notes:

1. Str. No. = structure number
2. CC = variance contribution

Figure 14-10: Gold Variogram for the Royal Hill South Area MZ+ENV Sub-Domains



14.3.5 Block Model Setup

For KH-JZ, the block model is rotated -18° and includes a block size of 8.0 m by 6.0 m by 9.0 m, with the eight metre dimension along strike, six metre dimension perpendicular to strike, and nine metre vertical dimension. A similar block size was chosen for RH, consistent with previous mineral resource models for RH, into an unrotated block model. Table 14-15 and Table 14-16 summarize the block model definition for KH-JZ and RH, respectively. SRK populated grades for each of the domains into a whole block model.

Table 14-15: Koolhoven-J Zone Block Model Definition

	Block Size (m)	Origin[1] (m)	Block Count
X	8	46210	600
Y	6	88270	317
Z	9	670	73

Notes

1. Local mining grid system used, rotated -18°.

Table 14-16: Royal Hill Block Model Definition

	Block Size (m)	Origin[1] (m)	Block Count
X	8	48650	387
Y	6	80400	367
Z	9	585	67

Notes

1. Local mining grid system used.

14.3.6 Estimation

The block model was populated with estimated gold grades using OK in both the mineralized and unmineralized domains in KH-JZ, and the mineralized and envelope sub-domains for RH. Gold grades were estimated with up to three estimation passes with progressively relaxed search ellipsoids and data requirements. The unmineralized domain in RH and specific gravity within each weathering zone were estimated using an Inverse Distance squared (ID^2) estimator. Table 14-17 and Table 14-18 summarize the data requirements for gold grade estimation at each deposit, while the last row provides the data requirements for specific gravity. The first estimation pass for gold grade estimation uses both the exploration database and the infill grade control data within a localized search of up to 30 m. The second and third pass estimations use only the exploration data with search radii are generally expanded from one to two or three times the variogram range, respectively. All passes use an ellipsoidal search, and in the mineralized domain, dynamic anisotropy (based on structural trend lines developed for domain construction documented in interpretation) is used to conform to the varying orientation of the modelled zone. In all cases, gold was estimated using a hard boundary. Furthermore, SRK chose to limit the influence of high grade composites in the estimation of the unmineralized domains as they are unconstrained areas.

In KH-JZ, specific gravity was estimated using a mix of hard boundary only and hard boundary approach for laterite, transition, and fresh rock, but a limited soft boundary up to 10 m for saprolite to reflect the uncertainty in this weathering surface. In RH, a hard boundary was used for the estimation of specific gravity within the weathering domains.

Table 14-17: Koolhoven-J Zone Estimation Parameters for Gold and Specific Gravity

Domain	Est. Pass	Data	Est. Method	No. Data		Max comps / hole	Search Type	Search Ellipse			HG Limited Radii	
				Min	Max			AS (m)	DD (m)	Minor (m)	% search	Grade
WST (100)	1	EXP+GCI38	OK	4	8	3	Ellipsoidal	60	60	20	33	2
	2	EXP	OK	4	12	3	Ellipsoidal	120	120	20	17	2
	3	EXP	OK	3	16	-	Ellipsoidal	180	180	30	11	2
MZ (200)	1	EXP+GCI38	OK	4	8	3	Ellipsoidal	30	30	10	-	-
	2	EXP	OK	4	12	3	Ellipsoidal	70	70	10	-	-
	3	EXP	OK	3	16	-	Ellipsoidal	175	175	30	-	-
SG	1	By Weather Zone	ID^2	5	25	-	Ellipsoidal	600	300	60	-	-
	2			5	40	-	Ellipsoidal	600	600	60	-	-

Notes:

1. AS - along strike, DD - down dip, SG - specific gravity. All gold grade estimations used dynamic anisotropy.

Table 14-18: Royal Hill Estimation Parameters for Gold and Specific Gravity

Area	Est. Pass	Data	Est. Method	No. Data		Max comps / hole	Search Type	Search Ellipse			HG Limited Radii	
				Min	Max			AS (m)	DD (m)	Minor (m)	% search	Grade
North	1	EXP+GCI38	OK	4	8	3	Ellipsoidal	30	30	10	-	-
	2	EXP	OK	4	12	3	Ellipsoidal	70	70	10	-	-
	3	EXP	OK	1	16	-	Ellipsoidal	140	140	20	-	-
Central	1	EXP+GCI38	OK	4	8	3	Ellipsoidal	30	30	10	-	-
	2	EXP	OK	4	12	3	Ellipsoidal	90	90	10	-	-
	3	EXP	OK	1	16	-	Ellipsoidal	180	180	20	-	-
South	1	EXP+GCI38	OK	4	8	3	Ellipsoidal	30	30	10	-	-
	2	EXP	OK	4	12	3	Ellipsoidal	90	90	10	-	-
	3	EXP	OK	1	16	-	Ellipsoidal	180	180	20	-	-
999	1	EXP+GCI38	ID^2	4	8	3	Ellipsoidal	30	30	10	-	-
	2	EXP	ID^2	1	16	3	Ellipsoidal	90	90	90	25%	1
SG	1	By Weather Zone	ID^2	5	40	-	Ellipsoidal	600	600	60	-	-

Notes:

1. AS - along strike, DD - down dip, SG - specific gravity. All estimations used dynamic anisotropy.

14.3.7 Model Validation

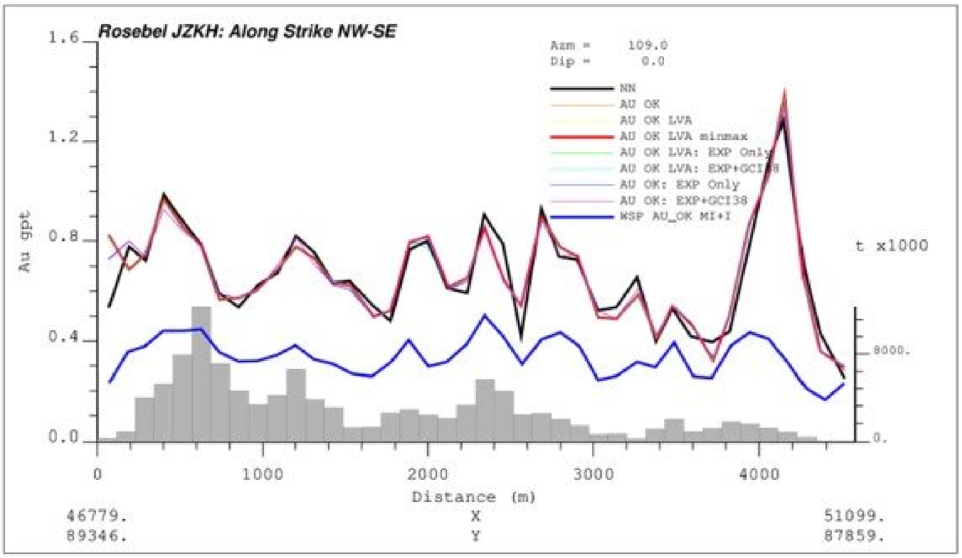
SRK validated the block models of KH-JZ and RH using a visual comparison of block estimates and informing composites, statistical comparisons between composites and block model distributions, and statistical comparisons between OK estimates and alternate estimators at zero cut-offs.

RK generated block estimates using ID^2 and Nearest Neighbour (NN). SRK compared the ID^2 model to the OK estimate at zero cut-off grade for each zone and observed differences in average grade within 1% for KH-JZ and 4% for RH.

SRK conducted several estimation sensitivities in the mineralized domains prior to finalization of the estimation parameters. As part of that sensitivity analysis, SRK generated swath plots for KH-JZ comparing the nine estimation scenarios along with the 2020 mineral resource model from WSP (see Figure 14-11). This comparison considered all blocks within the 2018 resource pit. This shows generally good agreement between the various 2021 block models and confirms that the grade distribution in the 2020 mineral resource model is consistently lower than the 2021 model. This is not surprising given the smaller mineralized volumes of the 2021 model, which should lead to some high-grading relative to the 2020 interpretation.

Figure 14-12 shows a swath plot at KH-JZ with (1) OK model, (2) ID^2 model, and (3) NN estimate for the combined mineralized and unmineralized domains within the 2021 mineral resource pit. In general, the various models track each other well in more populated regions, corresponding to regions of higher tonnage in the block model. In the southeastern extent of the JZ, where the pit is smaller with fewer tonnage, the variance between the models is noticeable and expected.

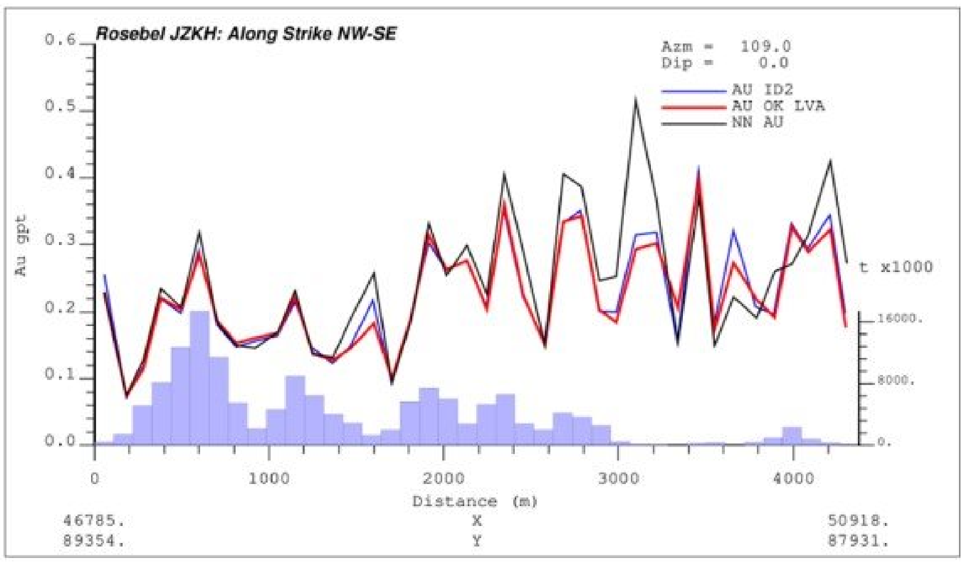
Figure 14-11: Koolhoven-J Zone Swath Plot of Estimation Sensitivity Cases within 2018 Mineral Resource Pit



Notes:

1. Histogram corresponds to block model tonnage along the swath. Final block model depicted in thick red line.

Figure 14-12: Swath Plot of the Koolhoven-J Zone Block Model within the 2021 Mineral Resource Pit

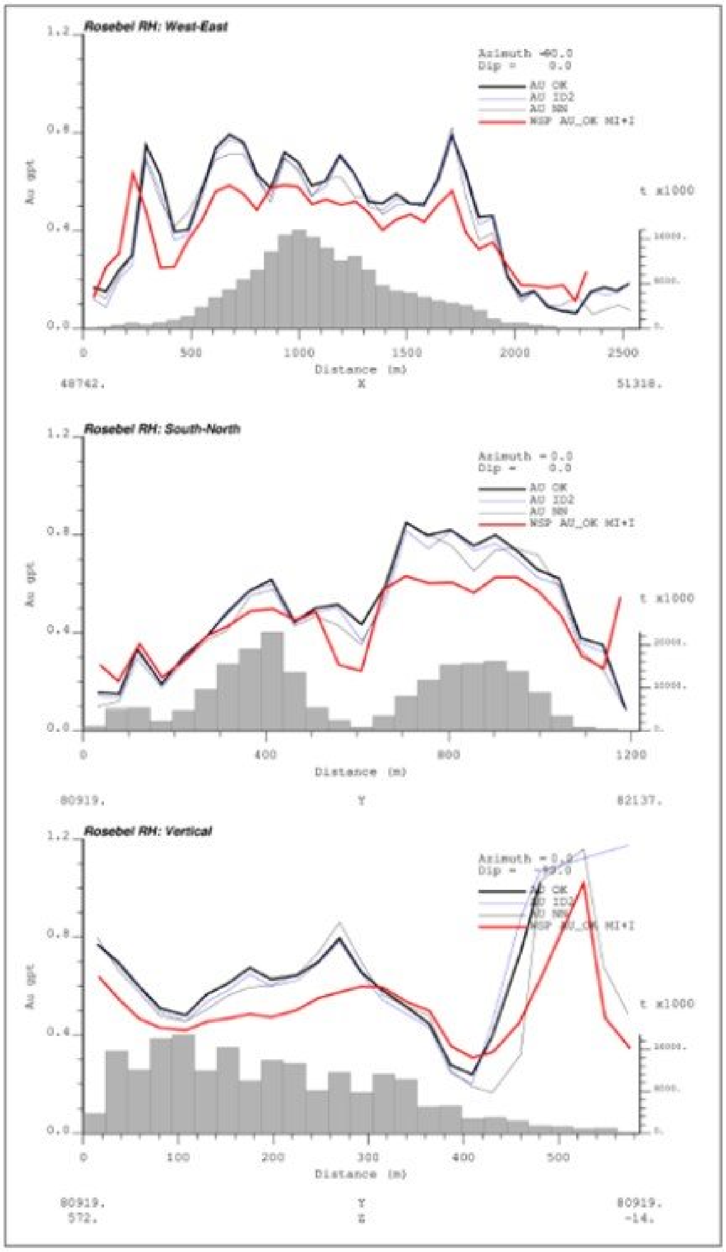


Notes:

1. Histogram corresponds to block model tonnage along the swath. Final block model depicted in thick red line.

Figure 14-13 shows a swath plot for RH with (1) OK model, (2) ID^2 model, (3) NN estimate, and (4) the 2020 mineral resource model for RH constructed by WSP. This shows generally good agreement between the various 2021 block models and confirms that the grade distribution in the 2020 mineral resource model is consistently lower than the 2021 model. Similar to KH-JZ, this outcome is not surprising as the 2021 mineralized volumes are smaller than in the 2020 model, and results in some high-grading relative to the 2020 interpretation.

Figure 14-13: Swath Plot of the Royal Hill Block Models

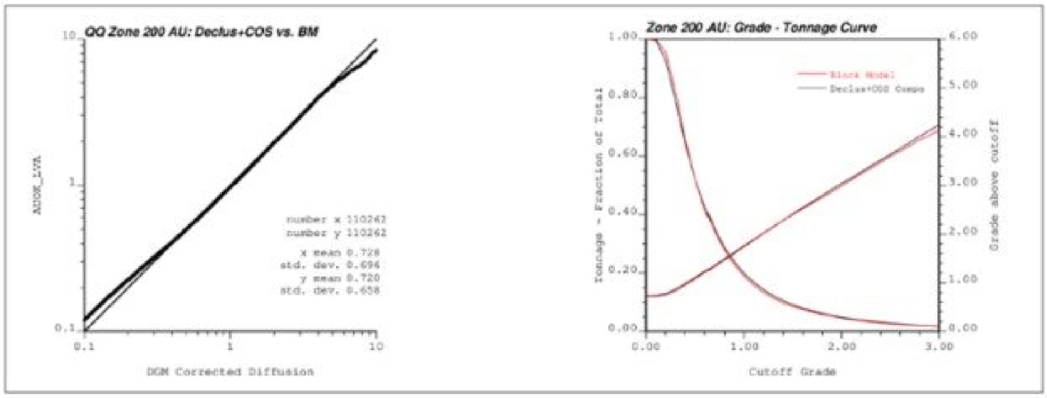


Notes:

1. West to East (top).
2. South to North (middle) and Top to Bottom (bottom).
3. Histogram corresponds to block model tonnage.

SRK also compared for both KH-JZ and RH the OK block model distribution with the NN declustered, change-of-support corrected distribution of the informing composites for the mineralized domains. Declustering mitigates the influence of preferential sampling of drill hole data, this often results in a distribution of composites whose mean statistic is often comparable to that of the estimated model. Further, a change-of-support correction is applied to account for the volume difference between the composite scale and the final block volume scale. A quantile-quantile plot and a grade-tonnage curve were plotted to compare the declustered, change-of-support corrected distribution to the estimated block model grades. Figure 14-14 and Figure 14-15 show the quantile-quantile plot for the mineralized domains. In general, the OK estimate corresponds well to the declustered, change of-support corrected distributions.

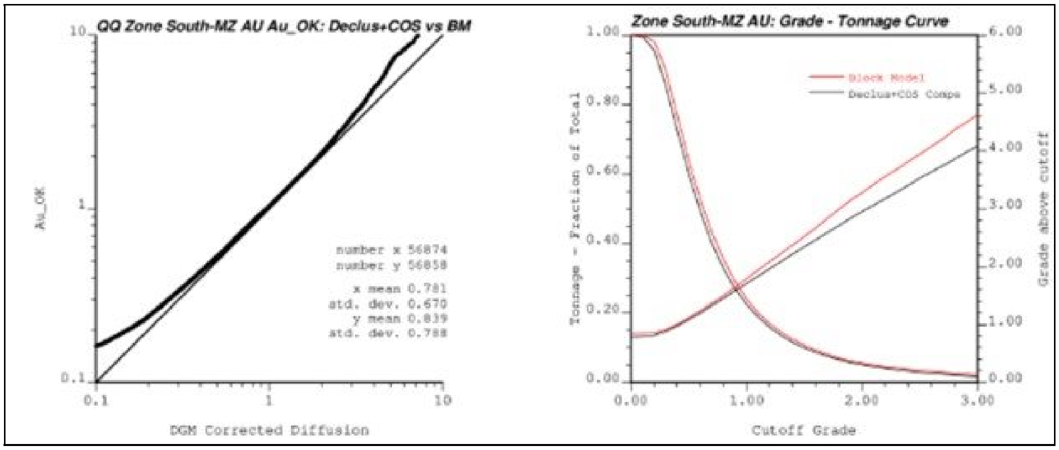
Figure 14-14: Comparison of the Koolhoven-J Zone Block Model Grades and Declustered and Change of Support Corrected Distribution for Mineralized Domain 200



Notes:

1. Left: Quantile-Quantile plot comparison of block model (y-axis) and change of support corrected distribution (x-axis).
2. Right: Grande tonnage curve comparison of block model and change of support corrected distribution.

Figure 14-15: Comparison of Royal Hill Block Model Grades and Declustered and Change of Support Corrected Distribution for the South Area Mineralized Sub-Domain



Notes:

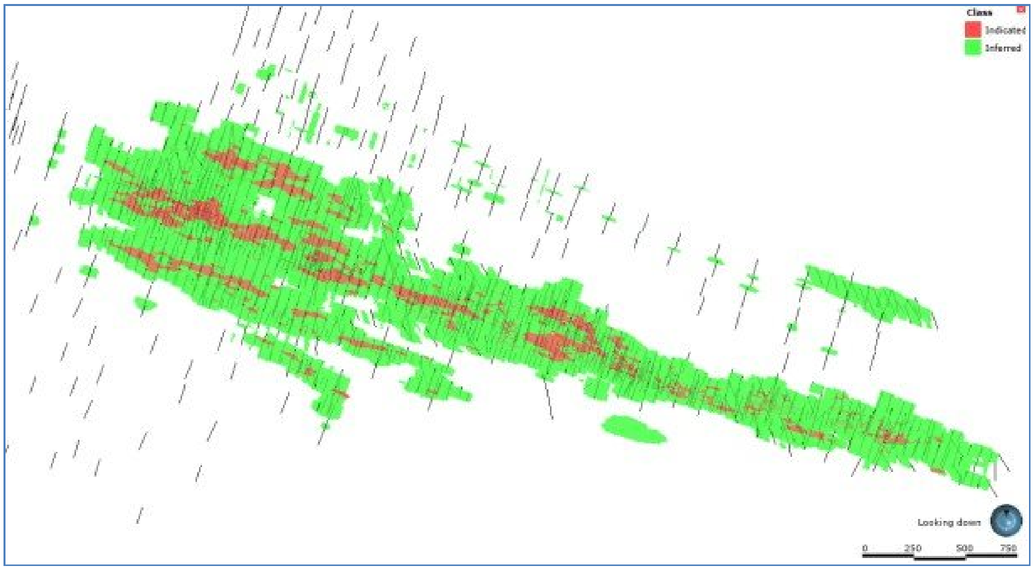
1. Left: Quantile-Quantile plot comparison of block model (y-axis) and change of support corrected distribution (x-axis).
2. Right: Grande tonnage curve comparison of block model and change of support corrected distribution.

14.3.8 Classification for Koolhoven-J Zone and Royal Hill

The Mineral Resources estimations for all projects are classified according to the CIM (2014) definitions and guidelines. The block classification strategy considers drill hole spacing, geologic confidence and continuity of category. Criteria used for block classification are:

- Measured. Blocks informed within a 25 m radii with a minimum of three drill holes. This nominally corresponds only to RH Central zone areas near infill grade control holes. The mean average distance of informing composites for this category is within 20 m and estimated within Pass 1. There is no Measured in KH-JZ.
- Indicated. Blocks with an average distance to three holes within 70 m. This corresponds to an average distance of 30 m to 50 m to three holes depending on the deposit, and with a mean average distance of informing composites for this category is within 32 m to 45 m. These blocks are estimated within passes 1 and 2 and constrained to the mineralized domains.
- Inferred. All blocks not classified as Measured or Indicated, and any unclassified block with an estimated grade with a range of up to two times the variogram range.

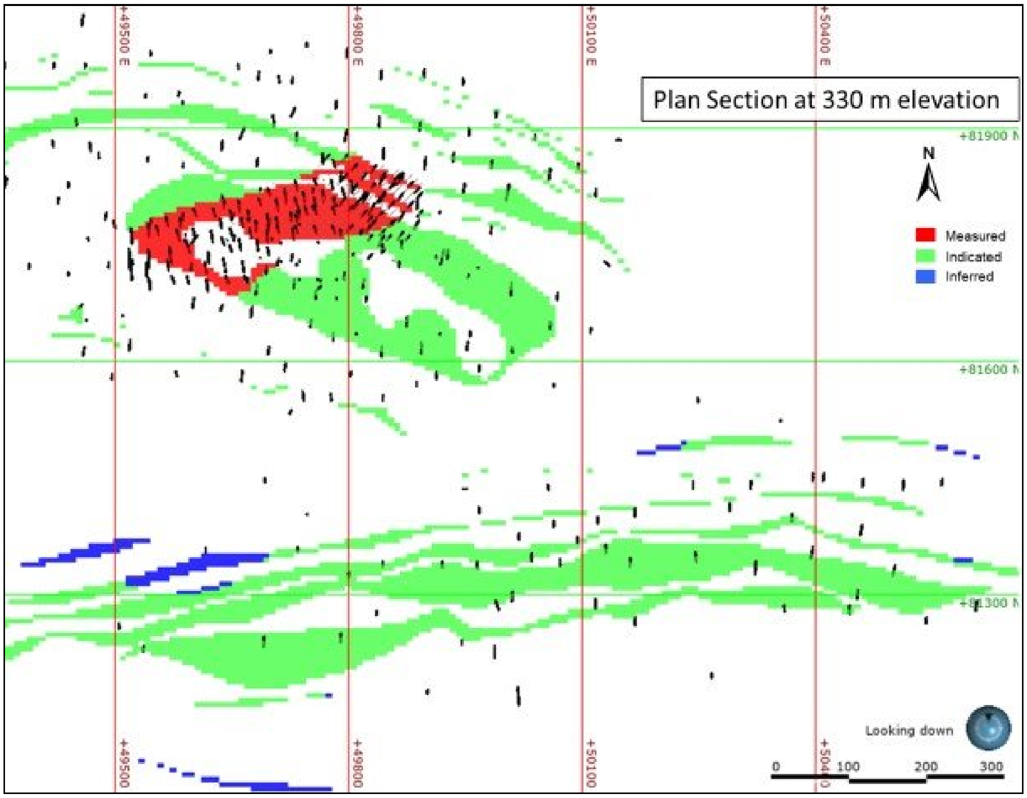
Figure 14-16: Plan View of the Koolhoven-J Zone Classified Resources



Notes:

1. Black lines denote drill hole traces.

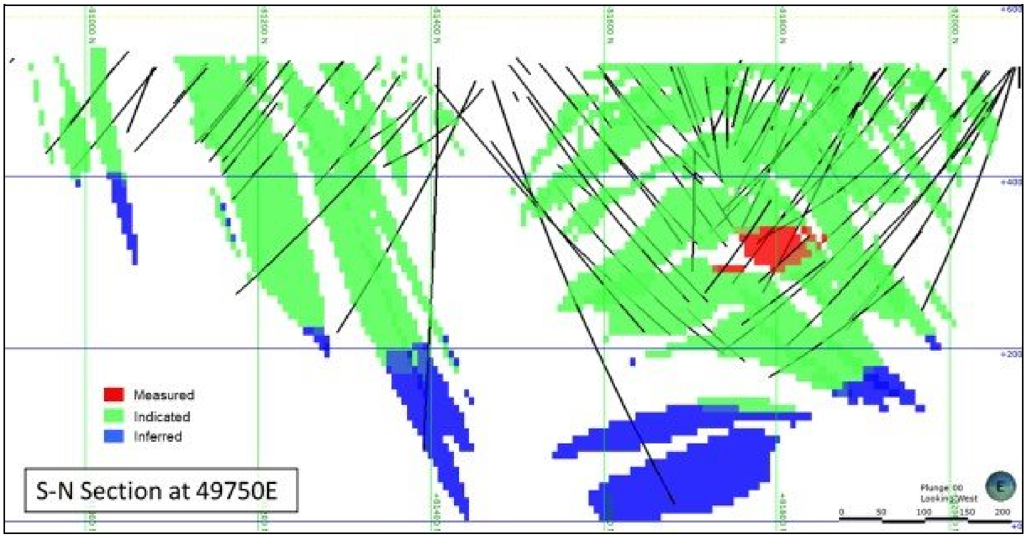
Figure 14-17: Royal Hill Plan Section of Classified Resources



Notes:

1. Black lines denote drill hole traces, showing exploration and grade control holes within 10 m slice widths.

Figure 14-18: Royal Hill Cross Section of Classified Resources



Notes:

1. Black lines denote drill hole traces, showing exploration and grade control holes within 80 m slice widths.

14.3.9 Mineral Resource Reporting by SRK

CIM (2014) definitions define a Mineral Resource as:

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

The "reasonable prospect for eventual economic extraction" requirement generally implies that quantity and grade estimates meet certain economic thresholds and that mineral resources are reported at an appropriate cut-off grade that considers extraction scenarios and processing recovery. SRK considers that KH-JZ and RH deposits are primarily amenable to open pit extraction. To assist with determining which portions of the gold deposits show "reasonable prospect for eventual economic extraction" from an open pit and to assist with selecting reporting assumptions, RGM mining engineers developed a conceptual open pit shell using corporately approved mining, processing, and general and administrative (G&A) costs. Other pit optimization parameters include:

- Metallurgical gold recovery of 94% for laterite and saprolite, and 91% for transition and fresh rock.
- Gold price of US$1,500/oz Au.

After review of optimization results, and through discussions with IAMGOLD, SRK QPs consider that it is reasonable to report as open pit mineral resources those classified blocks located within the conceptual pit shell above a cut-off grade as shown in the Table 14-19 and illustrated in Figure 14-19 and Figure 14-20.

Table 14-19: Koolhoven-J Zone and Royal Hill Reporting Gold Cut-off Grades

Rock Type	Units	JZ	KH	RH
Laterite	g/t Au	0.19	0.18	0.19
Saprolite	g/t Au	0.19	0.18	0.19
Transition	g/t Au	0.24	0.24	0.25
Hard Rock	g/t Au	0.37	0.37	0.38

Figure 14-19: Koolhoven-J Zone Plan View Showing Estimated Blocks above 0.18 g/t Au Relative to the Conceptual Pit

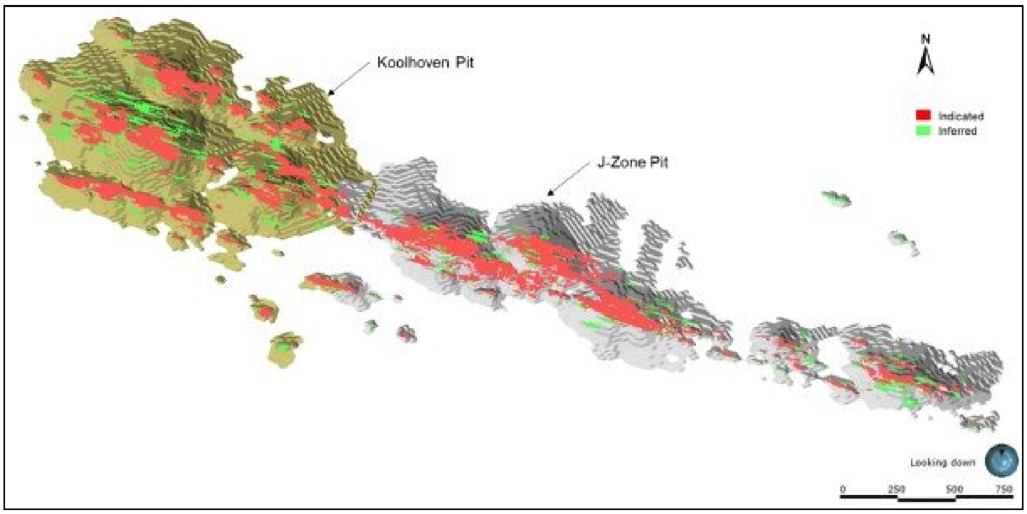
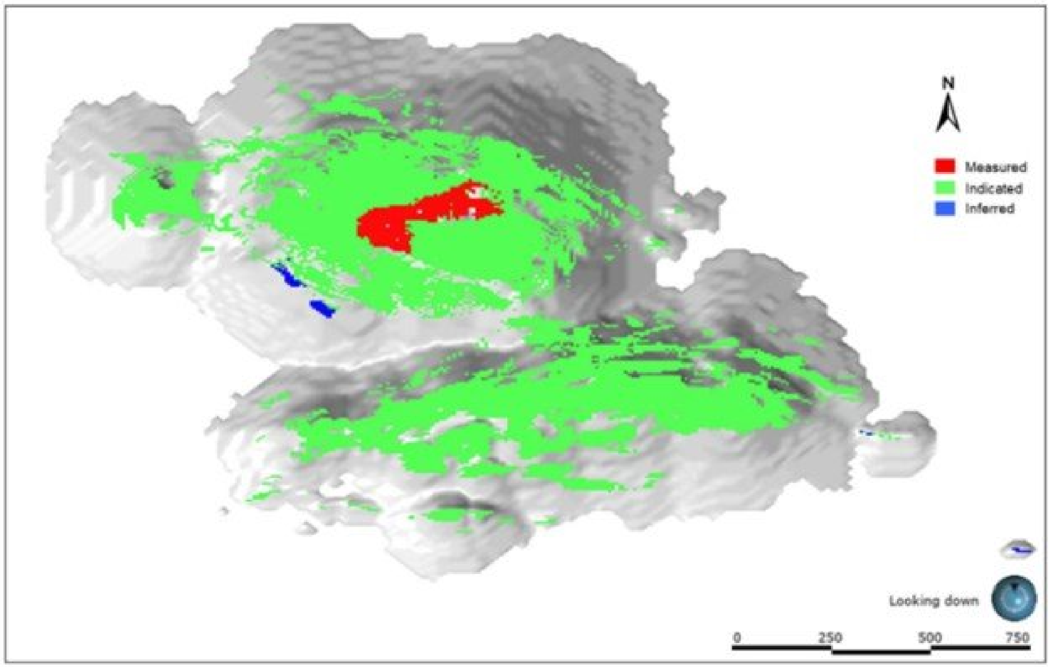


Figure 14-20: Royal Hill Plan View Showing Estimated Blocks above 0.19 g/t Au Relative to the Conceptual Pit



The QPs are satisfied that the mineral resources were estimated in conformity with the widely accepted CIM Estimation of Mineral Resource and Mineral Reserve Best Practices Guidelines (2019). The mineral resources may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent mineral resource estimates. The mineral resources may also be affected by subsequent assessments of mining, environmental, processing, permitting, taxation, socio-economic, and other factors. The Mineral Resource estimate for the KH-JZ and RH gold projects presented in Table 14-20 was prepared by Dr. Oy Leuangthong, P.Eng., and Dr. Aleksandr Mitrofanov, P.Geo. Dr. Leuangthong and Dr. Mitrofanov are independent qualified persons.

The Mineral Resource estimate for KH-JZ and RH effective as of December 31, 2021, is comprised of 61.12 Mt at an average grade of 1.12 g/t Au, for 2.20 M oz Au in the Measured and Indicated category. There is an additional 2.45 Mt at an average grade of 0.47 g/t Au, containing 0.037 Moz Au in the Inferred category. Table 14-20 presents the KH-JZ and RH Mineral Resources.

Table 14-20: Koolhoven-J Zone and Royal Hill Mineral Resource Estimates as of December 31, 2021

Deposit	Measured			Indicated			Measured + Indicated			Inferred		
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
KH				13,958	1.00	449	13,958	1.00	449	1,683	0.44	24
JZ				13,981	0.96	430	13,981	0.96	430	697	0.49	11
RH	1,069	1.60	55	32,115	1.22	1,262	33,184	1.23	1,317	69	0.90	2
Total	1,069	1.60	55	60,054	1.11	2,141	61,123	1.12	2,196	2,449	0.47	37

Notes:

1. Mineral resources are not mineral reserves and have not demonstrated economic viability.
2. All figures have been rounded to reflect the relative accuracy of the estimates. Reported at open pit resource cut-off grades of 0.19 g/t gold for laterite and saprolite in JZ, 0.18 g/t Au for laterite and saprolite in KH, 0.24 g/t Au for transition and 0.37 g/t Au for fresh rock in both KH and JZ.
3. RH resources are reported at open pit resource cut-off grades of 0.19 g/t Au for laterite and saprolite, 0.25 g/t Au for transition and 0.38 g/t Au for fresh.
4. Reported within a conceptual open pit shell optimized at a gold price of US$1,500/oz Au and assuming metallurgical recoveries of 94% for laterite and for saprolite, 91% for transition and fresh rock.

14.3.10 Estimation Sensitivity Assessment

The mineral resources of the KH-JZ and RH gold projects are fairly sensitive to the selection of the reporting cut-off grade. To illustrate this sensitivity, grade tonnage curves are presented in Figure 14-21 and Figure 14-22, for KH-JZ and RH, respectively.

Figure 14-21: Koolhoven-J Zone Grade-Tonnage Curves -Oxide (top), Transitional (mid) and Fresh Rock (bottom)

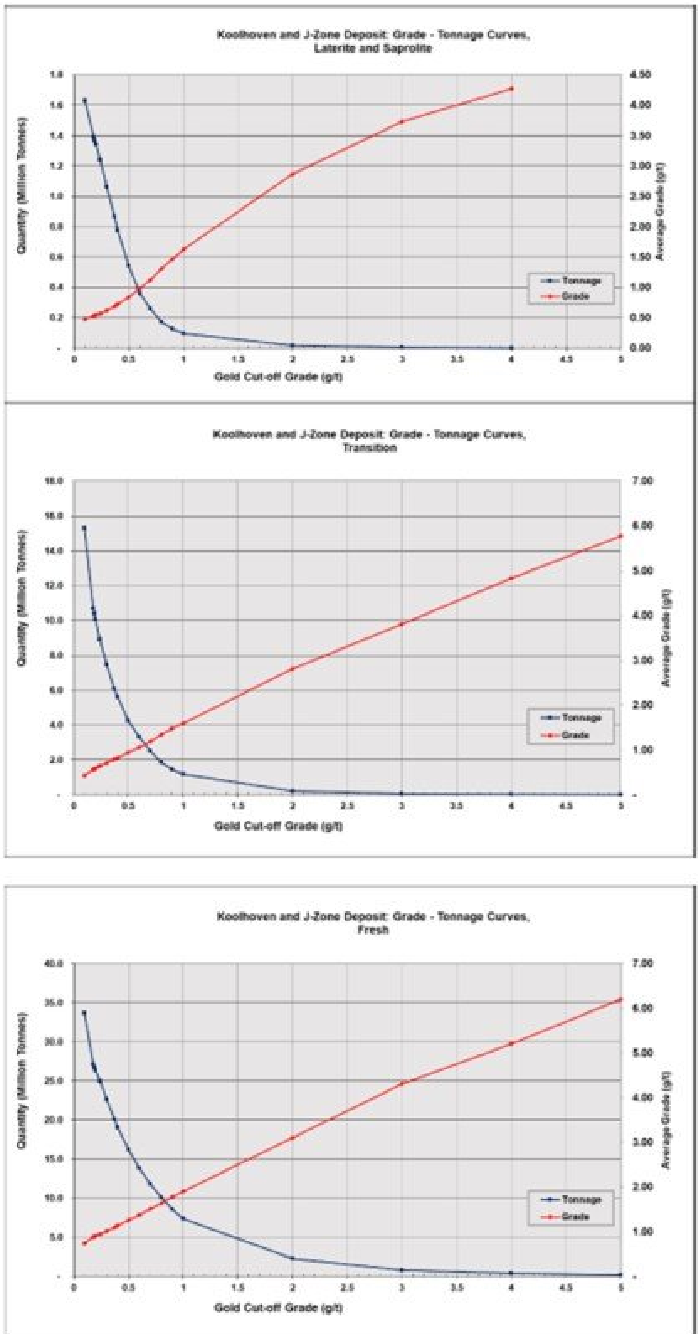
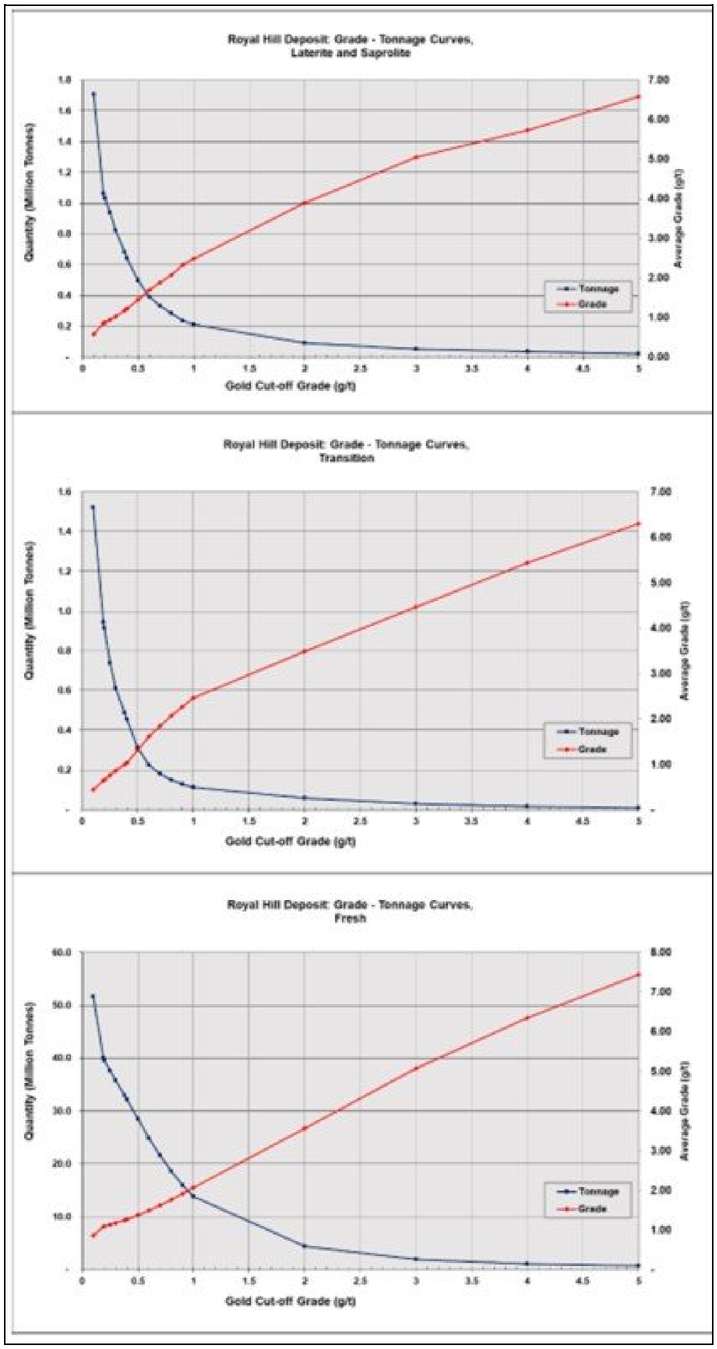


Figure 14-22: Royal Hill Grade-Tonnage Curves -Oxide (top), Transitional (mid) and Fresh Rock (bottom)



14.4 Pay Caro, Rosebel, and Mayo by WSP

14.4.1 Geological Interpretation and Modelling for Pay Caro, Rosebel, and Mayo

The geologic modelling (mineralized zones) was completed by RGM geologists using the LeapFrog software. Data was exported from the GEMS database and then imported into LeapFrog.

The main lithologies, structural elements, weathering profiles of each deposits are constructed using 3D outlines created on 25 m evenly spaced cross sections in Gems. The weathering profiles, which include saprolite, transition, and rock are determined using geotechnical measurements taken on the core by the geotechnicians and geologists. The laterite profile is determined using geological observations of the core samples by the geologists and from the topography, it is generally modelled as a layer thinner than five metres.

Mineralized zone modelling is strongly guided by a project's geological model and refers to lithological units, structural, and deformation constraints. Generally, mineralized zone envelopes are drawn from drill data assays which carry a gold content higher than 0.3 g/t Au. Mineralized zone modelling for RB, PC, and MA were completed in LeapFrog based on assay selections and fixed parameters in the software. The targeted thickness was three to five metres minimum, but some occurrences were noted where the model is less than the minimum width. For deposits where production data was available (PC, RB, and MA), the mineralized zone modelling might also consider blast hole results (converted in minable blocks or packets) for geometrical 3D layout and to better define the shapes of the mineralized zones. The mineralized zone models for PC, MA and RB are presented in Figure 14-23, Figure 14-24, and Figure 14-25, respectively.

RGM provided the mineralized solids to WSP as DXF files. They were imported in WSP's database and were closely reviewed on a section per section with drill holes open. Particular attention was given to "from" and "to" values of the zones in regards of inclusion of economical gold values. After a few iterations, the solids were ready to serve as hard boundaries for composite creation. They were then used, in parallel with weathering solids, to define the Rock Code field in the block model.

14.4.1.1 Pay Caro

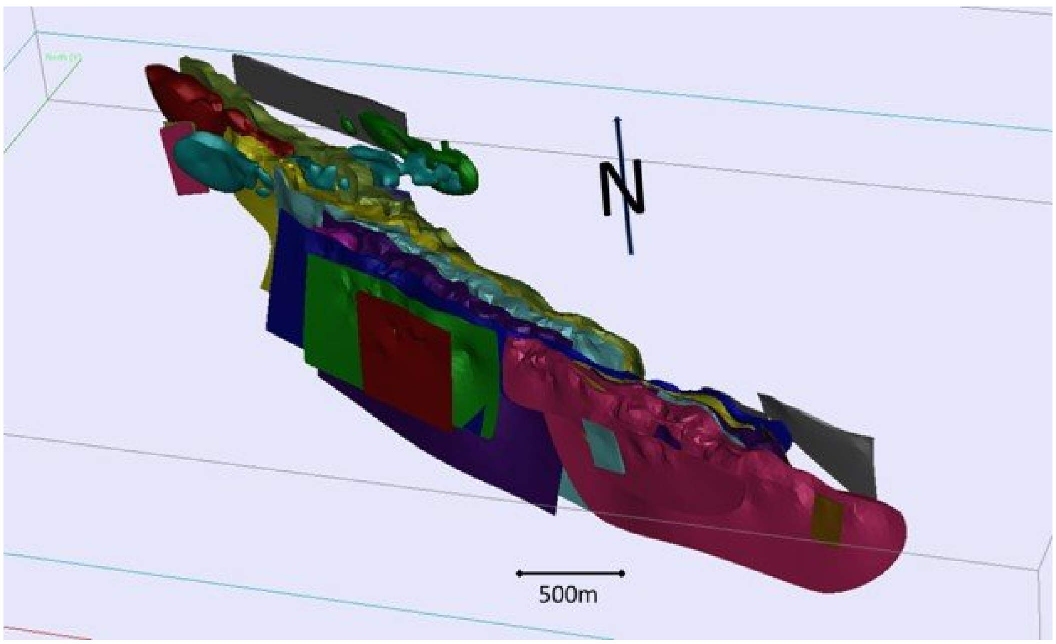
A total of 30 mineral solids were defined for the PC Mineral Resource update (Table 14-21). Each has its own precedence.

Table 14-21: Pay Caro Wireframe Naming and Precedence Convention

2021			RGM		WSP		Volume (000 m^3)
Name 1	Name 2	Name 3	Zone	Precedence	Rock Code	Precedence	
ST1	8176	RGM2021	1	5	8176	10	14,931.2
ST2	8177	RGM2021	2	6	8177	11	7,548.8
ST4	8178	RGM2021	4	7	8178	12	2,858.9
ST5	8163	RGM2021	5	25	8163	30	215.4
ST6	8179	RGM2021	6	8	8179	13	7,079.1
ST7	8164	RGM2021	7	26	8164	31	100.3
ST8	8165	RGM2021	8	27	8165	32	268.4
ST9	8166	RGM2021	9	28	8166	33	494.0
ST10	8167	RGM2021	10	29	8167	34	236.1
ST11	8168	RGM2021	11	30	8168	35	641.6
EPC2	8151	RGM2021	EPC_2	9	8151	14	8,941.7
EPC3	8180	RGM2021	EPC_3	10	8180	15	6,144.7
EPC11	8152	RGM2021	EPC_11	11	8152	16	2,198.3
PC1	8153	RGM2021	PC_1	1	8153	6	49,723.3
PC2	8154	RGM2021	PC_2	2	8154	7	53,119.5
PC3	8155	RGM2021	PC_3	3	8155	8	41,173.3
PC4	8156	RGM2021	PC_4	4	8156	9	44,839.4
PC5	8157	RGM2021	PC_5	12	8157	17	8,073.7
PC6	8161	RGM2021	PC_6	13	8161	18	4,282.6
PC7	8162	RGM2021	PC_7	14	8162	19	2,545.5
PC8	8169	RGM2021	PC_8	15	8169	20	376.0
PC9	8170	RGM2021	PC_9	20	8170	25	99.8
PC10	8171	RGM2021	PC-10	21	8171	26	121.4
PC11	8172	RGM2021	PC_11	22	8172	27	1,286.5
PC12	8173	RGM2021	PC_12	23	8173	28	304.6
PC13	8174	RGM2021	PC_13	24	8174	29	82.6

2021			RGM		WSP		Volume (000 m^3)
Name 1	Name 2	Name 3	Zone	Precedence	Rock Code	Precedence	
WPC1	8158	RGM2021	WPC_1	16	8158	21	5,362.9
WPC2	8159	RGM2021	WPC_2	17	8159	22	9,213.7
WPC3	8160	RGM2021	WPC_3	18	8160	23	11,452.1
WPC4	8175	RGM2021	WPC_4	19	8175	24	3,713.0
Air			Air		0		
Laterite	RGM	LOM2020	Laterite		5	1	
Saprolite	RGM	LOM2020	Saprolite		7200	50	
Transition	RGM	LOM2020	Transition		9200	51	
Rock	RGM	LOM2020	Rock		8200	52	

Figure 14-23: Pay Caro Resource Mineral Solids



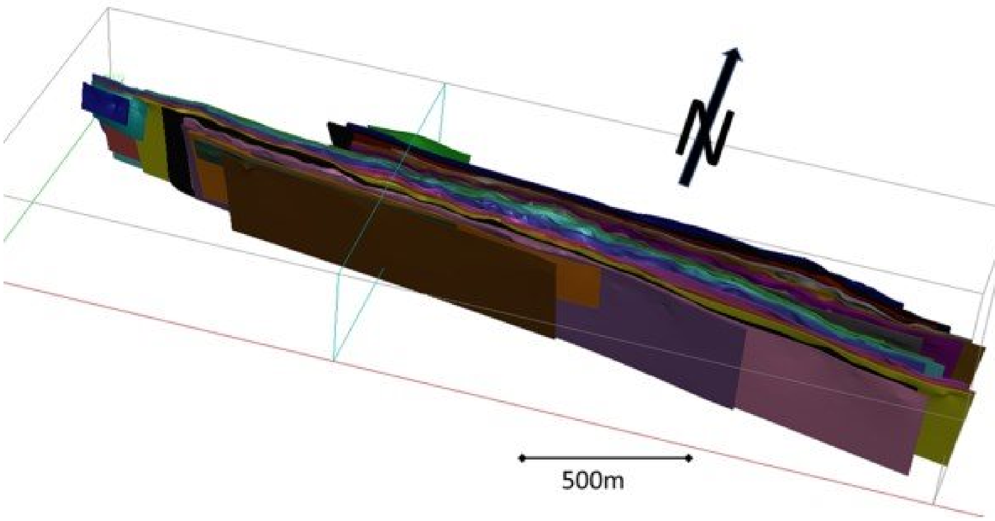
14.4.1.2 Rosebel

A total of 22 mineral solids were defined for the RB Mineral Resources update (Table 14-22). Each has its own precedence.

Table 14-22: Rosebel Wireframe Naming and Precedence Convention

2021			RGM		WSP		Volume (000 m^3)
Name 1	Name 2	Name 3	Zone	Precedence	Rock Code	Precedence	
RB_8040	8040	RGM0321	8040	1	8040	6	23,346.8
RB_8040a	8050	RGM0321	8040a	20	8050	25	9,040.3
RB_8040b	8064	RGM0321	8040b	21	8064	26	259.6
RB_8040e	8065	RGM0321	8040e	22	8065	27	577.7
RB_8041	8041	RGM0321	8041	2	8041	7	24,738.3
RB_8042	8042	RGM0321	8042	3	8042	8	23,126.3
RB_8042a	8051	RGM0321	8042a	13	8051	18	27,424.1
RB_8042b	8052	RGM0321	8042b	14	8052	19	15,730.7
RB_8043	8043	RGM0321	8043	4	8043	9	36,218.1
RB_8044	8044	RGM0321	8044	5	8044	10	33,697.9
RB_8044a	8053	RGM0321	8044a	8	8053	13	16,273.3
RB_8044b	8054	RGM0321	8044b	9	8054	14	31,838.0
RB_8044c	8055	RGM0321	8044c	10	8055	15	21,537.4
RB_8044e	8056	RGM0321	8044e	11	8056	16	23,451.1
RB_8044f	8057	RGM0321	8044f	12	8057	17	19,502.3
RB_8045	8045	RGM0321	8045	6	8045	11	22,092.5
RB_8046	8046	RGM0321	8046	7	8046	12	19,345.0
RB_8046a	8058	RGM0321	8046a	15	8058	20	11,190.8
RB_8046b	8059	RGM0321	8046b	16	8059	21	5,791.3
RB_8046c	8060	RGM0321	8046c	17	8060	22	2,551.2
RB_8046d	8061	RGM0321	8046d	18	8061	23	12,114.0
RB_8046e	8062	RGM0321	8046e	19	8062	24	337.6
Air	0		Air		0		
Laterite	5	LOM20	Laterite	1	5	1	
Saprolite	7200	LOM20	Saprolite	50	7200	50	
Transition	9200	LOM20	Transition	51	9200	51	
Rock	8200	LOM20	Rock	52	8200	52	

Figure 14-24: Rosebel Resource Mineral Solids



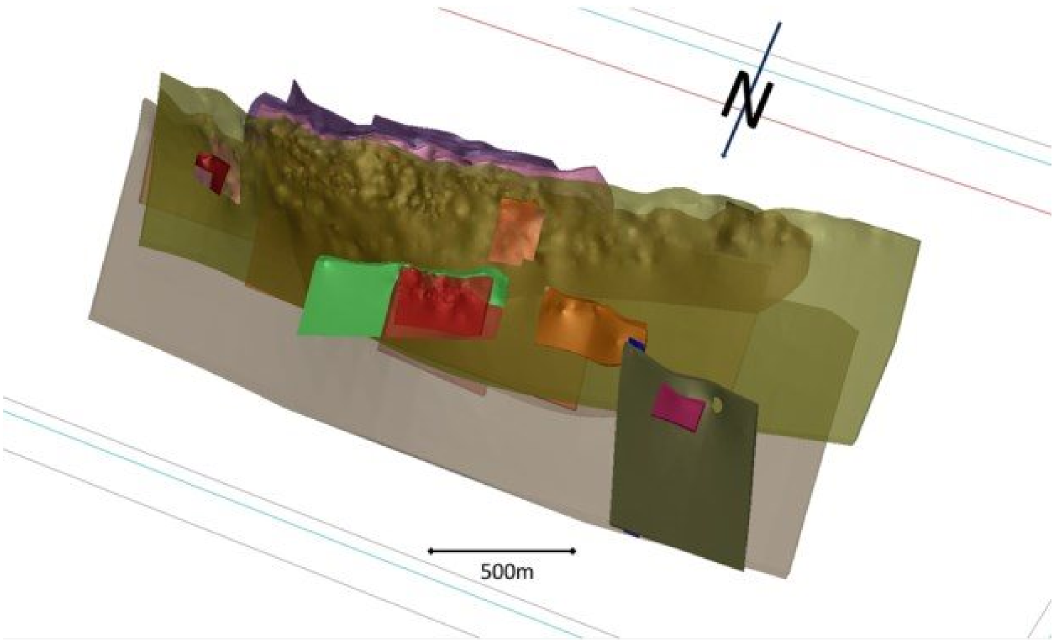
14.4.1.3 Mayo

A total of 22 mineral solids were defined for the MA Mineral Resource update (Table 14-23). Each has its own precedence.

Table 14-23: Mayo Wireframe Naming and Precedence Convention

2021			RGM		WSP		Volume (000 m^3)
Name 1	Name 2	Name 3	Zone	Precedence	Rock Code	Precedence	
8050	RGM	27july20	8050	N/A	8050	10	5,440.9
8051	RGM	27july20	8051	N/A	8051	11	9,616.3
8051A	RGM	27july20	8051A	N/A	8056	12	426.3
8052	RGM	27july20	8052	N/A	8052	13	75,769.4
8053	RGM	27july20	8053	N/A	8053	14	7,395.4
8054	RGM	27july20	8054	N/A	8054	15	29,643.3
8055	RGM	27july20	8055	N/A	8055	16	16,254.8
8057	RGM	27july20	8057	N/A	8057	17	15,142.8
8058	RGM	27july20	8058	N/A	8058	18	81,676.8
8059	RGM	27july20	8059	N/A	8059	19	18,593.4
8060	RGM	27july20	8060	N/A	8060	20	32,437.9
8061	RGM	27july20	8061	N/A	8061	21	1,369.8
8062	RGM	27july20	8062	N/A	8062	22	465.3
8063	RGM	27july20	8063	N/A	8063	23	5,255.2
8064	RGM	27july20	8064	N/A	8064	24	250.3
8065	RGM	27july20	8065	N/A	8065	25	2,060.5
8066	RGM	27july20	8066	N/A	8066	26	422.4
8067	RGM	27july20	8067	N/A	8067	27	195.9
8068	RGM	27july20	8068	N/A	8068	28	2,463.7
8069	RGM	27july20	8069	N/A	8069	29	319.8
8070	RGM	27july20	8070	N/A	8070	30	98.6
8071	RGM	27july20	8071	N/A	8071	31	254.1
Air			Air		0		
Laterite	RGM	27july20	Laterite	1	5	1	
Saprolite	RGM	27july20	Saprolite	50	7200	50	
Transition	RGM	27july20	Transition	51	9200	51	
Rock	RGM	27july20	Rock	52	8200	52	

Figure 14-25: Mayo Resource Mineral Solids



14.4.2 Bulk Density

The density used for the PC, RB and MA update has been limited to the data evaluated by RPA (now SLR) in RPA (2019) and presented in Table 14-24. The average values per weathering layer were used as per the recommendation of the RGM Chief Geologist. It is the QP's opinion that these values are adequate for use converting volume to tonnage.

Table 14-24: Density Values Applied

Deposit	In Situ Density Used (t/m^3)			
	Laterite	Saprolite	Transition	Hard Rock
PC	1.72	1.86	2.32	2.75
RB	1.69	1.82	2.29	2.69
MA	1.71	1.73	2.22	2.73

Source: RPA, 2019

14.4.3 Compositing, Statistics and Capping

The composite length is in line with previous updates at three metres. The mineralized zone solids were used to create a controlling table with rock code intervals (precedence is given, in order, to laterite - mineralized zones - weathering). The composites are calculated within the intervals of that controlling table. The last composite of the interval (if incomplete) is spread equally to the other ones of the same unit (rock code). This approach keeps an equal representativity of each composite and avoids leaving behind part of the original assays.

The Exploration Data Analysis (EDA) was performed on the individual veins and the four weathering zones. The results of the statistical analysis for the composite data are presented in Table 14-25 to Table 14-27.

Table 14-25: Pay Caro Composite Statistics Pre and Post Capping

Domain	Count	Min (g/t Au)	Capping Value (g/t Au)	Max (g/t Au)		Mean (g/t Au)		SD		CV	
				Uncapped	Capped	Uncapped	Capped	Uncapped	Capped	Uncapped	Capped
5	489	0.005	4	20.01	4	0.6151	0.523	1.4858	0.881	2.42	1.69
7200	2,361	0.005	2	32.54	2	0.1245	0.087	0.8405	0.254	6.75	2.92
8200	22,794	0.005	1	10.21	1	0.0439	0.04	0.1645	0.071	3.75	1.75
9200	8,061	0.005	1.5	7.81	1.5	0.0524	0.048	0.2083	0.111	3.97	2.34
8151	1,432	0.005	5	9.62	5	0.448	0.435	0.9079	0.814	2.03	1.87
8152	118	0.005	2	3.34	2	0.1975	0.183	0.4841	0.408	2.45	2.23
8153	7,648	0.005	15	45.67	15	0.7895	0.759	2.0606	1.696	2.61	2.24
8154	6,853	0.005	15	346.92	15	0.5809	0.513	4.5277	1.297	7.79	2.53
8155	4,561	0.005	15	45.74	15	0.3445	0.328	1.2786	0.903	3.71	2.75
8156	5,201	0.005	15	33.86	15	0.299	0.294	0.8721	0.734	2.92	2.5
8157	709	0.005	2	6.94	2	0.1991	0.163	0.5906	0.333	2.97	2.04
8158	633	0.005	5	8.83	5	0.2302	0.219	0.6479	0.528	2.81	2.41
8159	1,233	0.005	5	8.32	3	0.1998	0.191	0.4597	0.36	2.3	1.88
8160	620	0.005	5	7.23	5	0.2229	0.219	0.4526	0.403	2.03	1.84
8161	644	0.005	2	2.06	2	0.0869	0.087	0.1629	0.162	1.87	1.86
8162	233	0.01	1	2.23	1	0.09	0.082	0.1939	0.125	2.15	1.52
8163	58	0.01	2	5.75	2	0.369	0.304	0.7915	0.401	2.15	1.32
8164	18	0.005	-	0.23	0.23	0.0869	0.087	0.0867	0.087	1	1
8165	25	0.01	-	0.35	0.35	0.0836	0.084	0.093	0.093	1.11	1.11
8166	92	0.01	-	0.6	0.6	0.0864	0.086	0.102	0.102	1.18	1.18

Domain	Count	Min (g/t Au)	Capping Value (g/t Au)	Max (g/t Au)		Mean (g/t Au)		SD		CV	
				Uncapped	Capped	Uncapped	Capped	Uncapped	Capped	Uncapped	Capped
8167	16	0.06	2	2.18	2	0.43	0.419	0.6069	0.573	1.41	1.37
8168	16	0.06	2	0.63	0.63	0.2713	0.271	0.1924	0.192	0.71	0.71
8169	226	0.01	1	6.86	1	0.3012	0.172	0.8435	0.277	2.8	1.61
8170	23	0.01	-	1.22	1.22	0.3083	0.308	0.3986	0.399	1.29	1.29
8171	8	0.09	-	0.44	0.44	0.2338	0.234	0.1165	0.116	0.5	0.5
8172	26	0.01	2	2.89	2	0.2908	0.257	0.5651	0.406	1.94	1.58
8173	51	0.01	-	1.38	1.38	0.1639	0.164	0.2668	0.267	1.63	1.63
8174	8	0.04	-	0.57	0.57	0.2275	0.228	0.1902	0.19	0.84	0.84
8175	81	0.02	-	3.73	3.73	0.3649	0.365	0.5969	0.597	1.64	1.64
8176	1,656	0.005	7.5	77.07	7.5	0.7148	0.599	2.8538	1.066	3.99	1.78
8177	1,118	0.005	7.5	13.4	7.5	0.5006	0.495	0.8848	0.823	1.77	1.66
8178	559	0.01	7.5	14.93	7.5	0.6679	0.653	1.1132	0.964	1.67	1.48
8179	1,655	0.005	7.5	14.48	7.5	0.6655	0.649	1.2164	1.087	1.83	1.67
8180	1,090	0.005	7.5	25.84	7.5	0.54	0.499	1.5082	1.083	2.79	2.17
Combined	70,316	0.005	-	346.92	15	0.2923	0.272	1.7514	0.872	5.99	3.21

Table 14-26: Rosebel Composite Statistics Pre and Post Capping

Domain	Count	Min (g/t Au)	Capping Value (g/t Au)	Max (g/t Au)		Mean (g/t Au)		SD		CV	
				Uncapped	Capped	Uncapped	Capped	Uncapped	Capped	Uncapped	Capped
5	1,756	0	5	39.17	5	0.371	0.324	1.3306	0.691	3.59	2.14
7200	4,856	0	1	7.45	1	0.0435	0.041	0.1489	0.055	3.42	1.34
8200	13,428	0	0.35	2.28	0.5	0.0384	0.038	0.052	0.04	1.36	1.05
9200	3,824	0	0.5	0.55	0.35	0.039	0.039	0.0419	0.04	1.07	1.02
8040	428	0	-	1.31	1.31	0.1407	0.141	0.186	0.186	1.32	1.32
8041	647	0.01	2	3.53	2	0.1463	0.144	0.2685	0.244	1.84	1.7
8042	1,551	0	5	9.61	5	0.2758	0.268	0.6283	0.548	2.28	2.04
8043	2,300	0	5	24.2	5	0.3475	0.326	0.9536	0.638	2.74	1.95
8044	3,545	0	7.5	102.82	7.5	0.7096	0.599	2.6389	1.195	3.72	2
8045	1,491	0	7.5	117.87	7.5	0.3694	0.29	3.1189	0.615	8.44	2.12
8046	1,238	0	5	26.54	5	0.4726	0.431	1.1867	0.703	2.51	1.63
8050	151	0.01	-	1.52	1.52	0.1361	0.136	0.2091	0.209	1.54	1.54
8051	1,000	0	2.5	10.36	2.5	0.2538	0.234	0.5826	0.374	2.3	1.6
8052	700	0	1	3.53	1	0.1047	0.097	0.2148	0.143	2.05	1.47
8053	1,181	0	5	23.13	5	0.3694	0.328	1.2247	0.681	3.32	2.08
8054	2,384	0	5.5	29.21	5.5	0.6012	0.539	1.551	1.02	2.58	1.89
8055	1,246	0	2	5.9	2	0.2623	0.247	0.4708	0.365	1.79	1.48
8056	1,015	0	3	13.3	3	0.2775	0.245	0.7823	0.472	2.82	1.93
8057	1,034	0	2	6.57	2	0.226	0.209	0.4831	0.344	2.14	1.65
8058	491	0	1	3.51	1	0.1744	0.139	0.4167	0.231	2.39	1.66

Domain	Count	Min (g/t Au)	Capping Value (g/t Au)	Max (g/t Au)		Mean (g/t Au)		SD		CV	
				Uncapped	Capped	Uncapped	Capped	Uncapped	Capped	Uncapped	Capped
8059	174	0	-	0.56	0.56	0.0396	0.041	0.0674	0.068	1.7	1.68
8060	75	0	-	0.28	0.28	0.0327	0.034	0.0524	0.053	1.6	1.57
8061	32	0.01	1	2.44	1	0.1541	0.109	0.4404	0.215	2.86	1.98
8062	83	0.01	-	0.32	0.32	0.0908	0.091	0.0577	0.058	0.64	0.64
8064	1	0.07	-	0.07	0.07	0.07	0.07	0	0	0	0
8065	127	0.01	0.5	0.53	0.5	0.0949	0.094	0.0796	0.077	0.84	0.82
Combined	44,758	0	-	117.87	7.5	0.2176	0.195	1.1405	0.557	5.24	2.86

Table 14-27: Mayo Composite Statistics

Weathering Zone	No. (Total)	Max (g/t Au)	Cut-Off (g/t Au)	No. Cut	% Cut	Mean (g/t Au Cap)	SD (g/t Au Cap)	CV	Metal Loss (%)
8050	907	9.507	2.798	10	1.00%	0.31	0.34	1.1	5.70%
8051	400	2.781	1.603	4	1.00%	0.177	0.242	1.37	4.10%
8052	1,474	28.817	4.055	12	0.80%	0.236	0.54	2.28	21.00%
8053	744	4.031	2.147	4	0.50%	0.206	0.323	1.57	7.30%
8054	2,765	88.799	10.595	14	0.50%	0.408	1.045	2.56	10.00%
8055	1,181	14.178	3.691	11	0.90%	0.204	0.523	2.56	17.00%
8057	1,746	127.793	6.036	14	0.80%	0.287	0.749	2.61	39.00%
8058	6,112	411.643	9.013	43	0.70%	0.676	1.215	1.8	17.00%
8059	2,940	31.941	6.498	30	1.00%	0.415	0.916	2.21	15.00%
8060	3,167	39.14	5.815	23	0.70%	0.341	0.712	2.09	10.00%
8061	89	6.364	1.598	1	1.10%	0.107	0.221	2.06	33.00%
8062	5	0.502	N/A	0	0.00%	0.238	0.16	0.67	0.00%
8063	39	1.611	N/A	0	0.00%	0.24	0.314	1.31	0.00%
8064	27	2.113	N/A	0	0.00%	0.169	0.412	2.43	0.00%
8065	253	5.534	1.66	3	1.00%	0.166	0.208	1.25	13.00%
8066	53	1.703	N/A	0	0.00%	0.123	0.296	2.4	0.00%
8067	36	3.059	N/A	0	0.00%	0.286	0.677	2.36	0.00%
8068	159	31.013	3.665	2	1.00%	0.274	0.537	1.96	41.00%
8069	54	0.252	N/A	0	0.00%	0.056	0.056	0.99	0.00%
8070	20	1.239	N/A	0	0.00%	0.153	0.307	2.01	0.00%
8071	12	0.225	N/A	0	0.00%	0.097	0.075	0.77	0.00%

Weathering Zone	No. (Total)	Max (g/t Au)	Cut-Off (g/t Au)	No. Cut	% Cut	Mean (g/t Au Cap)	SD (g/t Au Cap)	CV	Metal Loss (%)
5	2,035	10.806	3.678	15	0.70%	0.297	0.551	1.85	5.60%
7200	22,337	13.469	0.222	35	0.50%	0.033	0.035	1.05	4.50%
9200	6,839	4.642	0.228	14	0.40%	0.029	0.031	1.09	3.60%
8200	3,449	1.747	0.221	111	0.50%	0.029	0.03	1.05	9.40%

14.4.4 Block Model Parameters for Pay Caro, Rosebel, and Mayo

The Isatis.Neo (Isatis) software was used for the variography and the interpolation of the block model. The composites, mineralized solids, and weathering were extracted from Gems and provided to Isatis. The density and rock code block model fields were also extracted from the Gems model.

14.4.4.1 Pay Caro

14.4.4.1.1 Variography

For variography and estimation purposes, the mineral solids were grouped into twelve separate groupings based on statistical characteristics. The groups are displayed in Table 14-28.

Table 14-28: Pay Caro Rock Code Groupings

Group	Rock Code			
1	8151	-	-	-
2	8180	-	-	-
3	8152	-	-	-
4	8153	8154	8155	8156
5	8157	8161	8173	-
6	8162	8169	-	-
7	8170	8171	8172	8174
8	8176	8177	8178	8179
9	8163	8167	8168	-
10	8164	8165	8166	-
11	8158	8159	8160	8175
12	8159	-	-	-

Variograms were then derived on a group basis as well as for the four weathering domains. Variograms are modeled as an omni-directional variogram using a nugget (C_o) and either a single or dual spherical model. Table 14-29 summarizes the variogram models for these groups and weathering zones.

Table 14-29: Variogram Models Used for the Pay Caro Rock Groupings

Summary	Nugget (Co)	Structure 1		Structure 2	
		Range (m)	Sill	Range (m)	Sill
Grp 1	0.2028	4.82	0.3032	29.16	0.1467
Grp 2	0.5059	4.83	0.1628	24.86	0.7085
Grp 3	0.1028	5.82	0.1059	37.42	0.1474
Grp 4	0.4944	5.82	0.4162	56.58	0.3591
Grp 5	0.0505	214.60	0.0487	0.00	0.0000
Grp 6	0.0103	5.21	0.0094	24.96	0.0248
Grp 7	0.0103	5.21	0.0520	21.27	0.0602
Grp 8	0.4964	5.21	0.3288	38.44	0.2741
Grp 9	0.0100	8.69	0.1733	88.78	0.0385
Grp 10	0.0020	4.98	0.0056	76.28	0.0052
Grp 11	0.0506	6.98	0.0498	48.27	0.0321
Grp 12	0.0506	6.31	0.0156	45.94	0.0410
5	0.2133	4.19	0.2184	27.32	0.3679
7200	0.0357	23.18	0.0222	89.74	0.0206
8200	0.0042	22.83	0.0021	91.23	0.0018
9200	0.0069	43.14	0.0013	118.20	0.0073

14.4.4.1.2 Interpolation

The estimation parameters assume that the search ellipses are aligned along the main dip and strike directions with the maximum direction along dip and strike and the minimum directions across the strike of the deposit. As such the rotation angles differ for the individual mineral solids whilst the remaining parameters are common across the mineralized zones.

Spherical searches of 75 m were used for the weathering domains and grade restrictions were applied to limit the influence of "high grade" composites within the individual weathering zones.

Table 14-30 and Table 14-31 present the common and specific estimation parameters for PC, respectively.

Table 14-30: Pay Caro Common Estimation Parameters

	U	V	W
Discretization	8	6	9
Ellipse Size (m)	75	25	75
No. of Sectors	1	-	-
Max Comps / Hole	4	-	-
	Pass 1	**Pass 2**	**Pass 3**
Search Distance	Search x 1	Search x 2	Search x 3
Min. Comps	6	4	4
Optimal Comps / Sector	12	12	12

Table 14-31: Pay Caro Specific Estimation Parameters

RC	Group	Rotation (°)		
		Azimuth	Plunge	Dip
8151	1	108	0	8
8180	2	120	0	-20
8152	3	115	0	7
8153	4	120	0	-15
8154	4	120	0	-11
8155	4	120	0	-8
8156	4	120	0	-12
8157	5	117	0	-12
8161	5	117	0	-12
8173	5	117	0	-12
8162	6	114	0	-6
8169	6	114	0	-38
8170	7	114	0	-38
8171	7	114	0	-38
8172	7	114	0	-38
8174	7	114	0	-38
8176	8	115	0	-18

RC	Group	Rotation (°)		
		Azimuth	Plunge	Dip
8177	8	115	0	-18
8178	8	115	0	-18
8179	8	115	0	-18
8163	9	115	0	-18
8167	9	115	0	-18
8168	9	115	0	-18
8164	10	123	0	-4
8165	10	123	0	-4
8166	10	123	0	-4
8158	11	119	0	-4
8159	11	119	0	-4
8160	11	119	0	-4
8175	11	119	0	-4
8159	12	86	0	145
5	5	0	0	0
7200	7200	0	0	0
9200	9200	0	0	0
8200	8200	0	0	0

14.4.4.2 Rosebel

14.4.4.2.1 Variography

For variography and estimation purposes, the mineral solids were grouped into eight separate groupings based on statistical characteristics. The rock code groupings for RB are presented in Table 14-32.

Table 14-32: Rosebel Rock Code Groupings

Group	Rock Code					
1	8059	8060	8064	-	-	-
2	8062	8065	-	-	-	-
3	8040	8041	8050	8052	8058	8061
4	8042	8045	8051	8055	8056	8057
5	8043	8053	-	-	-	-
6	8046	-	-	-	-	-
7	8054	-	-	-	-	-
8	8044	-	-	-	-	-

Variograms were then derived on a group basis and for the four weathering domains (Table 14-33). Variograms are modeled as an omni-directional variogram using a nugget (C_o) and either a single or dual spherical model.

Table 14-33: Variogram Models Used for the Rosebel Rock Groupings

Summary	Nugget (Co)	Structure 1		Structure 2	
		Range (m)	Sill	Range (m)	Sill
G1	0.0011	5.39	0.0001	109.80	0.0026
G2	0.0021	5.83	0.0013	57.65	0.0014
G3	0.0180	21.33	0.0032	142.70	0.0205
G4	0.1521	5.40	0.0344	36.91	0.0434
G5	0.2047	4.52	0.0856	39.97	0.1899
G6	0.2047	7.15	0.2207	29.47	0.0689
G7	0.5589	4.96	0.1036	48.74	0.3680
G8	0.5589	6.27	0.3760	33.86	0.6670
5	0.1765	26.42	0.4139		
7200	0.0014	24.60	0.0007	138.70	0.0011
8200	0.0006	22.78	0.0002	44.56	0.0009
9200	0.0006	5.15	0.0000	25.12	0.0010

14.4.4.2.2 Interpolation

The estimation parameters assume that the search ellipses are aligned along the main dip and strike directions with the maximum direction along dip and strike and the minimum directions across the strike of the deposit. As such the rotation angles differ for the individual mineral solids whilst the remaining parameters are common across the mineralized zones.

Spherical searches of 75 m were used for the weathering domains and grade restrictions were applied to limit the influence of "high grade" composites within the individual weathering zones.

The rotation convention is based on the Isatis rotations which are equivalent to Azimuth (X-axis), plunge (Y-axis) and dip (Z-axis). The U, V and W directions represent the rotated X, Y and Z-axis.

Table 14-34 and Table 14-35 present the common and specific estimation parameters for the RB deposit, respectively.

Table 14-34: Rosebel Common Estimation Parameters

	U	**V**	**W**
Discretization	8	6	9
Ellipse Size (m)	75	25	75
No. of Sectors	1	-	-
Max Comps / Hole	3	-	-
	Pass 1	**Pass 2**	**Pass 3**
Search Distance	Search x 1	Search x 2	Search x 3
Min. Comps	6	4	4
Optimal Comps / Sector	12	12	12

Table 14-35: Rosebel Specific Estimation Parameters

RC	Group	Rotation (°)		
		Azimuth	Plunge	Dip
8059	1	96	0	-12
8060	1	96	0	-22
8064	1	96	0	-16
8062	2	96	0	-14
8065	2	96	0	-12
8040	3	96	0	-20
8041	3	96	0	-19
8050	3	96	0	-18
8052	3	96	0	-17
8058	3	96	0	-10
8061	3	96	0	-10
8042	4	96	0	-8
8045	4	96	0	-6
8051	4	96	0	-11
8055	4	96	0	-6
8056	4	96	0	-6
8057	4	96	0	-4
8043	5	96	0	-10
8053	5	96	0	-7
8046	6	96	0	-5
8054	7	96	0	-5
8044	8	96	0	-7
5	5	0	0	0
7200	7200	0	0	0
9200	9200	0	0	0
8200	8200	0	0	0

14.4.4.3 Mayo

14.4.4.3.1 Variography

Variograms were constructed in Surpac. Variograms are modeled as directional variograms using a nugget (Co) and a dual spherical model (Table 14-36).

Table 14-36: Mayo Variogram Models

Rock Code	Bearing (°)	Plunge (°)	Dip (°)	Major Axis	Semi-Major Axis	Minor Axis	Nugget	Sill 1	Range 1	Sill 2	Range 2
5	90.0	-	-	154.1	121.1	19.2	0.0	0.2	102.9	0.1	154.1
7200	-	-	-	155.7	155.7	155.7	0.0	0.0	59.0	0.0	155.7
9200	-	-	-	155.7	155.7	155.7	0.0	0.0	59.0	0.0	155.7
8200	-	-	-	155.7	155.7	155.7	0.0	0.0	59.0	0.0	155.7
8050	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8051	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8052	187.1	44.8	-35	173.899	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8053	175.0	40.0	-	129.0	98.5	13.5	0.0	0.0	24.4	0.0	129.0
8054	-	-40.0	-	188.5	152.8	50.4	0.5	0.1	180.1	0.5	188.5
8055	165.0	55.0	-	112.1	88.6	36.9	0.0	0.1	41.5	0.1	112.1
8056	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8057	-	-45.0	-	107.5	85.3	21.1	0.0	0.3	45.9	0.1	107.5
8058	-	-35.0	-5	138.7	119.5	17.9	0.4	1.1	48.8	0.4	138.7
8059	-	-35.0	-	115.2	58.2	26.6	0.3	0.1	48.7	0.0	115.2
8060	202.7	63.2	-25	108.2	56.2	24.3	0.1	0.3	28.2	0.1	108.2
8061	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8062	15.0	4.0	2	173.9	231.9	231.9	0.0	0.2	58.3	0.1	173.9
8063	15.0	3.0	2	173.9	173.9	173.9	0.0	0.2	58.3	0.1	173.9
8064	202.7	63.2	-25	108.2	56.2	24.3	0.1	0.3	28.2	0.1	108.2
8065	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8066	165.0	55.0	-	112.1	88.6	36.9	0.0	0.1	41.5	0.1	112.1

Rock Code	Bearing (°)	Plunge (°)	Dip (°)	Major Axis	Semi-Major Axis	Minor Axis	Nugget	Sill 1	Range 1	Sill 2	Range 2
8067	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8068	202.7	63.2	-25	108.2	56.2	24.3	0.1	0.3	28.2	0.1	108.2
8069	165.0	55.0	-	112.1	88.6	36.9	0.0	0.1	41.5	0.1	112.1
8070	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9
8071	187.1	44.8	-35	173.9	145.6	69.4	0.0	0.2	58.3	0.1	173.9

14.4.4.3.2 Interpolation

The estimation parameters assume that the search ellipses are oriented along the main dip and strike directions with the maximum direction along dip and strike and the minimum directions across the strike of the deposit. As such the rotation angles differ for the individual mineral solids whilst the remaining parameters are common across the mineralized zones.

Spherical searches of 75 m were used for the weathering domains and grade restrictions were applied to limit the influence of "high grade" composites within the individual weathering zones.

The rotation convention is based on the Isatis rotations which are equivalent to Azimuth (X-axis), plunge (Y-axis) and dip (Z-axis). The U, V and W directions represent the rotated X, Y and Z-axis.

Table 14-37 and Table 14-38 present the common and specific estimation parameters for MA, respectively.

Table 14-37: Mayo Common Estimation Parameters

	U	**V**	**W**
Discretization	3	3	3
No. of Sectors	1	-	-
Max Comps / Hole	2	-	-
	Pass 1	**Pass 2**	**Pass 3**
Min. Comps	5	4	3
Optimal Comps / Sector	15	15	15
Rotation	0	90	0

Table 14-38: Mayo Specific Estimation Parameters

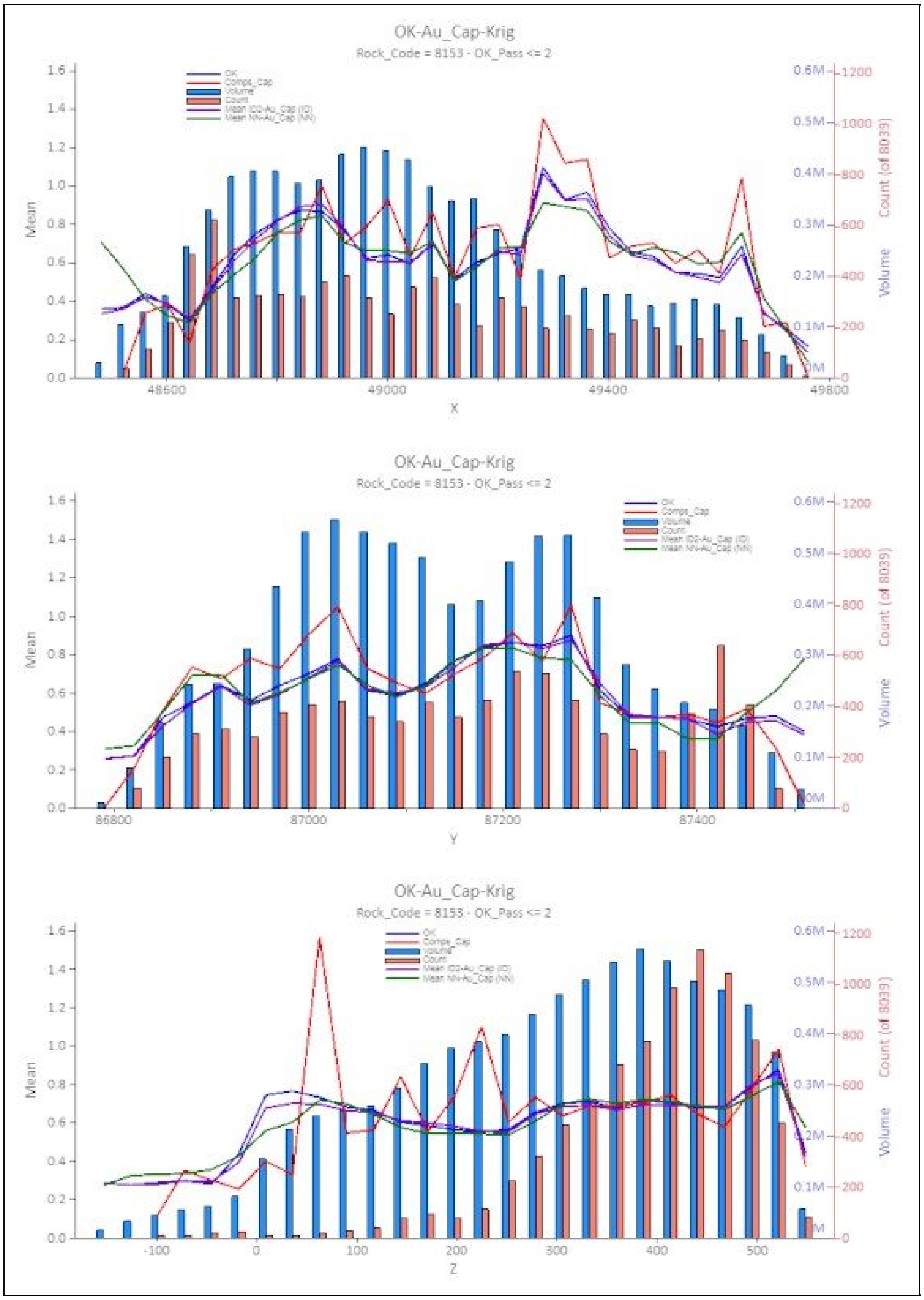
Search Ellipse	Pass 1			Pass 2			Pass 3		
	U	V	W	U	V	W	U	V	W
Laterite	62	48	8	116	91	14	154	121	19
Saprolite, Transition and Rock	62	62	62	117	117	117	156	156	156
8050	70	58	28	131	110	52	174	146	69
8051	70	58	28	131	110	52	174	146	69
8052	70	58	28	131	110	52	174	146	69
8056	70	58	28	131	110	52	174	146	69
8053	52	39	5	97	74	10	129	98	13
8054	76	62	20	142	116	38	189	154	51
8055	45	34	5	84	64	9	112	85	12
8057	43	34	8	80	64	16	107	85	21
8058	56	48	7	104	90	14	139	120	18
8059	46	23	10	86	44	20	115	58	26
8060	44	22	10	82	42	18	109	56	24
8061	70	58	28	131	110	52	174	146	69
8062	70	58	28	131	110	52	174	146	69
8063	70	58	28	131	110	52	174	146	69
8064	43	22	10	81	42	18	108	56	24
8065	70	58	28	131	110	52	174	146	69
8066	45	35	15	84	66	28	112	88	37
8067	70	58	28	131	110	52	174	146	69
8068	43	22	10	81	42	18	108	56	24
8069	45	35	15	84	66	28	112	88	37
8070	70	58	28	131	110	52	174	146	69
8071	70	58	28	131	110	52	174	146	69

14.4.5 Block Model Validation for Pay Caro and Rosebel

Validation estimates were generated using an ID^2 and a NN estimate for both the PC and RB models. The models were viewed in section and plan view in Gems to verify the block estimates against the composite values and to identify potential blow-outs or problem areas, and swath plots were generated to compare the composite, OK, ID^2, and NN estimates using the X10-Geo software.

An example of the swath plot for the PC 8153 zone is presented in Figure 14-26.

Figure 14-26: Swath Plot - Pay Caro 8153 Mineral Solid



14.4.6 Classification for Pay Caro, Rosebel, and Mayo

The classification for PC, RB and MA was guided with the Whittle shells. Shells were run and used to discriminate indicated blocks inside and outside the shells. Once these blocks were tagged, two separate approaches were preferred:

- Inside the shell:
  - 1st pass blocks = seven or more composites used - tagged as Indicated.
  - 2nd pass blocks = six composites used - tagged as Indicated.
  - 3rd and 4th pass blocks = tagged as Inferred.
- Outside the shell:
  - 1stpass blocks = seven or more composites used - tagged as Indicated.
  - 2nd pass blocks = six composites used - tagged as Inferred.
  - 3rd and 4th pass blocks = tagged as Inferred.

14.4.7 Mineral Resource Reporting by WSP

CIM (2014) definitions define a Mineral Resource as:

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

The reasonable prospect for eventual economic extraction" requirement generally implies that quantity and grade estimates meet certain economic thresholds and that mineral resources are reported at an appropriate cut-off grade that considers extraction scenarios and processing recovery. The QP considers the Rosebel deposits to be primarily amenable to open pit extraction. To assist with determining which portions of the gold deposits show "reasonable prospect for eventual economic extraction" from an open pit and to assist with selecting reporting assumptions, RGM mining engineers developed a conceptual open pit shell using corporately approved mining, processing, and G&A costs. Other pit optimization parameters include:

- Metallurgical gold recovery of 94% for laterite and saprolite, and 91% for transition and fresh rock.
- Gold price of US$1,500/oz Au.
- Resources have been calculated within a W4X shell at US$1,500/oz Au.

After review of optimization results, and through discussions with IAMGOLD, the QP considers it reasonable to report those classified blocks located within the conceptual pit shell above a cut-off grade as open pit Mineral Resources as shown in the Table 14-39.

Table 14-39: Grade Cut-Off Values Applied per Rock Type and Resource Model for Pay Caro, Rosebel, and Mayo

Rock Type	Unit	MA	PC	RB
Laterite	g /t Au	0.19	0.18	0.2
Saprolite	g /t Au	0.19	0.18	0.2
Transition	g /t Au	0.25	0.24	0.26
Hard Rock	g /t Au	0.37	0.38	0.39

The Mineral Resource estimate for PC, RB, and MA, at December 31, 2021, is comprised of 77.57 Mt at an average grade of 0.95 g/t Au, for 2.38 Moz Au in the Measured and Indicated category. There is an additional 1.94 Mt at an average grade of 0.65 g/t Au, containing 0.04 Moz Au in the Inferred category.

Table 14-40 presents the PC, RB, and MA Mineral Resource estimate as of December 31, 2021. This Mineral Resource is estimated within pit shells optimized at a US$1,500/oz Au price and corresponding cut-off grades and includes the Measured, Indicated, and Inferred Mineral Resource categories. A volumetric analysis using GEMS is performed to determine the tonnage and grade of the Measured, Indicated, and Inferred Mineral Resources (MI+I) inside each of these shells. The stockpile inventory is classified as Measured and is included in the total.

The QPs are satisfied that the mineral resources were estimated in conformity with the widely accepted CIM Estimation of Mineral Resource and Mineral Reserve Best Practices Guidelines (November 2019). The mineral resources may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent mineral resource estimates. The mineral resources may also be affected by subsequent assessments of mining, environmental, processing, permitting, taxation, socio-economic, and other factors. The Mineral Resource estimate for the PC, RB and MA gold projects presented in Table 14-40 was prepared by Ian Hugh Crundwell, P.Geo., of WSP and Bruno Perron, P.Eng. formerly of WSP. Messrs. Crundwell and Perron are QPs as defined by NI 43-101. Mr. Crundwell is an independent qualified persons as this term is defined in National Instrument 43-101. Mr. Perron was employed exclusively by WSP during the resource update process and joined IAMGOLD - RGM on December 12, 2021.

Table 14-40: Pay Caro, Rosebel, and Mayo Mineral Resource Estimate as of December 31, 2021

Deposit	Measured and Indicated Mineral Resources			Inferred Mineral Resources		
	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (000 oz Au)
WSP						
PC	32.00	0.98	1,007	0.785	0.4	10
RB	13.22	0.83	354	0.491	0.77	12
MA	32.35	0.98	1,015	0.661	0.85	18
Total	77.577	0.95	2,377	1.94	0.65	40

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a cut-off grade which varies between 0.18 g/t Au to 0.39 g/t Au, depending on the material and pit. Mineral Resources are estimated using an average long term gold price of US$1,500/oz Au.
3. Mineral Resources are constrained by Whittle optimized pit shells.
4. A minimum mining width of five metres was used.
5. Bulk density was estimated by OK by weathering type for KH-JZ and RH. For all other deposits a mean value based on density data was used.
6. Mineral Resources are inclusive of Mineral Reserves.
7. Mineral Resources that are not Mineral Reserves do not demonstrate economic viability.
8. Numbers may not add due to rounding.

14.5 Rosebel Mineral Resource Reporting

The Rosebel Mineral Resource estimate at December 31, 2021, is comprised of 150.55 Mt at an average grade of 0.99 g/t Au, for 4.79 Moz Au in the Measured and Indicated category. There is an additional 16.05 Mt at an average grade of 0.88 g/t Au, containing 0.46 Moz Au in the Inferred category. The Rosebel Mineral Resource estimate is presented in Table 14-41.

Table 14-41: Rosebel Mineral Resource Estimate as of December 31, 2021 on a 100% Basis

Deposit	Measured and Indicated Mineral Resources			Inferred Mineral Resources		
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
SRK						
KH	13,958	1.00	449	1,683	0.44	24
JZ	13,981	0.96	430	697	0.49	11
RH	33,184	1.23	1,317	69	0.90	2
WSP						
PC	32,005	0.98	1,007	785	0.40	10
RB	13,220	0.83	354	491	0.77	12
MA	32,353	0.98	1,015	661	0.85	18
RGM						
RMW	2,182	0.70	49	311	0.51	5
RME	-	-	-	2,425	0.80	62
OV	-	-	-	6,013	1.22	236
ETR	-	-	-	2,038	0.86	56
MK	-	-	-	877	0.61	17
Stockpiles ROS	9,677	0.54	168			
Total	150,550	0.99	4,790	16,051	0.88	455

Notes:

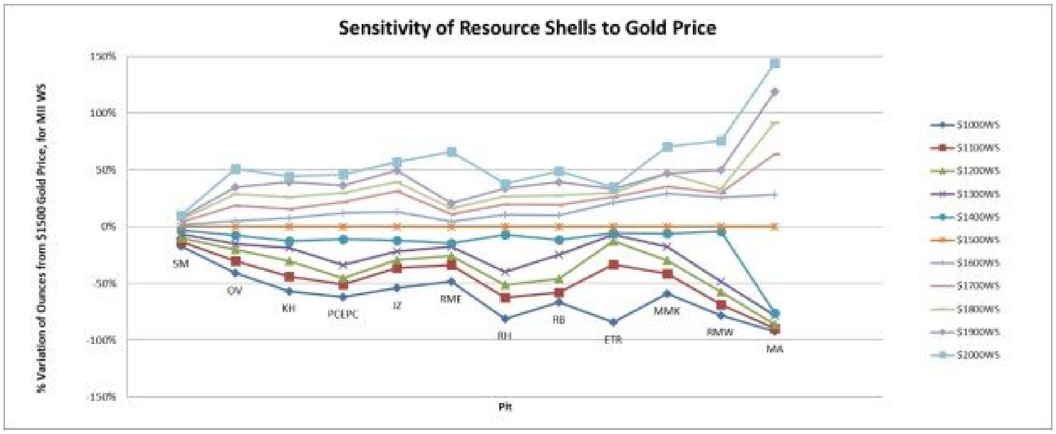
1. CIM (2014 definitions) were followed for Mineral Resources.
2. Mineral Resources are estimated at a cut-off grade which varies between 0.18 g/t Au to 0.39 g/t Au, depending on the material and pit. Mineral Resources are estimated using an average long term gold price of US$1,500/oz Au.
3. Mineral Resources are constrained by Whittle optimized pit shells.
4. A minimum mining width of five metres was used.
5. Bulk density was estimated by OK by weathering type for KH-JZ and RH. For all other deposits a mean value based on density data was used.
6. Mineral Resources are inclusive of Mineral Reserves.
7. Mineral Resources that are not Mineral Reserves do not demonstrate economic viability.
8. Numbers may not add due to rounding.

In order to examine the sensitivity of the Rosebel deposits to different gold prices, several nested pit shells at different prices were generated. The resources (Measured + Indicated + Inferred) were evaluated inside the optimized Whittle pit shells. Shells were created at US$100/oz Au increments estimated between US$1,000/oz Au and US$1,900/oz Au using the appropriate cut-off grades.

Whittle shells are used in sensitivity analysis as they indicate a pit size relative to gold price and can be generated quickly. They do not, however, consider additional mining constraints such as minimum mining widths and practical mining access ramps that need to be accounted for in reality. Therefore, the waste tonnage and strip ratios are higher in the final pit designs than in these sensitivity shells. The results of the sensitivity to gold price between US$1,000/oz Au and US$1,900/oz Au, for each deposit, are presented in Figure 14-27.

Globally, a US$100/oz Au increase in the gold price from the US$1,500/oz Au Whittle shell increases the resource ounces by 9%, while a US$100/oz Au decrease in the gold price decreases the resource ounces by 7%. The results of the sensitivity analyses are compiled in Figure 14-27, which shows the sensitivity of all pits to varying metal prices in the percentage ounces gained or lost (as compared to the US$1,500/oz Au Whittle shell.)

Figure 14-27: Percentage Change In-Situ Ounces for the Range of Gold Prices Between US$1,000/oz Au and US$1,900/oz Au Compared to the US$1,500/oz Au Price



Notes:

1. BM used to calculate resources = MII Diluted

From Figure 14-27, it can be noted that a large negative or positive shift in the gold price will equally impact the deposit size in its respective direction.

14.6 Saramacca

14.6.1 Introduction

The Saramacca Mineral Resource estimate documented in this Technical Report represents the third Mineral Resource evaluation prepared for Saramacca in accordance with the CIM (2014) definitions.

The Mineral Resource model prepared by SRK considers results from an additional 128 DD holes for 28,461 m drilled, 316 RC holes for 40,908 m drilled, 6,876 grade control RC drill holes for 297,195 m were drilled since the initial September 2018 mineral resource model. The data review and geological modelling updates and modifications were performed by Dr. Aleksandr Mitrofanov, P.Geo. Dr. Mitrofanov first visited the property between June 21 and June 23, 2019, and most recently from February 7 to March 28, 2021. Grade estimation and associated sensitivity analyses, and mineral resource classification was performed by Dr. Oy Leuangthong, P.Eng. Pit optimization review was conducted by Mr. Michel Dromacque, CEng., RGM Chief Engineer Long Term Planning. The overall process was reviewed by Mr. Glen Cole, P.Geo. Mr. Mitrofanov and Dr. Leuangthong are independent Qualified Persons as this term is defined in NI 43-101. The effective date of the Mineral Resource estimate is December 31, 2021.

This section describes the resource estimation methodology and summarizes the key assumptions considered by SRK. In the opinion of SRK QP, the resource evaluation reported herein is a reasonable representation of the SM deposit at the current level of sampling. The Mineral Resources have been estimated in conformity with generally accepted CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2019) and are reported in accordance with NI 43-101. Mineral Resources are not Mineral Reserves and have not demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserve.

The database used to estimate the Saramacca Mineral Resources was audited by SRK. The SRK QPs are of the opinion that the current drilling information is sufficiently reliable to interpret, with confidence, the boundaries for gold mineralization and that the assay data are sufficiently reliable to support Mineral Resource estimation.

Leapfrog Geo™ software (version 5.1.0) was used to construct the geological solids. SRK used a combination of GEOVIA GEMS™ software (version 6.8.1), Leapfrog Geo™, and GSLib™ software to prepare assay data for geostatistical analysis, construct the block model, and estimate gold grades. The mineral resource model considers 570 DD holes (113,927 m) and 354 RC drill holes (45,456 m), and 907 grade control RC holes (28,850 m) from infill grade control holes that were directly used in the estimation.

14.6.2 Mineral Resource Estimation Methodology

The evaluation of Saramacca Mineral Resources involved the following procedures:

- Database compilation and verification.
- Construction of explicit wireframe models for major units, using stratigraphy, geological indices, and structural trends.
- Definition and construction geostatistical Mineral Resource domains.
- Data conditioning (compositing and capping) for geostatistical analysis and variography.
- Selection of estimation strategy and estimation parameters.
- Block modelling and grade interpolation.
- Validation, classification, and tabulation.
- Assessment of "reasonable prospects for eventual economic extraction" and selection of reporting assumptions.
- Preparation of the updated Mineral Resource estimate.

The following sections summarize the methodology and assumptions made by SRK to construct the Mineral Resource model.

14.6.3 Resource Database

IAMGOLD provided the resource database as comma-separated values (CSV) files. The first set of headers, downhole survey, lithology, alteration, structure and geotechnical logging intervals, and assay results were received on January 7, 2021. SRK and IAMGOLD worked together to clean and fix some technical issues and missed intervals in the database so the final database for this updated resource estimate was developed on January 21, 2020. The drilling database comprises 90 historical drill holes, 359 drill holes drilled by IAMGOLD's SurEx group, 478 drill holes drilled by IAMGOLD's MinEx group, and 6,876 grade control drill holes. Included are three new exploration drill holes and 6,876 grade control drill holes since the 2020 internal mineral resource model. Historical drill holes were drilled by Golden Star (2008 to 2010) and Newmont (2005). Table 14-42 provides a summary of available drill holes. The effective date of the drilling database is January 20, 2021, with SMRC-0236 as the last drill hole added to the exploration database.

All drill hole collars were surveyed according to UTM coordinates (Zone 21N) with elevation (Z) lifted to +500 m to avoid negative elevation values in the pit levels. Golden Star completed downhole surveys at intervals of approximately 50 m. IAMGOLD's downhole surveys were completed, using a Reflex EZ-TRAC downhole survey tool for the DD holes. For RC holes, IAMGOLD completed down-hole surveys at 10 m intervals using a gyroscopic down-hole survey tool.

Table 14-42: Saramacca Drilling Database

Company	Diamond Drilling		Reverse Circulation		Total	
	Number	Metres	Number	Metres	Number	Metres
Golden Star	66	7,986	-	-	66	7,986
Newmont	24	1,307	-	-	24	1,307
IAMGOLD - SurEx	318	66,666	41	4,986	359	71,652
IAMGOLD - MinEx	162	37,968	316	40,908	478	78,876
IAMGOLD - Grade Control	-	-	6,876	297,195	6,876	297,195
Total	570	113,927	7,233	343,089	7,803	457,016

Core recovery is generally good with 90% of the data collected exceeding 75% or higher core recovery. The correlation between gold grades and core recovery is less than ±0.05. Further, no spatial correlation is apparent between areas of poor recovery and higher grade areas.

SRK was provided with 208,563 assayed intervals (372,841 m) which represents 137% increase in comparison with the database used for 2020 mineral resource model. The difference is mostly comprised by the grade control samples, the overall increase in the exploration sampled length is 0.3%.

IAMGOLD provided two types of grade control data: shorter grade control RC holes that are drilled to a depth of 38 m, and longer, infill-type holes that are drilled deeper than 38 m. SRK understands that after February 2020, sample intervals deeper than 38 m of the infill holes followed similar analytical QC protocols as the exploration holes. As such, SRK considers that all the grade control assay values may be useful for contouring of the mineralization zones, however, only those grade control infill hole intervals deeper than 38 m and drilled after February 2020 may be considered as conditioning data for mineral resource estimation.

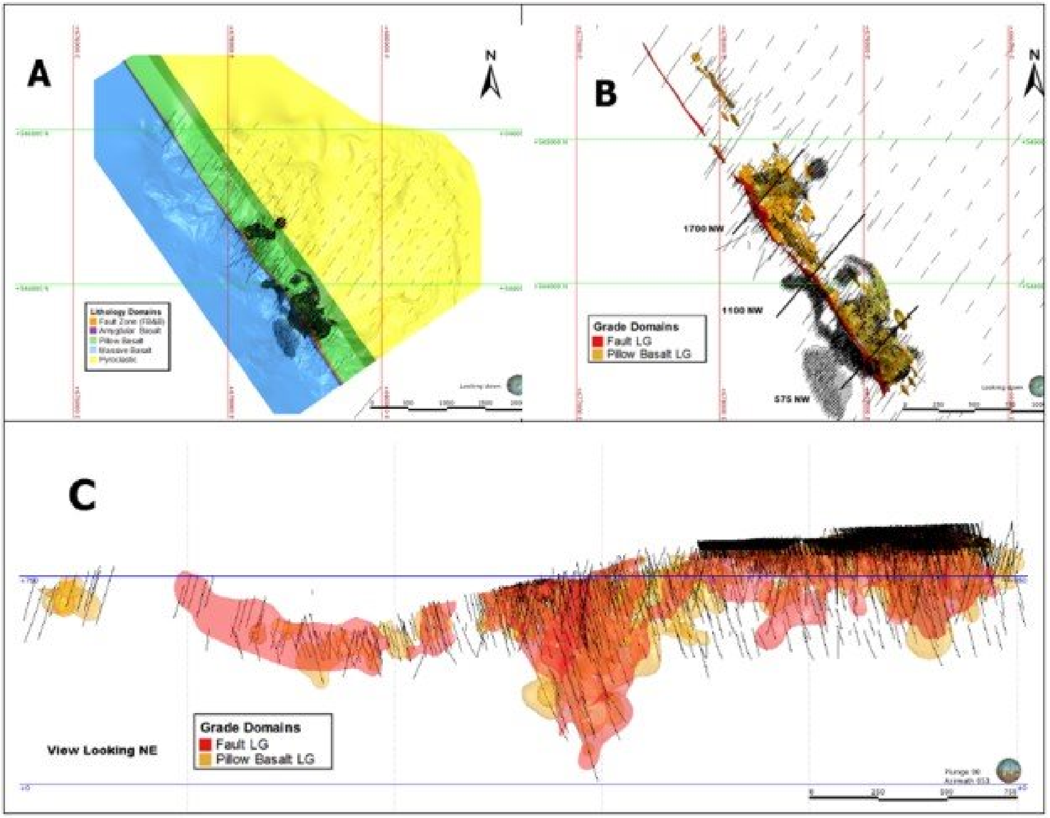
Based on SRK's site visits completed in June 2017, January 2018, June 2019, and February 2021, SRK believes that drilling, logging, core handling, core storage, and analytical QC protocols used by IAMGOLD meet generally accepted industry best practices. As a result, SRK considers that the exploration data collected by IAMGOLD and previous project operators are of sufficient quality to support mineral resource evaluation.

14.6.4 Geological Interpretation and Modelling

The Saramacca Mineral Resource model is based on a structural geology investigation. The geological model includes the distribution of the main rock types and structurally controlled gold mineralized domains. Gold mineralization is associated with a major brittle-ductile vertical dip-slip fault zone located at the contact between a sequence of massive and pillowed basalt. Two main fault zones, Faya Bergi and Brokolonko, are located at the contact between amygdular basalt and pillow basalt. Several sub-parallel minor shear zones are located in the hanging wall of the main fault zone in the pillowed basalt.

The modelling process has not changed significantly since the 2018 model and mostly involved updating the existing lithology, mineralization and weathering domains using new drilling information. The lithological domains were constructed by SRK as a geological model in Leapfrog Geo to account for the new drilling information and updated lithological logging. The main rock types modelled are (from southwest to northeast): massive basalt, amygdular basalt, combined Faya Bergi and Brokolonko fault zone, pillow basalt, and pyroclastic (top left, Figure 14-28.

Figure 14-28: Plan and Long Section Showing the Modelled Saramacca Lithological and Grade Domains

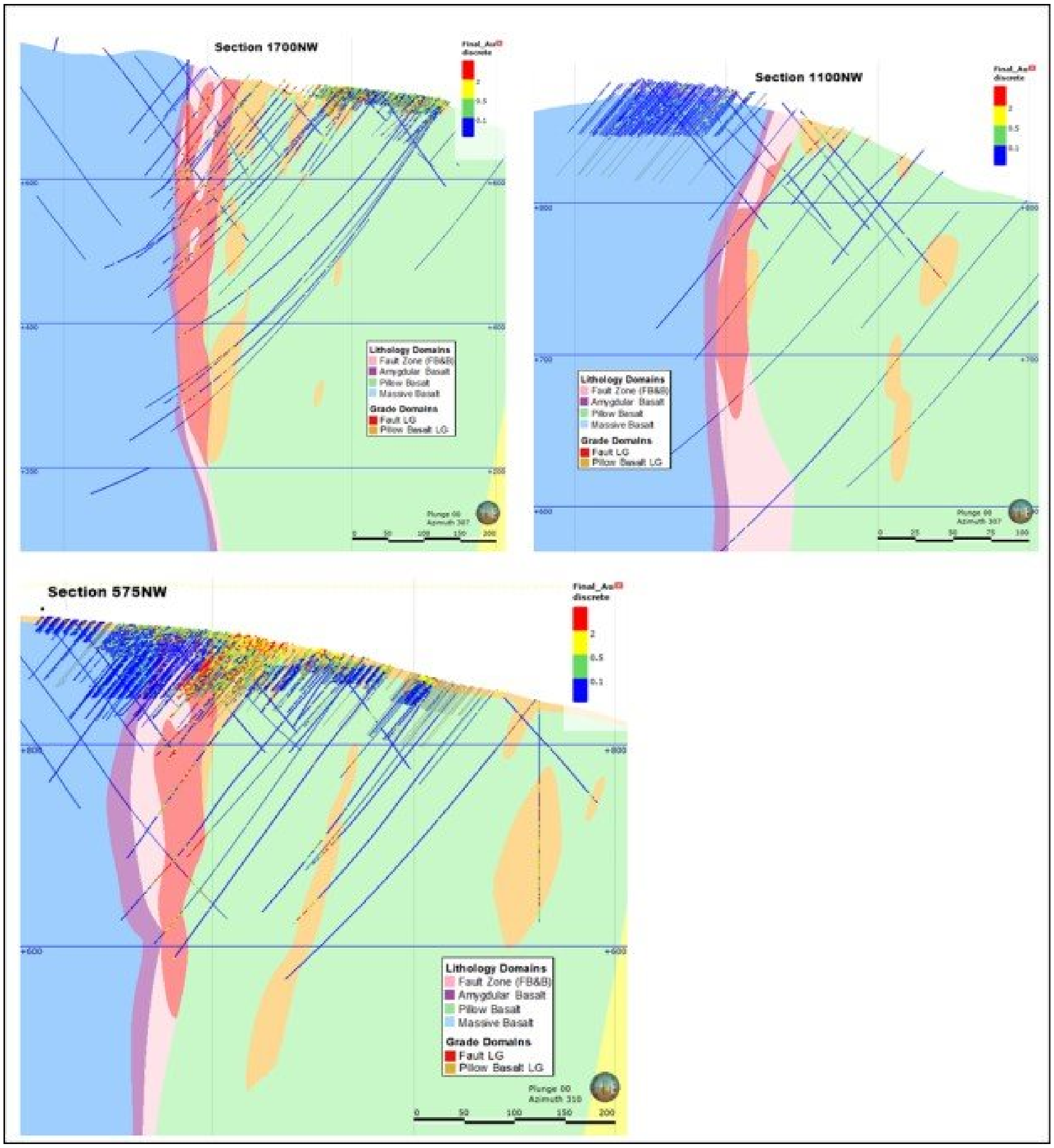


Notes:

1. A. Plan View of Lithological Domains
2. B. Plan View of Grade Domains
3. C. Long Section Looking Northeast of Grade Domains

In addition, gold grade domains were constructed using three-dimensional implicit modelling along identified structural trends. Domains were created within the combined fault zone and within the hanging wall pillow basalt zone, based on a grade threshold of 0.1 g/t Au. The low-gold grade domains were modelled as an indicator interpolant above the selected cut-off, rather than implicitly modelled on grade. These domains were interpolated along steep structural trends along the fault orientation. Smaller domains supported by two or fewer drill holes were removed from the final domains. The grade domains are shown in Figure 14-29 in plan view (top right) and on a long section looking northeast (bottom). Three representative vertical cross sections are shown in Figure 14-29. Overall, the total volume of the mineralized zones within the Fault and Pillow Basalt zones has increased by 91% in comparison with 2018 model largely due to step out drilling since 2018, updates of the lithology domains and using the grade control data for contouring.

Figure 14-29: Vertical Sections: 1700NW, 1100NW and 575NW Showing Modelled Saramacca Lithology and Grade Domains in Relation to Drilling



To assess the quality of the mineralization domains, SRK coded the assay intervals into groups based on the grade threshold and their location inside/outside of the mineralized zones and analyzed the length distribution of the intervals constrained within the domains. Overall, the proportion of the non-mineralized intervals from both exploration and grade control datasets (<0.1 g/t Au) within the fault zone (domain 310, Table 14-43) and pillow basalt mineralized zones (domain 410, Table 14-43) is 17% and 20% of the total assay length, respectively. More than 96% of all the intervals above 2.0 g/t Au in the fault and pillow basalt lithology domain dataset were included into one of the two mineralized zones.

SRK also updated the weathering profile model based on the logged downhole data and core photographs. Only the laterite surface was updated using the three new intersections from the exploration RC drill holes, the rest of the weathering domains remain unchanged in comparison with 2020 model. SRK also developed the wireframes of duricrust rocks within the laterite weathering zone. The duricrust was developed as a continuous zone, closer to the top of the ridge where the movement of weathering material is unlikely, and as discontinuous boulders in the areas of the slopes of the ridge. The duricrust was also populated in the block model and was used in assigning the specific gravity values, but for the purpose of grade estimation, it was considered as a part of the laterite unit. Overall, the weathering profile includes duricrust, laterite, saprolite, transition zone, and fresh rock.

In addition to lithology, mineralization, and weathering zones, in 2020 SRK also developed the wireframes of graphitic schists which may negatively affect the mine and processing planning because of the high presence of graphite. The graphic schists domains were constructed as continuous zones subparallel to the Fault zone and were based on the lithology logs by merging the intervals logged as 'Graphitic schists' (high priority) and when the graphite was mentioned in the full text description (low priority). The conceptual wireframes were developed focusing on continuity of the zones and therefore included a large proportion of other intervals which was considered conservative. These zones, however, were not considered during resource estimation and have no impact on the estimation results. They also were not updated since 2020 model.

Table 14-43 provides a listing of the domains constructed for the Saramacca mineral resource model, including rock codes found within the GEMSTM project.

Table 14-43: Mineral Resource Domains with Rock Codes

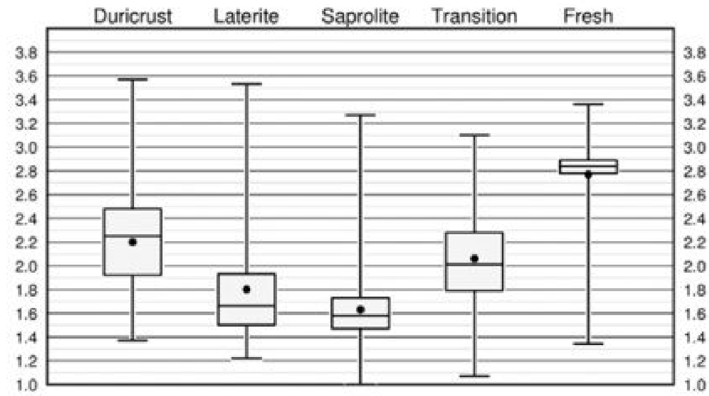
Domain	Rock Code
Duricrust	5
Laterite	10
Saprolite	20
Transition	30
Fresh	40
Massive Basalt	100
Amygdular Basalt	200
Combined FB&B Fault Zone	300
Fault Low Grade (LG)	310
Pillow Basalt	400
Pillow Basalt Low Grade (PB LG)	410
Pyroclastic	500

14.6.5 Specific Gravity

Specific gravity was measured at the RGM laboratory using a standard weight in water/weight in air methodology on core from complete sample intervals. The specific gravity database contains 7,286 measurements across all weathering zones, representing a 53% increase in specific gravity measurements since the September 2018 resource model. Figure 14-30 shows boxplots of the specific gravity measurements by weathering zone. Only 99 and 186 specific gravity measurements were taken on duricrust and laterite material, respectively. Note that the duricrust material was not recognized in Saramacca resource models before 2019, thus the number of specific gravity measurements previously (i.e., 2017 and 2018) noted in laterite actually reflected the combined duricrust and laterite materials.

As in previous years, the average specific gravity in saprolite is lower than the average specific gravity in laterite. For this reason, there is a risk that the laterite specific gravity is anomalously high and may contribute to higher tonnages if associated grades are higher than the reported gold cut-off grade. As the bulk of the mineralization lies in saprolite, transition and fresh, this risk is considered low.

Figure 14-30: BoxPlot of Specific Gravity by Weathering Zone



	Duricrust	Laterite	Saprolite	Transition	Fresh	
Number of data	99	186	1809	1705	3487	Number of data
Mean	2.2	1.8	1.63	2.06	2.77	Mean
Std. Dev.	0.42	0.43	0.27	0.36	0.25	Std. Dev.
Coef. of Var.	0.19	0.24	0.17	0.17	0.09	Coef. of Var.
Maximum	3.57	3.53	3.27	3.1	3.36	Maximum
Upper quartile	2.48	1.93	1.73	2.28	2.89	Upper quartile
Median	2.25	1.66	1.58	2.01	2.84	Median
Lower quartile	1.92	1.5	1.47	1.79	2.78	Lower quartile
Minimum	1.37	1.22	1.0	1.07	1.34	Minimum

14.6.6 Compositing, Statistics, and Capping

The total length of assayed intervals in the exploration dataset covered almost 99% of the total drilled length. For most of the short unsampled intervals in the exploration dataset, SRK replaced the assay values with the background value (0.0001 g/t Au). The absent intervals in the grade control dataset were considered to be non-sampled and therefore was excluded from the estimation. Long unsampled intervals from the following drill holes were excluded from the estimation dataset:

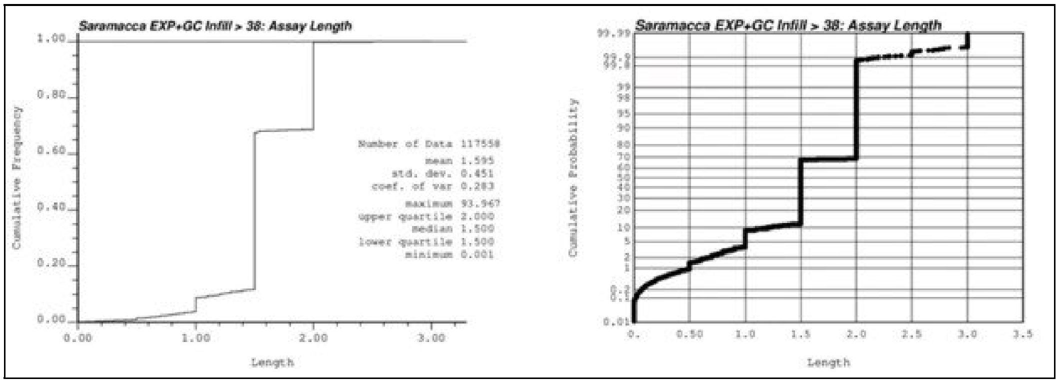
- SMD-0080B - sampled after 300 m, twin drill hole
- SMD-0067A - sampled after 100 m, twin drill hole
- SMMT18-007, SMMT18-008, SMMT18-009 - several long unsampled intervals in pillow basalts
- SMDD17-254 - not sampled
- SMDD16-045 - long unsampled interval in massive basalt
- SMRC18PDH-04B - not sampled
- GMDH-054 - Not sampled

Table 14-44 summarizes the SM assay statistics, tagged by mineralized domains. In August 2017, SRK evaluated the historical and recent drill hole databases for the initial Saramacca resource estimate and decided to combine these databases as conditioning data for grade estimation. This decision was supported via a statistical review of the data types, data density and a general impact on grade estimation. This decision was not revisited, and both databases were combined once again.

The number of assays from the exploration database available for the Saramacca mineral resource update is 101,891 samples, an increase of 67% from the 61,097 assays available for the September 2018 mineral resource model. Unlike past models, the 2021 resource database also includes recent grade control samples from infill holes and sampled beyond 38 m depth and after February 2020. Table 14-44 includes the combined exploration and grade control database used for estimation and shows that the total number of assays is 116,405 samples, increasing the resource database by 14% by including these grade control samples. SRK notes that most of the grade control assays are found in the massive basalt and pillow basalt zones. Grade control drilling in the massive basalt zone is associated with condemnation drilling. In general, a comparison of the average gold grade from these infill grade control intervals with those from the exploration database shows comparable grades, particularly in laterite and pillow basalt, where these grade control intervals are most abundant.

Figure 14-31 shows the distribution of assay lengths. Approximately 70% of assay samples measure 1.5 m or less, with approximately 60% of these assays sampled at 1.5 m. Virtually all assays are sampled in less than two metre intervals. SRK chose to composite at 1.5 m and avoid 'breaking' assays to form larger composites, and only kept the residual composite lengths of 0.75 m or more for resource estimation. This composite length choice is consistent with previous Saramacca models.

Figure 14-31: Assay Length Distribution for Resource Database



To further limit the influence of high gold grade outliers during grade estimation, SRK chose to cap composites, as these are the data used explicitly in estimation. Capping was performed by grade domain and by lithology domain. SRK relied on a combination of probability plots, decile analysis, and capping sensitivity plots. Separation of grade populations characterized by inflections in the probability plot or gaps in the high tail of the grade distribution were indicators of potential capping values. Decile analysis was then used to confirm the reasonableness of capped threshold. The chosen capped values, along with the uncapped and capped composite statistics are provided in Table 14-45. Figure 14-32 shows an example probability plot and capping sensitivity curve for the fault low grade (Fault LG) domain

Figure 14-32: Probability Plot (Left) and Capping Sensitivity Curve (Right) for Fault LG Domain

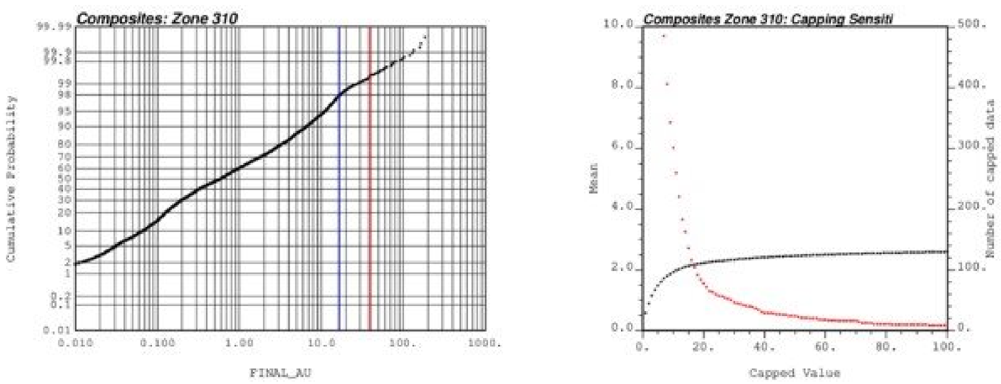


Table 14-44: Assay Statistics, for Exploration Only Data and Inclusive of Infill Grade Control holes

Domain	Zone	Exploration						Exploration + GC Infill Holes Deeper than 38 m						% Diff		
		Count	Mean	SD	Min	Med	Max	Count	Mean	SD	Min	Med	Max	Count	Mean	SD
Laterite	10	5,325	0.50	1.35	0.00	0.11	34.20	5,325	0.50	1.35	0.00	0.11	34.20	0%	0%	0%
Massive Basalt	100	14,871	0.03	0.22	0.00	0.01	11.05	22,478	0.03	0.18	0.00	0.01	11.05	51%	-7%	-17%
Amygdular Basalt	200	2,845	0.05	0.32	0.00	0.01	11.05	3,176	0.06	0.37	0.00	0.01	11.05	12%	8%	15%
Fault	300	6,363	0.04	0.16	0.00	0.02	10.46	6,978	0.04	0.15	0.00	0.02	10.46	10%	0%	-6%
Fault LG	310	4,779	2.88	10.90	0.00	0.53	487.00	5,256	2.72	10.31	0.00	0.49	487.00	10%	-5%	-5%
Pillow Basalt	400	48,361	0.04	0.74	0.00	0.01	111.40	53,012	0.04	0.70	0.00	0.01	111.40	10%	2%	-4%
PB LG	410	9,956	1.36	4.94	0.00	0.23	148.84	10,705	1.32	4.75	0.00	0.24	148.84	8%	-3%	-4%
Pyroclastic	500	9,391	0.02	0.17	0.00	0.01	14.16	9,475	0.02	0.17	0.00	0.01	14.16	1%	0%	0%

Table 14-45: Uncapped and Capped Composite Statistics

Domain	Zone	Uncapped Composites							Capped Composites							% Difference	
		No. Data	Mean	SD	Min	Med	Max	CoV	Cap Value	Percent	No. Cap	Mean	SD	Max	CoV	Mean	Var
Laterite	10	5,051	0.50	1.24	0.00	0.12	21.49	2.47	8	99.4%	29	0.48	1.06	8.00	2.20	-4%	-15%
Massive Basalt	100	24,895	0.03	0.17	0.00	0.01	10.53	6.42	3	99.9%	18	0.02	0.11	3.00	4.71	-8%	-32%
Amygdular Basalt	200	3,056	0.06	0.34	0.00	0.01	9.72	6.11	3	99.7%	9	0.05	0.23	3.00	4.59	-13%	-34%
Fault	300	6,814	0.04	0.14	0.00	0.02	6.32	3.78	-	100.0%	0	0.04	0.14	6.32	3.78	0%	0%
Fault LG	310	5,243	2.72	9.92	0.00	0.59	456.50	3.65	37	99.3%	37	2.40	4.84	37.00	2.02	-12%	-51%
Pillow Basalt	400	55,712	0.04	0.59	0.00	0.01	75.38	13.74	10	100.0%	15	0.04	0.25	10.00	6.63	-12%	-57%
PB LG	410	10,862	1.32	4.45	0.00	0.27	148.84	3.38	35	99.7%	32	1.25	3.30	35.00	2.64	-5%	-26%
Pyroclastic	500	11,940	0.02	0.16	0.00	0.01	14.16	8.42	1.5	100.0%	5	0.02	0.06	1.50	3.29	-11%	-65%

Despite grade capping, the coefficient of variation (CoV) in the fault and pillow basalt zones remain significantly high, suggesting that further controls on high grade composites may be required during grade estimation. A similar observation can be made for the three un-mineralized domains, massive and amygdular basalt, and the pyroclastic zone.

Specific gravity was also estimated in the block model, based on the weathering profile. Unlike grade composites, which are 1.5 m lengths, specific gravity data are only 10 cm in length and are not collected continuously down the core. Compositing of specific gravity was not possible, and given the small support, estimation parameters for specific gravity were chosen to yield a smooth interpolation result. Specific gravity data were also capped, by weathering zone, to avoid any extreme low and/or high values for estimation. Chosen cap values for specific gravity are provided in Table 14-46. The impact of capping on the average specific gravity was less than 1% for all weathering zones.

Table 14-46: Cap Values for Specific Gravity

Weathering Zone	Mean	SD	Minimum	Maximum	CV	No. Capped
Duricrust	2.20	0.41	1.37	3.10	0.19	2
Laterite	1.79	0.41	1.22	3.10	0.23	3
Saprolite	1.63	0.27	1.20	3.10	0.16	26
Transition	2.06	0.35	1.40	3.00	0.17	17
Fresh	2.77	0.25	1.70	3.20	0.09	25

14.6.7 Variography

SRK used the Geostatistical Software Library (GSLib, Deutsch and Journel, 1998) to calculate and model gold variograms for the mineralized domains (Table 14-47). For each domain, SRK assessed three different spatial metrics: (1) traditional semi variogram of gold, (2) correlogram of gold, and (3) traditional semi variogram of normal scores of gold. Downhole variograms were calculated to determine the nugget effect. Figure 14-33 shows an example variogram model for the Fault LG domain.

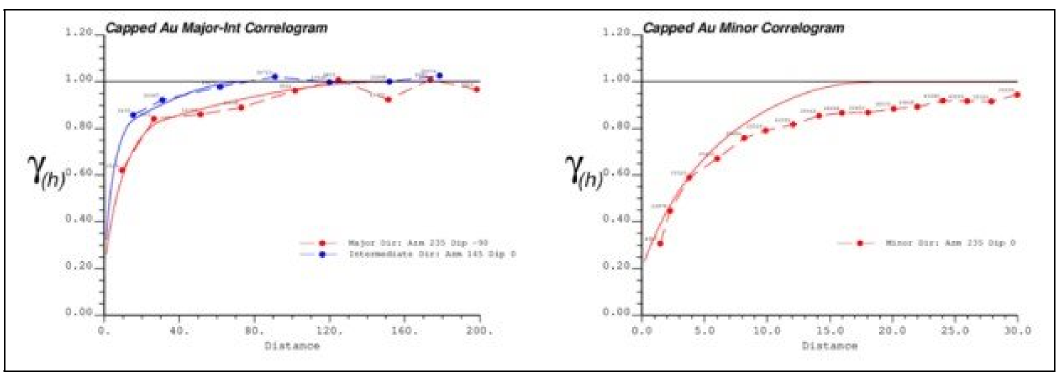
Table 14-47: Gold Variograms by Domain

Domain	Rock Code	GEMS Rotation (ADA)			Nugget	Variogram Model					
		Azm	Dip	Azm		Str. No.[1]	Type	CC[2]	X Range	Y Range	Z Range
Laterite	10	0	0	0	0.10	1	Spherical	0.42	35	35	4.5
						2	Spherical	0.48	35	35	20
Fault	300	235	-90	145	0.20	1	Exponential	0.45	40	35	15
						2	Spherical	0.15	150	35	25
						3	Spherical	0.20	150	110	25
Fault LG	310	235	-90	145	0.20	1	Exponential	0.40	22	10	10
						2	Spherical	0.17	30	15	18
						3	Spherical	0.23	150	75	18
Pillow Basalt	400	235	-90	145	0.20	1	Exponential	0.45	20	15	6
						2	Spherical	0.20	30	30	8
						3	Spherical	0.15	80	110	30
Pillow Basalt LG	410	235	-90	145	0.20	1	Exponential	0.45	10	55	5
						2	Spherical	0.21	80	55	10
						3	Spherical	0.14	100	55	15

Notes:

1. Str. No. = structure number
2. CC = variance contribution

Figure 14-33: Gold Variogram for Fault Low Grade (310) Zone



14.6.8 Block Model Parameters

In discussions with IAMGOLD, the block size was adjusted to 5.0 m x 8.0 m x8.0 m, with the eight metre dimension parallel to the strike direction and an eight metre vertical dimension. A rotated block model was created using GEMS™, with a rotation angle of 35°. SRK based the block model coordinates on the local UTM grid (Zone 21N) and elevated the model by 500 m vertically to ensure positive pit elevations. Table 14-48 summarizes the block model definition. SRK populated grades for each of the domains into a whole block model.

Table 14-48: Saramacca GEMS™ Block Model Definition

	Block Size (m)	Origin (m)	Block Count
X	5	678,825.63	330
Y	8	542,402.00	525
Z	8	975.00	133

14.6.9 Estimation

The block model was populated with estimated gold grades using OK in the mineralized domains and applying up to three estimation runs with progressively relaxed search ellipsoids and data requirements. The three un-mineralized domains (massive basalt, amygdular basalt, and pyroclastic zone) and specific gravity within each weathering zone were estimated using an ID^2 estimator. Table 14-49 summarizes the data requirements for gold grade estimation, while the last row provides the data requirements for specific gravity. The first estimation pass in the mineralized domains is based on an octant search with search radii up to the variogram range. For the fault mineralized (LG) zone, the first pass search was based on half the variogram range. In general, second and third pass estimations use an ellipsoidal search with the search radii expanded between one and two times the variogram range. The estimation ellipse ranges and orientations are based on the variogram models developed for the various domains within the deposit. In all cases, gold and specific gravity were estimated using a hard boundary approach.

SRK chose to limit the influence of high grade composites during the estimation where required (see Table 14-49). In generally extensive domains like the massive basalt, amygdular basalt and pyroclastic zones, this was controlled in all passes. In the mineralized domains, a high grade limited radius was imposed in the third pass, which should affect areas of sparse drilling wherein the risk for grade smearing may be high.

Table 14-49: Estimation Parameters for Gold and Specific Gravity (last row)

Domain	Method	Est. Pass	Search Type	No. Data		Max Comp per Hole	Search Ellipse			Octant Parameters		HG Limited Radii	
				Min	Max		Svx* (m)	Svy* (m)	Svz* (m)	Min Num Octants	Max Comp per Oct	Radii (m)	Grade (g/t Au)
Laterite	OK	1	Ellipsoidal	5	9	3	35	35	20	-	-	-	-
		2	Ellipsoidal	4	12	3	50	50	30	-	-	-	-
		3	Ellipsoidal	1	15	-	100	100	40	-	-	50x50x30	5
Fault	OK	1	Octant	5	9	3	80	50	15	3	5	-	-
		2	Ellipsoidal	4	12	3	150	110	25	-	-	-	-
		3	Ellipsoidal	1	15	-	225	165	35	-	-	80x50x15	3
Fault LG	OK	1	Octant	5	9	3	60	30	15	3	5	-	-
		2	Ellipsoidal	4	12	3	150	75	25	-	-	-	-
		3	Ellipsoidal	1	15	-	225	95	40	-	-	150x75x20	16
Pillow Basalt	OK	1	Octant	5	9	3	80	110	30	3	5	-	-
		2	Ellipsoidal	4	12	3	150	150	30	-	-	80x110x30	3.5
		3	Ellipsoidal	1	15	-	225	225	50	-	-	80x110x30	3.5
Pillow Basalt LG	OK	1	Octant	5	9	3	100	55	15	3	5	-	-
		2	Ellipsoidal	4	12	3	150	80	20	-	-	-	-
		3	Ellipsoidal	1	15	-	250	130	40	-	-	150x80x20	15
Massive and Amygdular Basalt and Pyroclastic	ID^2	1	Octant	4	12	3	50	50	15	3	5	20x20x20	1.5
		2	Ellipsoidal	1	15	-	100	100	30	-	-	20x20x20	1.5
Specific Gravity by Weathering Zone	ID^2	1	Ellipsoidal	5	20	-	250	250	25	-	-	-	-
		2	Ellipsoidal	5	40	-	500	500	50	-	-	-	-

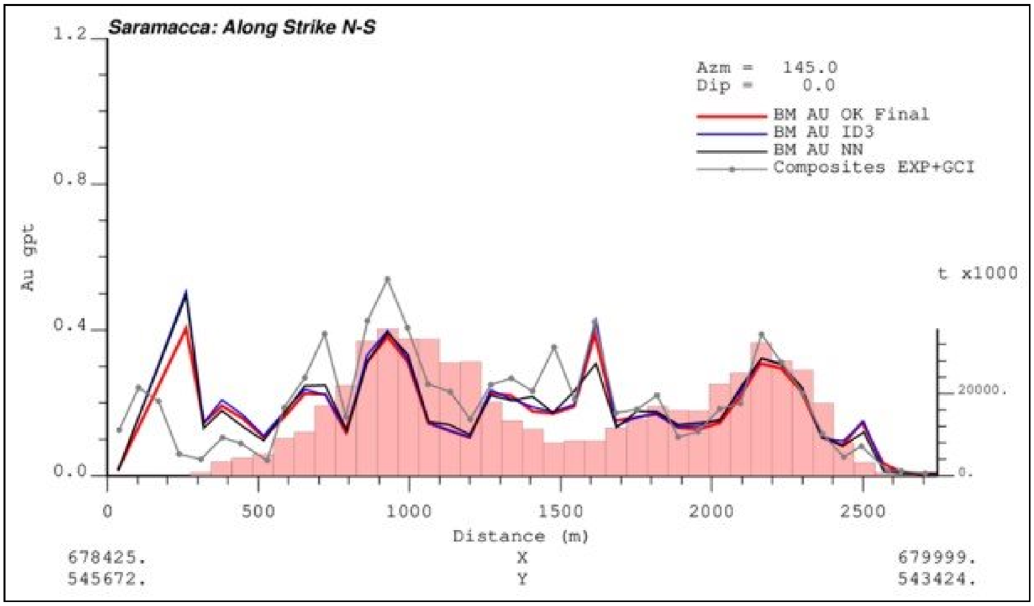
14.6.10 Block Model Validation

SRK validated the block model using a visual comparison of block estimates and informing composites, statistical comparisons between composites and block model distributions, and statistical comparisons between OK estimates and alternate estimators at zero cut-offs.

SRK generated block estimates using ID^3 and NN. SRK compared the ID^3 model to the OK estimate at zero cut-off grade for each zone and observed differences in average grade within +/- 4%. SRK also generated block estimates using only the exploration data and found the average grade at zero cut-off grade to be within 0.5% difference.

A swath plot showing the (1) OK model, (2) ID^3 model, (3) clustered composites, and (4) NN declustered composites within the 2018 resource pit, is provided in Figure 14-34. This shows generally good agreement between the various block models and the NN declustered data. As expected, clustered composite data is more variable than all other cases.

Figure 14-34: Swath Plot of Block Models, Oriented Along Strike within 2018 BBA Pit

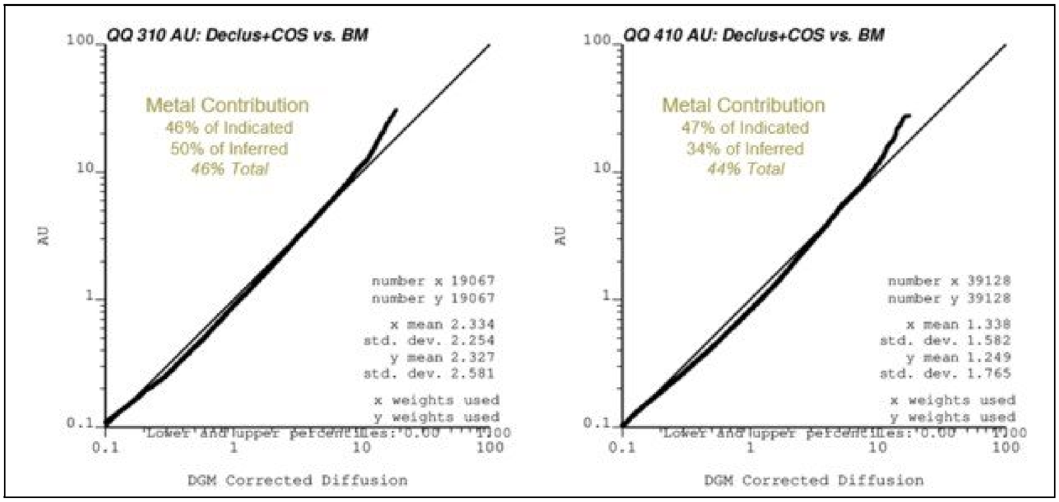


Notes:

1. Histogram corresponds to block model tonnage along the swath

SRK also compared the OK block model distribution with the NN declustered, change-of-support corrected distribution of the informing composites for the grade domains and within the fault and pillow basalt domains. Declustering mitigates the influence of preferential sampling of drill hole data, this often results in a distribution of composites whose mean statistic is often comparable to that of the estimated model. Further, a change-of-support correction is applied to account for the volume difference between the composite scale and the final block volume scale. A quantile-quantile plot and a grade-tonnage curve were plotted to compare the declustered, change-of-support corrected distribution to the estimated block model grades. Figure 14-35 shows the quantile-quantile plot for the fault low grade and pillow basalt low grade domains, which comprise the majority of the resources within the 2018 resource pit. In general, the OK estimate corresponds well to the declustered, change of-support corrected distributions.

Figure 14-35: Comparison of Quantile-Quantile Plot for Block Model Grades and Declustered and Change of Support Corrected Distribution for Fault Low Grade (left) and Pillow Basalt Low Grade (right).



Notes:

1. Metal contributions are calculated within the 2018 BBA pit and based on preliminary classification.

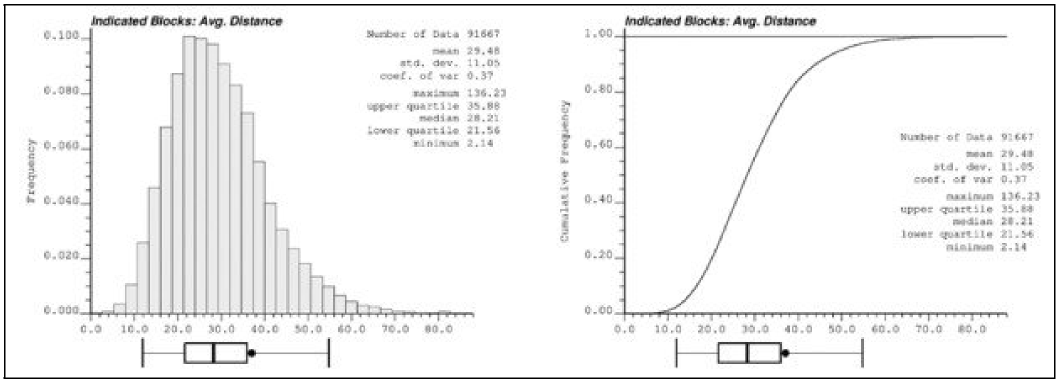
14.6.11 Mineral Resource Classification

The block classification strategy considers drill hole spacing, geologic confidence and continuity of categories. SRK considers that there are no measured blocks within the SM deposit. To differentiate between Indicated and Inferred, a separate block model was created solely to assist with block classification using an estimation run. Criteria used for block classification are:

- Indicated: Blocks estimated within a 40 m x 40 m x 40 m search radius, using a minimum of three drill holes and belonging to Fault, Fault LG, Fault HG, Pillow Basalt LG, and Laterite domains. This nominally corresponds to a drill hole spacing of 50 m to 60 m. The mean average distance of informing composites for this category is within 30 m (Figure 14-36).

- Inferred: All blocks not classified as Indicated, and any block with an estimated grade with a range of up to two times the variogram range.

Figure 14-36: Composites for Indicated Blocks



SRK examined the classification visually by inspecting sections and plans through the block model. SRK concludes that the material classified as Indicated reflects estimates made with a moderate level of confidence as specified in CIM (2014) definitions, and all other material is estimated at a lower confidence level. Additionally, SRK applied a post-smoothing filter on the classified material to ensure continuity within the classification categories.

14.6.12 Mineral Resource Reporting

CIM (2014) definitions define a Mineral Resource as:

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

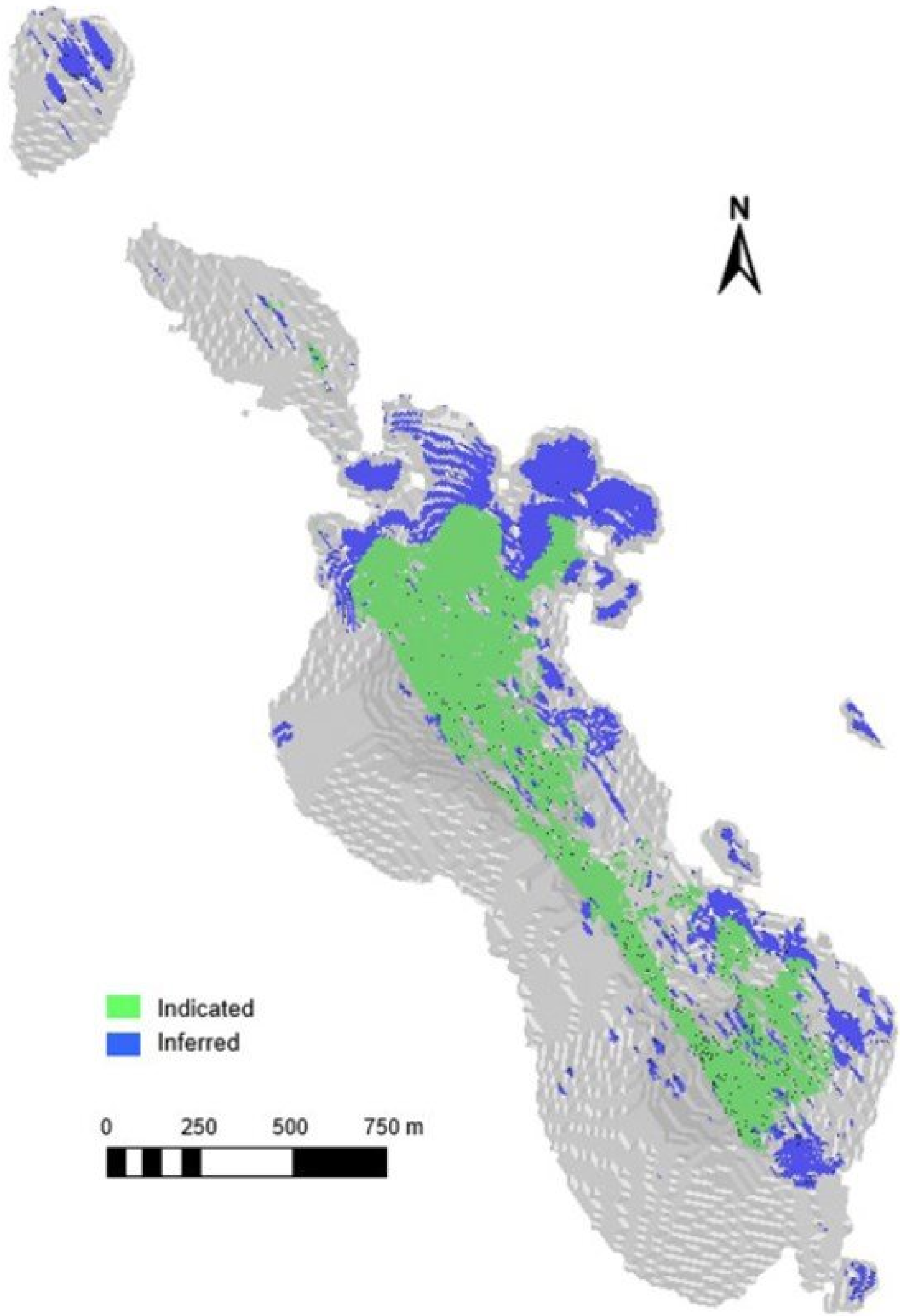
The reasonable prospect for eventual economic extraction" requirement generally implies that quantity and grade estimates meet certain economic thresholds, and that Mineral Resources are reported at an appropriate cut-off grade that considers extraction scenarios and processing recovery. SRK considers that the SM deposit is primarily amenable to open pit extraction. To assist with determining which portions of the gold deposits show "reasonable prospect for eventual economic extraction" from an open pit and to assist with selecting reporting assumptions, RGM mining engineers developed a conceptual open pit shell using corporately approved mining, processing, and G&A costs. Other pit optimization parameters include:

- Metallurgical gold recovery of 92% for laterite, 91% for saprolite, 81% for transition and 74% for fresh rock.
- Gold price of US$1,500/oz Au.

After review of optimization results, and through discussions with IAMGOLD, SRK considers that it is reasonable to report as open pit Mineral Resource those classified blocks located within the conceptual pit shell above a cut-off grade of 0.25 g/t Au for laterite and saprolite, 0.34 g/t Au for transition material, and 0.54 g/t Au for fresh rock material (see Figure 14-37).

No underground Mineral Resource is reported.

Figure 14-37: Plan Showing Estimated Blocks above 0.25 g/t Au Relative to the Conceptual



SRK is satisfied that the mineral resources were estimated in conformity with the widely accepted CIM Estimation of Mineral Resource and Mineral Reserve Best Practices Guidelines (November 2019). The mineral resources may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent mineral resource estimates. The mineral resources may also be affected by subsequent assessments of mining, environmental, processing, permitting, taxation, socio-economic, and other factors. The Saramacca Mineral Resource estimate presented in Table 14-50 was prepared by Dr. Oy Leuangthong, Peng and Dr. Aleksandr Mitrofanov, P.Geo. Dr. Leuangthong and Dr. Mitrofanov are independent qualified persons as this term is defined in National Instrument 43-101.

The effective date of the Saramacca Mineral Resource estimate is December 31, 2021.

Table 14-50: Saramacca Mineral Resource Estimate as of December 31, 2021

Category	Weathering Zone	Cut-Off Grade (g/t Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
Indicated	Laterite	0.25	1,718	0.81	45
	Saprolite	0.25	7,643	1.91	470
	Transition	0.34	5,583	2.20	395
	Fresh Rock	0.54	7,723	2.40	597
Total Indicated	-	-	22,667	2.07	1,507
Inferred	Laterite	0.25	2,724	0.67	59
	Saprolite	0.25	1,357	0.97	42
	Transition	0.34	1,144	1.60	59
	Fresh Rock	0.54	741	3.05	73
Total Inferred	-	-	5,966	1.21	233

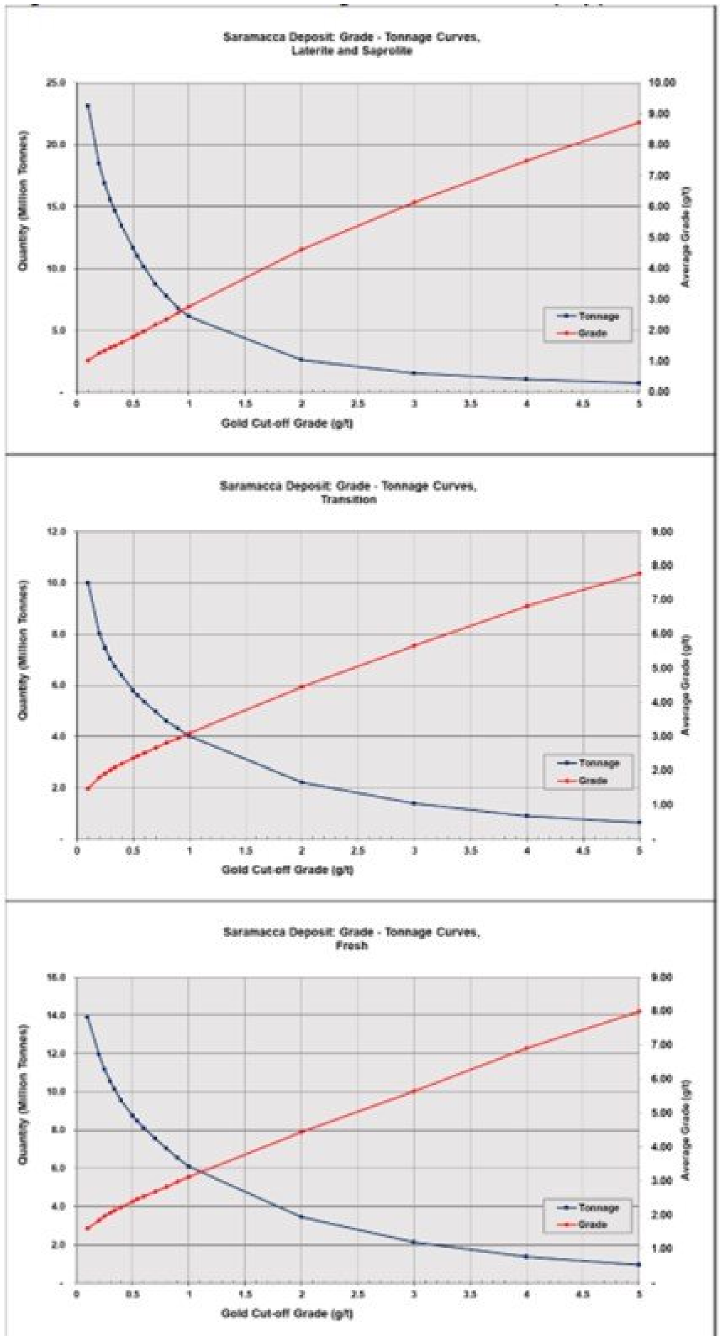
Notes:

1. Mineral resources are not mineral reserves and have not demonstrated economic viability.
2. All figures have been rounded to reflect the relative accuracy of the estimates.
3. Reported at open pit resource cut-off grades of 0.25 g/t Au for laterite and saprolite, 0.34 g/t Au for transition and 0.54 g/ Au for fresh.
4. Reported within a conceptual open pit shell optimized at a gold price of US$1,500/oz Au and assuming metallurgical recoveries of 92% for laterite, 91% for saprolite, 81% for transition and 74% for fresh.

14.6.13 Grade Sensitivity Analysis

The Saramacca Mineral Resources are fairly sensitive to the selection of the reporting cut-off grade. To illustrate this sensitivity, grade tonnage curves are presented in Figure 14-38.

Figure 14-38: Global Grade Tonnage Curves - Oxide (TOP) Transitional (MED) and Fresh Material (BOTTOM)



14.6.14 Reconciliation with the 2018 Mineral Resource Estimate

For comparison, the September 13, 2018, Mineral Resource estimate, generated by SRK, is presented in Table 14-51. Table 14-52 shows the reconciliation between the September 13, 2018, and the December 31, 2021, mineral resource estimates.

Since the 2018 mineral resource model, IAMGOLD drilled an additional 128-DD holes (28,461 m) and 316 RC holes (40,908 m), representing an increase of 36% DD holes and 89% RC holes. While some of these drill holes represent infill drilling, a large portion is comprised of step-out drilling to the northwest following the Faya Bergi and Brokolonko faults, and also to the east areas of the deposit. As a result, the lithological and mineralogical domains were extended approximately one kilometre to the northwest, and 250 m at depth since 2018.

Additionally, grade control drilling began in 2019, SRK used the grade data to support delineation of mineralized zones and used only those holes drilled post February 2020 and deeper than 38 m (i.e., holes with similar analytical QC procedures as the exploration drilling) for resource estimation. This contributes an additional 15% to the mineral resource database.

Between 2018 and 2021, the mineralization interpretation has expanded to include the step-out drilled areas to the northwest and also at depth. The 2021 mineralization domains are updates of the remodeling efforts of the geological and resource domains in 2019 and 2020 and reflect the relogging efforts of the IAMGOLD project geologists in 2019. The domains are considered to be more continuous geologically. In 2018, both the fault and pillow basalt zones were characterized by low- and high grade domains interior to the lithology zones. The high grade domains have been excluded from the interpretation since 2019.

Since 2019, 4.8 Mt and 151,000 oz Au have been mined at SM. The slight reduction in indicated quantities is partially attributed to production and also increased cut-off grades in transition and fresh rock. The Inferred tonnage has decreased significantly, but this is accompanied by a significant increase in grade. This reflects a combination of factors: upgrading of some inferred areas to Indicated over this three year period, geologic re-interpretation, and increased reporting cut-off grades in transition and fresh rock, which also reflects slight reductions in metallurgical recovery. SRK understands that mining costs have also increased over this period, which also contributes to the reporting cut-off grade.

Overall, the combination of additional drilling, updated models and updated economics result in 15% less indicated ounces and 15% less inferred ounces.

Table 14-51: Saramacca Mineral Resource Estimate as of September 13, 2018

Category	Weathering Zone	Cut-off Grade (g/t Au)	Tonnage (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
Indicated	Laterite	0.25	4,616	1	130
	Saprolite	0.25	7,226	2	418
	Transition	0.3	5,556	2	383
	Fresh	0.5	10,541	2	833
Total Indicated			27,938	2	1,763
Inferred	Laterite	0.25	1,960	1	33
	Saprolite	0.25	5,157	1	84
	Transition	0.3	2,261	1	52
	Fresh	0.5	2,446	1	105
Total Inferred			11,825	1	273

Notes:

1. Mineral resources are not mineral reserves and have not demonstrated economic viability.
2. All figures have been rounded to reflect the relative accuracy of the estimates.
3. Reported at open pit resource cut-off grades of 0.25 g/t Au for laterite and saprolite. 0.30 g/t Au for transition and 0.50 g/t Au for fresh.
4. Reported within a conceptual open pit shell optimized at a gold price of US$ 1,500/oz Au and assuming metallurgical recoveries of 94 % for laterite, 91 % for saprolite, 87 % for transition and 73 % for fresh.

Table 14-52: Comparison between 2018 and 2021 Saramacca Mineral Resource Estimates

Classification	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
September 2018			
Indicated	27,938	1.96	1,763
Inferred	11,825	0.72	273
December 2021			
Indicated	22,667	2.07	1,507
Inferred	5,966	1.21	233
Percentage Difference			
Indicated	-19%	6%	-15%
Inferred	-50%	68%	-15%

Notes:

1. 2018 Mineral resource estimate reported between 2018 topography surface and 2018 pit, reported at cut-off grade of 0.25 g/t Au for laterite and saprolite, 0.30 g/t Au for transition, and 0.50 g/ Au for fresh rock.
2. 2021 quantities reported between December 2021 depleted surface and 2021 pit, reported at cut-off grade of 0.25 g/t Au for laterite and saprolite, 0.34 g/t Au for transition, and 0.54 g/t Au for fresh rock.

14.7 Consolidated Mineral Resource Estimate

The Rosebel and Saramacca Mineral Resources estimate as of December 31, 2021 (on a 100% basis using a US$1,500/oz Au price and including Mineral Reserves) is comprised of Measured and Indicated Mineral Resources totalling 174 Mt at an average grade of 1.1 g/t Au for 6.3 Moz Au. In addition, Inferred Mineral Resources total 22 Mt at an average grade of 1.0 g/t Au for 0.7 Moz Au (Table 14-53).

Table 14-53: Rosebel and Saramacca Mineral Resources Estimate as of December 31, 2021

Classification	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au) 100% Basis	Attributable Contained Metal (000 oz Au)
Rosebel				
Measured	10,736	0.6	223	212
Indicated	139,813	1.0	4,567	4,339
Inferred	16,051	0.9	455	432
Saramacca				
Measured	499	0.5	8	6
Indicated	22,667	2.1	1,507	1,002
Inferred	5,966	1.2	233	155
Rosebel and Saramacca				
Measured and Indicated	173,715	1.1	6,305	5,558
Inferred	22,017	1.0	687	587

Notes:

1. CIM (2014) definitions were followed for Mineral Resources.
2. Attributable ounces have been calculated as 95% for Rosebel and 66.5% for Saramacca.
3. Mineral Resources are estimated at a cut-off grade which varies between 0.18 g/t Au to 0.54 g/t Au, depending on the material and pit. Mineral Resources are estimated using an average long term gold price of US$1,500/oz Au.
4. Mineral Resources are constrained by Whittle optimized pit shells.
5. A minimum mining width of five metres was used.
6. Bulk density was estimated by OK by weathering type except for PC, RB, and MA, which utilizes a mean value based on density data.
7. Mineral Resources are inclusive of Mineral Reserves.
8. Mineral Resources that are not Mineral Reserves do not demonstrate economic viability.
9. Numbers may not add due to rounding.

14.8 Comparison with Previous Estimates

Table 14-54 compares the December 31, 2020 resource estimates for Rosebel and Saramacca with the current resource estimates. The Rosebel and Saramacca Measured and Indicated contained ounces decreased by 39% (3.1 Moz Au) and 10% (160,000 oz Au), respectively, from the end of 2020. The decrease in Rosebel Mineral Resources is attributed to 2021 production depletion, a revised optimization methodology incorporating fixed cost distribution (versus dynamic cost accounting used previously), changes to the cost model which translated into an increase in mining, processing, and G&A costs, an updated resource block model incorporating the results of infill and conversion drilling programs completed in 2021, and applying a different block model interpolation methodology (OK versus Uniform Conditioning).

The net result was a reduction in both the size and depth of resource and reserve pit shells, notably for RH and PC, with some mineralized zones excluded from the pit shells (at US$1,500/oz Au). Under different future financial conditions and commodity price assumptions, however, these excluded mineralized zones could re-enter the mine plan.

Table 14-54: Comparison of 2020 versus 2021 Rosebel and Saramacca Resource Estimates

Concession	December 31, 2020			December 31, 2021			Percent Difference		
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (%)	Grade (%)	Contained Metal (%)
Rosebel									
Measured	30,979	0.6	626	10,736	0.6	223	-65%	3%	-64%
Indicated	242,789	0.9	7,278	139,813	1.0	4,567	-42%	9%	-37%
Measured and Indicated	273,768	0.9	7,903	150,550	1.0	4,790	-45%	10%	-39%
Inferred	62,889	0.9	1,766	16,051	0.9	455	-74%	1%	-74%
Saramacca									
Measured	627	0.5	11	499	0.5	8	-20%	-4%	-23%
Indicated	25,108	2.1	1,664	22,667	2.1	1,507	-10%	1%	-9%
Measured and Indicated	25,735	2.0	1,675	23,166	2.0	1,515	-10%	1%	-10%
Inferred	11,079	0.7	259	5,966	1.2	233	-46%	67%	-10%
Rosebel and Saramacca									
Measured	31,606	0.6	636	11,235	0.6	232	-64%	2%	-64%
Indicated	267,897	1.0	8,941	162,481	1.2	6,074	-39%	12%	-32%
Measured and Indicated	299,503	1.0	9,578	173,716	1.1	6,305	-42%	14%	-34%
Inferred	73,968	0.9	2,025	22,017	1.0	687	-70%	14%	-66%

15 MINERAL RESERVE ESTIMATE

15.1 Summary

The current Rosebel and Saramacca Mineral Reserve estimate is summarized in Table 15-1. The Mineral Reserve estimate was prepared by RGM.

Table 15-1: Rosebel and Saramacca Mineral Reserve Estimate as of December 31, 2021

Classification	Tonnes (000 t)	Grade (g/t Au)	Contained Metal 100% Basis (000 oz Au)	Attributable Contained Metal (000 oz Au)
Rosebel				
Proven Reserves	1,161	1.4	51	48
Proven Stockpiles	9,667	0.5	168	160
Total Proven Reserves	10,828	0.6	219	208
Probable Reserves	75,974	1.0	2,377	2,258
Total Proven and Probable	86,802	0.9	2,595	2,466
Saramacca				
Proven Reserves	-	-	-	-
Proven Stockpiles	499	0.5	8	6
Total Proven Reserves	499	0.5	8	6
Probable Reserves	21,863	1.7	1,225	814
Total Proven and Probable	22,362	1.7	1,233	820
Rosebel and Saramacca				
Total Proven	11,327	0.6	227	213
Total Probable	97,837	1.1	3,602	3,073
Total Proven and Probable	109,164	1.1	3,829	3,286

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
2. Attributable ounces calculated as 95% for Rosebel and 66.5% for Saramacca. Mineral Reserves include material from the Rosebel and Saramacca concessions.
3. Mineral Reserves were estimated assuming open pit mining methods using an average long term gold price of US$1,300/oz Au.
4. Mineral Reserves are estimated at a cut-off grade of 0.23 g/t Au to 0.67 g/t Au, depending on the material and pit.
5. Mineral Reserves include dilution between 3% and 21% at a grade of 0.1 g/t Au to 0.29 g/t Au.
6. Mineral Reserves include a mining recovery between 94% and 99% depending on the zone.
7. Average CIL process recovery is estimated at 89.2%.

8. Mining cost: US$2.70/t mined. Processing costs: US$10.51/t milled (inclusive of power). G&A costs of US$4.37/t milled.
9. Mineral Reserves are based on survey at the end of November 2021 projected to December 31, 2021.
10. Numbers may not add due to rounding.

RGM is not aware of any known mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate. The mine design and Mineral Reserve estimate have been completed to a level appropriate for a FS. The Mineral Reserve estimate, stated herein, is consistent with CIM (2014) definitions and is suitable for public reporting. As such, the Mineral Reserves are based on Measured and Indicated Mineral Resources, and do not include any Inferred Mineral Resources.

15.2 Reserve Block Models

The December 31, 2021, Mineral Reserve estimate is based on updated reserve models from 2021. All reserve block models listed in Table 15-2 were updated by WSP and SRK.

Table 15-2: Reserve Block Models

Pit/Deposit	2021 Reserve Block Models
KH	JZKH_LOM2021_SRK_20210319
JZ	JZKH_LOM2021_SRK_20210319
PC	PC_LOM2021_WSP_V5
RB	RB_LOM2021_WSP_V4
RH	RH_LOM2021_SRK_20210413
MA	MA_LOM2021_WSP_V1.3
SM	SM_LOM2021_SRK_20210403

15.3 Dilution

The Mineral Reserve estimate includes mining dilution based on rock type, the shape of the mineralized ore zone and the geological dilution included in the initial resource model. The dilution calculation is a two step approach based on scripts.

- The first step simulates material movement due to blasting by transferring material from a block to surrounding blocks.
- The second step looks at the block position within the ore body and its neighbouring blocks diluted grade to determine each block destination as ore or waste.

As described, the dilution, in relation to the ore type, has been incorporated into the pit optimization and mine planning process.

15.4 Mining Losses

Mining loss is determined along the same process as dilution, as presented in Table 15-3.

Table 15-3: Dilution and Ore Loss Summary by Deposit

Deposit	Dilution	Ore Loss
SM	21 %	1 %
PC	3 %	2 %
RH	19 %	6 %
RB	2 %	6 %
MA	2 %	2 %
JZ	17 %	4 %
KH	18 %	2 %

Notes:

1. Dilution is the percentage of material added to initial resources.
2. Ore loss is the percentage of gold loss versus the initial resource.

15.5 Mine Optimization Methodology

RGM uses a standard optimization approach to determine pit shells. Optimizations were completed in Whittle Four-X software (Whittle). The software accounts for the estimated revenues and costs associated with mining each block while respecting slope angles.

The selection of the final pit limits was based on a combination of quantitative and qualitative factors, such as total contained ounces, minimum mining width, strip ratio, discounted cash flows, and proximity to local infrastructure/villages, etc.

An optimization cost model was developed based on the RGM 2020 budget accounting for mining cost, processing cost, G&A cost, sustaining cost and capital cost.

Based on the selected final pit shell and its concentric shells, a series of engineered final and intermediate pit designs, for each deposit, was completed incorporating operational and geotechnical parameters (berms, geotechnical benches, haul roads, etc.).

These designs formed the basis of the LOMP. The results of the LOMP were used to calculate operational requirements, such as equipment and manpower. G&A costs are adjusted accordingly, and capital costs are determined separately based on established strategic performance objectives.

15.6 Cut-Off Grade

Metal prices used for Mineral Reserves are based on consensus, long term forecasts from banks, financial institutions, and other sources. For Mineral Resources, metal prices used are slightly higher than those for Mineral Reserves.

IAMGOLD applies a flat gold price assumption for all of its sites over the LOM. The gold price assumption for estimating the Rosebel and Saramacca Mineral Reserves at December 31, 2021, is US$1,300/oz Au. Cost assumptions such as fuel price, exchange rates, and royalty rates have also been included and are summarized in Table 15-4.

Table 15-4: Pit Optimization Cost and Revenue Assumptions

Economic Parameters	Unit	Value
Gold price (P)	US$/oz Au	1,300
Long term oil price	US$/bbl	60
SRD exchange rate	SRD/USD	7.25
Transport and refining cost	US$/oz Au	3
Site diesel price	US$/L	0.63
Site Heavy Fuel Oil (HFO) price	US$/L	0.78
Power cost	US$/kWh	0.13
Production Royalty (2.25%)	US$/oz Au	32.5
Cash Royalty (6.5%)	US$/oz Au	52.35
Discount rate	%	6

RGM uses a destination Mineral Reserves methodology by coding the final destination of each block for LOM planning. The final destination for each block takes into consideration the block grade and the grade of the surroundings blocks. Due to the use of a new methodology RGM decided to implement a conservative approach and calculated the initial cut-off grade (prior to the application of the destination script) with a gold price of US$1,200/oz Au.

Several sensitivities were performed to evaluate the impact of the gold price used for cut-off grade calculation on the final destination of the blocks. The results concluded that a gold price increase of US$75/oz Au increased the Mineral Reserves by 1.4% within the designed pits, this was considered negligible and US$1,200/oz Au was maintained for the cut-off calculation.

The summary of the cut-off grade is presented in Table 15-5. Table 15-6 summarizes the pit optimization parameters by pit.

Table 15-5: Summary of 2021 Pit Optimization COGS at US$1,200/oz Au

COG by Pit	Units	Saprolite	Transition	Rock
JZ	g/t Au	0.23	0.30	0.47
KH	g/t Au	0.23	0.30	0.45
MA	g/t Au	0.24	0.31	0.47
PC	g/t Au	0.23	0.30	0.47
RB	g/t Au	0.25	0.32	0.49
RH	g/t Au	0.23	0.31	0.48
SM	g/t Au	0.31	0.43	0.67

Table 15-6: Summary of Pit Optimization Parameters

Parameters	Units	Rosebel Pits			Saramacca Pit		
Rock Type		Saprolite	Transition	Rock	Saprolite	Transition	Rock
Metallurgical	%	91%	91%	91%	91%	81%	74%
Processing Cost	US$/t	6.39	7.68	12.09	6.39	7.68	12.09
Mining Dilution	%	by block	by block	by block	by block	by block	by block
Ore Haulage	US$/t	0.24 - 0.93	0.21-0.81	0.2-0.78	2.79	2.79	2.79
Ore Feed	US$/t	0.26	0.26	0.26	0.26	0.26	0.26
G&A Cost	US$/t	2.18	3.01	4.13	2.18	3.01	4.13
Ore Based Cost	US$/t	9.11 - 9.76	11.16-11.77	16.22-17.31	11.62	13.7	19.27
Reference Mining Cost[1]	US$/t mined	2.3 - 2.47	2.54 - 2.69	2.53 - 2.67	2.12	2.37	2.35

Note:

1. Does not include incremental cost for depth.

15.7 Pit Sloping Designs

15.7.1 Rosebel

RGM has recently increased the bench heights in all pits to nine metres in order to optimize both productivity and costs.

All pit design wall profiles are based on the main three weathering profiles saprolite, transition, and rock.

Slope designs have been based on an extensive geotechnical drilling program carried out in 2013, 2014, and 2017 which defined the domains in each deposit. In addition to the weathering domains, sectors were developed for each pit based on structural rock mass characteristics.

Five Rosebel pits were targeted by the field investigation, PC, RH, MA, RB, and JZ. The design parameters were developed by SRK.

Between 2014 and 2021 pit slope designs have undergone slight modifications to the original parameters to accommodate modifications to the design Bench Face Angle (BFA) for certain sections.

15.7.2 Saramacca

The SM deposit is characterized by a significant thickness of saprolite that is depressed toward the mineralization located through the centre of the SM pit. The geotechnical variability of the materials and the weathering profile that are to be exposed in the pit slopes result in challenging mining and stability conditions.

SRK conducted pit slope geotechnical and hydrogeological investigations comprising 12 DD holes, testing, and instrumentation installations. The field investigation work was supported with a full geotechnical review of exploration DD holes to evaluate the rock mass quality and SM deposit structural geology. A 3D structural geological model was developed with the field investigation and core review results.

The following hydrogeological considerations were included in the SM pit design and mine planning work:

- Initial pit development to exploit dry saprolite excavation along the ridgeline that is located above the phreatic surface.
- A mine deployment plan that supports natural drawdown of the saprolite/structured saprolite through exposing the slopes earlier in the central and southern pit areas. Excavate shallower interim platforms that can be utilized for surface water management and provide space to install active depressurization equipment and/or horizontal drain holes if needed.
- In the south, a slower excavation rate is expected to provide sufficient time for the groundwater to passively draw-down within the higher Saprolite/Structural Saprolites slopes.
- In the north, advance the pit quicker through the saprolite units to the transition rock to exploit under draining of the above materials, through the higher conductivity transition and upper fresh rock units. This strategy is similar to that implemented in the Rosebel pits.

All pit slope designs are included in the current mine designs and are reviewed annually by SRK. Table 15-7 summarizes the Rosebel and Saramacca pit designs.

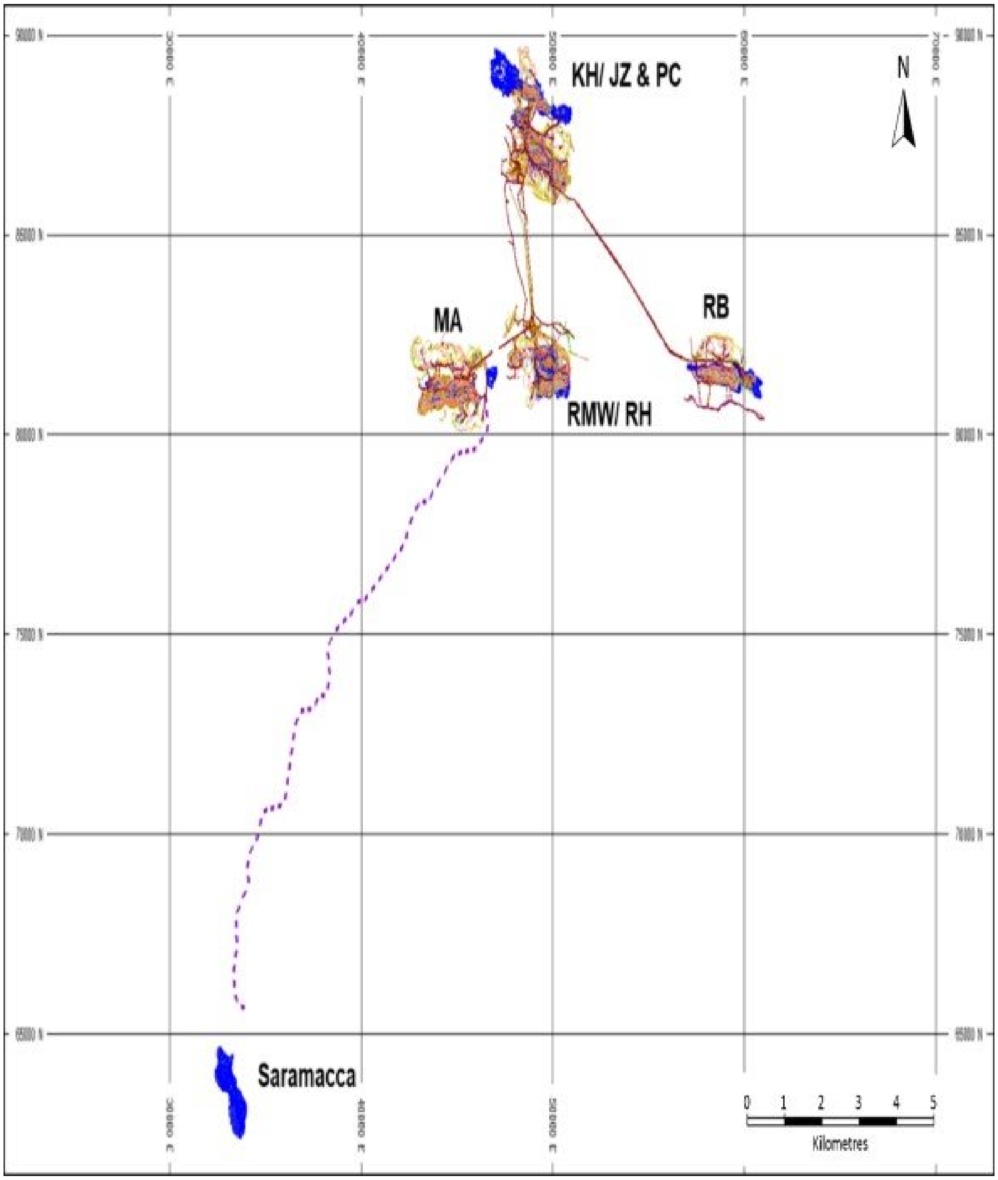
Table 15-7: Pit Design Slope Recommendations per Rock Type

Deposit	Units	SM	KH	JZ	MA	RB	PC	RH
Soft								
Current Bench Height Design	m	8	9	9	9	9	9	9
Berm Width	m	9.0 - 11.0	7.6 - 9.2	7.6 - 9.2	11	8.4 - 9.2	9.0 - 11.0	11
Inter-Ramp Angle (IRA)	°	27 - 30	32 - 35	32 - 35	29	32 - 33.5	29 - 32	29
BFA	°	60	60	60	60	60	60	60
Maximum Stack Height	m	32	32	32	30	32	36	30
Geotech Berm Width	m	15	15	15	15	15	15	15
Tran								
Current Bench Height Design	m	8	9	9	9	9	9	9
Berm Width	m	7.5 - 11.5	6.2 - 7.0	6.2 - 7.0	8.0 - 9.5	6.6 - 9.4	8.0 - 930	10.0 - 11.5
IRA	°	35 - 40	39 - 44	39 - 44	33 - 36	34 - 40	32 - 36	33 - 36
BFA	°	70 - 90	65 - 70	65 - 70	65	65	60 - 65	75
Maximum Stack Height	m	56	32	32	36	40	45	33 - 40
Geotech Berm Width	m	15	15	15	15	15	15	15
Hard Rock								
Current Bench Height Design	m	16	18	18	18	18	18	18
Berm Width	m	10-13.5	9.2 - 11.8	9.2 - 11.8	9.4 - 11.8	8.0 - 13.4	10.5 - 15.0	8.4 - 13.5
IRA	°	45-50	50 - 55	50 - 55	47 - 52	47 - 55	44 - 55	44 - 54
BFA	°	70-90	79 - 82	79 - 82	75	75	70 - 90	75
Maximum Stack Height	m	112	96	96	96	96	108	96
Geotech Berm Width	m	20	20	20	20	20	20	20

15.8 Mine Plan

Figure 15-1 presents a general view of the Rosebel and Saramacca pits.

Figure 15-1: General View of the Rosebel and Saramacca Pits



15.8.1 Pay Caro

The PC pits are located northeast of the Rosebel Plant on the northern side of the Rosebel concession. Mining of the PC pits commenced in 2003 and has occurred continuously since then.

In the vicinity of the PC pits is KH, located to the northwest, JZ to the north, and the tailings area in the northeast. Natural drainage west of the PC pits will be managed as the mining phases progress. Access to the Rosebel Plant and main complex is via a haul road on the south side of the active PC pits which links with the Mine main haul road. The distance to the Rosebel Plant is approximately 1.8 km.

The PC pit (including EPC and WPC) contains a total of four phases:

- PC20
- PC40
- PC50
- PC80

The ultimate pit floor elevation is 256 m resulting in a total pit depth of 253 m. The ultimate PC pit design is presented in Figure 15-2.

Phases PC20 and PC40 are within the central section of the final PC pit. These phases are located to the west side of the central pit with two ramping systems:

- Exiting on the south side to minimize the waste haul distance.
- Exiting on the west side to minimize the ore haul distance.

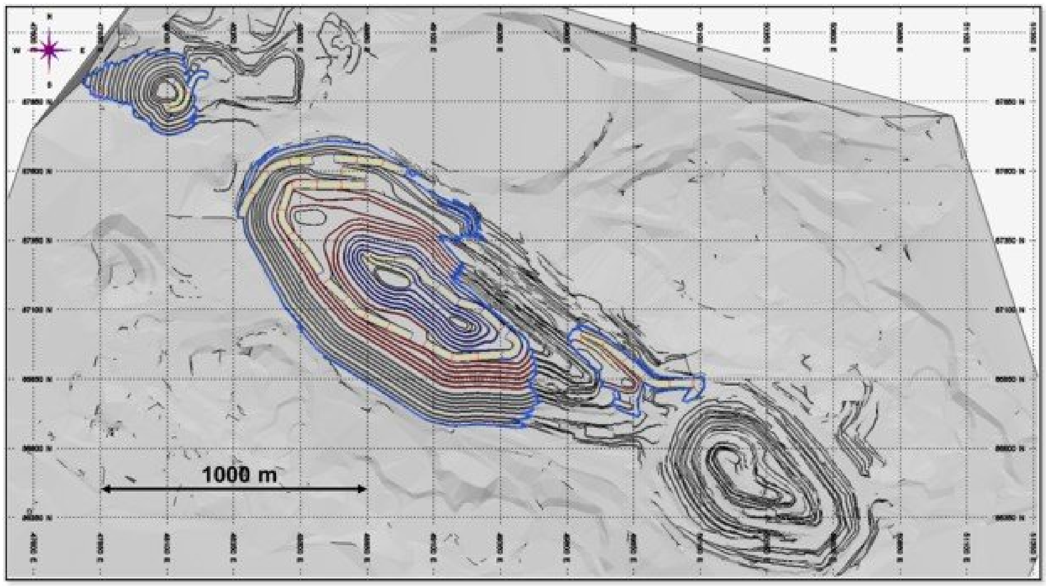
The PC80 Phase is located in the western section of the PC pit where a push back from the current excavation to the west is planned.

The PC50 Phase is the ultimate pit which includes PC20 and PC40. The ultimate pit design has two ramping systems:

- Exits on the southwest side of the pit to connect to the existing road for ore haul and accessing the south WRSF.
- Exits the northwest side of the pit to access the north WRSF.

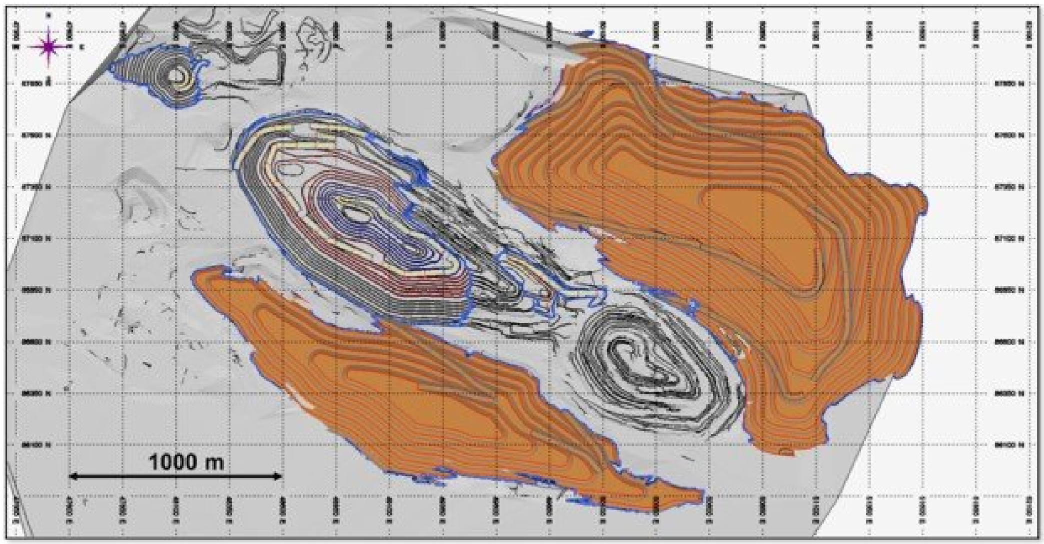
The PC Mineral Reserves are estimated at 19.3 Mt grading 0.95 g/t Au to yield 0.589 Moz Au in situ, at a stripping ratio of 3.96.

Figure 15-2: Pay Caro Ultimate Pit



Future waste deposition in the PC pits will be on the PC north and south WRSF. To minimize truck haul distances and reduce the environmental footprint, in-pit waste deposition may be considered in the future. Surface PC WRSFs are illustrated in Figure 15-3.

Figure 15-3: Pay Caro WRSFs



15.8.2 J Zone

The JZ pits are located along the northern boundary of the Rosebel concession, north of PC and east of the KH pits. Mining of the JZ pits began in 2014.

Due to the proximity of JZ to the other pits, WRSFs, and tailings storage facility (TSF) there is limited space in the surrounding area to develop infrastructure associated with mining this pit. The primary ore haul route is located on the southwest side of the west pit with a secondary access off of the PC North WRSF from the east pit. The central drainage zone between the two main pits is maintained. The distance to the Rosebel Plant is approximately 2.5 km.

The JZ pit contains a total of three phases:

- JZ05
- JZ10
- JZ15

The ultimate pit floor elevation is 391 m resulting in a total a pit depth of 163 m. The ultimate JZ pit design is presented in Figure 15-4.

The JZ deposit is separated into three pits, the east pit (JZ05), the central pit (JZ10), and the west pit (JZ15).

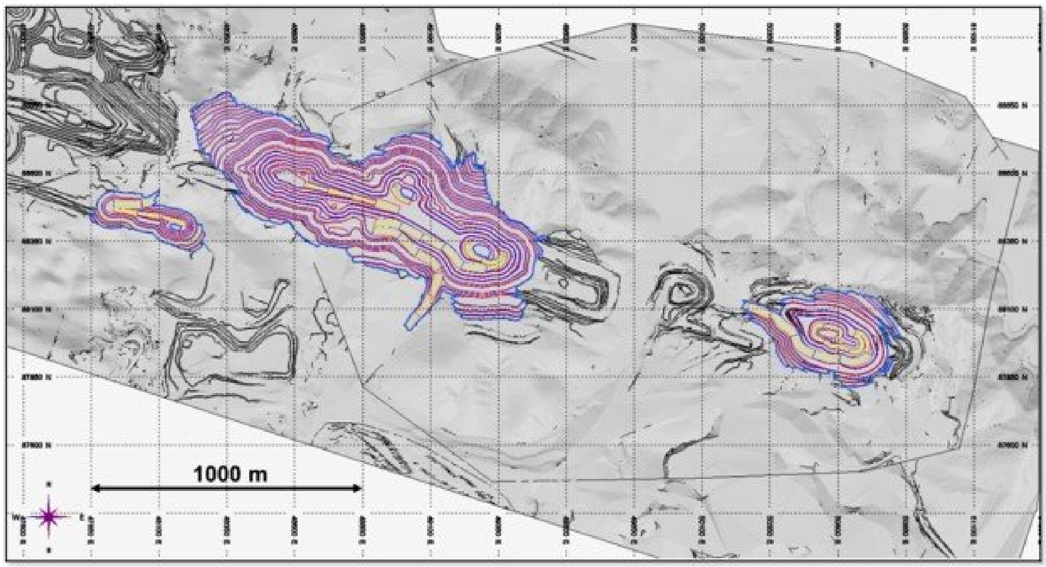
Phase JZ05 is the only phase in the east. The ore and waste routes are to the southwest of the phase. Waste will be deposited in the PC north WRSF. Ore will be hauled along the north PC haul road.

Phase JZ10 is located in the central area and includes a ramp on the south for both waste and ore hauls.

Phase JZ15 is connected to the border of the KH deposit with an access connected the south ramp of the central pit.

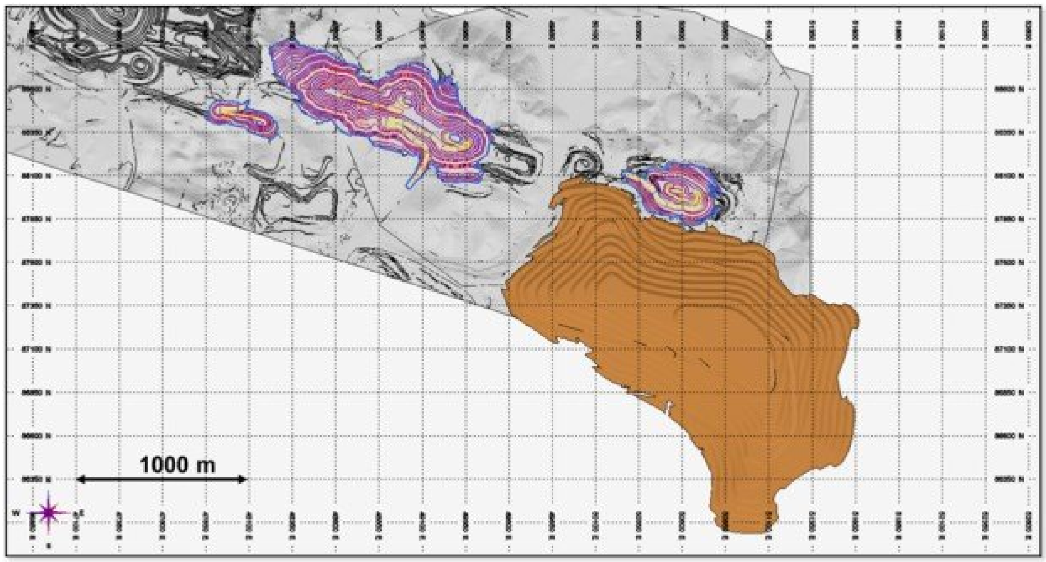
The JZ Mineral Reserves are estimated at 9.7 Mt grading 0.86 g/t Au to yield 0.269 Moz Au in situ, at a stripping ratio of 4.57.

Figure 15-4: J Zone Ultimate Pit



The phases in the JZ deposit will utilize the PC north WRSF as presented in Figure 15-5.

Figure 15-5: J Zone WRSFs



15.8.3 Koolhoven

The KH pit is located on the northern boundary of the Rosebel concession, north of PC and west of JZ. Mining of the KH pit has been differed for the last year to exploit higher grade ore in the remaining Rosebel deposits.

The primary ore haul route is located on the southeast side of the KH pit with additional accesses on the west side with faster access to the WRSF. The distance to the Rosebel Plant is approximately 2.6 km.

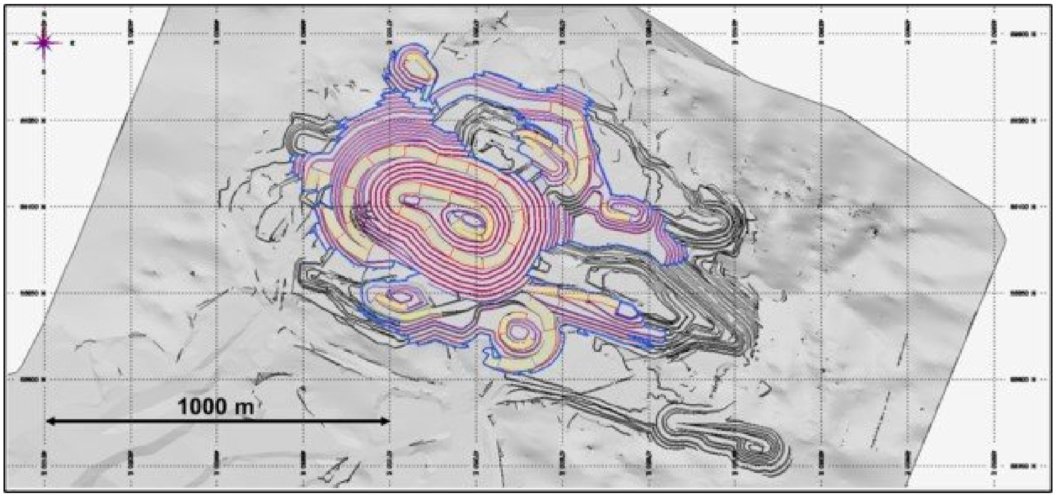
The KH pit contains a total of three phases:

- KH01
- KH02
- KH03

The ultimate pit floor elevation is 292 m resulting in a total a pit depth of 264 m. The ultimate KH pit design is presented in Figure 15-6.

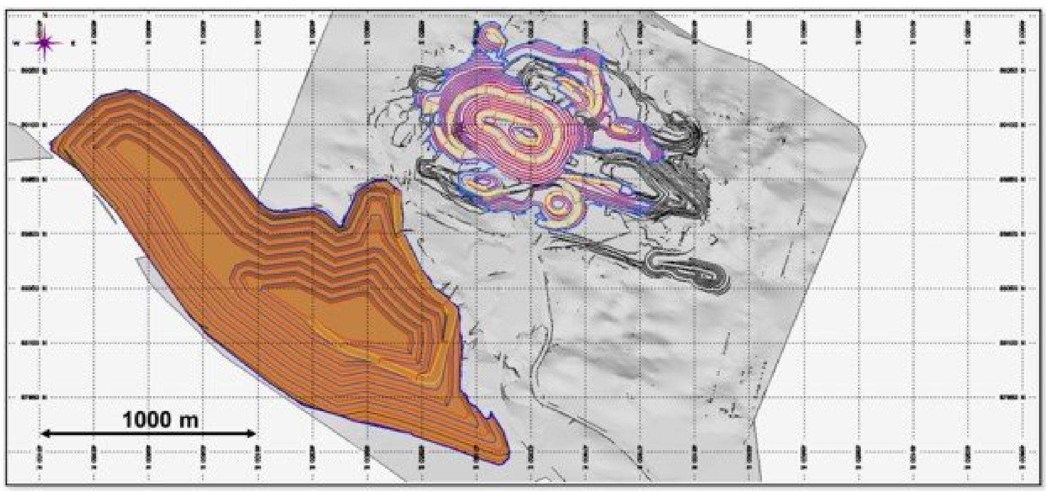
The KH Mineral Reserves are estimated at 6.2 Mt of ore at 0.99 g/t Au to yield 0.195 Moz Au in situ, at a stripping ratio of 6.56.

Figure 15-6: Koolhoven Ultimate Pit



Waste material from the KH pit will be sent to the KH WRSF located southwest of the KH deposit as illustrated in Figure 15-7.

Figure 15-7: Koolhoven WRSF



15.8.4 Royal Hill

The RH pit is located along the southern boundary of the Rosebel concession. Mining of the RH pit commenced in 2004 and has occurred continuously since then.

To the north of the RH pit is an archeological site (burial ground), a power line, and old camp infrastructure. To the east of the RH pit lies the Nieuw Koffiekamp village which RGM has a commitment to not advance upon. The Rosebel concession boundary limits further expansion of the RH pit to the south.

A drainage line currently exists to the east of the RH pit and is planned to be maintained through the mine life. An additional drainage system west of the RH pit drains surface water to a settling pond southwest of the RH pit. Access to the Rosebel Plant is via the haul road located to the north of the RH pit. The distance to the Rosebel Plant is approximately 5.9 km.

The RH pit (comprised of the RH NW pit and RH SE pit) contains a total of five phases:

- RH10
- RH20
- RH30
- RH40
- RH 50

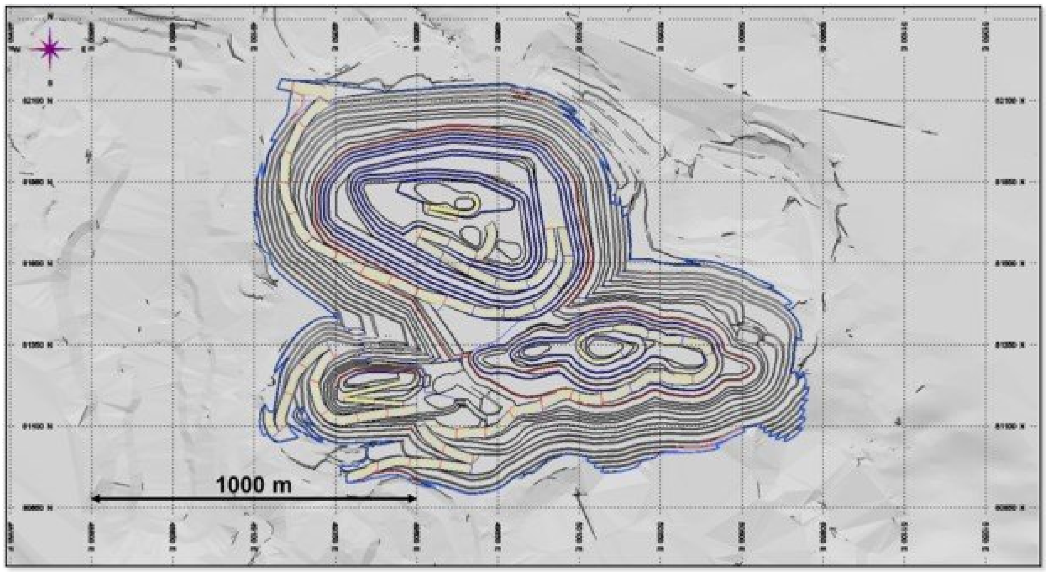
The ultimate pit floor elevation is 261 m resulting in a total pit depth of 253 m. The ultimate RH pit design is presented Figure 15-8.

Phase RH10 and Phase RH20 are in the RH NW pit. These two phases are designed with the ramping section along the northwest side of RH the pit to minimize the ore and waste haul distances.

Phases RH30, RH40, and RH50 are located in the southeast part of the RH deposit and have a ramping system that exits on the southwest side of the RH pit to minimize ore and waste haul distance.

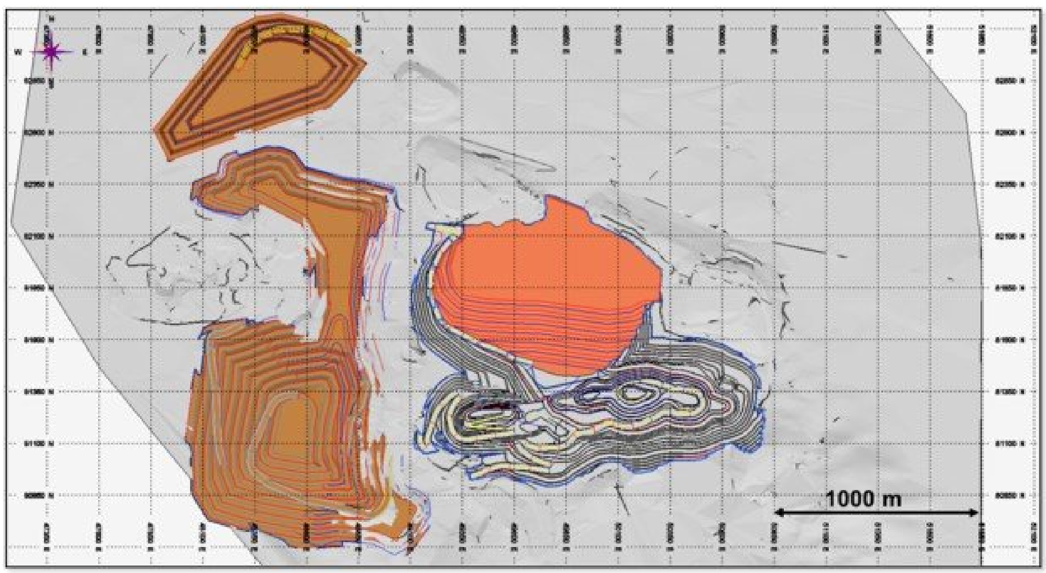
The RH Mineral Reserves are estimated at 22.3 Mt grading 1.08 g/t Au to yield 0.774 Moz Au in situ, at a stripping ratio of 6.70.

Figure 15-8: Royal Hill Ultimate Pit



Future waste deposition in the RH pits will be in the RH west WRSF. Due to the phasing sequence, in-pit deposition for Phase RH40 has been planned in the north pit (RH20) to minimize truck haul distances and reduce the environmental footprint. This is illustrated in Figure 15-9.

Figure 15-9: Royal Hill WRSFs



15.8.5 Mayo

The MA deposit is located at the southern boundary of the Rosebel concession. Mining in the MA pit commenced in 2009, continuing uninterrupted until March 2020 when operations were halted. Mining of the MA pit recommenced in June 2021.

Natural drainages are located north of the north MA WRSF. On the south and eastern side of the MA pit, diversion drains have been constructed to divert surface water away from the MA pit.

Access to the Rosebel Plant is via a haul road on the northeast side of the MA pit which links with the RH haul road. The distance to the Rosebel Plant is approximately 8.8 km.

The MA pit contains a total of three phases:

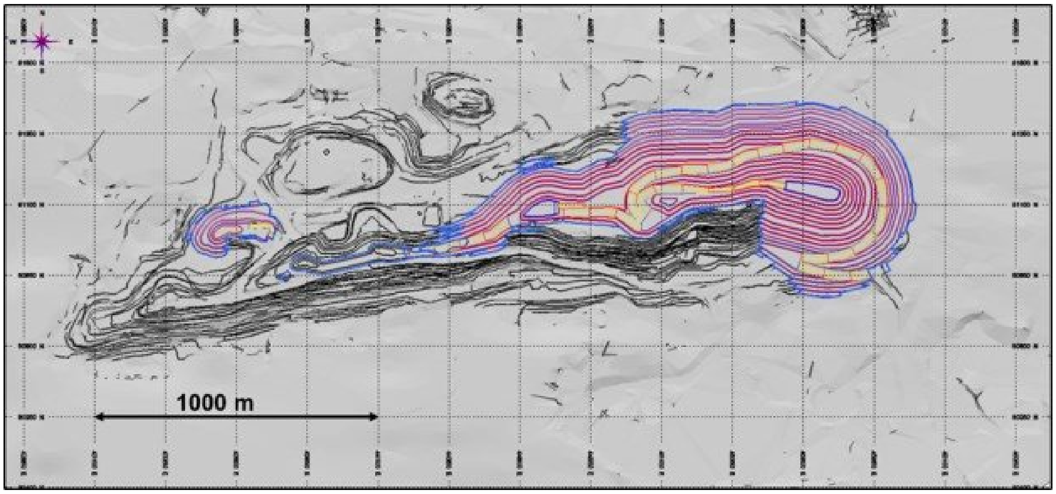
- MA02
- MA03
- MA20

The ultimate pit floor elevation is 285 m resulting in a total pit depth of 140 m. The ultimate MA pit design is presented in Figure 15-10.

Phase MA20 is an expansion of the current MA east pit, while the two other phases are located west of the MA pit and are relatively small, targeting the ore under the current floor.

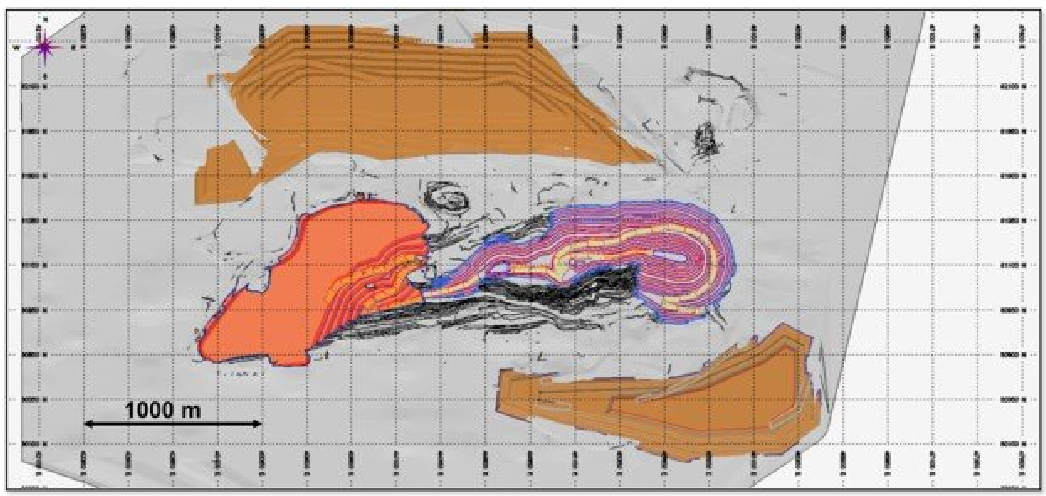
The MA Mineral Reserve is estimated at 11.4 Mt grading 1.00 g/t Au to yield 0.367 Moz Au in situ, at a stripping ratio of 6.64.

Figure 15-10: Mayo Ultimate Pit



Waste material from the MA02 phase will be deposited at the MA north WRSF, while the remaining waste material to be mined will be sent to the MA south WRSF. When the west access ramp of MA20 is established potential in-pit waste deposition can commence in the western portion of the MA pit to reduce cycle time for waste haulage. This is illustrated in Figure 15-11.

Figure 15-11: Mayo WRSFs



15.8.6 Rosebel

The RB pit is isolated from the other Rosebel pits and infrastructure and is located in the southeast section of the Rosebel concession. Mining of the RB pit began in 2012 and has occurred continuously since then.

Diversion drainage has been established to the north and south of the RB pit to control surface water. Access to the Rosebel Plant is via a haul road located on the north side of the pit which connects with the PC haul road near the Rosebel Plant. The RB pit is located approximately 12 km southeast of the Rosebel Plant and is accessed via a 13.5 km haul road that links the east side of EPC to the RB pit.

The RB pit (which consists of the RB and Rosebella deposits) contains a total of five phases:

- RB10
- RB20
- RB30
- RB35
- RB40

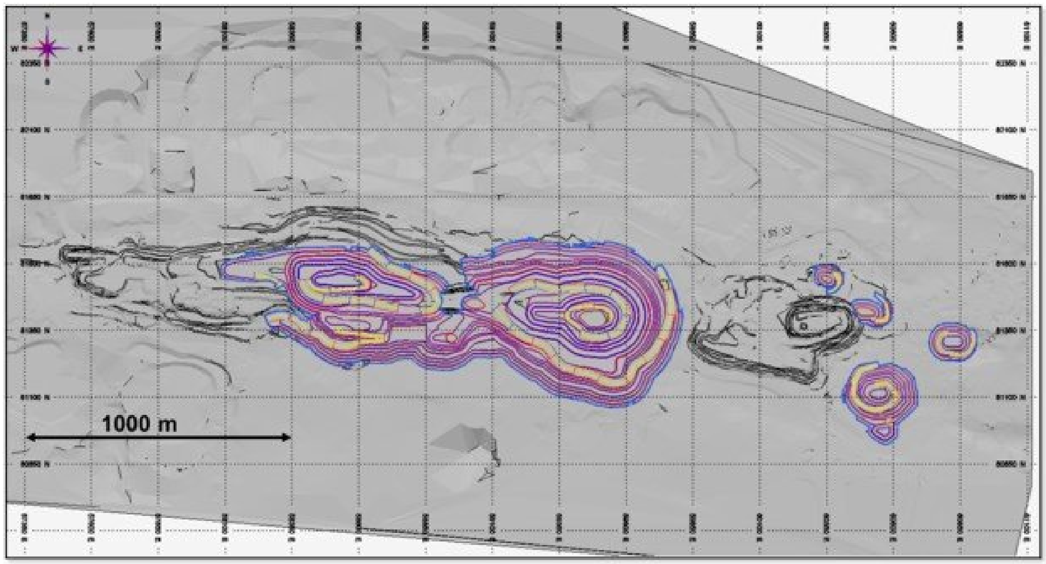
The ultimate pit floor elevation is 333 m resulting in a pit depth of 201 m. The ultimate RB pit design is presented in Figure 15-12.

Phases RB10 and RB20 are both part of the Rosebella deposit. RB10 is to be developed in the eastern portion of the Rosebella deposit and consists of two small pits, while RB20 is part of the Rosebella pit targeting ore at depth on the floor at two locations.

Phase RB30 is the east portion of the current RB pit pushback. Phase RB30 has a ramp exit on the north side that spirals upwards from the floor of the pit. Phase RB40 is a small pushback of the northern wall of the central RB pit and exits through a north ramp that is connected with the main road in the north, while RB35 is a southwestern extension of RB40 with its own ramp exiting towards the south road of the RB pit.

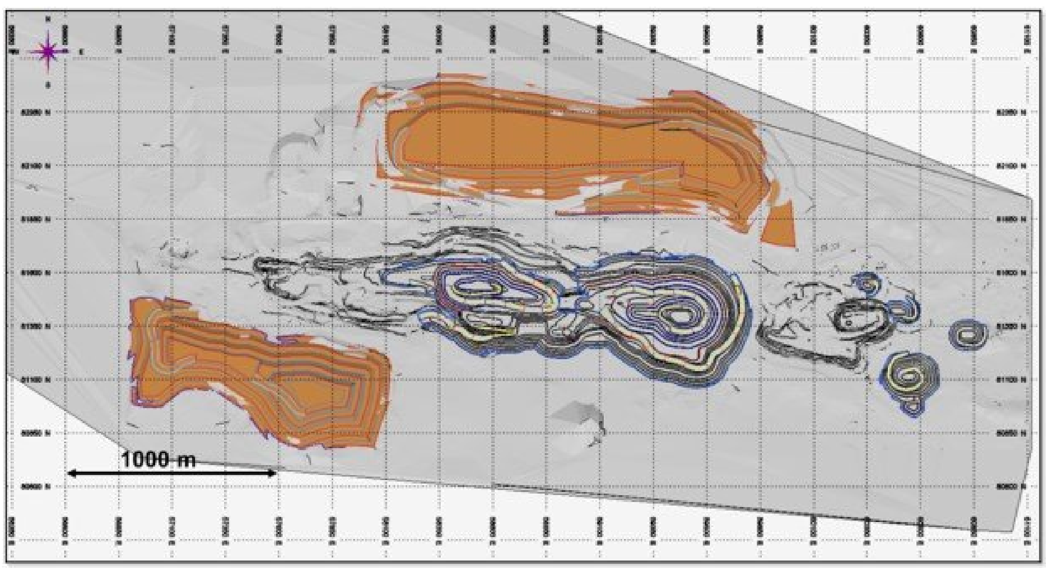
The RB Mineral Reserve is estimated at 8.2 Mt grading 0.89 g/t Au in situ with a yield of 0.234 Moz Au, at a stripping ratio of 4.49.

Figure 15-12: Rosebel Ultimate Pit



Waste material from the RB pits is mainly deposited in the RB north WRSF, while material from RB35 will be deposited in the RB south WRSF. The waste deposition locations for the RB pits are illustrated in Figure 15-13.

Figure 15-13: Rosebel Pit WRSF



15.8.7 Saramacca

The SM pit is located 30 km southeast of the Rosebel concession, in the Saramacca concession. Mining of the SM deposit began at the end of 2019, however, SSM activities have occurred near the SM pit.

The primary ore haul route is located on the east side of the SM pit.

The SM pit contains a total of four phases:

- SM10
- SM30
- SM40
- SM99

The ultimate pit floor elevation is 519 m resulting in a total pit depth of 425 m. The ultimate SM pit design is presented in Figure 15-14.

Waste material from the SM pit is selectively placed to maintain adequate stability and drainage. The SM WRSF is to be constructed on shallow sloping (5° to 16°) ground to the east of the SM pit. Drainage channels have locally incised the broader sloping topography. The WRSF is to be constructed to approximate heights of 120 m with a final 3:1 gradient slope comprising 15 m high platforms (Figure 15-15). In the early years of mining, the excavated saprolite is to form most of the WRSF construction materials. Supporting these internal saprolite platforms with downslope buttresses constructed with imported fresh rock is critical to achieving acceptable stability conditions. Furthermore, construction of rock drains down the natural gullies where peak surface water run-off is higher, and the inclusion of finger drains is to provide positive hydraulic connection with the rock drains and buttresses.

The SM Mineral Reserve is estimated at 21.8 Mt grading 1.74 g/t Au which yields 1.225 Moz Au in situ, at a stripping ratio of 7.6.

Figure 15-14: Saramacca Ultimate Pit

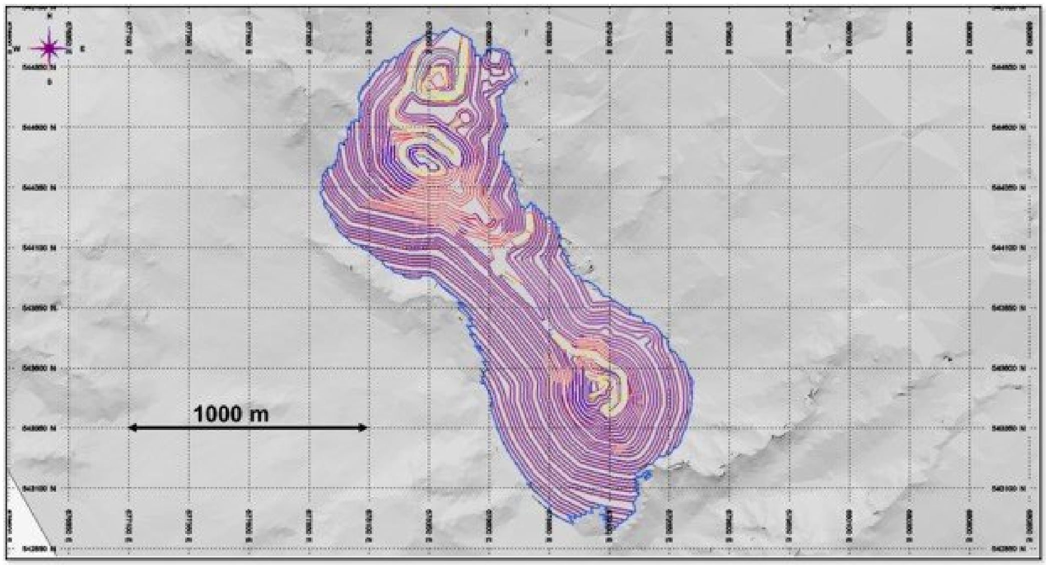
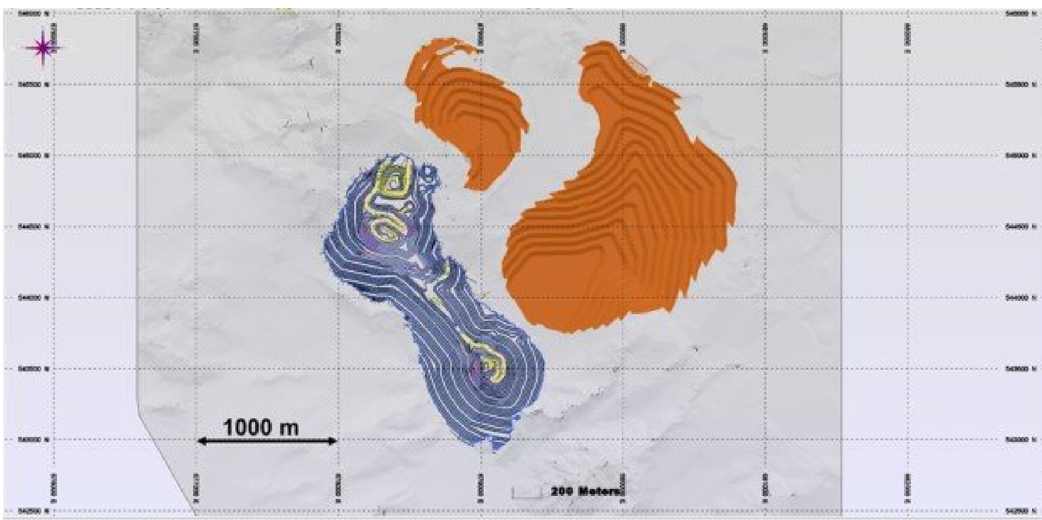


Figure 15-15: Saramacca Pit WRSF



15.9 Design Summary

The 2021 Mineral Reserve estimate is confined to material within the pit designs. All designs have been completed based on a practical mining sequence and geotechnical recommendations in Mine Plan mine design software.

Mine Plan Schedule Optimizer (MPSO) scheduling software was used to complete the LOMP based on the pit designs. The schedule is based on satisfying the processing and mining constraints while evaluating revenue from gold recovered versus the variable and attributable costs associated with material mined per mining area. The output of the schedule is the tonnes and grade of material sent to the Rosebel Plant, stockpile, and WRSFs as well as material reclaimed from the stockpile.

The Proven and Probable Mineral Reserves for new open pit designs at a US$1,300/oz Au price are listed in Table 15-9.

15.10 Stockpiles

The stockpile status as of December 31, 2021, is presented in Table 15-8. This stockpile inventory is classified as Proven Mineral Reserves. Balances are based on using surveyed volumes and truck factors. Tonnes milled are calculated using a calibrated balance. Tonnes mined are estimated using a combination of truck factors and surveyed volumes.

Table 15-8: Stockpile Status as of December 31, 2021

Stockpiles (100% Basis)	Tonnes (Mt)	Grade (g/t Au)	Contained Metal (000 oz Au)
RGM Stockpiles	9.66	0.54	168
SM Stockpile	0.499	0.52	8
Total Stockpiles	10.17	0.54	177

15.11 Mineral Reserves

The Rosebel and Saramacca Mineral Reserves as of December 31, 2021, are presented in Table 15-9. The Measured Mineral Resources within the pit designs have been classified as Proven Mineral Reserves while Indicated Mineral Resources have been classified as Probable Mineral Reserves.

The Mineral Reserve estimate only contains Measured and Indicated Mineral Resources within the pit designs described in this document and is based on pit optimizations at $1,300/oz Au and cut-off grades at $1,200/oz Au.

RGM is not aware of any known mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

Table 15-9: Rosebel and Saramacca Mineral Reserves Estimate by Deposit as of December 31, 2021

Deposit	Laterite			Saprolite and Laterite			Transition			Fresh Rock			Total		
	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)	Tonnes (000 t)	Grade (g/t Au)	Contained Metal (000 oz Au)
Proven Mineral Reserves															
KH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PC and EPC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RH	-	-	-	-	-	-	-	-	-	1,161	1.36	51	1,161	1.36	51
RB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Proven	-	-	-	-	-	-	-	-	-	1161	1.36	51	1,161	1.36	51
Rosebel Stockpiles	-	-	-	-	-	-	-	-	-	-	-	-	9,667	0.54	168
Saramacca Stockpiles	-	-	-	-	-	-	-	-	-	-	-	-	499	0.52	8
Total Stockpiles	-	-	-	-	-	-	-	-	-	-	-	-	10,166	0.54	177
Total Proven	-	-	-	-	-	-	-	-	-	1,161	1.36	51	11,327	0.62	227
Probable Mineral Reserves															
KH	64	0.50	1	844	0.51	14	1,402	0.77	35	3,848	1.18	146	6,158	0.99	195
JZ	39	0.41	1	49	0.40	1	2,443	0.58	45	7,185	0.96	222	9,715	0.86	269
PC and EPC	1	0.33	0	83	0.43	1	1,889	0.72	43	17,360	0.98	544	19,333	0.95	589
MA	98	0.40	1	223	0.49	3	384	0.62	8	10,684	1.03	354	11,389	1.00	367
RH	11	0.53	0	360	0.57	7	281	0.64	6	20,519	1.08	711	21,171	1.06	723
RB	234	0.42	3	520	0.48	8	1,011	0.57	19	6,443	0.98	204	8,208	0.89	234
SM	1,654	0.78	41	8,613	1.68	465	5,427	1.95	340	6,169	1.90	378	21,863	1.74	1,225
Total Probable	2,100	0.70	47	10,692	1.45	499	12,837	1.20	496	72,208	1.10	2,559	97,837	1.14	3,601

Deposit	Laterite			Saprolite and Laterite			Transition			Fresh Rock			Total		
	Tonnes (000 t)	**Grade (g/t Au)**	**Contained Metal (000 oz Au)**	**Tonnes (000 t)**	**Grade (g/t Au)**	**Contained Metal (000 oz Au)**	**Tonnes (000 t)**	**Grade (g/t Au)**	**Contained Metal (000 oz Au)**	**Tonnes (000 t)**	**Grade (g/t Au)**	**Contained Metal (000 oz Au)**	**Tonnes (000 t)**	**Grade (g/t Au)**	**Contained Metal (000 oz Au)**
Proven and Probable Mineral Reserves															
KH	64	0.50	1	844	0.51	14	1,402	0.77	35	3,848	1.18	146	6,158	0.99	195
JZ	39	0.41	1	49	0.40	1	2,443	0.58	45	7,185	0.96	222	9,715	0.86	269
PC and EPC	1	0.33	0	83	0.43	1	1,889	0.72	43	17,360	0.98	544	19,333	0.95	589
MA	98	0.40	1	223	0.49	3	384	0.62	8	10,684	1.03	354	11,389	1.00	367
RH	11	0.53	0	360	0.57	7	281	0.64	6	21,680	1.09	761	22,332	1.08	774
RB	234	0.42	3	520	0.48	8	1,011	0.57	19	6,443	0.98	204	8,208	0.89	234
SM	1,654	0.78	41	8,613	1.68	465	5,427	1.95	340	6,169	1.90	378	21,863	1.74	1,225
Total Proven and Probable	2,100	0.70	47	10,692	1.45	499	12,837	1.20	496	73,369	1.11	2,610	109,164	1.09	3,829

Notes:

1. CIM (2014) definitions were followed for Mineral Reserves.
2. Attributable ounces calculated as 95% for Rosebel and 66.5% for Saramacca. Mineral Reserves include material from the Rosebel and Saramacca concessions.
3. Mineral Reserves were estimated assuming open pit mining methods using an average long term gold price of US$1,300/oz Au.
4. Mineral Reserves are estimated at a cut-off grade of 0.23 g/t Au to 0.67 g/t Au, depending on the material and pit.
5. Mineral Reserves include dilution between 3% and 21% at a grade of 0.1 g/t Au to 0.29 g/t Au.
6. Mineral Reserves include a mining recovery between 94% and 99% depending on the zone.
7. Average CIL process recovery is estimated at 89.2%.
8. Mining cost: US$2.70/t mined. Processing costs: US$10.51/t milled (inclusive of power). G&A costs of US$4.37/t milled.
9. Mineral Reserves are based on survey at the end of November 2021 projected to December 31, 2021.
10. Numbers may not add due to rounding.

16 MINING METHODS

The Rosebel and Saramacca operations are conventional truck and shovel, drill and blast, open pit operations. RGM runs an owner operated fleet with subcontractors used as support for auxiliary activities. The current fleet for the LOMP is outlined in Table 16-1.

16.1 Rosebel Mining Fleet

The Mine loading fleet consists of five Caterpillar (CAT) 6030 shovels and two CAT 6020 shovels using both the excavator and front shovel configuration supported by one CAT 993 loader used for run of mine (ROM) stockpile reclaim.

The hauling fleet consists of 35 CAT 777 haul trucks and 18 CAT 785 haul trucks.

Dust control is accomplished with seven CAT 777 water trucks.

Ancillary mine equipment includes fuel trucks, mobile light plants, and service trucks. A list of RGM's primary mine production equipment fleet is presented in Table 16-1.

Table 16-1: Current Mining Fleet

Type	Model	Total	Rosebel	Saramacca
Shovel	CAT 6030	6	5	1
	CAT 6020	2	2	-
	PC2000 Backhoe	2	-	2
Loader	CAT 993K	2	1	1
Truck	CAT 785	18	18	-
	CAT 777	35	35	-
	Komatsu HD 785	3	-	3
	Komatsu HD 1500	7	-	7
	Long Haul Trucks	14	-	14
Drills	Sandvik DK45	4	4	-
	MD6290	8	8	-
	FlexiRoc-D65	3	2	1
Dozer	CAT D9T	24	24	-
	CAT 824 Wheeldozer	2	2	-
Excavator	CAT 345/349	10	10	-
	PC1250	4	3	1
Grader	CAT 16H	1	1	-
	CAT 16G	1	1	-
	CAT 16M	7	7	-
Auxiliary	CAT 980/990 Loader	3	3	-

A replacement schedule was prepared as part of the LOMP (Table 16-2).

Table 16-2: Mining Fleet Replacement Schedule

Description	OEM Product	Budget Units						
		2022	2023	2024	2025	2026	2027	2028
HD785 (CAT 777F)	Komatsu	3	5	4	3	-	10	5
HD1500 (CAT 785)	Komatsu	-	-	-	3	5	3	-
CAT MD6290 drill	Epiroc	-	3	4	2	1	-	-
CAT D9T dozer replacement	Caterpillar	4	4	3	3	-	-	-
HD785 Water Truck (CAT 777)	Komatsu	2	1	1	1	-	-	-
CAT 745 fuel truck	Caterpillar	-	1	1	1	1	-	-
CAT 6030	Caterpillar	-	-	-	-	1	-	-
CAT 6020	Caterpillar	-	-	-	-	-	2	-
HM400 Emulsion Truck (CAT 740)	Komatsu	2	2	-	-	-	-	-
CAT 16M MOTOR GRADER	Caterpillar	-	1	1	1	-	-	-
KOM PC1250	Komatsu	-	3	-	-	-	-	-
CAT 993K LOADER	Caterpillar	-	-	1	-	-	-	-
PC500 (Cat 349 replacement)	Komatsu	4	-	2	-	-	-	-
CAT 777 Tow Haul	Komatsu	-	1	-	-	-	-	-
D65 DRILL	Epiroc	-	-	-	-	1	-	-
CAT IT LOADER	Caterpillar	-	-	1	1	-	-	-
Tire Manipulator	MAN	1	-	-	-	-	-	-
Total Replacements		16	21	18	15	9	15	5

16.2 Saramacca Mining Fleet

A new primary mining fleet was purchased for the SM pit and it consists of one CAT 6030 face shovel, two Komatsu PC2000 backhoes, and one PC1250 excavator with the support of one CAT 993 loader used at the ROM stockpile to load long haul trucks.

The Saramacca haulage fleet consists of seven Komatsu HD1500 and three Komatsu HD785 haul trucks within the SM pit and 14 HaulMax trucks to haul ore from the SM pit to the Rosebel Plant. The Mine fleet is also shared with the Saramacca operations as required.

16.3 Production Drilling

The Rosebel and Saramacca drilling fleet consists of a mixed fleet of fifteen drills.

Drill and blast parameters vary for each of the pits due to different material types and pit designs. All drill holes are 165 mm diameter. All blasting activities onsite are executed by RGM employees. Holes are loaded with bulk explosive matrix and initiated with non-electric detonators.

Ore movement during blasting is a critical issue for the Rosebel and Saramacca operations. For this reason, blast movement monitors) are systematically used when blasting mineralized areas to measure vertical and horizontal displacement which allows for the adjustment of the post-blast ore packets. Blast movement is typically in the order of six metres horizontally and approximately three metres vertically on a nine metre bench, according to current measurements.

16.4 Mine Operations

16.4.1 Long Haul - Saramacca to Rosebel

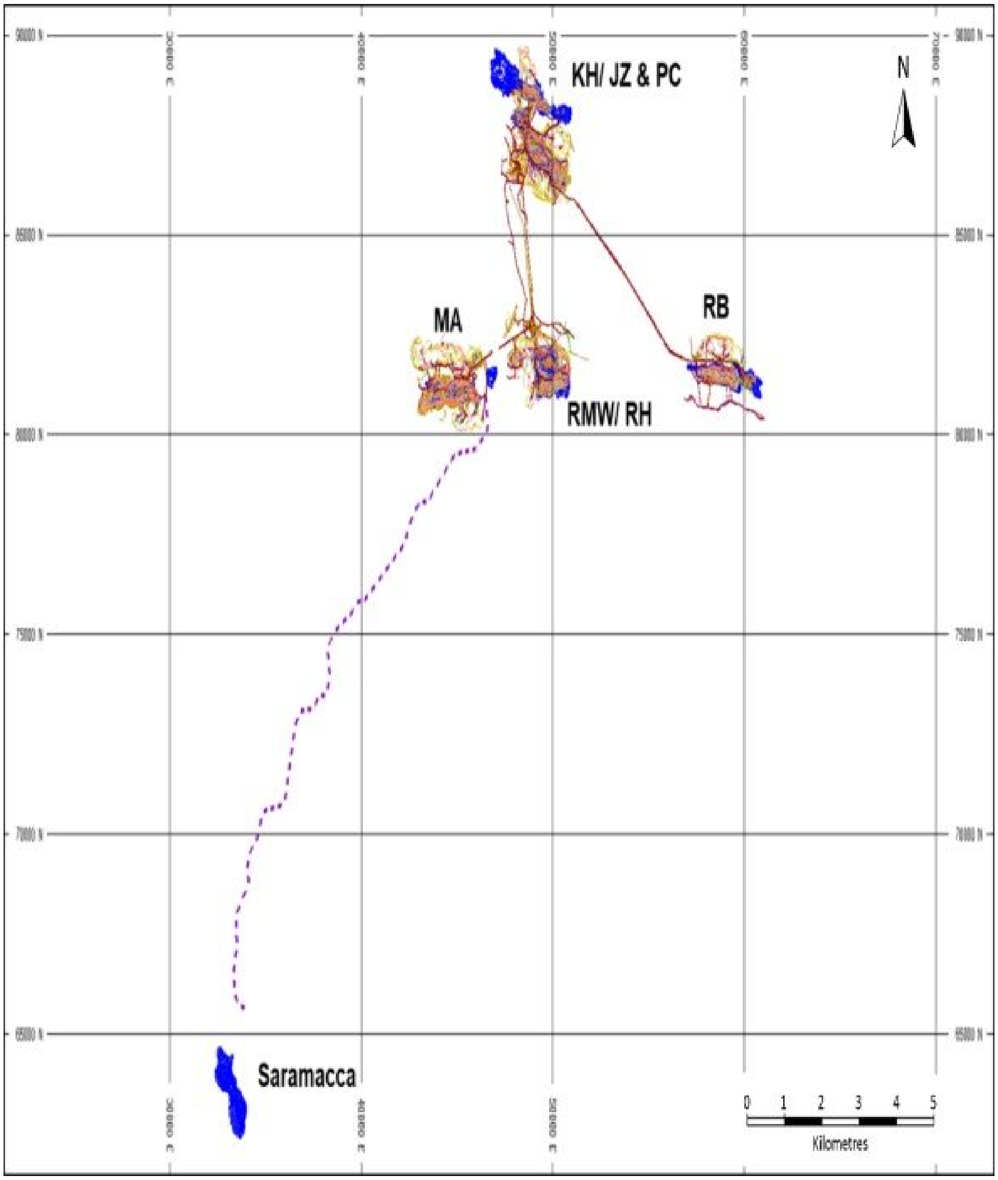
The SM deposit is located approximately 30 km southwest of the Rosebel concession (Figure 16-1). Due to the significant distance between the SM pit and the Rosebel Plant, a specific long haul strategy was implemented.

- All ore mined ex-pit is completed by a conventional rigid mine truck and shovel operation and is stockpiled at the ROM pad.
- A front end loader then loads long haul trucks which haul the ore to the Rosebel Plant via a purpose built haul road.

In total, 14 HaulMax 3900 series trucks with a payload of 80 t are used on the long haul route between the SM pit and the Rosebel Plant. The estimated return cycle time is 122 minutes.

A new 23 km purpose built haul road was constructed between the MA deposit and the SM deposit. Long haul trucks from the SM pit traversing this road travel along the main Mine haul road with the other Mine traffic and terminate at the main Mine complex.

Figure 16-1: General View of the Rosebel and Saramacca Pits



16.4.2 Reverse Circulation Grade Control Drilling

In order to improve the definition of the ore zones, the preferred method for grade control is through RC drilling in all pits. RC grade control drilling is planned on a grid spacing pattern of 12 m x 6 m using inclined holes according to the parameters presented in Table 16-3. Blast hole sampling is used for grade control in areas where RC grade control drilling is not completed. A fleet of four Shram Buggy rigs is used for RC drilling managed by Major Drilling.

Table 16-3: Reverse Circulation Grade Control Parameters

RC Parameters	Units	Saprolite	Transition	Rock
		Drill Pattern		
Hole inclination		50°	50°	50°
Hole diameter	in	6.0	6.0	6.0
Hole diameter	m	0.152	0.152	0.152
Burden	m	12.0	12.0	12.0
Spacing	m	6.0	6.0	6.0
Subdrill	m	-	-	-
Bench height	m	9.0	9.0	9.0
Hole length	m	24 - 56	24 - 56	24 - 56

16.4.3 Production Drilling and Blasting

RGM presently has a total fleet of 15 drills including three Atlas Copco D65, four Sandvik D45KS/D45S, and eight CAT MD6290 drills. All blast hole drills are equipped to drill 165 mm diameter holes.

Drill and blast parameters vary by pit due to different material types and pit designs. Blasts are designed based on post blast requirements from the geology, geotechnical, and operations departments.

A number of trials were conducted with both pyrotechnic and electronic detonators to identify potential opportunities for improvement in fragmentation, dilution management, and wall control. The trials included seed wave analysis using signature shots, ground wave velocities using cross hole tests, pattern expansions, combined trim and production shots in narrow areas, interactive shielding, etc.

Pre-splitting of selective areas of the pit walls is carried out based on the recommendations from the ground control department. Pre-split parameters are designed to achieve drill hole pressure within 130 MPa to 140 MPa using 165 mm holes.

Blast design flexibility is limited to pit constraints including operating width, bench height, ore movement direction, etc. Most of these constraints make it necessary to identify post blast priorities of each shot and to design the shot accordingly. The achievement of optimal slope angles and stable IRAs, within the hard rock, requires a well implemented program of wall control blasting. The program requires a substantial reduction in the size of blasting blocks along the perimeter wall and the use of well engineered blast designs that include free faces and suitable timing.

Drilling and blasting parameters are presented in Table 16-4.

Table 16-4: Drill and Blast Parameters

Parameter	Units	RH			MA, PC, KH-JZ			SM		
Rock Type		Soft	Trans	Hard	Soft	Trans	Hard	Soft	Trans	Hard
Bench Height	m	9	9	9	9	9	9	8	8	8
Burden	m	4.8	4.5	4.5	4.8	4.6	4.6	4.8	4.6	4.6
Spacing	m	5.5	5.3	5.3	5.5	5.3	5.3	5.5	5.3	5.3
Subdrill	m	0	0.5	0.5	0	0.5	0.5	0	0.5	0.5
Charge Length	m	6.0	6.5	6.50	6.00	6.50	6.50	5.00	5.50	5.50
Stem Length	m	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Powder Factor	kg/t	0.40	0.36	0.31	0.40	0.35	0.30	0.37	0.33	0.28

16.5 Life of Mine Production Schedule

The LOM schedule and production rate have been established to feed the Rosebel Plant to its power capacity while respecting annual mining rate constraints, phase drop down rates, and minimizing truck peak requirements.

The LOMP was completed by month for 2022, quarterly in 2023, and annually for the remaining of the schedule from 2024 to 2033. The results of the schedule are presented on an annual basis.

The 2022 LOMP (on a 100% basis) envisages a 12 year operational mine life averaging 277,223 oz Au/year, ramping up to over 300,000 oz Au/year in 2025, with a total forecast production of 3.327 Moz Au. With additional capital investment, there are opportunities to benefit from further operational efficiencies and improve the LOMP including accelerating the production ramp up, improvements to the comminution circuit, process plant expansion, and targeting certain productivity and cost optimizations.

The processing rate of the Rosebel Plant has a limit of 7.7 Mtpa of hard rock equivalent. The total limit is 12.5 Mtpa depending on soft ore feed. The feed is also limited by rock hardness, which is considered through a SPI factor by pit (Table 16-5), where fresh rock has a higher factor than soft or transition material. Diluted ore tonnages were accounted for in determining the processing rate limits of the Rosebel Plant.

Table 16-5: SPI Factors by Deposit

Deposit	Soft (kWh/t)	Transition (kWh/t)	Hard (kWh/t)
SM	1.85	2.71	4.77
KH	1.85	2.71	4.37
JZ	1.85	2.71	4.85
MA	1.85	2.71	5.45
RB	1.85	2.71	5.09
PC	1.85	2.71	5.08
RH	1.85	2.71	5.09

Production starts at a rate of 59 Mtpa in 2022 and steadily increases to a rate of 64 Mtpa from the Rosebel and Saramacca operations until 2026. From 2027 the production rate will step up to 73 Mt with additional loading and hauling units. The production will start to decline from 2031 as the number of available working areas reduces with less pits available.

The proportion of hard rock in the Rosebel Plant feed increases slowly from 66% to 92% between 2022 and 2033.

Figure 16-2 presents the annual production, reported by pit, as well as the overall stripping ratio. Figure 16-3 presents the annual mill feed by ore type as well as the feed grade.

Figure 16-2: Mining Pit - Rosebel and Saramacca 2022 Life of Mine Plan

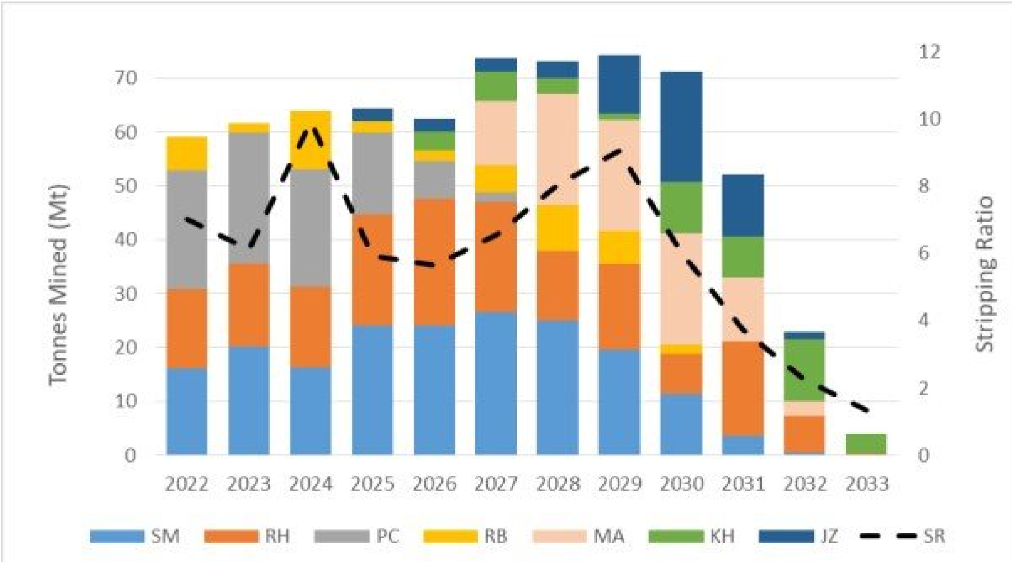
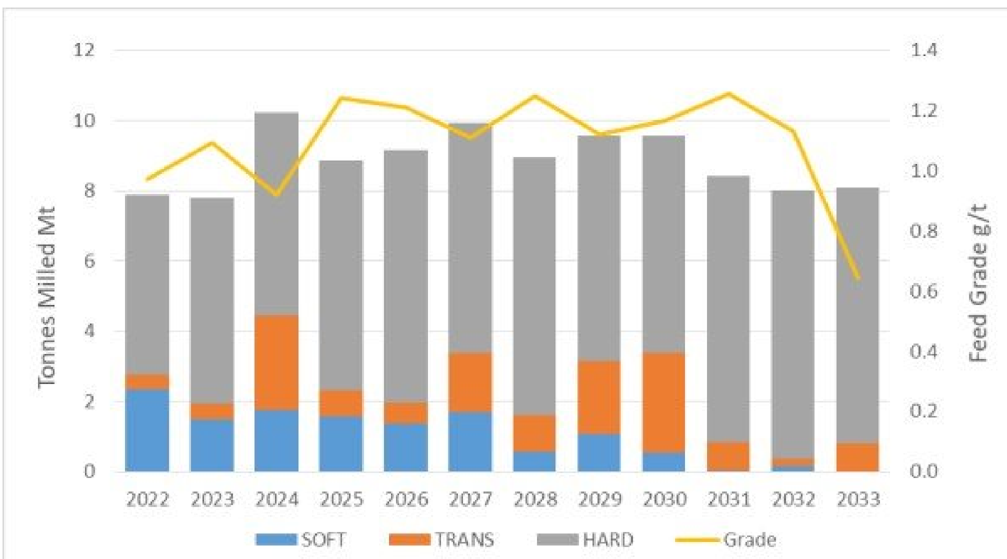


Figure 16-3: Mill Feed - Rosebel and Saramacca 2022 Life of Mine Plan



The LOMP assumes a maximum annual vertical rate of mining advance of 63 m in the pit push backs. The vertical advance rate is reduced to 45 m as the push backs reach the current pit bottoms. The SM pit vertical advance rate is limited to 48 m in the north section and 40 m in the southern portion. Further details on data are identified in Table 16-6.

Table 16-6: Life of Mine Plan

	Units	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
KH														
Ore	000 t	-	-	-	-	539	1,087	165	197	254	351	1,352	1,371	5,316
Grade	g/t Au	-	-	-	-	0.59	0.75	0.81	0.79	0.66	0.62	1.00	1.25	0.92
Waste	000 t	-	-	-	-	3,058	4,220	2,859	1,080	9,241	7,153	10,155	2,206	39,974
All	000 t	-	-	-	-	3,597	5,307	3,025	1,277	9,495	7,504	11,508	3,577	45,289
S/R	(-)	-	-	-	-	5.7	3.9	17.3	5.5	36.4	20.4	7.5	1.6	7.5
JZ														
Ore	000 t	-	-	-	234	085	435	024	820	3,596	3,648	872	-	9,715
Grade	g/t Au	-	-	-	0.88	1.15	1.20	0.69	0.45	0.71	0.96	1.20	-	0.86
Waste	000,t	-	-	-	2,202	2,133	2,229	2,945	9,930	16,766	7,784	432	-	44,421
All	000 t	-	-	-	2,436	2,218	2,664	2,969	10,750	20,363	11,432	1,304	-	54,135
S/R	(-)	-	-	-	9.4	25.0	5.1	122.3	12.1	4.7	2.1	0.5	-	4.6
PC														
Ore	000 t	2,430	4,338	2,582	4,559	3,949	1,460	-	-	-	-	-	-	19,318
Grade	g/t Au	0.89	0.89	0.86	0.96	0.99	1.20	-	-	-	-	-	-	0.95
Waste	000 t	19,451	20,101	19,344	10,543	2,934	308	-	-	-	-	-	-	72,682
All	000 t	21,881	24,439	21,926	15,102	6,882	1,769	-	-	-	-	-	-	92,000
S/R	(-)	8.0	4.6	7.5	2.3	0.7	0.2	-	-	-	-	-	-	3.8
RB														
Ore	000 t	1,265	1,088	891	461	051	686	832	1,460	1,225	-	-	-	7,960
Grade	g/t Au	0.93	1.03	0.69	0.65	0.67	0.60	0.72	0.85	1.32	-	-	-	0.90
Waste	000,t	4,986	710	10,038	1,606	1,954	4,335	7,767	4,495	601	-	-	-	36,492
All	000 t	6,251	1,798	10,929	2,067	2,005	5,021	8,599	5,956	1,826	-	-	-	44,452
S/R	(-)	3.9	0.7	11.3	3.5	38.1	6.3	9.3	3.1	0.5	-	-	-	4.6

	Units	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
MA														
Ore	000 t	-	-	-	-	-	423	629	832	2,585	3,581	1,611	013	9,674
Grade	g/t Au	-	-	-	-	-	0.52	0.70	0.76	0.98	1.06	1.67	1.56	1.07
Waste	000 t	-	-	-	-	-	11,479	19,971	19,828	18,033	8,436	1,028	018	78,793
All	000 t	-	-	-	-	-	11,902	20,600	20,660	20,618	12,016	2,639	031	88,467
S/R	(-)	-	-	-	-	-	27.1	31.7	23.8	7.0	2.4	0.6	1.4	8.1
RH														
Ore	000,t	1 439	1 544	536	1 045	2 344	3 629	3 527	1 640	312	2 690	3 027	293	22 028
Grade	g/t Au	0.85	1.05	0.89	1.24	1.21	1.03	1.28	1.54	0.93	0.81	0.92	1.00	1.08
Waste	000 t	13,410	13,833	14,499	19,726	21,318	16,937	9,306	14,317	7,018	14,742	3,885	032	149,023
All	000 t	14,849	15,377	15,035	20,772	23,663	20,566	12,833	15,957	7,330	17,431	6,912	325	171,050
S/R	(-)	9.3	9.0	27.1	18.9	9.1	4.7	2.6	8.7	22.5	5.5	1.3	0.1	6.8
SM														
Ore	000 t	2,226	1,723	1,858	2,999	2,437	2,049	2,892	2,450	2,118	723	173	-	21,648
Grade	g/t Au	1.31	1.45	1.95	1.68	1.70	1.65	1.78	1.76	1.99	3.08	3.52	-	1.76
Waste	000 t	13,865	18,352	14,317	21,001	21,563	24,478	22,109	17,166	9,327	2,931	306	-	165,415
All	000 t	16,090	20,075	16,175	24,000	24,000	26,527	25,001	19,616	11,445	3,654	480	-	187,063
S/R	(-)	6.2	10.7	7.7	7.0	8.8	11.9	7.6	7.0	4.4	4.1	1.8	-	7.6
Total														
Ore	000 t	7,360	8,693	5,865	9,299	9,405	9,770	8,070	7,400	10,091	10,993	7,036	1,677	95,658
Grade	g/t Au	1.02	1.05	1.18	1.21	1.21	1.11	1.34	1.25	1.13	1.09	1.20	1.21	1.16
Waste	000 t	51,711	52,996	58,199	55,079	52,960	63,985	64,958	66,816	60,987	41,045	15,807	2,256	586,798
All	000 t	59,071	61,689	64,065	64,377	62,365	73,755	73,027	74,215	71,078	52,038	22,843	3,933	682,456
S/R	(-)	7.0	6.1	9.9	5.9	5.6	6.5	8.0	9.0	6.0	3.7	2.2	1.3	6.1

17 RECOVERY METHODS

17.1 Overview

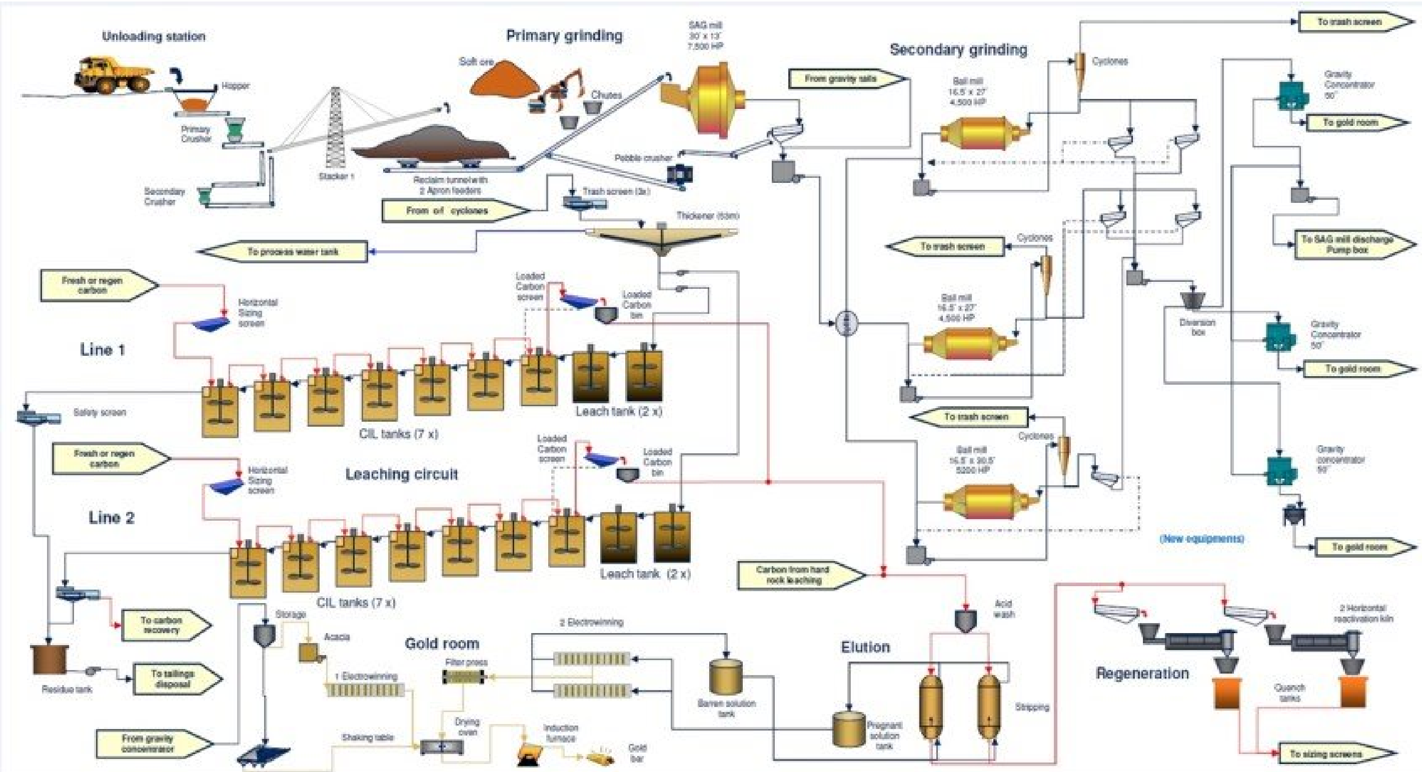
The Rosebel Plant was designed to treat 12.5 Mtpa ore via a conventional cyanidation process. ROM material is processed using a conventional gyratory crusher with a secondary crusher in open circuit and a SAG-Ball milling comminution circuit followed by gravity, CIL process, and associated gold recovery and carbon handling circuits to produce doré.

The Rosebel Plant has been progressively expanded and documented in previous NI 43-101 technical reports.

The feed to the Rosebel Plant has been a specific blend ratio with a minimum of soft rock quantities required (i.e., laterite and saprolite). While the Rosebel Plant has currently been operating near capacity, for future mining years laterite and saprolite quantities will drop significantly and the feed will consist of transitional and hard rock ore. The only pit that will source saprolite and laterite to the Rosebel Plant is the SM pit.

The current Rosebel Plant flowsheet is provided in Figure 17-1.

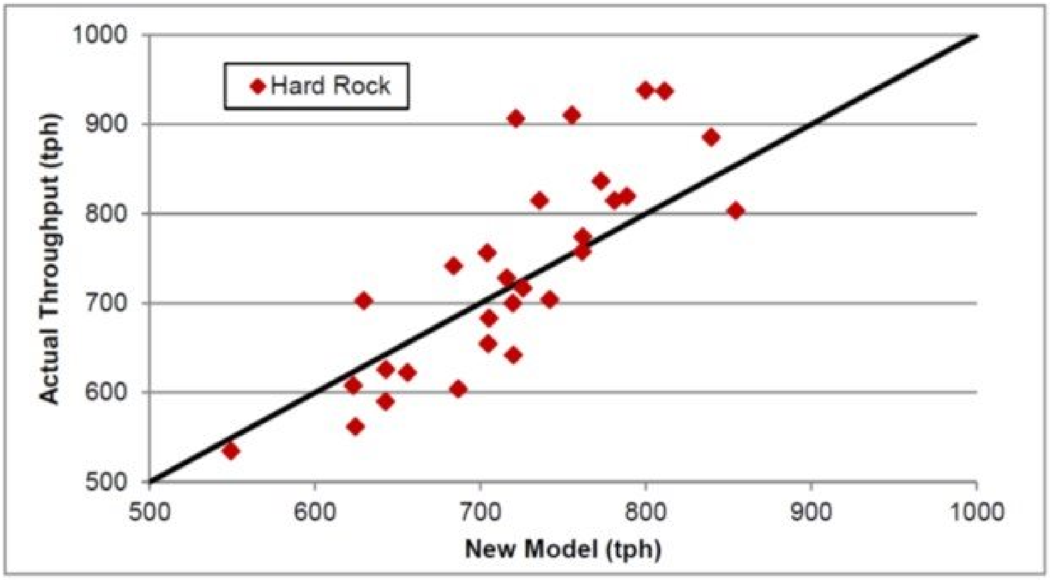
Figure 17-1: Rosebel Processing Plant Flowsheet



17.2 Plant Throughput

In 2021, a new plant throughput model was developed to estimate the processing rate as the ratio of hard rock in the Rosebel Plant feed increases. The model considers current SAG mill limitations (SPI model) and the global grinding circuit power available (BWi model). The correlation between the new model and hard rock plant performance is provided in Figure 17-2.

Figure 17-2: Correlation Between the New Model and Hard Rock Plant Performance



17.3 Crushing, Stockpiling, and Reclaim

ROM material is delivered to the primary crushing facility by haul trucks and front end loaders. The primary crusher facility includes a 1.37 m x 1.88 m gyratory crusher, followed by a vibrating grizzly and a 2.1 m secondary crushing system that produces the required feed for SAG mill. The crushing product sizing is set at minus 63 mm (2.5"). An active hard rock stockpile is maintained at approximately 50,000 t.

Soft rock feed was maintained through two grizzlies using one dozer and two backhoes, with an active stockpile capacity of approximately 200,000 t. Hard rock/soft rock blending to the SAG feed conveyor is maintained by two apron feeders, respectively.

17.3.1 Improvement Project to Increase Hard Rock Capacity at the Rosebel Plant

In 2021, Lycopodium Limited was retained to prepare a PFS titled "Rosebel Comminution Circuit Debottlenecking PFS" in order identify potential debottlenecking solutions for the comminution circuit and to increase hard rock equivalent plant throughput to 7.7 Mtpa (OMC, 2021). Detailed engineering is forecast to commence in 2022 and commissioning is forecasted for H2 2023. Major changes identified in OMC (2021) include:

- Replacing the current secondary grizzly with a MF3061-2 double deck multislope (Banana) screen with 100 mm and 40 mm apertures. With the use of 40 mm bottom deck screen apertures, a finer crushing product size is expected, improving the milling rate to some extent.
- Replacing the current secondary cone crusher (Symons seven foot cone crusher) with a MP800. The crushing circuit capacity can be expected to increase to 7.7 Mtpa at a 65% utilization.
- Replacing the current pebble crusher (CH660) with a HP900 cone crusher.
- Replacing the existing gravity screens (2.13 m x 4.88 m) with 2.4 m x 6.1 m screens to improve the gravity feed capacity and improve the gravity recovery.
- Replacing the BM#3 discharge static screen with a trommel screen will allow RGM to increase BM#3. Hence, the current grinding circuit will be maximized and the grinding capacity can be expected to increase to 7.7 Mtpa hard rock equivalent.

17.4 Grinding and Classification

The existing two stage grinding circuit produces a cyclone overflow of P_{80} 74 µm. The product size is expected to increase over time as hard rock content in the feed increases to approximately 100 µm without significantly impacting gold recovery.

The first stage of grinding includes a 9.1 m x 4.0 m SAG mill driven by a 7,500 hp variable speed motor controlled by a Power Flex drive. The SAG mill is operating in an open circuit feeding two 2.4 m x 4.8 m vibratory screens. Screen oversize is processed through a cone crusher with the product returning to the SAG mill feed. SAG mill discharge screen undersize is pumped to the pressure distributor where it is combined with the ball mill discharge and process water.

The second stage of grinding consists of two 5.0 m x 8.2 m ball mills driven by 4,500 hp motors and one 5.0 m x 9.3 m ball mill driven by a 5,200 hp fixed speed motor that operates in a parallel closed circuit. The ball mills operate in closed circuit cyclones. The cyclone underflow reports back to the ball mills for further grinding, while the cyclone overflow, at 35 wt% solids and P_{80} 75 µm to 100 µm flows by gravity to the four 25 m^2 linear screens to remove trash from the slurry.

17.5 Gravity Circuit

Approximately 20% of the cyclone underflow from each cyclone cluster reports to the Sizetec 2.1 m x 4.9 m vibratory screens fitted with 10 mesh panels. Screen oversize reports to the ball mill discharge pump boxes, and screen undersize reports to the gravity circuit via a magnetic drum separator at a rate of 400 t/hr. The gravity circuit consists of three Falcon concentrators, a Consep Acacia intensive leach reactor, and a Deister table. Concentrate is leached with high concentration cyanide and the pregnant solution is transferred to the electrowinning cell. The Deister table is used to upgrade the concentrate up to 75%, prior to smelting whenever the Acacia reactor is offline. Gravity recovery represents up to 30% of gold production. Gravity tails are pumped back to the SAG screen undersize pump box.

17.6 Thickening, Leaching, and Adsorption Circuit

Trash screen undersize reports directly to a 53 m diameter x 2.9 m high rate thickener. The slurry is thickened from 35% (w/w) solids to 50% (w/w) solids prior to pumping to the leach tanks. The thickener overflow gravity flows to the process water tank.

The current leaching and adsorption circuit consists of two parallel lines comprised of two agitated leach tanks followed by seven leach-adsorption stages. Each stage of the adsorption circuit consists of a mechanically agitated tank equipped with a mechanically swept vertical 13.5 m^2 carbon retaining screen.

There is an online automatic sampler that samples the leach feed. The CIL circuit residence time varies from approximately 28 hours to 33 hours, depend on mill throughput and tank availabilities.

Lime is added to the grinding circuit to increase the slurry pH to 10.5. Sodium cyanide is added to the SAG feed chute and the initial leach tanks for gold leaching. All tanks are sparged with low pressure air to ensure sufficient oxygen is available for the gold dissolution reaction.

Activated carbon is present in the CIL slurry to absorb the gold-cyanide complex ion and is maintained at a concentration of 10 kg/m^3 to 12 kg/m^3 per tank.

The tailings slurry is pumped to the TSF and the water is reclaimed for the Rosebel Plant and also to recover gold from solution losses via a recently added carbon in column circuit.

17.7 Carbon Stripping (Elution) and Electrowinning

Steel wire wool cathodes in two electrowinning cells run in parallel with a target of 85% efficiency. The loaded cathodes are removed and pressure washed, with the gold in the form of sludge being recovered and dried. The dried gold sludge, which is combined with gravity concentrate, is mixed with fluxing chemicals, and smelted onsite to produce bullion bars of 88% to 92% gold purity, with silver forming most of the balance of metal.

The gold bullion is shipped to the contracted refinery for further processing and subsequent sale.

The fine carbon generated in the stripping circuit is collected at the educator tank and shipped on a monthly basis to the smelter.

17.8 Power

The Rosebel Plant consumption when in operation is anticipated to vary between 25 MWh to 30 MWh for the LOM.

17.9 Consumables

Table 17-1 presents the projected reagent consumption.

Table 17-1: Projected Reagent Consumption

Consumables (t)	2022	2023	2024	2025
5" Balls	2.140	2.144	2.144	2.150
2" Balls	5.226	5.236	5.236	4.754
Lime	16.700	13.288	18.880	17.963
Cyanide	4.170	3.602	4.889	4.414
Flocculant	129	114	154	136
Caustic Soda	368	343	449	390
Nitric Acid	1.268	1.183	1.550	1.344
Carbon	555	518	678	588
Anti Scalant	50	47	61	53

17.10 Life of Mine Recoveries

Table 17-2 presents the average recoveries used in the LOM based on test work and combined with historical production data.

Table 17-2: Life of Mine Gold Recoveries

Rock Type	Rosebel (% Au)	Saramacca (% Au)	
		Non Graphitic	Graphitic
Laterite	N/A	91.5	91.3
Saprolite	94.9	90.4	89.4
Transition	93.0	79.8	70.0
Hard Rock	93.0	73.0	73.1

18 PROJECT INFRASTRUCTURE

18.1 Rosebel

18.1.1 Road

Rosebel lies approximately 85 km south of the capital of Paramaribo. The best mode of travel to Rosebel is by road, which takes approximately two hours from Paramaribo. The road is a paved asphalt road and is in good condition and capable of carrying heavy equipment.

The Mine site roads include access from the main gatehouse to the airstrip, camp, Rosebel Plant area, truck shop, and administration building area. They also include road access to the Mindrineti River for water supply.

18.1.2 Air Strip

An existing airstrip with an approximate length of 1.2 km is used for emergency evacuation and gold doré transportation. The airstrip is located five kilometres from the Rosebel campsite.

18.1.3 Facilities

The Mine includes the following support facilities:

- Administration Building (includes Security, Health and Safety, Environment, Engineering, Geology, Accounting, Information Technology, Procurement, and Logistics)
- Human Resources (HR) Building (includes HR and Capital Projects)
- Mine offices
- Mine Dry/Lunchroom
- Camp (includes kitchen, gymnasium, recreation area, camp offices, rooms). The camp consists of 1,253 single and double rooms which can accommodate a maximum of 2,300 employees.
- Processing Plant Buildings (includes mill administration building, workshop, reagent storage and laboratory facilities)
- Truck Shop (includes heavy truck maintenance, heavy welding shop, haul truck tire change, dozer/shovel bay for tracked equipment, mine auxiliary equipment maintenance and repair)

- 5 MW solar power plant
- Emergency generator
- Security
- Warehouse
- Fuel Storage
- Potable water system which supplies water from the Mamanari Creek to the camp and site.
- Fire protection system
- Sewage and waste disposal
- Aggregate plant
- Communication and IT Systems

18.1.4 Power Supply

Electrical energy is purchased directly from the Surinamese Government. Power is delivered from the Afobaka hydroelectric generating station which is owned and operated by Staatsolie Power Company Suriname N.V. In 2014, IAMGOLD built a 5 MW solar power plant at the Mine, which is Suriname's first renewable source of energy. The solar power plant was commissioned in June 2016.

IAMGOLD reached an agreement with the Republic whereby RGM will purchase power at US$0.14/kWh given a contribution of US$50 million to fund an additional 42 MW of power generation capacity in the country.

The available supply of power from the national grid and the solar power plant is sufficient to supply the 35 MW required for the Mine until the end of mine life.

18.2 Saramacca

The Saramacca site is a satellite operation to the current Mine site.

18.2.1 Roads

The Saramacca site is linked to the Mine through an all-season access road, approximately 23 km in length, between the southern end of the Rosebel and Saramacca concessions. Haul roads are mostly built with laterite compacted with aggregate produced by the aggregate plant.

18.2.2 ROM Storage Pad

Since all the ore from the SM pit is currently sorted as marginal, intermediate, and high grade, handling space is mandatory to guide the production trucks toward the right deposition zones. A loading truck area was created to permit the transfer of the ore toward the Rosebel Plant. The ROM ore storage pad is located immediately adjacent to the entrance to the Saramacca site.

18.2.3 Waste Rock Storage Facilities

With an expected stripping ratio of 7.6: 1, large piles of waste rock will be generated by the Saramacca mining activities. While some of the waste rock will be reused for construction purposes, large amounts of waste rocks will require stockpiling. Two saprolite WRSFs and a rock WRSF have been developed, with drainage to downslope sedimentation control ponds.

18.2.4 Support Facilities

The Saramacca site includes the following support facilities:

- Security
- Two 480 V 600 kVA generators
- Water storage for service water and fire suppression water
- Fresh water supply wells
- Sewage treatment
- Administration building
- Truck maintenance shop
- Tire change pad
- Truck wash area

- Fuel station

18.3 Tailings Storage Facility

The Rosebel TSF consists of a series of earth fill dam structures, joining topographical highs, to form two distinct basins, the Main Basin and the Expansion Basin (Figure 18-1). The original TSF (TSF1) consists of a series of 12 dams in operation, at a minimum elevation of 559 m (mine elevation datum). In 2014 the TSF was expanded to the east to form the expansion facility, namely TSF2, which contains a total of eight additional dams in operation. In late 2021, TSF1 and TSF2 merged to form a single basin. The current minimum elevation at TSF1 and TSF2 is 559 m and 560 m, respectively.

The total combined area of TSF1 and TSF2 is 725 ha and when constructed to the proposed final elevation of 565 m, a total storage capacity of approximately 287 Mt (204 Mm^3) will be provided. A PFS was carried out for the design of a third expansion of the facility (TSF3), to the west, to accommodate the increase in Mineral Reserves and associated milled tonnage. (Figure 18-2). Site investigations of proposed TSF3 dam locations were carried out in March 2021 with geotechnical drilling and core logging. A limited ESIA with baseline surface/ground water, habitat, and archaeological studies is currently ongoing to gain full permitting for the proposed TSF3 location. The limited ESIA is expected to be completed in Q2 2022.

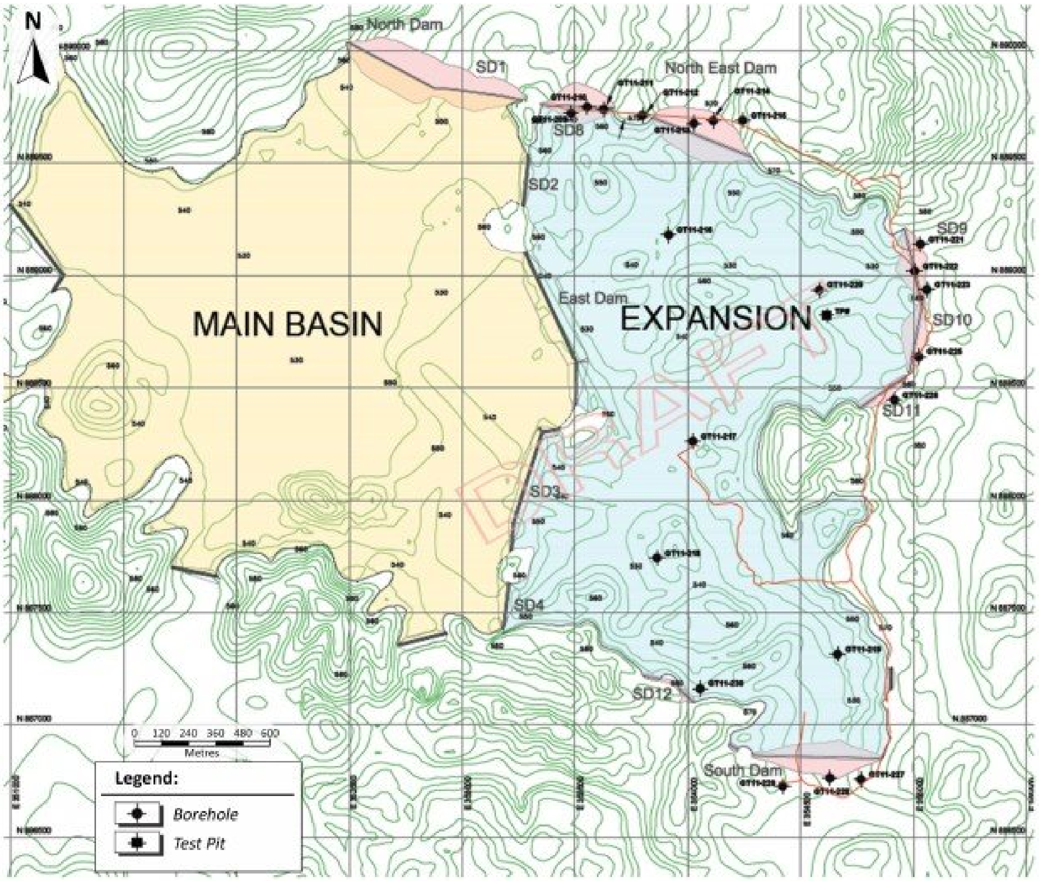
The projected storage capacity of TSF3 is 37 Mt, providing a total storage capacity of 324 Mt. The expanded TSF will be compliant with all permitting requirements and will include future recommendations from the ongoing Closure Plan updates (refer to Section 20).

Tailings are discharged into the basin by a combination of spigotting from the dam crests and end of pipe discharge. Spigotting consists of discharging tailings from a series of small diameter holes or pipes tapped into the main tailings line. This method of discharge produces a quasi-planar beach parallel to the discharge line.

Direct discharge is also utilized both on smaller dam structures and always at the end of line. This consists of discharging the entire tailings stream from the end of the main tailings line. This type of discharge creates a conical-shaped beach around the discharge point, which is appropriate for smaller valleys.

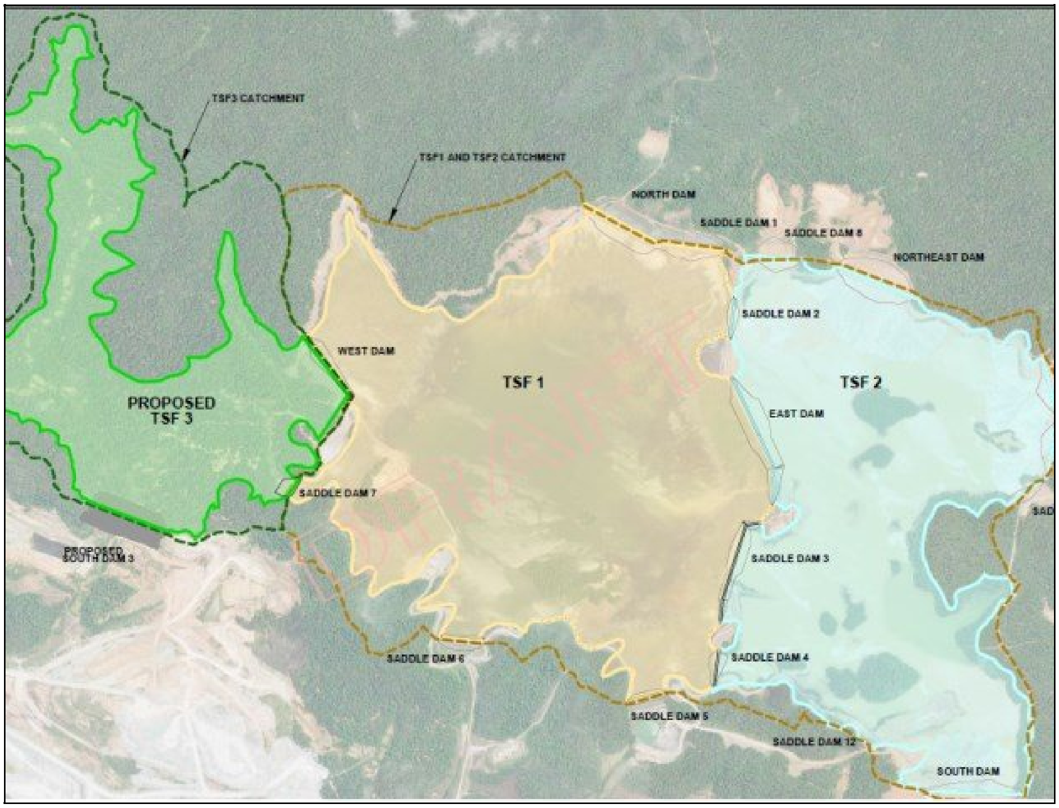
The existing effluent treatment plant (ETP) is used for treatment of process water. Treated water that is discharged from the ETP at a treatment rate which allows the pond to be maintained at a constant volume over the years.

Figure 18-1: Main Basin and Expansion Basin



Source: Golder Associates, 2013.

Figure 18-2: Proposed TSF 3 Expansion



Source: Golder Associates, 2021.

19 MARKET STUDIES AND CONTRACTS

19.1 Markets

Gold is the principal commodity produced at Rosebel and Saramacca and is traded at spot prices for immediate delivery. The gold markets are mature global markets with reputable smelters and refiners located globally.

19.2 Contracts

RGM produces gold doré bars which are shipped to major refineries. Existing refining agreements include terms and conditions that are consistent with standard industry practices. Refining charges include treatment and transport.

RGM has existing long term or annual contracts for all major expenditures which are required for the operations. Contracts with values higher than US$5.0 million/year include fuel, lubricants, process plant reagents, grinding media, mill liners, mining components, off the road tires supply, explosives consumables and RC drilling. All existing contract terms and conditions are within industry norms.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

This section summarizes environmental, permitting, and social or community aspects relevant to the updated Rosebel and Saramacca Mineral Resource and Mineral Reserve estimates. Most notably, the 2022 LOMP includes mining of the SM deposit. Historical information is provided in previous NI 43-101 Technical Reports related to the Rosebel and Saramacca operations.

20.1 Current Status

Current mining operations on the Rosebel and Saramacca concessions are governed by the Mineral Agreement dated April 7, 1994, as first amended, and supplemented on March 13, 2003, followed by a second amendment on June 6, 2013. The Second Amendment of the Mineral Agreement established an UJV with the Republic to undertake exploration and possible exploitation in concessions surrounding Rosebel. The Saramacca concession is one of the areas subject to the UJV.

The Mineral Agreement contains contractual obligations for mineral exploration and exploitation and requires that a FS and Environmental Impact Assessment (EIA) of the company activities be submitted to the Government of Suriname as a prerequisite to mining. The Mineral Agreement also establishes the terms and conditions under which RGM operations and development are conducted, including cross-references to the commitments made in the Rosebel EIA (EIA, 2002).

The existing ROE provides the necessary approvals for mining and processing within the Rosebel concession.

For mining of the SM deposit RGM submitted the final ESIA in December 2018 and obtained the ROE in May 2019.

20.2 Future Permitting

The 2022 LOMP will result in the generation of mine tailings that exceed the capacity of the current TSF. The 2022 LOMP includes the construction of an additional TSF cell for use by 2023. A screening process was completed with NIMOS and it was advised that a Limited ESIA (Addendum to the 2013 ESIA) is required for this additional facility. ERM Consulting has been contracted for the TSF3 ESIA permitting process. Permitting for tailings expansion is not currently a constraint to the LOMP.

RGM believes it has sufficient time to advance and complete the required assessment to submit an addendum to the 2013 ESIA and at this time does not see any reason that the required expansion to the TSF would not be approved.

While there are other changes to the Rosebel facilities that are required to support the 2022 LOMP, it is not currently anticipated that these changes will require additional permits or approval. A need for any additional permitting will be assessed in due course.

20.3 Environmental and Socio - Economic Studies

Baseline environmental and socio-economic studies have been conducted in the Rosebel-Saramacca area from the mid-1990s to present. Most recently, detailed environmental and socio-economic baseline studies have been conducted in the Saramacca concession and the corridor between the Rosebel and Saramacca concessions in support of the ESIA filed in July 2018. Environmental and socio-economic studies are also conducted as a routine element of RGM's operational management plans described in Section 20.4.

A summary of the environmental and socio-economic studies completed to support the Saramacca ESIA are summarized in Table 20-1.

Table 20-1: Saramacca Completed ESIA Environmental and Socio-Economic Studies

Area	Studies
Hydrogeology and Geochemistry (Metal Leaching and Acid Rock Drainage)	• Hydrogeologic and geochemical site investigation for the Saramacca Mine Project (2017). • Hydrologic site investigation and water balance modelling for Saramacca (2017).
Vegetation and Wildlife	• Flora (2018). • Birds, large and small terrestrial and arboreal mammals (2018). • Bats and arboreal mammals (2017).
Terrestrial Habitats	• Terrestrial habitats and vegetation (2018).
Aquatic Habitats	• Aquatic ecology of streams (2018). • Amphibians and reptiles (2017).

Area	Studies
Physical Resources	• Geomorphology and Soils (2017). • Soil study in disturbed areas (2017).
Social Environment	• National census of the population, demographics, and households conducted in 2012, with data available at the district level and resort level for some indicators. • Community profiles of the Brokopondo Cols conducted in 2016-2017 (Schalkwijk). • Baseline study of the Sipaliwini Cols, including household survey conducted in 2018. • Ecosystem services assessment in the vicinity of the Saramacca concession conducted in 2018.

20.4 Social Environment

A Community Relations Plan with supporting guideline and procedures was developed to minimize the mine's impact on communities and the environment.

At the time of the most recent census (2012), the Algemeen Bureau voor de Statistiek (ABS General Bureau of Statistics) reported a population in Suriname of 541,638. According to the World Bank, the population estimate in 2020 was 586,534.

The main ethnic groups in Suriname are those of African descent (Maroons (22%) and Creoles (16%), which are considered two distinct ethnic groups), Indonesian descent (14%), Indian descent (27%), and Indigenous (4%). The remainder of the population is classified as mixed, unknown or "other," and includes a sizeable population of Brazilian and Chinese nationals that have migrated to Suriname in recent years primarily for participation in the SSM and service sectors.

The Rosebel and Saramacca concessions are situated in the districts of Brokopondo and Sipaliwini. These districts have a considerably different demographic profile than the country overall, with the majority of population in both districts made up by the Maroon ethnic group (83% and 76% of the district population, respectively). Both districts are major producers of timber, and local populations are also heavily reliant on gold mining (both large-scale in the case of IAMGOLD workers, and small scale).

Brokopondo and particularly Sipaliwini districts are sparsely populated. There are no urban centres, and population centres in the vicinity of the Rosebel and Saramacca concessions consist of Maroon villages with traditional leadership.

There is one active community, Nieuw Koffiekamp, within the boundaries of the Rosebel concession. Nieuw Koffiekamp is a Maroon village with a population of approximately 500 permanent inhabitants belonging primarily to the Aukan Maroon tribe group, but with some representation by the Saramaka and Matawai tribe as well. From the time that the Rosebel concession was granted to a multinational (initially to Golden Star in the 1990s) until the present day, there has been ongoing conflict with residents of Nieuw Koffiekamp. In more recent years, the primary issues of contention have been the conflict between RGM's operations and SSM interests. This has necessitated RGM's close, ongoing engagement with traditional authorities, the village's SSM groups, and the population at large.

Several agreements have been signed between RGM and the community over the years to allow SSMs from the community to mine in selected areas of the Rosebel concession, under specific conditions. At this time, two agreements known as the RME Protocol and the ETR Protocol are in force. The latter was renewed and newly signed off in January 2020. These agreements were signed by the Government of Suriname, representatives of Nieuw Koffiekamp's SSM groups, and RGM, allowing mining in the RME area of the Rosebel concession.

In the immediate surroundings of the Rosebel concession, there are eleven other Maroon villages that are considered as communities of interest (COIs) by RGM with the potential to be directly impacted by or have influence over operations on the Rosebel and Saramacca concessions. These villages are: Marshallkreek, Klaaskreek, Nieuw-Lombe, Balingsoela, Brownsweg and, Kwakoegron in Brokopondo District, and collectively Nieuw Jacobkondre, Baling, Misalibi and Bilawatra in Sipaliwini District are considered one Community of Interest. These, along with Nieuw Koffiekamp are considered the direct area of influence of RGM's operations.

Economic activities in of the local villages remain dependent on the Surinamese coastal economy. Main activities consist primarily of subsistence agriculture on relatively poor land, SSM, forestry, and trade. Some villagers are also employed by government agencies including the district commissioners, the electricity company, and the forestry service. As of Q2 2021, a total of 26% of the RGM workforce are residents from communities in the Rosebel-Saramacca area. In general, however, there are few formal employment opportunities in this area and the most lucrative income-generating activity tends to be SSM. The level of reliance on this activity varies among communities, with particularly large proportions of the Nieuw Koffiekamp, Brownsweg, Kwakoegron, Nieuw Jacobkondre, Baling, Misalibi, and Bilawatra populations relying on SSM as their primary livelihood activity.

In the case of the Saramacca concession, there are signs of past SSM activity within the concession boundaries but none is occurring there currently. The nearest communities (Nieuw Jacobkondre, Baling, Misalibi, and Bilawatra) are approximately 12 km from the concession and their current SSM activity areas do not extend into the concession area.

Other than the local Maroon villages, itinerant groups from other areas also engage in SSM activity in the vicinity of the Rosebel and Saramacca concessions. The number and demographic makeup of the SSM population in different areas of the country at any given time tends to be dynamic, fluctuating based on a range of factors including discovery of productive areas, gold prices, and security/law enforcement presence and policy. However, these itinerant populations tend to be primarily comprised of other Surinamese from other villages or the coastal area, or Brazilian nationals, many of whom are undocumented.

RGM has a regular program of engagement and community investment with all COIs, led by the Community Relations Department. In the case of the COIs in Brokopondo District, this relationship has been established and ongoing for many years. In the case of the four Sipaliwini COIs of Nieuw Jacobkondre, Baling, Bilawatra and Misalibi, the program is in its beginning stages as the Saramacca project started. Community investment projects are selected with input from community members and traditional authorities. Past projects have included: construction or renovation of infrastructure including school buildings, churches, village meeting houses, potable water systems and playgrounds, income generation projects such as establishment of a chicken farming operation, construction of ice machines and rice mills, and an agriculture project, delivery of training courses in subjects such as cooking and sewing, and a scholarship program for post-secondary candidates. Projects have had varying levels of success in terms of continuity, participation, and general satisfaction from the communities. RGM continues to adapt and refine its community engagement and investment approach to meet community needs, particularly as considerations for post-closure sustainability and continuity become more important.

20.5 Saramacca Tailings Environmental Assessment

20.5.1 Arsenic Leaching Potential

SM ore is co-processed with other ores from the Mine, and the combined tailings produced is deposited in the existing TSF. Geochemical characterization of the SM tailings has identified that the SM ore and tailings contain arsenic. On average, the SM tailings contain several 100's to more than 1000 mg/kg arsenic which is more than two orders of magnitude higher than those in other ores that are co-processed in the Rosebel Plant.

Test results for the tailings leach tests confirm high proportions of leachable arsenic from the SM tailings while arsenic leached from tailings derived from the other ore deposits were marginal, and do not appreciably contribute to arsenic loadings in the Rosebel Plant process water.

Arsenic concentrations in the effluent were modeled and predicted for 2021 through to 2032 during the expected LOM. Results indicate that arsenic levels in the TSF water will likely exceed the International Finance Corporation-World Bank (IFC-WB) effluent guideline of 0.1 mg/L during the mine LOM, coincident with co-processing of ore feed derived from the SM transition ore.

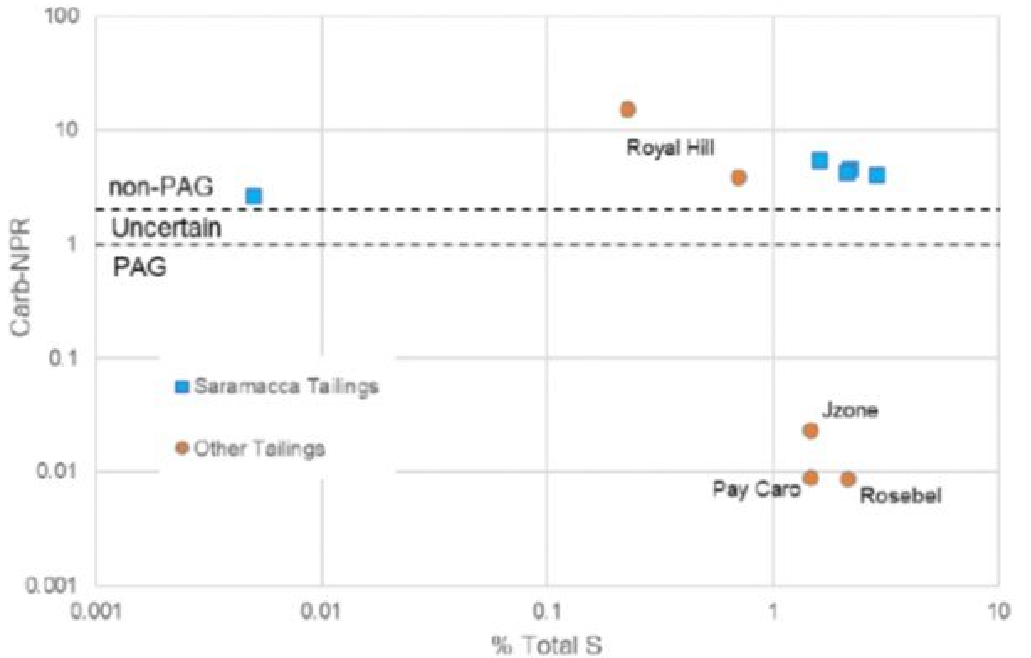
Arsenic in solution in the effluent will require treatment and can be accomplished by addition of ferric sulphate ($Fe_2(SO_4)_3$) solution which is a standard treatment reagent and common in mining. The approach is technologically simple, robust, and cost efficient.

20.5.2 Acid Base Accounting

Tailings samples have been tested for Acid-Base Accounting (ABA) to characterize the acid-generating potential of the tailings. This test included analysis for sulphur and carbon speciation, as well as quantification of tailings neutralization potential (NP) using the modified Sobek method.

Figure 20-1 below shows the plot of Carb-NPR with % total sulphur for all 10 tailings samples. The lines demarcating the limits of ARD classification are included for reference. Results show that the SM tailings were non-potentially acid generating (non-PAG) with very low to no potential to generate net acidic drainage. The two RH samples were also determined to be non-PAG.

Figure 20-1: Plot of Carb - NPR with % Total Sulphur



Results above confirm that the SM tailings are likely non-PAG, while some of the tailings derived from JZ, PC and RB may be PAG. The co-processing of PAG and non-PAG ore, as well as the subaqueous deposition of the resulting tailings into the TSF are likely appropriate to mitigate potential ARD effects.

20.6 Management Plans and Controls

IAMGOLD is committed to sustainable development and achieving and maintaining a Zero Harm culture. Environmental protection, community awareness, a commitment by all employees and contractors to a workplace free of injury and illness, protection against workplace hazards, profitability, and sustainability are integrated in all RGM's exploration, construction, mining, mineralized material processing, transport, support, and reclamation activities. In accordance with this commitment, RGM:

- Recognizes environmental management as a priority and has established several policies, standards, and procedures for conducting business in an environmentally responsible manner and committed to continuous improvement, pollution prevention, and regulatory compliance.
- Conducts business in an environmentally responsible manner by striving to minimize adverse environmental impacts, and where possible, offsetting environmental impacts, maintain and continuously improve the Environmental Management System, monitor key environmental elements, work towards energy efficiency, reduce solid waste production and maximize reuse and recycling.
- Has developed, implemented, and maintains an Environmental Management System certified to the ISO 14001:2015 Standard and a Health & Safety Management System certified to the ISO 45001-2018 Standard.
- Predicts, assesses, and effectively manages Health, Safety and Environmental risks. This includes risks to the host communities.
- Prepares for an effective response to emergencies and crises.
- Incorporates leading practices within Health, Safety and Environment in the planning and decision-making process throughout the life cycle of the operations.
- Promotes meaningful dialogue with stakeholder groups regarding Health, Safety and Environmental issues and be responsive to their concerns.
- Provides training and resources, continual motivation, and effective communication to ensure that our employees and contractors understand and are able to fulfill their Health, Safety and Environmental responsibilities.

In addition, RGM is subject to the corporate requirements of its parent company IAMGOLD, including:

- Sustainability Policy - IAMGOLD believes that a commitment to sustainability and social responsibility from all its employees and contractors is fundamental to the success of its business. IAMGOLD's Sustainability Policy outlines a number of guiding principles relating to community engagement, social responsibility, and protection of the environment (IAMGOLD 2020a). IAMGOLD has also developed a Sustainability Standard to define minimum requirements to comply with the Sustainability Policy (IAMGOLD 2017).
- Human Rights Policy - IAMGOLD is committed to establishing an organizational culture that respects human rights as set forth in international standards (i.e., UNE Declaration of Human Rights, International Labor Organization (ILO) Declaration on Fundamental Principles and Rights at Work). IAMGOLD's human rights policy outline 11 guiding principles relating to stakeholder consultation, integration of human rights considerations in all operations, promotion of human rights to stakeholders including host governments, and respecting the rights and traditions of Indigenous Peoples (IAMGOLD 2013a).

- Biodiversity Management Policy - IAMGOLD's Biodiversity Management Policy recognizes the fundamental importance of protecting biodiversity and sustaining healthy ecosystems as part of their mining projects. The Policy outlines guiding principles for integrating biodiversity management and conservation activities and objectives at all stages from exploration to mine closure (IAMGOLD 2015a).

- Health and Safety Policy - IAMGOLD requires a commitment by all employees and contractors to maintain a workplace free of incidents and illness as part of its continuous journey to achieving and maintaining 'zero injuries.' IAMGOLD's health and safety policy outlines guiding principles related to training, worker accountability, monitoring and reporting, and emergency preparation (IAMGOLD 2021).

- Water Management Policy - IAMGOLD recognizes the importance of environmentally sustainable and socially equitable water use and is dedicated to efficient water resource management and water conservation efforts throughout all aspects of operation, including closure planning, reclamation, tailings management discharge water quality, and potable water and groundwater quality (IAMGOLD 2015b).

- Energy and Greenhouse Gas Emissions Management Policy - In recognition that efficient management of energy is required to achieve its business strategy, provide benefits to stakeholders, and control environmental impacts, IAMGOLD strives to continuously improve energy performance, reduce GHG emissions, and support the introduction of clean and renewable energy. These objectives are met through a range of commitments for benchmarking and target setting, measurement and reporting, and exploring new options for integrating energy efficiency, GHG management, and clean and renewable energy options into design and operation of projects (IAMGOLD 2015b).

In addition to Surinamese national environmental laws and IAMGOLD corporate requirements and guidelines, RGM strives to be in general conformance with Canadian and international standards and guidelines as resources for social and environmental risk management. These international standards range from general guidelines applicable to private sector projects to industry-specific standards surrounding the use of cyanide in mining and the sustainable development performance of projects in the mining and metals industry:

- Mining Association of Canada (MAC) and the requirements of the Towards Sustainable Mining (TSM) initiative at all of IAMGOLD international operations. TSM is a performance system that helps mining companies evaluate and manage their environmental and social responsibilities. This system focuses on eight operational areas: Aboriginal and Community Outreach, Safety and Health, Crisis Management and Communications Planning, Biodiversity Conservation Management, Tailings Management, Water Stewardship, Energy and Greenhouse Gas (GHG) Emissions Management and Prevention of Child and Forced Labour.

- International Finance Corporation's Performance Standards on Environmental and Social Sustainability (IFC 2012).

- International Finance Corporation's General Guidelines on Environmental, Health and Safety (EHS) (2007). The Guidelines support actions aimed at avoiding, minimizing, and controlling EHS impacts during the construction, operation, and decommissioning phase of a project or facility.

- International Finance Corporation EHS Guidelines for Mining (2007) address industry-specific impacts and management for the mining sector. The guidelines present performance levels and measures of Good International Industry Practice (GIIP) that are applicable to underground and open-pit mining, alluvial mining, solution mining, and marine dredging.

RGM is not a signatory to the International Cyanide Code.

RGM's Environmental, Health and Safety Management System (EHSMS) last received ISO 14001:2015 system certification in December 2020 and ISO 45001:2018 system certification in July 2021. RGM's Community Relations Department is responsible for ongoing dialogue with the COIs near the Rosebel and Saramacca operations. The ESIA for Saramacca includes fifteen project-specific Environmental and Social Management Plans (ESMPs) for integration with the EHSMS.

Feedback and adjustment are an essential part of the EHSMS. Feedback systems include inspections, monitoring, and audits to confirm proper implementation of the ESMPs as well as effectiveness of recommended measures. Corrective actions include response to out-of-control situations, non-compliance, and non-conformance. Actions also include those intended to improve performance.

20.7 Waste and Tailings Disposal, Site Monitoring, and Water Management

20.7.1 Waste Rock Disposal

Storage areas for waste rock have been planned and designed to reduce haulage distances between pit ramp exits and storage areas and were selected to minimize the impact on water management. In-pit mine rock waste disposal is planned where the mine phasing allows, in PC and RH.

The estimated tonnes of waste for each pit for the LOMP is shown in Table 20-2.

Table 20-2: Waste Rock by Pit

Pit	WRSF	Waste Rock (Mt)	Footprint (ha)	Height (m)	Max Elevation (m)
RB	North	20.9	121	75	600
	South	15.5	85	75	600
KH	KH_WRSF	40.4	163	135	650
PC	North	52.7	190	135	665
	South	19.8	68	90	605
JZ	North	10.2	151	105	650
	PC_North	34.2	190	135	665
RH	North	130	126	75	590
	In-Pit	16.5	6	70	526
MA	North	34.8	137	90	615
	South	33.1	74	60	585
	In-Pit	10	46	113	535
SM	SM_WRSF	165.1	335	115	335

20.7.2 Tailing Disposal

The TSF was designed by Golder (Golder, 2018a). As noted in Section 18, the site footprint is 725 ha, with a storage capacity of 287 Mt. To ensure the infrastructure's stability, daily, monthly, and yearly inspections are carried out. Geochemical studies have shown that tailings are non-acid generating.

A program for environmental monitoring (ground water quality, fauna, and dam stability inspection) and progressive rehabilitation of the tailings site is in place, at and around, the tailings site.

An annual tailings management external audit is carried out to review the operational monitoring of the tailings site and to provide guidance to improve environmental performance.

20.7.3 Site Monitoring

An environmental and social monitoring program is in place (at all stages of the life-of-mine) at the site. This program encompasses water quality monitoring (potable water, ground water, surface water, and pit lakes, tailings pond, air quality (dust and greenhouse gas emission), biodiversity (terrestrial and aquatic fauna), weather, acid rock drainage (ARD) and follow up and assessment of the community investment program (health, education, potable water access, agriculture, animal husbandry, etc.) through post program evaluations.

20.7.4 Water Management

Accumulated water in the pits is collected in a sump located in the bottom of the pit, close to the ramp system, or near the pit rim. Water is pumped out of the pit from the sump and discharged into sedimentation ponds. Water from the pit sumps may be pumped directly in water trucks and used for dust suppression on active haul roads and secondary roads.

Tailings are thickened to a density of 40% solids before they are discharged into the tailings site. Water recovered from the tailings site is reused in the Rosebel Plant (reclaim water).

Portable water is supplied by wells. Potable water treatment consists of chlorination, sediment filtration, carbon filtration, and UV treatment.

For industrial water needs, reclaim water is recycled from the TSF. Hydrologic design is based on 100 year floods. A water quality monitoring program (surface water, ground water, potable water, pit lake water) is in place. Additionally, the quantity of water resources is monitored (river flow, water table level, water meters, etc.). The dykes of the dams and the ponds are inspected regularly (on a daily, monthly, and annual basis).

20.8 Mine Closure and Reclamation Plan

The 2002 EIA included mine closure and reclamation commitments and the 2012 EIA for the TSF Project also included closure and reclamation commitments. The ESIA for the Project includes a conceptual closure plan for the mine and its associated activities and infrastructure.

To date, no Rosebel concession land has been relinquished to the Republic and apart from the general clauses in the Mining Decree and the Mineral Agreement, there are no clear performance criteria set for relinquishment.

RGM has prepared a stand-alone Mine Closure Plan (MCP) that is periodically updated as per internal requirements. In addition, the RGM environmental department works closely with the finance department to generate RGM's annual Asset Retirement Obligation (ARO) cost estimate that is required for accounting purposes. The most recent closure plan update was completed in November 2018. The next update is scheduled for 2022.

The MCP covers all areas of mining-related activity within the Rosebel concession, including the mining pits, WRSFs, the TSF, onsite buildings and infrastructure, and all associated utilities within the operational area. The MCP also considers the interaction between RGM and the surrounding communities, as well as the activities of SSM activity on concession. SSM activity is an addition to previous versions of the MCP.

Excluded from the MCP is consideration of the lands that define the town of Nieuw Koffiekamp, which is located within the Rosebel concession. The MCP also excludes the mine exploration areas that are located adjacent to Rosebel and Saramacca.

The SM deposit was included in the MCP as a potential source of additional ore that, at the time, was identified as having the potential to form part of the LOMP in future years and for which eventual closure needs to be considered as part of its planning and design.

20.8.1 Rosebel

A summary description of the closed site at the Mine, described for each domain, is provided in Table 20-3.

Table 20-3: Rosebel Closed Site Summary Descriptions

Domain and Feature	Closed Site Summary Description
Tailings management area	• Tailings will be strategically deposited during operations to generate a final solid surface slope that minimizes ponding and directs contact water to Saddle Dam number 6. • An engineered spillway will be constructed in Saddle Dam number 6 to allow water to gravity flow to the receiving environment. Temporary sediment control upstream of the spillway may be required until revegetation of the tailings beach is established. • Current geochemical evaluation indicates that water can be released without treatment (ERM, 2018b), this will continue to be evaluated through the remainder of operations. • The solid tailings surface will be revegetated, achieved by hydroseeding.
WRSFs, stockpiles and borrow areas	• WRSFs will be sloped to meet closure objectives including physical stability criteria, landscaped, receive a cover of saprolite and growth medium, and seeded. • Saprolite will be stockpiled separately from transition and hard rock and used as a cover material in future reclamation. Saprolite deficits at KH-JZ and MA will be supplemented by material generated from other mining pits, or from adjacent hills (depending on the results of a trade-off study). • Woody debris, and the top 0.3m of soil from areas of future disturbance will be salvaged and stockpiled for use as revegetation growth material. • Where topsoil is in deficit growth medium will be a combination of saprolite mixed with organic materials (e.g., wood chips, compost, and leaf litter). Reclamation research will confirm the appropriate growth medium. • KH-JZ: An engineered cover system will be placed over the WRSF to mitigate ARD and metal leaching potential. KH will be used as a field test of closure design and revegetation for WRSFs. • There may be opportunities for progressive closure of WRSFs in-line with the LOM for PC South, MA North, MA South/RMW, and RH North. These will be further investigated as an integrated part of LOM planning. • Ore stockpiles will be processed and any other stockpiles of soil and overburden will be re-contoured to match the local topography. • Borrow areas will be re-contoured to be physically stable and free draining.
Mining Pits	• All open pits will be flooded to create pit lakes by stopping pit dewatering (pumping). Drainage patterns following topography will established and surface water run-off will be directed into the pit • Where safe to do so, open pit slopes sloped to stable grade and hydroseeded to minimize erosion and high walls above pit lake water lines will be sloped to be geotechnically stable. • KH: has been identified for early closure by prioritized filling of the pit to reduce ML/ARD potential. Flooding will be completed as soon as possible and KH will be used as a field test of closure design for pit lakes. • J-zone: has been identified for prioritized filling as a means of ML/ARD control. Flooding will commence as soon as possible after mining ceases within the LOMP. • PC: has been identified for accelerated filling to commence at the end of LOM to shorten the timeframe for flooding, (source water is excess TSF runoff). • RH: has been identified for accelerated filling at the end of the LOM to shorten the timeframe for filling, source water is from RMW.

Domain and Feature	Closed Site Summary Description
Roads and pads	• Roads will be maintained to enable reclamation activities. • Once no longer required, roads will be scarified and allowed to naturally revegetate. • Roads for water monitoring and access to TSF will remain beyond the reclamation phase. • Main access road and airport road remain open for access to the Solar Plant and to Nieuw Koffiekamp.
Water management	• Water management will focus on establishing pit lakes, and minimizing ML/ARD risk of both the pits and WRSFs. This will help reduce the likelihood of requiring long term water treatment. • Other site water management structures used for operations (e.g., ponds and diversions) will be backfilled and the areas re-contoured. • Water Quality Objectives will be established at the nearest downstream receiving environment (SW21 for Mindrineti River and SW13 for Compagnie Creek). • Active water treatment is not anticipated to be required based on current evaluation of the preferred alternative. However, the water treatment plant will remain available for contingency up until monitoring shows it is not required.
Buildings and fixed assets	• All buildings will be decontaminated, demolished, and removed. Rosebel Plant includes some reclaimed steel. • Solar Plant (and access road) remains.
Contaminated land and waste	• An environmental site assessment will be completed prior to closure to direct reclamation efforts in the following areas: • Rosebel Plant area and other areas where hazardous materials have been used or stored • Environmental site assessments will be completed to facilitate relinquishment of land parcels to the Republic • Hazardous and non-hazardous waste is managed according to existing waste management procedure, storage capacity at PC and TSF for closure waste is reviewed as an input to the detailed engineering and implementation study.
Social	• Activities to support social transition to closure will be undertaken during operations. A community needs assessment and closure readiness plan will be completed at least two years in advance of mine closure. • A community impact assessment will be completed five years after closure to evaluate the success of the social closure plan and to inform future projects by IAMGOLD and other companies

20.8.2 Saramacca

Once all economically viable ore has been removed from the satellite SM pit, the mine site would be reclaimed and closed. The purpose of reclamation and closure would be to re-establish to the degree feasible ecological function at the site while ensuring the site is safe. After a review of pit wall stability, final pit shell contours would be created to ensure that a significant failure of the walls would not occur. Buildings and infrastructure would be removed (i.e., mine truck maintenance shop, tank farm, sanitary sewer line, waste water treatment plant, lunch rooms, pipes, and pumps) as they become unnecessary.

Facilities that can be repurposed would be kept intact and relocated. Building sites, roads, ponds, and ditches would be filled or graded to approximate natural contours. Pre-mining drainage patterns would be re-established to the degree possible. Any contaminated soil from spills would be removed. Fencing or boulder guards would be established to prevent access to unsafe areas, such as the pit. Equipment would be removed from site when it is no longer needed.

Stockpiled overburden, debris trees, and mulched material obtained during construction and excavation would be used to help re-establish habitats and vegetation. Revegetation would occur with native plants. Plant species collected ahead of site clearance and kept in a nursery would be returned to site and established. Irrigation, erosion control and pest management would take place as necessary.

WRSFs would be progressively reclaimed as each bench is completed by stacking saprolite near the crest of each lift, covering exposed rock and then applying a thin layer of topsoil and organic matter to allow vegetation to be seeded. This allows each lift to be reclaimed once each lift is complete. Other disturbed areas such as building sites, roads, pond footprints, ditches, the ore pad, and overburden pad would also be revegetated.

The goal at Saramacca for water management is to re-establish to the degree possible pre-mining hydrology. This includes discharging clean water in quantities and to locations that support aquatic life. It may include re-establishing stream channels and restoring drainage patterns.

Upon completion of mining, pit dewatering pumps would be removed and the pit would be allowed to flood via a combination of precipitation, surface runoff, and groundwater infiltration. Pit water quality would be monitored. Since precipitation is estimated to exceed evaporation by approximately 1200 mm/yr at the project site, the pit would eventually overflow and discharge to the environment. The ultimate water level within the pit and the direction of discharge would be controlled using a combination of spillways and ditches.

Pending geochemical characterization results, RGM may accelerate the rate of flooding of the pit to limit possible ARD and/or metal leaching from occurring at significant levels. Accelerated flooding may be achieved by diverting or pumping surface water into the pit. In the event that the water quality in the pit is not suitable for direct discharge to the environment (i.e., it does not meet water quality criteria), the water would be collected and treated prior to discharge.

The rerouted public road that would circumvent the mine site, which would be used to access villages and trees harvesting areas would not be reclaimed but kept in place for these purposes.

The haul road corridor including access roads to the haul road from public roads, which would be reclaimed and closed along its entire length. The corridor would be regraded to minimize erosion and promote revegetation. Storm water ditches would be filled to restore hydrology. Grasses would be established initially to set the stage for forest species succession. Stream crossing infrastructure such as culverts or bridges would be removed. Wildlife crossing infrastructure such as tunnels would be removed.

Closed mine components at the Mine and Saramacca will be monitored to measure the success of reclamation against closure objectives and criteria, and to justify relinquishment. Monitoring programs and schedules will use similar parameters, methods, QA/QC protocols, and evaluation as the current operational monitoring programs.

21 CAPITAL AND OPERATING COSTS

21.1 Capital Costs

All costs provided in this section are reported for 2022 to 2033 in United States dollars (USD).

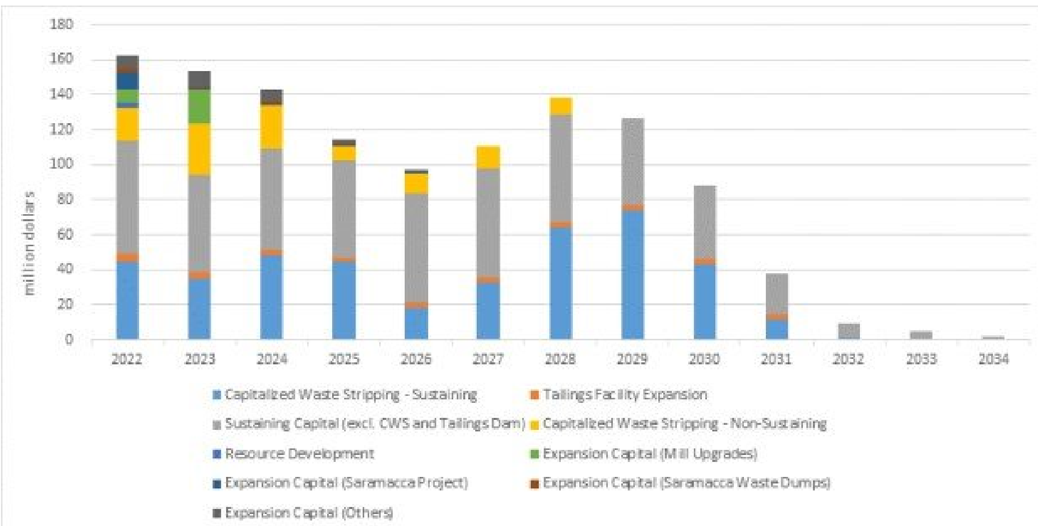
The capital cost requirement over the LOM includes the following:

- Capitalized waste stripping (CWS).
- Resource development costs.
- Sustaining capital expenditures (including mine equipment additions and replacements, Rosebel Plant, and site in general, TSF expansion).
- Expansion capital (crusher upgrades at the Rosebel Plant and Saramacca development).

A total capital cost of US$1.24 billion is estimated for the remaining 12 year mine life, which equates to US$11.70/t milled or US$374/oz Au produced.

Sustaining capital is the largest capital cost estimated at US$1.0 billion, representing 82.1% of the remaining LOM capital expenditure. Figure 21-1 presents capital distribution over the LOM.

Figure 21-1: Life of Mine Plan Expenditure



Capital cost estimate breakdowns and explanations are provided in the subsequent subsections.

21.1.1 Resource Development

A resource development budget of US$2.8 million has been allocated to continue drilling prospective Mineral Resources. Personnel levels are also forecasted accordingly.

21.1.2 Tailings Storage Facility Expansion

The TSF expansion budget for 2022 and 2023 is US$5.0 million and US$4.0 million, respectively, and an annual budget of US$3.0 million has been allocated for the annual raise of the tailings dams from 2024 to 2031, with no additional funds allocated beyond 2031. Personnel levels are also forecasted accordingly.

21.1.3 Capitalized Waste Stripping

CWS or deferred stripping, is an accounting practice used to capitalize the cost of stripping waste to access future ore for future economic benefits. The definition of deferred stripping and the method of calculating these costs are outlined in International Financial Reporting Interpretations Committee (IFRIC) 20 by the International Accounting Standards Board (IASB).

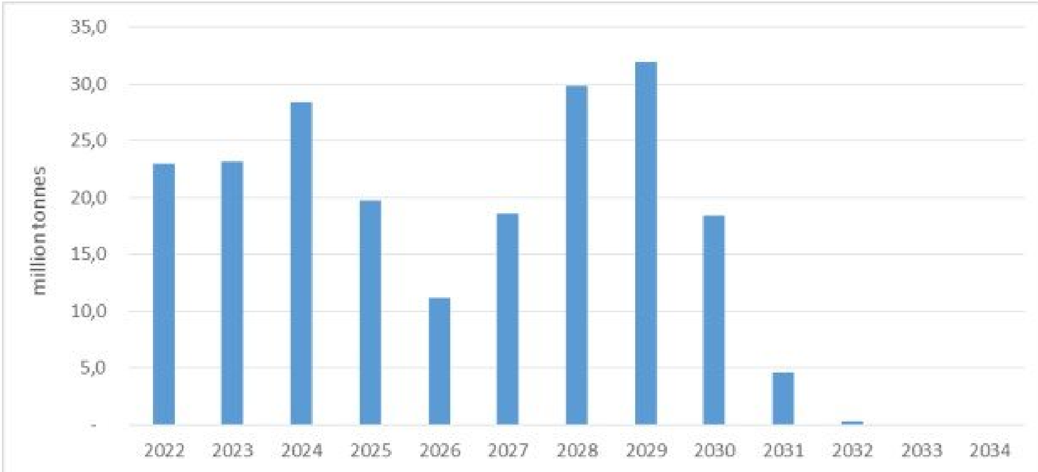
Each of these components (i.e., pit or phase) is treated separately when calculating the CWS. The life of phase strip ratio (LOPSR) is determined by dividing the quantity of waste by the quantity of ore for the entirety of the phase, including past mining.

The mining of waste can be considered as a deferred cost if:

- The strip ratio for the period exceeds the LOPSR, whereby the waste that exceeds that of the LOPSR is capitalized.
- The stripping does not occur within one year of the end of the life of the phase.

The CWS associated tonnages and costs are illustrated in Figure 21-2. Most of the mined waste will be capitalized between 2022 and 2031, with minor tonnages in 2032.

Figure 21-2: Capitalized Waste Stripping



21.1.4 Sustaining Capital - Mine Equipment Capital Expenditures

As part of the mine sustaining capital, a life of fleet model has been prepared to track equipment hours and schedule equipment replacements based on useful life assumptions. The major equipment purchase schedule including replacements and additions is presented in Table 21-1.

Table 21-1: Equipment Replacement Costs

Year	Budget (US$ million)
2022	14.8
2023	26.2
2024	23.7
2025	19.9
2026	17.8
2027	17.3
2028	11.4
Total	131.2

The estimated LOM equipment purchases require US$131 million of capital, excluding capital spares.

21.2 Operating Costs

The mine operating costs are estimated on the basis of the physical quantities of the mine plan, realistic equipment productivity assumptions, overall equipment efficiencies, and updated consumable prices.

Average mine operating costs over the LOM are estimated at US$2.70/t mined, based on assumed diesel costs of the LOM as follows: 2022 at US$0.71/L, 2023 at US$0.67/L and 2024 to 2033 at US$0.66/L. The average LOM total milling cost (inclusive of power) is estimated to be US$10.51/t milled. The average LOM G&A cost is US$4.37/t milled and assumes an annual spend of US$39 million until 2032, after which G&A costs will gradually decrease as the operation will approach the end of its life.

21.3 Closure and Reclamation Costs

A provision of US$116 million is planned for the closure of the Mine, inclusive of US$12 million for the Saramacca property. It should be noted that work is currently ongoing to update the Closure Plan and associated costs, which are included in the cash flow model.

22 ECONOMIC ANALYSIS

This section is not required as the Rosebel and Saramacca deposits are currently in production and there is no material expansion of current production.

23 ADJACENT PROPERTIES

There are no significant adjacent properties to report in this section.

24 OTHER RELAVANT DATA AND INFORMATION

There is no other relevant additional data and information to report.

25 INTERPRETATION AND CONCLUSIONS

25.1 Geology and Mineral Resources

- The Rosebel and Saramacca Mineral Resource estimate as of December 31, 2021 (on 100% basis using a US$1,500/Au price and including Mineral Reserves) is comprised of Measured and Indicated Mineral Resources totalling 174 Mt at an average grade of 1.1 g/t Au for 6.3 Moz Au. In addition, Inferred Mineral Resources total 22 Mt at an average grade of 1.0 g/t Au for 0.7 Moz Au.
- The decrease in Rosebel Mineral Resources is attributed to:
  - 2021 production depletion.
  - A revised pit optimization methodology.
  - Changes to the cost model.
  - An updated resource block model incorporating the results of infill and conversion drilling programs completed in 2021.
  - Changing interpolation approach from Uniform Conditioning to OK.
- Some mineralized zones excluded from the resource pit shells could be re-instated in the future under different financial conditions and commodity price assumptions.
- The Rosebel and Saramacca Mineral Resource estimates have been prepared in accordance with CIM (2014) definitions and are regarded as a reasonable representation of the Mineral Resources delineated at the deposits as of December 31, 2021.
- Work completed to date by RGM geological staff is appropriate to support this Mineral Resources estimation.
- The geological models employed by RGM geologists are reasonably well understood and supported by field observations in both outcrop, pit mapping, drill intersections and production data.
- The Rosebel and Saramacca resource models have been prepared using appropriate methodology and assumptions. These parameters include:
  - Treatment of high assays.
  - Compositing length.
  - Search parameters.
  - Bulk density.

    - Cut-off grade.
    - Classification.

- The block models have been validated using a reasonable level of rigour consistent with common industry practice.
- The current drill hole spacing for all the deposits is adequate for the development of a reasonable model of the mineralization distribution and to quantify its volume and quality with a sufficient level of confidence.
- Based on visual verification, the RGM models (rock type, density, and gold grade) were identified as being globally representative of the known geological and structural controls of Rosebel and Saramacca mineralization.
- Statistical analysis demonstrates that the block models provide a reasonable estimate of the Rosebel and Saramacca Mineral Resources.
- Validation of the block models, using different interpolation methods, indicated that tonnages, grades, and gold contents are similar.
- The Rosebel and Saramacca block models were also compared and reconciled with production data and are considered appropriate.
- Swath plots for Rosebel and Saramacca Indicated and Inferred Mineral Resources, by vertical sections for the pits, indicate that peaks and troughs in gold content generally match peaks and troughs in composite frequency. No bias was identified in the Rosebel and Saramacca Mineral Resource estimate in this regard.
- A review of the information stored in the RGM database confirmed it to be in good standing.
- Sampling and assaying have been carried out following standard industry QA/QC practices. These practices include, but are not limited to, sampling, assaying, chain of custody of the samples, sample storage, use of third-party laboratories, standards, blanks, and duplicates.
- Exploration data collected to date by RGM uses procedures consistent with generally accepted industry best practices and is sufficiently reliable to interpret with confidence the boundaries of the gold mineralization of the deposits.
- The geological models constructed by SRK with the assistance of RGM geologists for the SM, KH-JZ, and RH deposits and exclusively by RGM geologists for the PC, RB, MA, RM, MK, ETR and OV deposits are a reasonable representation of the gold mineralization at the current level of sampling.
- The resource model has been prepared using appropriate methodology and assumptions:

  - Gold grades were estimated into a block model informed by composited gold assays, capped where appropriate, and using an OK estimator for models updated in 2021 or an ID^3 estimator for models not updated in 2021.
  - Specific gravity was estimated into the blocks, using an ID^2 estimator, to convert volumes into tonnage for SRK and by using an average value per weathered layers for WSP and RGM.
- The block models have been validated by SRK, WSP, and IAMGOLD using various methodologies, including statistical comparisons between composites and block model distributions, estimation using different interpolation methods, and visual checks with informing composites. These validation steps demonstrate that the block models provide a reasonable estimate of the Mineral Resources for all the deposits.

25.2 Mining and Mineral Reserves

- The Rosebel and Saramacca Mineral Reserve estimate as of December 31, 2021 (on 100% basis using a US$1,300/oz Au price) is 109 Mt comprised of Proven and Probable Mineral Reserves and existing stockpiles at an average grade of 1.1 g/t Au for 3.8 Moz Au.
- The Mineral Reserve contained ounces have decreased by approximately 20% since 2020. Most of the decrease in the Mineral Reserve estimate was primarily in the Rosebel pits due to the incorporation of an updated geologic model, new cost model, pit optimization assumptions and 2021 production depletion offset by an increase in the long term gold price assumption from US$1,200/oz Au to US$1,300/oz Au.
- Some Mineral Resources excluded from the Mineral Reserve could be added to the mine plan in the future under different financial conditions and commodity price assumptions.
- The Rosebel and Saramacca Mineral Reserve estimates are consistent with CIM (2014) definitions and suitable for public reporting. As such, the Mineral Reserves are based on Measured and Indicated Mineral Resources and do not include any Inferred Mineral Resources.
- The Rosebel and Saramacca mine design and Mineral Reserve estimates have been completed to a level appropriate for an operating mine.
- The economic assumptions and methodology used for estimation of the Rosebel and Saramacca Mineral Reserves are appropriate.

25.3 Mineral Processing

- Current production statistics indicate that the Rosebel Plant flow sheet is adequate and suitable for processing all of the Rosebel and Saramacca deposit ore types.
- The processing rate of the Rosebel Plant has a limit of 7.7 Mtpa of hard rock equivalent. The total processing limit is 12.5 Mtpa depending on soft ore feed. The feed is also limited by rock hardness, which is considered through a SPI factor by pit, where fresh rock has a higher factor than soft or transition ore. As a result, a new plant throughput model was developed to estimate processing rate as hard rock increases as feed to the Rosebel Plant. The model takes into consideration current SAG mill limitations (SPI model) and global grinding circuit power available BWi model).
- A metallurgical test work program was initiated in 2019 on the Rosebel and Saramacca samples to update the geometallurgical model and included head ore characterization, particle size distribution of laterite and saprolite, and gold extraction at different grind sizes.
- A metallurgical test work program was completed on Saramacca samples to optimize gold recoveries, optimize reagent consumption, validate comminution characteristics and to validate metallurgical performance of the Rosebel/Saramacca blends.

25.4 Infrastructure

- The existing infrastructure is sufficient to maintain current operations.
- Studies to evaluate alternative TSF expansion options will be carried out.

25.5 Environment

- The 2022 LOMP will result in the generation of mine tailings that exceed the capacity of the current TSF. The 2022 LOMP contemplates the construction of an additional TSF cell for operation as early as 2023. A screening process was completed with NIMOS, and it was advised that a Limited ESIA (Addendum to the 2013 ESIA) is required for this additional facility. RGM believes it has sufficient time to advance and complete the required assessment to submit as an addendum to the 2013 ESIA and at this time does not see any reason that the required expansion to the TSF would not be approved.

26 RECOMMENDATIONS

26.1 Geology and Mineral Resources

1. Continue to update the resource models as new data becomes available.
2. Continue drilling to upgrade the Inferred Mineral Resources to Indicated Mineral Resources.
3. Complete geological studies to build on existing knowledge and improve the understanding of the geological and structural settings at Rosebel and Saramacca.
4. Test the lateral and depth extent of the Rosebel and Saramacca gold mineralization to potentially expand the Mineral Resources.
5. Continue monitoring analytical QC data produced by the primary laboratories and investigate poor performances to institute corrective action when required.
6. Maintain consistency in keeping a small number of reference materials over a range of appropriate gold grades in order to develop a meaningful statistical performance going forward.

26.2 Mining and Mineral Reserves

1. Implement a stringent planning and operations process for following the variable cut-off grades in production, and closely monitor the reconciliation between planning and production.
2. Further refine the mine cost model for future input to the long term planning and scheduling designs.
3. Continue optimization of the development of Saramacca, notably relevant to increasing metallurgical recovery, achieving pit slope dewatering to improve overall slope angles in saprolite, and optimized WRSF designs to reduce berm construction requirements.
4. Investigate underground development potential for the SM deposit.
5. Investigate further the implementation of in-pit waste rock storage to reduce operational costs and decrease environmental liabilities.

26.3 Mineral Processing

1. Continue with the geometallurgical program commenced in 2019/2020 for Rosebel and Saramacca.
2. Continue to evaluate ore hardness by pit, weathering type, lithology, and at depth.

26.4 Infrastructure

1. Carry out TSF expansion studies.

26.5 Environment

1. Continue advancing the third expansion of the TSF facility (TSF3) ESIA permitting process. While other changes to the Rosebel facilities are required to support the 2022 LOMP, it is not currently anticipated that these changes will require additional permits or approval.

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28 DATE AND SIGNATURE PAGE

This report titled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 was prepared and signed by the following authors:

(Signed & Sealed) Alain Mouton

Dated at Paramaribo, Surinam
January 31, 2022

Alain Mouton, P. Geo.
Manager - Mine Technical Services, RGM

(Signed & Sealed) Stéphane Rivard

Dated at Longueuil, QC
January 31, 2022

Stéphane Rivard, P.Eng.
Senior Director Technical Services, IAMGOLD

(Signed & Sealed) Michel Dromacque

Dated at Paramaribo, Surinam
January 31, 2022

Michel Dromacque, CEng MIMMM
Chief Engineer Long Term Planning, RGM

(Signed & Sealed) Gilles Ferlatte

Dated at Longueuil, QC
January 31, 2022

Gilles Ferlatte, P. Eng.
VP International Operations, IAMGOLD

(Signed & Sealed) Oy Leuangthong

Dated at Toronto, ON
January 31, 2022

Oy Leuangthong, P. Eng.
Corporate Consultant (Geostatistics), SRK

(Signed & Sealed) Aleksandr Mitrofanov

Dated at Toronto, ON
January 31, 2022

Aleksandr Mitrofanov P.Geo., PhD
Geology Superintendent, Kinross

(Signed & Sealed) Ian Hugh Crundwell

Dated at Toronto, ON
January 31, 2022

Ian Hugh Crundwell, P. Geo.
Senior Geologist, WSP

(Signed & Sealed) Bruno Perron

Dated at Paramaribo, Suriname
January 31, 2022

Bruno Perron, P. Eng., BScA
Chief Geologist, RGM

29 CERTIFICATE OF QUALIFIED PERSON

29.1 Alain Mouton

I, Alain Mouton, P.Geo., as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am Manager - Mine Technical Services with Rosebel Gold Mines N.V. of President da Costalaan 2, P.O. Box 2973, Paramaribo, Suriname.

2. I am a graduate of the University of Québec in Montreal, Québec, in 1994 with a Degree in Geology.

3. I am registered as a Professional Geologist in the Province of Québec with the Ordre des Géologues du Québec (Member #00481). I have worked as a geologist for a total of 26 years since my graduation. My relevant experience for the purpose of the Technical Report is:

    - I have been directly involved throughout my career in the generation and review of, exploration and drilling data, geological modeling and resource estimation, quality assurance-quality control and database management Most of my experience has been on gold projects in similar geological settings as the Rosebel Gold Mine.

    - I have held Management roles in Geology for the past 12 years, including Chief Mine Geologist at four different operations (Semafo in Burkina Faso - Au, First Quantum Minerals in DRC and Zambia - Cu, Etruscan Resources in Burkina Faso - Au), Group Geology Manager (Endeavour Mining - Au) and Resource Geologist (KGHM).

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I work at the Rosebel Gold Mine.

6. I am responsible for Sections 1.1.1.1, 1.1.2.1, 1.2.1 to 1.2.8, 1.2.10, 2 to 11, 12.1, 12.2, 12.3.1, 14.1, 14.2, 14.5, 14.7, 14.8, 23, 24, 25.1, and 26.1 and contributions to Section 27 of the Technical Report.

7. I am not independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had prior involvement with the property that is the subject of the Technical Report as an employee of RGM since 2020.

9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 1.1.1.1, 1.1.2.1, 1.2.1 to 1.2.8, 1.2.10, 2 to 11, 12.1, 12.2, 12.3.1, 14.1, 14.2, 14.5, 14.7, 14.8, 23, 24, 25.1, and 26.1 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Alain Mouton

Alain Mouton, P.Geo

29.2 Stéphane Rivard

I, Stéphane Rivard, P.Eng., as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am a Senior Director Technical Services with IAMGOLD Corporation of 1111, St. Charles Street West, Longueuil, QC, Canada, J4K 5G4.
2. I am a graduate of Laval University, Montreal, Québec, in 1994 with a B.Sc.Eng. in Metallurgical and Material Science Engineering.
3. I am registered as a Professional Engineer in the Province of Québec (OIQ #118538). I have worked as a metallurgical engineer for a total of 28 years since my graduation. My relevant experience for the purpose of the Technical Report is:
    - My current role overseeing metallurgical aspects of the Côté Gold Project, Boto Gold Project, and Essakane Heap Leach Project and also providing site governance for the Essakane, Rosebel and Saramacca, and Westwood mines.
    - Previous employers where I also have practiced my relevant experiences are Cambior Inc., Noranda Inc, Ausenco as Director Metals and Mining and PM, SNC Lavalin and Metchem.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have visited the Rosebel Gold Mine multiple times since 2017, most recently in December 2019.
6. I am responsible for Sections 1.1.1.3, 1.1.2.3, 1.2.9, 1.2.13, 13, 17, 25.3, and 26.3, and contributions to Section 27 of the Technical Report.
7. I am not independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report as an employee of IAMGOLD since 2017. In 2018, I co-authored a technical report for the Rosebel Gold Mine, which included the Saramacca Gold Project
9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 1.1.1.3, 1.1.2.3, 1.2.9, 1.2.13, 13, 17, 25.3, and 26.3 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Stéphane Rivard

Stéphane Rivard, P.Eng.

29.3 Michel Dromacque

I, Michel Dromacque, CEng, MIMMM, as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am Chief Engineer Long Term Planning Rosebel Gold Mines N.V. of President da Costalaan 2, P.O. Box 2973, Paramaribo, Suriname.
2. I am a graduate of the Royal School of Mines, Imperial College, England in 2000 with a Master's in Mining Engineering. I am a graduate of ESSEC Business School, France in 2004 with a Master's degree MSC Management.
3. I am registered as a Chartered Engineer and a professional member of the Institute of Materials, Minerals and Mining, England (Membership No. 0459884). I have worked as a mining engineer for a total of 17 years since my graduation. My relevant experience for the purpose of the Technical Report is:
    - My position as Chief Engineer long term planning with Rosebel Gold Mine since September 2021
    - My position as Group Mining Engineer with La Mancha Resources
    - My position Senior Long Term Engineer with Reminex Engineering, Managem Group.
    - My position Senior Mine Project Engineer with Ambatovy Mine, Madagascar
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I work at the Rosebel Gold Mine.
6. I am responsible for Sections 1.1.1.2, 1.1.1.4, 1.1.2.2, 1.1.2.4, 1.2.11, 1.2.12, 1.2.14, 1.2.17, 1.2.18, 15, 16, 18, 21, 22, 25.2, 25.4, 26.2, and 26.4, and contributions to Section 27 of the Technical Report.
7. I am not independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report as an employee of RGM since 2020.
9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 1.1.1.2, 1.1.1.4, 1.1.2.2, 1.1.2.4, 1.2.11, 1.2.12, 1.2.14, 1.2.17, 1.2.18, 15, 16, 18, 21, 22, 25.2, 25.4, 26.2, and 26.4 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Michel Dromacque

Michel Dromacque, CEng, MIMMM

29.4 Gilles Ferlatte

I, Gilles Ferlatte, P.Eng., as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am Vice President International Operations with IAMGOLD Corporation of 1111, St. Charles Street West, Longueuil, QC, Canada, J4K 5G4].

2. I am a graduate of Laval University in 1991 with a B.Sc. Eng in Mining Engineering.

3. I am registered as a Professional Engineer in the Province of Québec (OIQ #108695). I have worked as a mining engineer for a total of 30 years since my graduation. My relevant experience for the purpose of the Technical Report is:

    - My position of Vice President International Operations, overseeing the operations and projects at Rosebel and Essakane mines.

    - My work with previous employers where I have practiced my relevant experiences are, Noranda Inc., Falconbridge, Xstrata Nickel, SEMAFO, Nemaska Lithium.

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I have visited the Rosebel Gold Mine regularly, with my most recent visit in January 2022.

6. I am responsible for Sections 1.1.1.5, 1.1.2.5, 1.2.15, 1.2.16, 19, 20, 25.5, and 26.5, and contributions to Section 27 of the Technical Report.

7. I am not independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had prior involvement with the property that is the subject of the Technical Report as an employee of IAMGOLD from 2011 to 2017 and recently since 2020.

9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 1.1.1.5, 1.1.2.5, 1.2.15, 1.2.16, 19, 20, 25.5, and 26.5 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Gilles Ferlatte

Gilles Ferlatte, P.Eng.

29.5 Oy Leuangthong

I, Oy Leuangthong, P.Eng., PhD, as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am a Corporate Consultant (Geostatistics) with SRK Consulting Inc. of Suite 1500, 155 University Ave., Toronto, ON M5H 3B7.

2. I am a graduate of the University of Toronto in 1998 with B.A.Sc. (Honours) in Civil Engineering. I am a graduate of the University of Alberta in 2003 with a PhD in Mining Engineering (Geostatistics).

3. I am a professional Engineer registered with the Professional Engineers Ontario (PEO#90563867). I have worked as an engineer for a total of 20 years since my graduation. My relevant experience includes:

- Research in resource modelling and geostatistics, teaching activities in mine planning, resource estimation and advanced geostatistics, and since 2010, geostatistical support and modelling for exploration and advanced projects in the Americas, Australia, and West Africa.

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I have not visited the Rosebel Gold Mine.

6. I am responsible for Sections 14.3.2 to 14.3.10 and 14.6.5 to 14.6.14, and contributions to Section 27 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had prior involvement with the property that is the subject of the Technical Report. In 2017, I co-authored a technical report for the Saramacca Gold Project. In 2018, I co-authored a technical report for the Rosebel Gold Mine, which included the Saramacca Gold Project. Since then, I have provided ongoing intermittent geostatistical and Mineral Resource modelling support to IAMGOLD Corporation for the Saramacca Concession, and in 2020, for the Koolhoven-J Zone and Royal Hill deposits.

9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 14.3.2 to 14.3.10 and 14.6.5 to 14.6.14 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Oy Leuangthong

Oy Leuangthong, PhD, P.Eng.

29.6 Aleksandr Mitrofanov

I, Aleksandr Mitrofanov, P.Geo., PhD, as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am Geology Superintendent, Tasiast Mine with Kinross Global Mobility Limited, Zuid-Hollandlaan 7, 2596 AL The Hague, The Netherlands. At the moment of the works informing the Technical Report I was employed as a Senior Consultant (Resource Geology) with SRK Consulting (Canada) Inc., 155 University Ave Suite 1500, Toronto, ON M5H 3B7, Canada.

2. I am a graduate of Moscow State University in 2013 with a PhD degree in Geology (BSc in 2008 and MSc in 2010).

3. I am registered as a Professional Geologist in the Province of Ontario (APGO #2824). I have worked as a geologist for a total of 13 years since my graduation. My relevant experience for the purpose of the Technical Report is:

   - Resource Estimation works:
     - Shear-hosted orogenic gold deposit in Alaska, USA, 2020
     - Intrusion-hosted Pistol Bay gold deposit (Nordgold) in Nunavut, Canada, 2020
     - Mafic hosted orogenic Saramacca gold deposit (IAMGOLD), Suriname, 2019 and 2020
     - BIF hosted orogenic Pitangui gold deposit (IAMGOLD), Brazil, 2019
     - Several resource updates for McEwen Mining Archean lode gold deposits in Timmins, ON, Canada: Black Fox, Grey Fox, Tamarack, Froome, 2017 to 2019
     - Alkalic intrusion associated gold deposit in Wyoming, US, 2018
   - Numerous mineral resource audits and due diligences

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I visited the Rosebel Gold Mine between June 21 and 23, 2019, and most recently between February 7 to March 28, 2021.

6. I am responsible for Sections 12.3.2, 14.3.1, and 14.6.1 to 14.6.4, and contributions to Section 27 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 12.3.2, 14.3.1, and 14.6.1 to 14.6.4 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Aleksandr Mitrofanov

Aleksandr Mitrofanov, P.Geo., PhD

29.7 Ian Hugh Crundwell

I, Ian Hugh Crundwell, P.Geo., as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am a Senior Geologist with WSP Canada Inc. of 2300 Yonge Street, Toronto, ON, M4P 1E4.
2. I am a graduate of the University of Witwatersrand, South Africa in 1989 with a Bachelor of Science in Mining Engineering and I obtained a post-graduate diploma in Applied Geostatistics from the Nationale Supérieure des Mines de Paris - Fontainebleau, France in 1995.
3. I am registered as a Professional Geologist in the Province of Ontario (License # 1501). I have worked as a mining engineer/geologist for a total of 32 since my graduation. My relevant experience for the purpose of the Technical Report is:
   - 20 years of operational experience working in Mineral Resource estimation on PGM deposits in Southern Africa.
   - Over 15 years of consulting experience including gold, silver, copper, base metal, and diamond resource estimates and/or audits.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have not visited the Rosebel Gold Mine.
6. I am responsible for Sections 14.4.4 to 14.4.6, and contributions to Section 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 14.4.4 to 14.4.6 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Ian Hugh Crundwell

Ian Hugh Crundwell, P.Geo.

29.8 Bruno Perron

I, Bruno Perron, P.Eng., as an author of this report entitled "Technical Report on the Rosebel Gold Mine, Suriname" with an effective date of December 31, 2021 prepared for IAMGOLD Corporation, do hereby certify that:

1. I am Chief Geologist - Mine Technical Services with Rosebel Gold Mines N.V. of President da Costalaan 2, P.O. Box 2973, Paramaribo, Suriname. At the moment of the works informing the Technical Report I was employed as a Senior Engineer with WSP Canada Inc. of 2010 Powell St., Jonquière, Québec G7S2Z3.

2. I am a graduate of the Université de Québec á Chicoutimi in 1992, with a Bachelor degree in Geological Engineering.

3. I am registered as a Professional Engineer in the Province of Québec (OIQ#111611). I have worked as a geological engineer for a total of 30 years since my graduation. My relevant experience for the purpose of the Technical Report is:

   - My previous experience with gold, apatite, and iron mining.

   - My direct involvement in the generation and review of, exploration and drilling data, geological modeling and resource estimation, quality assurance/quality control, databases, and resource estimates as a Senior Engineer with WSP and, since December 13, 2021, as a RGM Chief Geologist.

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I visited the Rosebel Gold Mine from September 24 to October 01, 2021 on behalf of WSP, and since December 13, 2021 have been onsite in my role as Chief Geologist with RGM.

6. I am responsible for Sections 12.3.3, 14.4.1 to 14.4.3, and 14.4.7, and contributions to Section 27 of the Technical Report.

7. I am not independent of the Issuer applying the test set out in Section 1.5 of NI 43-101 as I am a full time employee of RGM.

8. I have had prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 12.3.3, 14.4.1 to 14.4.3, and 14.4.7 of the Technical Report, for which I am responsible, contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 31st day of January, 2022

(Signed & Sealed) Bruno Perron

Bruno Perron, P.Eng.