EQUINOX GOLD CORP.

NI 43-101 Technical Report on the
Riacho dos Machados Gold Mine, Minas Gerais, Brazil

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Glossary

Abbreviations and Acronyms

3-D	three-dimensional
a	annum
ANM	Agência Nacional de Mineração (National Mining Agency)
ARD	Acid Rock Drainage
Cap	Capped Composites
CEN	Central Domain
CIL	Carbon-in-Leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CN	Cyanide
Comp	Uncapped Composites
CRM	Certified Reference Material
Cube	Cube Consulting Pty Ltd.
CVRD	Companhia Vale do Rio Doce
DD	Diamond Drilling
DDH	Diamond Drill Hole
dia	Diameter
EIA	Environmental Impact Assessment
EIA-RIMA	Environmental Impact Assessment—Environmental Impact Report
ESMS	Environmental and Social Management System
FA/AAS)AA	Fire Assay/Atomic Absorption Spectroscopy
FW	Footwall Domain
G&A	General and Administrative
GCM	Grade Control model
HSEC	Health, Safety, Environment, and Community
HW	Hanging Wall Domain
ICMI	International Cyanide Management Code
ID	Identification
ID3	Inverse distance cubed
Leagold	Leagold Mining Corporation
LG Domain	Low-Grade Domain
LI	Licença de Instalação (Installation License)
LO	Licença de Operação (Operations Licence)

LOM	Life-of-Mine
LP	Licença Preliminar (Preliminary Licence)
LT	Long-term
Mine	Riacho dos Machados Gold Mine
MRDM	Mineração Riacho dos Machados
NN	Nearest Neighbour
NOV	Notice of Violation
NPV	Net Present Value
NR	Brazilian regulatory norms
OK	Ordinary Kriging
P_{80}	80% Passing
PAE	Plano de Aproveitamento Econômico (Economic Exploitation Plan)
PAEM	Plano de Ação de Mineração de Emergência (Emergency Action Plan)
PCA	Plano de Controle Ambiental (Environmental Control Plan)
PEA	Preliminary Economic Assessment
PFS	Pre-Feasibility Study
PLC	Programmable Logic Controller
PM	Public Ministry
PSB	Dam Safety Plan
QA/QC	Quality Assurance/Quality Control
QP	Qualified Persons
R$	Brazilian Real
RC	Reverse circulation
RDM	Riacho dos Machados
RF	Revenue Factor
RMG	Riacho dos Machados Group
ROM	Run-of-Mine
ROW	Right-of-Way
SD	Standard Deviation
SI	International System of Units
SMU	Selective Mining Unit
ST	short-term
SUPRAM	Regionais de Meio Ambiente
TAC	Term of Adjustment of Conduct, or consent order
TSF	Tailings Storage Facility
US$	United States dollar
U&M	U&M Mineração e Construção

WMF	Waste Management Facility
WSF	Water Storage Facility

Units of Measure

%	percent
°C	degree Celsius
µg	microgram
µm	micrometre
°C	degree Celsius
A	ampere
a	annum
cm	centimetre
cm^2	square centimetre
d	day
dia	diameter
g	gram
G	giga (billion)
g/L	gram per litre
g/m^3	grain per cubic metre
g/t	gram per tonne
Gal	Imperial gallon
h	hour
ha	hectare
hp	horsepower
in.	inch
J	joule
k	kilo (thousand)
kcal	kilocalorie
kg	kilogram
km	kilometre
km^2	square kilometre
koz	thousand ounces
kPa	kilopascal
kt	thousand tonnes
kW	kilowatt
kWh	kilowatt-hour
L	litre
m	metre
M	million
m^2	square metre
m^3	cubic metre
m^3/h	cubic metres per hour
masl	metres above sea level
mg	microgram
mg/L	milligram per litre
min	minute
mm	millimetre
Mt	million tonnes
Mt/a	million tonnes per annum
MVA	megavolt-amperes
MW	Megawatt
MWh	megawatt-hour
oz	Troy ounce (31.1035 g)
t	tonne (SI)
t/a	tonne per year
t/d	tonne per day
t/h	tonnes per hour

1 SUMMARY

1.1 Executive Summary

This National Instrument (NI) 43-101 Technical Report (Technical Report) on the Riacho dos Machados Gold Mine (RDM or Mine), Minas Gerais, Brazil was prepared by Equinox Gold Corp. (Equinox) under the guidance and supervision of the Qualified Persons (QP). This Technical Report provides an update on the Mineral Resources and Mineral Reserves with an effective date of December 31, 2020 and conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

The Mine is operated by Mineração Riacho dos Machados (MRDM), a wholly owned Brazilian-domiciled subsidiary of Equinox. Equinox is a publicly listed Canadian mining company with significant gold producing, development, and exploration stage properties in Canada, USA, Brazil, and Mexico. Gold production by Equinox totalled approximately 477 koz in 2020.

The Mine is a conventional open pit and carbon-in-leach (CIL) operation, which is scheduled to process up to 7,890 t/d (2.88 Mt/a) with the potential to expand to 9,000 t/d (3.28 Mt/a). Current production will recover 484 koz Au over a mine life of seven years, consisting of six years of mining and two additional months of processing. Potential underground production could extend the mine life.

Equinox has all required environmental licences and permits to conduct work on the property.

Table 1-1 summarizes the updated Mineral Resource estimate exclusive of Mineral Reserves as of December 31, 2020. Table 1-2 summarizes the updated Mineral Reserve estimates as of December 31, 2020. The Mineral Resource and Mineral Reserve estimates conform to Canadian Institute of Mining, Metallurgy and Petroleum (CIM) *Definition Standards for Mineral Resources & Mineral Reserves* dated May 10, 2014 (CIM Definition Standards [2014]).

Table 1-1: Mineral Resources Summary (Exclusive of Reserves)—December 31, 2020

Mineral Resource Category	Tonnage (kt)	Gold Grade (g/t)	Contained Gold (koz)
Open Pit Resources			
Measured	264	1.19	10
Indicated	2,981	1.28	122
Measured + Indicated	**3,245**	**1.27**	**132**
Inferred	100	0.87	3
Underground Resources			
Measured	0	0	0
Indicated	0	0	0
Measured + Indicated	**0**	**0**	**0**
Inferred	3,514	1.98	223
Total Resources			
Total Measured + Indicated	**3,245**	**1.27**	**132**
Total Inferred	**3,614**	**1.95**	**226**

Notes: **1.** CIM Definition Standards were followed for Mineral Resources.
2. Mineral Resources are exclusive of Mineral Reserves.
3. Open pit Mineral Resources are reported at a cut-off grade of 0.30 g/t Au.
4. Underground Mineral Resources are reported at a cut-off grade of 1.36 g/t Au
5. Mineral Resources are estimated using a gold price of US$1,500/oz and constrained by conceptual pit shell and stope shells.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. The Mineral Resources statement has been prepared by Felipe Machado de Araújo, MAusIMM (CP), a full-time Equinox employee, who is Qualified Person as defined by NI 43-101.
8. Totals may not add due to rounding.

Table 1-2: Mineral Reserves Summary—December 31, 2020

Category	Tonnage (kt)	Gold Grade (g/t)	Contained Gold (koz)
Proven			
Open Pit	10,355	1.02	338
Stockpile	1,326	0.52	22
Total	**11,681**	**0.96**	**360**
Probable			
Open Pit	5,872	1.04	196
Stockpile	0	0	0
Total	**5,872**	**1.04**	**196**
Proven + Probable			
Open Pit	16,227	1.02	534
Stockpile	1,326	0.52	22
Total Proven + Probable	**17,553**	**0.99**	**556**

Notes: **1.** CIM Definition Standards were followed for Mineral Reserves.
2. Mineral Reserves were generated using the December 31, 2020 mining surface.
3. Mineral Reserves are reported at a cut-off grade of 0.33 g/t Au.
4. Mineral Reserves are reported using a long-term gold price of US$1,350/oz.
5. Mining dilution of 5% and 95% mining recovery.
6. Process recovery of 87%.
7. The Mineral Reserve statement has been prepared under the supervision of Tiãozito Vasconcelos Cardoso, FAusIMM, a full-time Equinox employee, who is Qualified Person as defined by NI 43-101.
8. Totals may not add due to rounding.

1.2 Technical Summary

1.2.1 Property Description and Location

The Mine is in the northern part of Minas Gerais State, Brazil. The mine site is 145 km by road northeast of the city of Montes Claros (population 413,000) and 25 km from the nearest town, Riacho dos Machados (population 10,000). The center of the current open pit has geographic coordinates of 16°03'40" south latitude and 43°08'16" west longitude and an approximate elevation of 895 masl.

1.2.2 Land Tenure

The property consists of eight exploration permits and two mining concessions with a total area of 14,979.98 ha. For the exploration permits, a final report detailing the tenure for the Mine is held under the name of MRDM, an indirect wholly owned subsidiary of Equinox, incorporated under the laws of Brazil and registered with the Federal Taxpayer's Roll under No. 08.832.667/001-62. The property was initially staked under the name of Ouro Fino Gold Mine on March 30, 2001 (File #16,835), and was subsequently registered under the name of MRDM.

1.2.3 History

Companhia Vale do Rio Doce (CVRD), now Vale, discovered the MRDM deposit in early 1986. CVRD operated the property as an open pit gold mine and heap leach operation until closure in 1997. The Mine remained idle from 1997 until October 2008, when Carpathian Gold Inc. (Carpathian) acquired the mineral rights and started prospecting and exploration. Carpathian restarted the Mine in March 2014. Brio Gold Inc. (Brio) acquired the Mine from Carpathian on April 29, 2016. Leagold acquired the Mine through the acquisition of Brio on May 24, 2018.

On March 10, 2020, Equinox and Leagold completed an at-market merger. As a result, the operating entity MRDM is now a wholly-owned subsidiary of Equinox.

1.2.4 Geology and Mineralization

The Mine occurs in the north–south-trending Araçuaí fold and thrust belt along the eastern margin of the São Francisco Craton, a major Archean-age basement block that underlies more than 1,000,000 km^2 in eastern Brazil. The Araçuaí Fold Belt is 15 to 45 km wide and consists of a series of late Archean to late Proterozoic metavolcanic and metasedimentary rocks that were deposited in a broad intracontinental-to-oceanic rift-type basin that existed between the São Francisco Craton and the Congo Craton (now part of Africa). Subsequent closure of this rift basin by prolonged continental collision strongly deformed the rock strata, and the units were metamorphosed, folded, intruded, and thrust westward against the São Francisco Craton during the late-Proterozoic Brasiliano orogeny. Mineralization along the Araçuaí Fold Belt is thought to be the result of hydrothermal fluids generated by syntectonic igneous and metamorphic activity.

Immediately east of the Araçuaí Fold Belt is a north–south-trending, 300 km long structural window cored by Archean-aged migmatites and flanked by apparent décollement (basal detachment) structures and Proterozoic supracrustal sequences (Espinhaço and São Francisco Supergroups) forming a regional antiformal structure. This structural window has been termed the Guanambi-Corretina Block by Barbosa (1996) or the Porteirinha Complex by DOCEGEO (1994). At the Mine, basement gneissic-granitic rocks are interpreted to be overthrust westward onto the supracrustal rocks of the Riacho dos Machados Group (RMG) as part of the Brasiliano-Pan-African event. The tectonic superposition of basement rocks over supracrustal sequences is described along the entire eastern border of the São Francisco Craton with mineral occurrences known along this lineament.

The principal host for the gold mineralization is the quartz-muscovite schist unit of the RMG, a hydrothermal alteration product formed along a district-scale shear zone. This shear zone extends almost 30 km in a N20°E strike direction, dipping 40° to 45° east. In the mineralized zone, the regional amphibolite facies mineral assemblage is progressively altered to assemblages typical of greenschist facies. In detail, the gold mineralization occurs as "stacked" tabular horizons that are generally concordant with the overall shear zone and associated foliation. Stacked footwall and hanging wall zones are typically separated by 3 to 10 m of unmineralized rock. Continuity of the overall zone along strike and at depth is good, with gold mineralization occurring continuously over a 2,000 m strike length and up to 1,000 m down dip. Gold grades in the mineralized zone are closely related to sulphide content, especially arsenopyrite. Gold occurs as microscopic grains of native gold that are typically finer than 400 mesh (37 µm) in size. The gold grains occur interstitial to quartz, muscovite, and sulphide grains, and also as inclusions in arsenopyrite, and less commonly in pyrrhotite, quartz veinlets, tourmaline, and pyrite.

1.2.5 Exploration Status

The Mine remains the principal gold deposit in the district. Open-pit expansion potential exists along trend to the north and south and underground potential exists down dip where mineralization has been intersected by widely spaced drill holes.

In addition, the Mine is located on a 30 km trend of alteration and mineralization in the RMG that has not been comprehensively drill tested.

Drilling in the Mine area has been conducted in phases by several companies since 1987. Brio completed the latest diamond drilling at the Mine in 2017. Additional reverse circulation drilling was completed in short-term drilling programs from 2018 to 2020.

1.2.6 Mineral Processing and Metallurgical Testing

The RDM process plant feed comprises 40% North Pit, 30% Central Pit, 30% South Pit, representing zones in the pit with different characteristics.

Since 2014, the main operational restrictions of the RDM plant were the lack of available water and power supply; however, these issues have since been solved.

Production throughput was limited by a lack of process water several times between 2016 and 2020. To address this limitation, a 4 Mm^3 Water Storage Facility (WSF) was constructed in early 2018. The catchment area of the dam was significantly affected by farming activities, which caused a slow fill rate. Low water levels again caused a brief production shortfall in late September to mid-October 2019; however, the 2020 rainy season has significantly increased the volume of water stored in the WSF and the plant has been able to maintain year-round operations since then.

Following completion in March, 2019 of a 138 kV power line that connects to the Brazilian national power grid operated by Companhia Energética de Minas Gerais (CEMIG), the Mine now operates with electrical power from CEMIG's distribution lines instead of the previously-used diesel generators. This change allowed plant throughput to be increased from 290 t/h to 342 t/h by enabling operation at a higher steel-ball load in the mill.

A series of process improvements were implemented in 2019 and 2020. The measured improvement in metallurgical recovery is approximately 9%, achieving 87% recovery with a lower standard deviation. These improvements included:

- Reduction in ball size and increase in ball load
- Improved cyanide dosage control at Tank 2
- Addition of lead nitrate to the leaching circuit to passivate higher solubility sulfide surfaces
- Implemented an oxygen shear reactor in combination with oxygen sparging during pre-aeration
- Increased residence time and added carbon stages to the CIL by repurposing Tanks 9 & 10 to be included in the leaching circuit

Four phases of metallurgical testworks have been conducted.

- CVRD conducted cyanide leach tests at various grind sizes on 6 bulk samples. Column leach tests showed average gold recovery of 67% at -2 mm crush size. Bottle roll tests showed average gold recovery of 81% at 74 µm grind size and increasing recovery with a finer grind. They observed that sulphide ores responded reasonably well to cyanide leaching.
- SGS-Geosol Brazil (SGS) conducted cyanide leaching kinetic tests and CIL tests on composite samples from Areas III, IV, and V of the open pit with a particle size of 80% passing 75 µm. Gold extraction ranged from 88.6% to 91.9% after 72 hours of leaching in the presence of activated carbon.
- G & T Metallurgical Services, Ltd. (G&T) conducted tests on 11 samples that represented oxide, transition, and sulphide ore. Three series of leaching tests were conducted that included grinding, leaching, cyanide destruction, and sedimentation. The three test series used were standard cyanide leach conditions, leaching tests with lead nitrate added, and both lead nitrate and activated carbon added. The average gold extraction was 91% after 72 hours of leaching at a particle size fraction of P80 = 55-60 µm.
- RDM´s process team carried out a series of testworks with good results in 2019 and the plant process improvements were implemented in 2019 and in 2020.

1.2.7 Mineral Resources

The Mineral Resources, which are summarized in Table 1-1 and are exclusive of the Mineral Reserves, were estimated from a block model constructed by Equinox and have an effective date of December 31, 2020. Results from grade control drilling conducted during 2019 and 2020 were used to update this model. This Mineral Resource estimate conforms to CIM Definition Standards.

1.2.8 Mineral Reserves

The Mineral Reserves, which are summarized in Table 1-2, were prepared by Equinox with an effective date of December 31, 2020. Mineral Reserves are reported using a gold price of US$1,350/oz Au with a mine design based on the selected pit shell and an overall metal recovery of 87%.

The authors are of the opinion that the Measured and Indicated Mineral Resources within the final mine design can be classified as Proven and Probable Mineral Reserves, and are not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

1.2.9 Mining Method

Conventional open pit mining methods are employed at the Mine, including drilling, blasting, loading, and hauling using a fleet consisting of Atlas Copco flexiROC D65 (140 mm/5.5 in. diameter) diesel drill rigs; Caterpillar 390, Hitachi 2500 and 1200 hydraulic excavators; and Caterpillar 775, Caterpillar 777, and Komatsu 685 mechanical rear-dump trucks. Current pit bottom elevations for the north and south ends of the open pit are approximately 717 and 705 m, respectively, and the crusher elevation is 865 masl. Surface rights are sufficient for mine waste stockpiles, tailings facility, and processing plants sites.

The strip ratio of the design pit is relatively high, at approximately 6.9:1 (waste:ore). The mined tonnage is proposed to be at a constant rate throughout the life-of-mine (LOM).

Haul distances to the waste dumps and run-of-mine (ROM) ore stockpile crusher area are moderate (approximately 1.8 to 2.6 km). Total daily waste material movement is estimated to be approximately 60,000 t/d, and direct ore haulage is estimated to be 7,890 t/d (2.88 Mt/a). Alternate waste dump locations, although limited, are under evaluation. The mining permit would require an amendment to modify waste dump designs.

Weather and elevation should not impact productivities; however, severe rainfall may occur in the region. In addition to recycled process water, the Mine relies on make-up water from a water storage dam and a well field.

1.2.10 Recovery Methods

The circuit was designed to process an average of 7,890 t/d (2.88 Mt/a), but, with some modifications, could be expanded to 9,000 t/d (3.28 Mt/a).

The overall process flowsheet consists of:

- Three-stage crushing circuit
- Ball mill grinding, closed with hydrocyclones
- Thickening to produce a leach feed of 40% solids
- Cyanide leaching circuit
- Cyanide detoxification
- Zadra pressure-stripping of the carbon
- Electrowinning of the carbon eluent
- Casting of gold bars in an induction furnace.

1.2.11 Project Infrastructure

All the necessary infrastructure for the operation is in place, which includes, but is not limited to, open pit mine, open pit waste storage facilities, internal mine property roads, processing facilities, offices and support buildings, water wells, electrical power grid, access road, transportation and shipping facilities, communications, TSF, and WSF.

1.2.12 Market Studies

The principal commodity produced from the Mine is gold dore, which is freely traded, at prices that are widely known, so that prospects for sale of any production are virtually assured.

1.2.13 Environmental, Permitting, and Social Considerations

The Mine is in a remote and dry location, and vegetation and faunal compositions are critical habitat for many biodiversity resources. The general area of the Mine was previously disturbed by CVRD, which operated the Mine from 1989 to 1997. The mining operations will result in vegetation suppression over an area of approximately 362 ha.

Due to the previous mining activities and environmental liabilities, MRDM conducted supplementary baseline studies to assess groundwater, surface water, and soil quality prior to the start of operations. As part of conditions of the environmental license, MRDM conducts environmental monitoring programs of surface water, groundwater, soil, fauna, and flora to closely monitor potential changes in the quality of these resources. MRDM has ongoing reclamation programs and has set-aside areas for biodiversity conservation.

The Mine currently operates under the permits and licenses listed in Table 1-3. All licences and permits are in good standing as of the date of this report.

Table 1-3: MRDM Permitting Status

Licences and Permits	Number of License	Issue Date	Expiration Date
Operation Licence—MRDM	007/2015	06/09/2015	06/09/2019[1]
Preliminary and Installation Licence—Water Dam	007/2016	09/13/2016	09/13/2020
Operation Licence—Water Dam	011/2020	07/16/2020	07/16/2030
Environmental Permit—Gas Station 90 m³	5228/2020	11/27/2020	11/27/2030
Environmental Permit for Fauna Monitoring—Mine	102.001/2016	07/29/2016	06/09/2019[1]
Environmental Permit for Fauna Rescuing—Mine	102.002/2016	07/29/2016	06/09/2019[1]
Environmental Permit for Fauna Monitoring and Rescuing—Water Dam	102.080/2020	16/07/2020	16/07/2030
Environmental Permit for Fauna Monitoring and Rescuing—Water Dam	102.081/2020	16/07/2020	16/07/2030
Water Permit—New Water Dam	38465/2016	09/27/2016	09/13/2020
Water Permit—North Pit	934/2012	03/28/2012	03/28/2016[1]
Water Permit—South Pit	935/2012	03/28/2012	03/28/2016[1]
Water Permit—Groundwater well 03	3797/2011	12/22/2011	12/23/2015[1]
Water Permit—Groundwater well 07	3798/2011	12/22/2011	12/23/2015[1]
Water Permit—Groundwater well MRDM 15	3240/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Piranga 13	3243/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Piranga 14	3242/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Piranga 15	3239/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Mumbuca 11	3245/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Mumbuca 12	3244/2017	09/28/2017	09/28/2022

Licences and Permits	Number of License	Issue Date	Expiration Date
Water Permit—Groundwater well Mumbuca 16	3241/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Mumbuca 17	3246/2017	09/28/2017	09/28/2022

Note: (1) Under Renewal

1.2.14 Capital and Operating Cost Estimates

The total remaining LOM capital cost (2021 to 2027) is estimated to be US$94.4 million over six years of mining and two additional months of processing, including 2021. In addition, closure and reclamation costs are estimated to be approximately US$7.4 million (Table 1-4).

Table 1-4: Summary of Total Capital Costs

Category	LOM Total (US$ million)
Infrastructure and Equipment	20.5
Properties and Land Acquisition	1.3
Capitalized Stripping	28.0
Tailings Dam	19.0
Subtotal Sustaining	**68.8**
Capitalized Stripping	25.6
Others	-
Subtotal Non-Sustaining	**25.6**
Total LOM Capital	**94.4**
Reclamation	7.4

Note: R$4.75:US$1 exchange rate.

A summary of the operating costs over the LOM is shown in Table 1-5. LOM mining costs are reported to be US$2.27/t of total material (considering the mining and rehandling & grade control cost), which appear reasonable. Processing costs are estimated to be US$10.38/t milled for the LOM, which is also reasonable.

Table 1-5: Summary of LOM Operating Costs

Year	Mining Cost (US$/t moved)	Mining Cost (US$/t milled)	Processing Cost (US$/t milled)	Rehandling & Grade Control Cost (US$/t milled)	Mine Site G&A—Fixed (US$/t milled)	Total Cost (US$/t milled)
2021	1.82	19.47	9.71	0.34	2.98	32.50
2022	1.85	19.95	10.36	0.34	3.12	33.78
2023	1.91	19.51	10.54	0.34	3.25	33.64
2024	1.89	20.68	10.50	0.34	2.70	34.22

Year	Mining Cost (US$/t moved)	Mining Cost (US$/t milled)	Processing Cost (US$/t milled)	Rehandling & Grade Control Cost (US$/t milled)	Mine Site G&A—Fixed (US$/t milled)	Total Cost (US$/t milled)
2025	2.01	14.25	10.59	0.34	2.55	27.73
2026	2.70	6.70	10.46	0.34	2.55	20.05
2027	-	-	11.20	-	6.84	18.06

Notes: **1.** R$4.75:US$1 exchange rate.
2. G&A = general and administrative.

1.3 Economic Analysis

An economic analysis of the Mine was performed using the estimates presented in this report; it confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

1.4 Conclusions

Based on review of the Mine documentation and discussions with MRDM personnel, the authors have the following conclusions:

1.4.1 Geology and Mineral Resources

- The Mineral Resource estimate herein has an effective date of December 31, 2020. The QP has reviewed the Mineral Resource statement and is of the opinion that the parameters, assumptions, and methodology used are appropriate for the style of mineralization.
- Mineral Resources were prepared in accordance with CIM Definition Standards.
- The geological model is reasonably well understood and is well supported by field observations in both outcrop and drill intersections.
- Interpretations of the geology and the three-dimensional (3-D) wireframes of the estimation domains derived from these interpretations are reasonable.
- 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 for interlaboratory checks, standards, blanks, and duplicates.
- The resource model has been prepared using appropriate methodology and assumptions. These parameters include:
  - Treatment of high assays
  - Compositing length
  - Search parameters
  - Bulk density
  - Grade estimate validation

- Cut-off grade
- Classification

- The block model has been validated using a reasonable level of rigour consistent with common industry practice.
- Definition drilling laterally along strike to the north and south directions will likely result in the upgrading of Inferred Mineral Resources to the Indicated category. Down-dip underground potential has been drilled only to a limited extent and requires further drilling.
- Exploration potential at the Mine, and in the surrounding property, is expected to be relatively high. Potential exists laterally along strike both north and south of the existing pit, and potential exists for additional down-dip resources that may be amenable to underground mining.

1.4.2 Mining and Mineral Reserves

- The economic assumptions and methodology used for estimation of the Mineral Reserves are appropriate.
- Proven and Probable Mineral Reserves for the Mine as of December 31, 2020, total 17.6 Mt grading 0.99 g/t Au for 556 koz of contained gold.
- The mine design bench height is 12 m; however, mining will occur on 4 m lifts in waste and 3 m lifts in ore. The average mining rate is approximately 70,000 t/d ore and waste as part of the LOM plan, including ore production up to 7,890 t/d (2.88 Mt/a).
- All systems (safety, geological control, mining, processing, administration, and environmental) have been implemented for mining and are operating efficiently.
- Mineral Reserves are restricted to the RDM pit, composed of north, central, and south areas.
- Mining began in 2012 with limited pre-stripping. Mill production started in March 2014, and the Mine and mill have been operating since March 2014. The current estimated mine life is six years of mining plus two additional months of processing. The LOM mining and processing schedules do not include Inferred Mineral Resources.
- Upgrading the Inferred Mineral Resources to a higher category may potentially increase the mine life.
- MRDM personnel perform mining for ore, and a contractor mines waste material.
- Dewatering and slope stability represent the greatest risks to the mining area, however, in the authors' opinion, there does not appear to be reason for concern at this time.

1.4.3 Mineral Processing and Metallurgical Testing

- The main operational restrictions of the plant were the lack of available water and inadequate power supply. These problems have been rectified.

- Currently the Mine operates via power supplied by CEMIG. Thus, there is no longer a need for diesel generators. This recent improvement allowed plant throughput to be increased from 290t/h to 342t/h.
- Metallurgical recovery was originally predicted at 91% at a particle size fraction of P_{80} 53 µm. However, the Mine operates at around P_{80} 106 µm. To achieve 87% recovery at this granulometry, a series of process improvements were implemented in 2019 and 2020, which resulted in a measured metallurgical recovery improvement of approximately 9%.
- The oxygen system was changed in late 2020 and early 2021. The new system increased the dissolved oxygen to approximately 11 mg/L, which resulted in a recovery increase of 3% and process stabilization.
- The grinding mill was aligned, which resulted in a capacity increase from 342 to 365t/h. With additional improvements the ball charge could be increased to 33% and P_{80} 53 µm achieved.

1.4.4 Infrastructure

- The Mine site is currently connected to the national electrical grid (operated by CEMIG). Four diesel generators with a capacity of 6.4 MWh are available as an alternative to the grid. The current power supply contract is for 12.9 MWh with the possibility of increasing demand to 15.0 MW if there is a need to expand and increase production capacity. Eestablishment of the transmission line has reduced operating costs and increased production capacity.
- The Mine is susceptible to drought. According to the Knight Piésold Pty Ltd (KP) water balance, a water reservoir with a capacity of 3.0 to 4.0 Mm^3 is sufficient to allow for plant operation at full capacity during two rainy seasons´ drought. Based on the water balance, the Mine will require 1,640.13 m^3/h of make-up water at the full processing capacity of 2.88 Mt/a (7,890 t/d). A freshwater reservoir with capacity for 4.0 Mm^3 was completed in 2016 to store water collected during the rainy years, and has been used in the dry years ever since. Currently, water from the TSF, WSF, and eight freshwater wells provide water to the Mine. The quantity of water that can be pumped from the wells is limited by permit.
- Most of the workers who reside in small towns within 20 km of the site are transported to the Mine by commercially operated buses. Ssubsidies are provided for transportation in accordance with the law that governs the "Vale-Transporte," whose monthly costs cannot exceed 6% of the worker's salary.
- The Mine is in an easily accessible area in Minas Gerais in Brazil at elevations that range from approximately 770 to 900 masl. The driving distance to the Mine from Belo Horizonte is 560 km, which takes from nine to eleven hours on the existing roads. The nearest commercial airport is in Montes Claros, approximately 145 km from the mine site.
- The nearest major hospital is in Montes Claros (145 km away), however, the city of Riacho dos Machados (15 km away) has a health clinic. The medical staff is provided by a contractor. The clinic includes two nurses located on site and one doctor, who works four hours per day and is on call during his off-site hours.

1.4.5 Environmental, Social, and Permitting Considerations

- The Mine is a conventional CIL operation that has incorporated environmental mitigation into daily operations (i.e., water mitigation, concurrent reclamation/closure design).
- Historical acid rock drainage (ARD) issues and high concentrations of arsenic in ground and surface water need to be closely monitored to prevent off-site contamination of water resources. In 2020, an external consultancy (HIDROGEO Engenharia e Gestão de Projetos) reassessed the geochemical studies for prediction of ARD from Mine operations. As a condition of the environmental license, MRDM will continue to monitor ground and surface water resources, and additional mitigation measures will be implemented should ARD be detected.
- The socio-economic surveys with the residents in the vicinity of the operation are in the final phase for a subsequent evaluation and acquisition of the properties.
- Equinox has the necessary in-country permits and licenses to operate in compliance with Brazilian regulations. Additional permits will be obtained, as needed, to accommodate the future Mine operations.

1.4.6 Capital and Operating Costs

- The most recent capital and operating cost estimates have been updated to reflect the current plan for the Mine and current prices. The majority of the capital and operating cost estimates were completed in Brazilian Real (R$) and converted using a 4.75 to 1.0 (R$:US$) exchange rate.

1.5 Recommendations

The authors make the following recommendations:

1.5.1 Geology and Mineral Resources

- Carry out additional drilling to upgrade Inferred Mineral Resources at the northern and southern Mine extensions.
- Increase the number of density measurements to better characterize the density spatially.
- Undertake a preliminary economic assessment study to better assess the Riacho dos Machados Underground Mineral Resources.
- Conduct drilling and geological interpretive work along strike both north and south of the deposit aimed at increasing the Mineral Resources for the Mine. Potential exists for additional down-dip resources that may be amenable to underground mining.

1.5.2 Mining and Mineral Reserves

- Fully implement pre-split drill holes at final pit walls.
- Develop a combined pit optimization and stockpile strategy to define better pushback shapes.

- Implement mine to mill concept to improve loading and hauling productivities and associated gains in the plant throughput.
- Continue with assessment of footwall stability to maintain safety of continuing works.

1.5.3 Mineral Processing and Metallurgical Testing

- Implement routine chemistry analysis of sulphur and arsenic to better predict necessary process changes.
- Analyze the particle size distribution of the blasted ore to improve the F_{80} of the grinding mill.
- Increase the steel load to 33% in the grinding mill to improve the P_{80}.
- Engage a milling consultant for grinding diagnosis to improve grindability and plant throughput.
- Increase thickener underflow density for residence-time gain.
- Carry out geometallurgy of the north pit ore to develop process routes to characterize and mitigate the potential impact of high sulphur and arsenic minerals in the plant.

1.5.4 Infrastructure

- Continue with water supply well research program to mitigate drought risk.

1.5.5 Environmental, Social, and Permitting Considerations

- Complete the implementation, and satisfy requirements of the integrated management system for environmental licenses, avoiding control and monitoring through several spreadsheets and different files.
- Update the Mine Closure Plan in accordance with the new LOM and as per new ANM´s specific ordinance.
- Complete the process of removing residents from the area surrounding the mine operation, known as Piranga, as well as for residents from the self-rescue zone under the TSF influence per current Brazilian legislation.

1.5.6 Capital and Operating Costs

- Re-evaluate the mining cost, focusing on better usage of worked hours and costs, cycle times, powder factor, maintenance, as well as rebuild and replacement costs, slope stability, and labour force.

2 INTRODUCTION

This National Instrument (NI) 43-101 Technical Report on the Riacho dos Machados Gold Mine, Minas Gerais, Brazil was prepared by Equinox Gold Corp. Equinox under the guidance and supervision of the Qualified Persons. This Technical Report provides an update on the Mineral Resources and Mineral Reserves with an effective date of December 31, 2020 and conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

On May 24, 2018, Leagold acquired Brio Gold Inc. (Brio), which included ownership of three operating gold mines in Brazil: tha Riacho dos Machados, Fazenda Brasileiro, and Pilar mines, as well as the Santa Luz Project. On March 10, 2020, Equinox acquired all of the issued and outstanding common shares of Leagold resulting in Leagold being a wholly-owned subsidiary of Equinox. Mineração Riacho dos Machados (MRDM), now a wholly owned Brazilian-domiciled subsidiary of Equinox, operates the Mine. Equinox is a publicly listed Canadian mining company with significant gold producing, development, and exploration-stage properties in Canada, the USA, Brazil, and Mexico. Gold production by Equinox totalled approximately 477 koz Au in 2020.

The Mine is a conventional open pit and carbon-in-leach (CIL) operation, which is scheduled to process up to 7,890 t/d (2.88 Mt/a) with the potential to expand to 9,000 t/d (3.28 Mt/a). Current production will recover 484 koz Au over a mine life of seven years, consisting of six years of mining and one additional year of processing. Potential underground production could extend the mine life. Equinox has all required environmental licences and permits to conduct work on the property.

2.1 Sources of Information

Table 2-1 provides a list of QPs and the Technical Report sections for which they are responsible. The QPs' certificates are included in Section 29.

Table 2-1: Qualified Persons and Report Section Responsibilities

Section	Title of Section	Qualified Persons
Section 1	Summary	Felipe M. Araújo Tiãozito V. Cardoso Gunter C. Lipper César A. Torresini
Section 2	Introduction	Tiãozito V. Cardoso
Section 3	Reliance on Other Experts	Tiãozito V. Cardoso
Section 4	Property Description and Location	Felipe M. Araújo
Section 5	Accessibility, Climate, Local Resources, Infrastructure, and Physiography	Felipe M. Araújo
Section 6	History	Felipe M. Araújo
Section 7	Geological Setting and Mineralization	Felipe M. Araújo
Section 8	Deposit Types	Felipe M. Araújo
Section 9	Exploration	Felipe M. Araújo
Section 10	Drilling	Felipe M. Araújo
Section 11	Sample Preparation, Analysis, and Security	Felipe M. Araújo

Section	Title of Section	Qualified Persons
Section 12	Data Verification	Felipe M. Araújo
Section 13	Mineral Processing and Metallurgical Testing	Gunter C. Lipper
Section 14	Mineral Resource Estimates	Felipe M. Araújo
Section 15	Mineral Reserve Estimates	Tiãozito V. Cardoso
Section 16	Mining Methods	Tiãozito V. Cardoso
Section 17	Recovery Methods	Gunter C. Lipper
Section 18	Project Infrastructure	Tiãozito V. Cardoso
Section 19	Market Studies and Contracts	Tiãozito V. Cardoso
Section 20	Environmental Studies, Permitting, and Social or Community Impact	César A. Torresini
Section 21	Capital and Operating Costs	Tiãozito V. Cardoso Gunter C. Lipper César A. Torresini
Section 22	Economic Analysis	Tiãozito V. Cardoso
Section 23	Adjacent Properties	Tiãozito V. Cardoso
Section 24	Other Relevant Data and Information	Tiãozito V. Cardoso
Section 25	Interpretation and Conclusions	Felipe M. Araújo Tiãozito V. Cardoso Gunter C. Lipper César A. Torresini
Section 26	Recommendations	Felipe M. Araújo Tiãozito V. Cardoso Gunter C. Lipper César A. Torresini
Section 27	References	Felipe M. Araújo Tiãozito V. Cardoso Gunter C. Lipper César A. Torresini

2.2 Qualified Persons Site Visits

The following QPs have spent signinfanct time at the site in relation to this work:

- Felipe M. Araújo, MAusIMM(CP), Equinox Brazil Principal Geologist, visited the site several times, most recently from June 28 to July 2, 2021.
- Tiãozito V. Cardoso, MBA, FAusIMM, Equinox Brazil Technical Services Director, visited the site several times, most recently from June 23 to 24, 2021.
- Gunter C. Lipper, M.Sc., FAusIMM, Equinox Brazil Principal Metallurgist, visited the site several times, most recently on May 17 to 21, 2021.
- César A. Torresini, FAusIMM, Equinox Brazil VP Public Affairs and Permitting, visited the site several times, most recently on May 20, 2021.

2.3 Units of Measure and Currency

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

3 RELIANCE ON OTHER EXPERTS

The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to Equinox at the time of preparation of this Technical Report.
- Assumptions, conditions, and qualifications as set forth in this Technical Report.

The QPs have not performed an independent verification of the land title and tenure information, as summarized in Section 4, nor have they verified the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between third parties, as summarized in Section 4. For this topic, the QPs have relied on information provided by Equinox's legal department.

The QPs have not performed an independent verification of the permitting and environmental monitoring information, and have relied on documents and information provided by Equinox's Health, Safety, Environment, and Community (HSEC) teams.

The QPs have relied on various Equinox departments for guidance on applicable taxes, royalties, and other government levies or interests applicable to revenue or income from the RDM mine.The Authors used their experience to determine if previous information and/or reports were suitable and appropriate for inclusion in this technical report. Equinox did not seek independent review of these items.

4 PROPERTY DESCRIPTION AND LOCATION

The Mine is in the northern part of Minas Gerais State, Brazil. The mine site is 145 km by road northeast of the city of Montes Claros (population 413,000) and 25 km from the nearest town, Riacho dos Machados (population 10,000). The center of the current open pit has geographic coordinates of 16°03'40" south latitude and 43°08'16" west longitude and an approximate elevation of 895 masl. The site location is shown in Figure 4-1.

Figure 4-1: Project Location

4.1 Land Tenure

The property consists of eight exploration permits and two mining concessions with a total area of 14,979.98 ha, as shown in Figure 4-2. For the exploration permits, a final report detailing the tenure for the Mine is held under the name of MRDM, an indirect wholly owned subsidiary of Equinox, incorporated under the laws of Brazil and registered with the Federal Taxpayer's Roll under No. 08.832.667/001-62. The property was initially staked under the name of Ouro Fino Gold Mine (File #16,835) on March 30, 2001, and was subsequently registered under the name of MRDM.

Surface rights for the Mine were purchased by MRDM and owned by individuals and entities in Minas Gerais. Equinox believes that there are no reservations, restrictions, rights-of-way, or easements on the Mine to any third party. Through the Agência Nacional de Mineração (National Mining Agency or ANM), the Brazilian government is authorized to grant the rights for a mining concession to any entity that discovers a new mineable deposit.

There are no expiration dates on the mining concession held by MRDM, provided the company meets expenditure and environmental requirements and pays a required annual mining fee. The 2 Final Exploration Reports that were approved have more one year to submit an economic study (September 30, 2022). However, this deadline could be postopone for more one year. The expenditure and environmental requirements have been met, and MRDM is current with all requirements to hold the mining tenements in good standing. Table 4-1 provides a summary of the mining property concession and exploration permits.

Table 4-1: Mining Property Tenements

Property	Title	Area (ha)	Expiration Date
831.005/1982	Mining Concession	1,000.00	Unlimited
833.480/2006	Mining Application	1,230.64	Not Applicable
834.017/2006	Final Exploration Report Approved	717.22	Not Applicable
834.021/2006	Final Exploration Report Approved	743.45	Not Applicable
833.479/2006	Final Exploration Report Submitted	1,963.10	Not Applicable
834.015/2006	Final Exploration Report Submitted	1,921.76	Not Applicable
834.016/2006	Final Exploration Report Submitted	1,988.40	Not Applicable
834.018/2006	Final Exploration Report Submitted	1,981.86	Not Applicable
834.020/2006	Final Exploration Report Submitted	1,998.50	Not Applicable
831.869/2008	Final Exploration Report Submitted	116.72	Not Applicable
831.075/2021	Exploration Application	1,999.78	Not Applicable

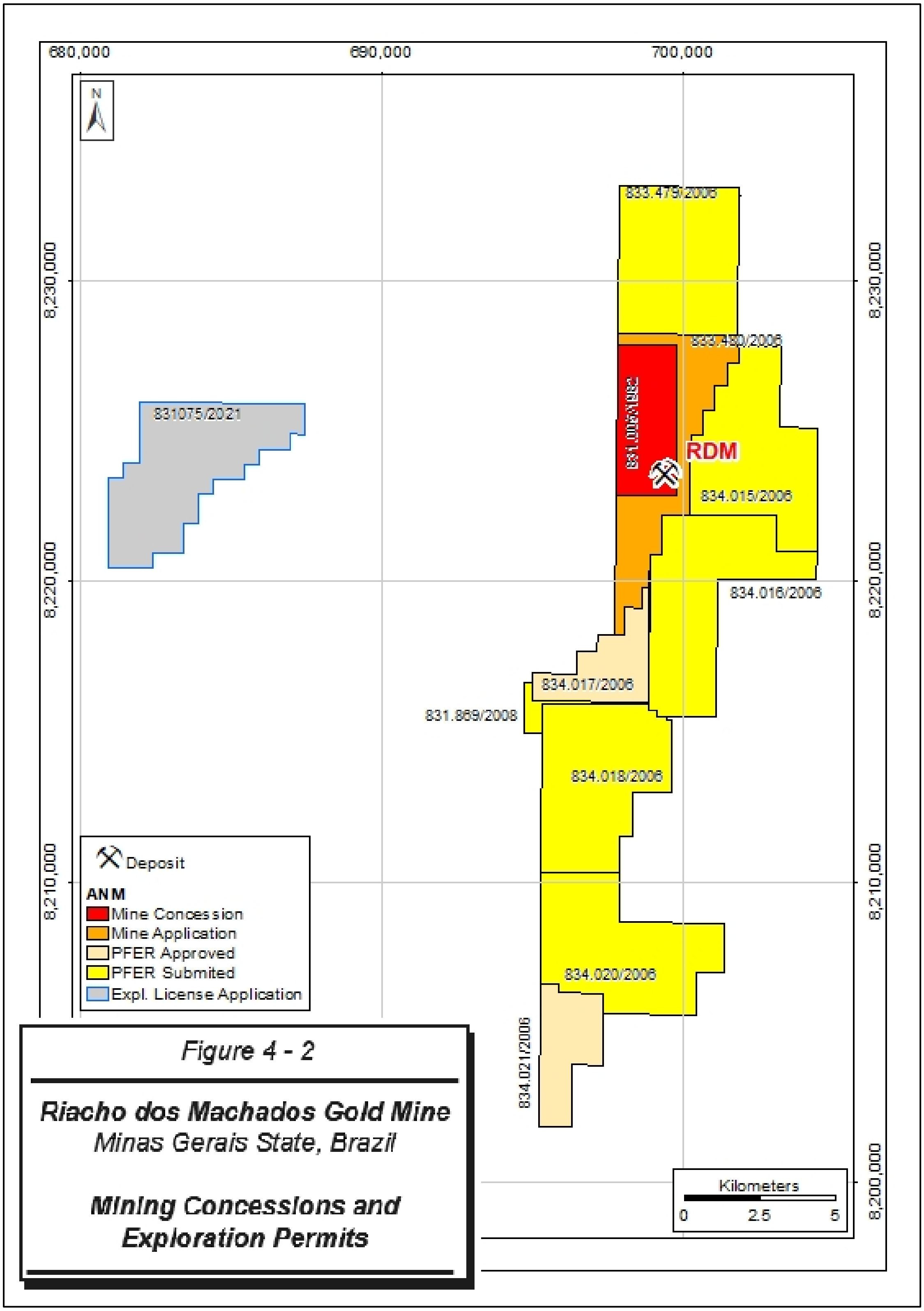


Figure 4-2: Mining Concessions and Exploration Permits

4.2 Royalties

Certain royalties are levied on mineral production in Brazil under Federal law. The current statutory royalty imposed by the Federal government on gold properties is 1.5% of sales proceeds less sales tax, transportation, and insurance costs. Additionally, a royalty must be paid to the landowner if the surface rights do not belong to the mining titleholder. This landowner royalty is equal to one-half the government royalty and would amount to an additional 0.5% in the case of gold. MRDM owns the surface rights that cover the deposit area and infrastructure so no additional landowner royalties exsit.

The Mine also carries a 1% royalty on the gold and a 2% royalty on base metals, payable by MRDM to Nomad Royalty Company, which acquired the royalty interest from Serra da Borda Mineração e Metalurgia SA, the previous beneficiary.

Initially, there was a royalty agreement between Mineração Brilhante and MRDM. On October 30, 2017, MRDM received a notification informing it that the royalty rights of Mineração Brilhante, which had previously been assigned to Irajá Mineração Ltda., would now be assigned to Serra da Borda Mineração e Metalurgia S/A. Serra da Borda Mineração e Metalurgia S/A is a subsidiary of Yamana Gold Inc. (Yamana). Finally, in May 2020, Yamana reports the assignment of the mining rights of Serra da Borda Mineração e Metalurgia S/A to Nomad Royalty Company.

The mineralization in the Mine area currently carries no economic base metals.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1 Accessibility

The RDM Mine is approximately 145 km by road northeast of Montes Claros in the northern part of Minas Gerais State, southeastern Brazil. The Mine can be accessed from Montes Claros by travelling west on Highway 251 and north on MG-120. The main gate is accessed from a westbound gravel road off MG-120. The nearest towns are Riacho dos Machados (population 10,000), approximately 23 km northeast from the Mine and Porteirinha (population 39,000), approximately 55 km northeast from the Mine. Montes Claros (population 400,000) is the region's largest industrial city, offering full-service facilities and daily commercial air flights to the major Brazilian cities of Belo Horizonte (560 km from the Mine), Brasília, and Salvador.

5.2 Climate

The Mine is in southeastern Brazil in the northern part of Minas Gerais, in the Serrado climate zone. The climate is semi-tropical with two seasons—a dry winter and a rainy summer—with the main period of rain occurring from November to March. Average temperatures vary from 17°C in January to 30°C in July. Annual precipitation ranges from approximately 300 to 1,700 mm, with an average of 800 mm over the last few years, and pan evaporation averages 1,537 mm/a.

Severe rainfall and drought can occur in the Mine area. In December 2013, the site experienced a total monthly precipitation amount of 556 mm, during which the water overtopped the liner that was being installed in the tailings storage facility (TSF) at the time and ran underneath the liner. The Mine has experienced several droughts, which affected the water supply during those times. Construction of the water storage facility to mitigate drought effects was completed in April 2017.

5.3 Local Resources

The Mine area has a moderate history of mining activity. Mining suppliers and contractors are locally available. Both experienced and general labour are readily available from the nearby towns of Porteirinha and Riacho dos Machados (population 39,000 and 10,000, resp.).

Within the state of Minas Gerais, many mining-related services are available including drilling and mining contractors, and geological and engineering consulting firms.

5.4 Infrastructure

Mine infrastructure is depicted in Fugre-5.1 and includes:

- Open pit mine
- CIL plant facility
- Three-bay, tent-structure mine shop, core shed
- Offices and support buildings
- Access road
- Waste management
- Cafeteria
- Transportation facilities
- Communications systems
- Tailings storage facility
- Power supply by the Energy Distribution Company of the State of Minas Gerais (CEMIG)
- Water dam and pipeline.

Electricity used to be produced by eleven diesel-powered generators. In the second half of 2019, the Mine started operating with transmitted energy supplied by the Minas Gerais State Energy Distribution Company (CEMIG), which built a 138 kV transmission line that connects the Janaúba 4 Substation to the new Mine substation. Both substations were constructed as part of the transmission-line project. The transmission line is approximately 35 km long, within a 25 m-wide right-of-way (ROW). CEMIG had negotiated the easements along the ROW and was responsible for the environmental licence and the substations' operations, together with the 138 kV transmission line.

5.5 Physiography

The Mine is located within the Serra do Espinhaço (Espinhaço Mountains), which divides the São Francisco and Jequitinhonha river basins. The terrain consists of rolling hills that are locally steep and drained by sparse intermittent streams mainly active in the wet season. Elevations range from 770 to 900 masl.

The dominant vegetation is overgrown, semi-tropical savanna known as “cerrado,” consisting of brushy forest land interspersed with open grassy fields. The local area supports only limited agriculture, mainly subsistence cattle grazing near the mine site. In addition to ranching, there are eucalyptus tree farms producing charcoal for metallurgical ovens.

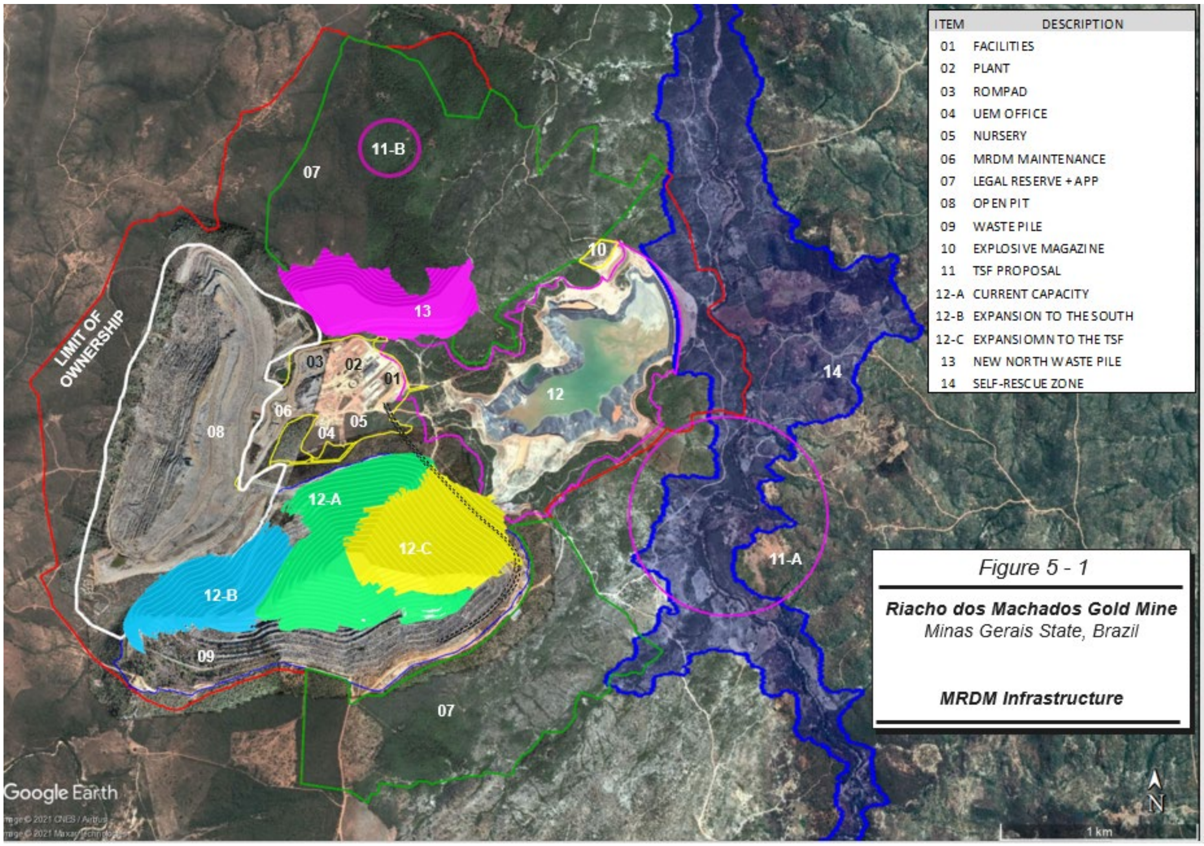


Figure 5-1: MRDM Infrastructure

6 HISTORY

6.1 Ownership History

Companhia Vale do Rio Doce (CVRD), now Vale, discovered the RDM deposit in early 1986. CVRD operated the property as an open-pit gold mine and heap leach operation until closure in 1997. The Mine remained idle from 1997 until October 2008, when Carpathian Gold Inc. (Carpathian) acquired the mineral rights and started prospecting and exploration. Carpathian restarted the Mine in March 2014, and Brio acquired the Mine from Carpathian on April 29, 2016. Through the acquisition of Brio, Leagold acquired the Mine on May 24, 2018.

On March 10, 2020, Equinox and Leagold completed an at-market merger of equals. As a result, the operating entity MRDM is now a wholly-owned subsidiary of Equinox.

6.2 Exploration and Development History

CVRD, through its exploration arm DOCEGEO, conducted geological mapping, geochemical and geophysical surveys, and trenching from 1979 to 1987. The work resulted in the discovery of the Ouro Fino deposit.

From 1987 through 1994, CVRD conducted the following exploration:

- Reverse circulation (RC) drilling to define the oxide gold mineralization—Most of the RC drill holes were less than 50 m deep to a maximum of 80 m. No details on sample quality are available, for example, whether they were wet or dry.
- Diamond drilling (DD) to explore the deeper sulphide mineralization—DD holes with an “F” prefix (surface DD) were collared with HQ-size core (76 mm diameter) in the saprolite and weathered rock, then reduced to NQ-size core (54 mm diameter) after the hole intercepted fresh rock. The shorter holes in this series ranged from 30 to 80 m deep, with longer holes from 300 to 416 m. The “FD” series core holes were drilled in the same manner as the “F” holes, except the core was reduced to BQ-size (36 mm diameter) below a depth of 540 m. The shorter holes in this series ranged from 95 to 150 m deep and the deeper holes from 700 to 900 m. The “SU” series core holes were drilled from the underground workings with AQ-size core (33 mm diameter). These holes ranged from 10 to 90 m.
- Underground exploration to define the mineralization below the southern portion of the open pit—the work included a vertical shaft, lateral development, underground drilling to explore further the deeper sulphide mineralization, and metallurgical testwork (Tecnomin, 2011).

6.3 Historical Resource Estimates

Prior to the start of mining operations in 1989, CVRD estimated open-pit oxide Mineral Reserves of 2.7 Mt grading 2.22 g/t Au, containing 193 koz Au. This estimate is historical in nature but it is relevant because it shows a good reconciliation with the actual production.

In 1996, CVRD estimated underground sulphide Mineral Resources of 2.59 Mt grading 4.88 g/t Au, containing 405 koz Au in the Measured and Indicated categories, and 1.19 Mt grading 4.01 g/t Au, containing 153 koz Au in the Inferred Resource category. The historical estimate should not be relied upon, and Equinox is not treating it as current Mineral Resources.

Cube Consulting Pty Ltd (Cube) prepared Mineral Resource estimates for Carpathian in December 2014, with 28.9 Mt grading 1.1 g/t Au, containing 1,002 koz Au in the Measured and Indicated categories, and 8.1 Mt grading 1.4 g/t Au, containing 404 koz Au in the Inferred category. The Cube Proven and Probable Mineral Reserves were estimated to be 18.87 Mt grading 1.17 g/t Au, containing approximately 711 koz Au, which combined the open pit and the stockpiles (Cube, 2014a).

Roscoe Postle Associates Inc. (RPA) prepared Mineral Resource and Mineral Reserve estimates for Leagold with an effective date of September 30, 2015 (RPA, 2015), which RPA (2018) updated to an effective date of May 31, 2018 in a report readdressed to Equinox. Measured and Indicated Mineral Resources, inclusive of Mineral Reserves, were estimated to total 39.3 Mt at an average grade of 1.00 g/t Au, which equated to 1,259 koz of contained gold. An additional Inferred Mineral Resource was estimated to be approximately 8.3 Mt at an average grade of 1.50 g/t Au, which equated to 401 koz of contained gold. The current Mineral Resource and Mineral Reserve estimate discussed in Sections 14 and 15, respectively, supersedes the May 31, 2018 Mineral Resource and Mineral Reserve estimates.

6.4 Past Production

CVRD began the open pit operation at the Ouro Fino deposit in 1989. Oxidized gold ore was mined and processed by cyanide heap leaching until 1997 when operations ceased. Production from the operation is summarized in Table 6-1.

Table 6-1: Historical Production Summary—CVRD

Year	Ore (kt)	Grade (g/t Au)	Waste (kt)	Strip Ratio W:O	Contained Au (koz)	Produced Au (koz)	Process Recovery (%)
1989	12	2.46	2	0.13	1	0	-
1990	334	1.89	321	0.96	20	14	71
1991	506	2.12	963	1.9	34	28	80
1992	517	1.93	1,175	2.27	32	27	83
1993	628	1.98	1,593	2.54	40	31	77
1994	568	1.68	1,378	2.43	31	26	84
1995	362	1.68	961	2.65	20	16	84
1996	294	1.88	487	1.66	18	13	72
1997	0	-	-	-		1	-
Total	**3,220**	**1.89**	**6,879**	**2.14**	**196**	**155**	**79**

Carpathian acquired the Mine on October 30, 2008, completed a Feasibility Study, and began production in March 2014. Table 6-2 shows a production summary since the construction of the new process plant in 2014.

Table 6-2: 2014–2018 Production—Carpathian and Brio

Year	Mined Ore (kt)	Processed (kt)	Process Grade (g/t Au)	Recovery (%)	Metallurgical Au (koz)	Shipped Au (koz)
2014	2,191	1,422	1.22	86	47.9	48.0
2015	1,493	1,027	1.34	83	36.7	39.9
2016	1,055	850	1.39	77	31.7	31.9
2017	1,724	1,253	1.25	86	43.1	42.7
January to May 2018	777	887	1.15	84	27.4	26.4
Project to Date Totals	**7,240**	**5,439**	**1.26**	**84**	**186.8**	**188.9**

Brio, then a Yamana subsidiary, acquired the project on April 29, 2016 and continued producing until May 24, 2018 at which time the project was sold to Leagold Mining.

Equinox and Leagold Mining Corporation have combined their businesses in the first semester of 2020. Equinox Gold continues mining operation and production at the Mine. The production outlook after the merger of the companies is shown in Table 6-3.

Table 6-3: 2018–2020 Production—Leagold and Equinox

Year	Mined Ore (kt)	Processed (kt)	Process Grade (g/t Au)	Recovery (%)	Metallurgical Au (koz)	Shipped Au (koz)
May to December 2018	636	1,055	1.01	81.0	28.2	28.3
2019	1,962	2,552	0.93	82.2	62.5	62.4
2020	2,209	2,751	0.92	85.8	69.6	69.0
Project to Date Totals	**4,807**	**6,358**	**0.92**	**83.7**	**160.3**	**159.7**

7 GEOLOGICAL SETTING AND MINERALIZATION

The description of the geological setting and mineralization and references therein are mainly taken from Tecnomin (2011).

7.1 Regional Geology

The Mine occurs in the north–south-trending Araçuaí fold-thrust belt along the eastern margin of the São Francisco Craton, a major Archean-age basement block that underlies more than 1 Mkm^2 in eastern Brazil. The Araçuaí Fold Belt is 15 to 45 km wide and consists of a series of late Archean to late Proterozoic metavolcanic and metasedimentary rocks that were deposited in a broad intracontinental-to-oceanic rift-type basin that existed between the São Francisco Craton and the Congo Craton (now part of Africa). Subsequent closure of this rift basin by prolonged continental collision strongly deformed the rock strata, and the units were metamorphosed, folded, intruded, and thrust westward against the São Francisco Craton during the late-Proterozoic Brasiliano orogeny. Mineralization along the Araçuaí Fold Belt is thought to be the result of hydrothermal fluids generated by syntectonic igneous and metamorphic activity.

Immediately east of the Araçuaí Fold Belt occurs a north–south-trending, 300 km long structural window cored by Archean-aged migmatites (Porteirinha Complex) and flanked by apparent décollement (basal detachment) structures and Proterozoic supracrustal sequences (Espinhaço and São Francisco Supergroups) forming a regional antiformal structure. This structural window has been termed the Guanambi-Corretina Block by Barbosa (1996), or the Porteirinha Complex by DOCEGEO (1994). At the Mine, basement gneissic-granitic rocks are interpreted to be overthrust westward onto the supracrustal rocks of the Riacho dos Machados Group (RMG) as part of the Brasiliano-Pan-African event. The tectonic superposition of basement rocks over supracrustal sequences is described along the entire eastern border of the São Francisco Craton, with mineral occurrences known along this lineament.

7.1.1 Regional Lithology

The major Precambrian rock sequences included in the Araçuaí Fold Belt, from oldest to youngest, are as follows:

Porteirinha Complex (Córrego do Cedro Metamorphic Complex)

The Porteirinha Complex is an Archean age granite-gneiss and migmatite basement complex, which includes minor mafic metavolcanics intercalations and has tight north–south folding; part of a poorly understood tectonic block immediately east of the São Francisco Craton.

Riacho dos Machados Group

The RMG is a Late Archean to Early Proterozoic age, strongly metamorphosed, volcanic-sedimentary rock sequence comprising mafic to ultramafic rocks with mica schist and quartz-feldspar schist. This sequence contains a local rock sequence, the Ouro Fino Sequence, which is the principal host for gold deposits at the Mine. The RMG is highly sheared and exhibits sheared contacts.

The protoliths for the RMG are interpreted predominantly as metasedimentary (metapelite), metavolcanic, and undifferentiated metavolcano-sedimentary units. The metasedimentary unit is dominated by pelitic schists (quartz-biotite), with variable portions of plagioclase, garnet, staurolite, and kyanite. Quartzofeldspathic schists occur in subordinate proportions and are composed essentially of plagioclase, quartz, phlogopite, and microcline; according to Fonseca (1993), this lithology type corresponds to a metamorphosed volcaniclastic rock. The undifferentiated metavolcano-sedimentary unit consists of intercalated metasedimentary and metavolcanic rocks in the form of titanite-bearing amphibolites and chlorite-talc-tremolite–garnet-biotite-chlorite and carbonate-serpentine-chlorite-tremolite schists. Fine-grained amphibolites and mafic/ultramafic schists are also intercalated with the metapelites, and shearing has produced schistose rocks predominantly composed of chlorite and muscovite.

Paciência Intrusive Suite

This suite consists of early to Mesoproterozoic-age bodies of granite, quartz monzonite, quartz diorite, diorite, and gabbro that intrude the Riacho dos Machados sequence. Intrusive activity was syntectonic to late tectonic.

Espinhaço Supergroup

This comprises a thick supracrustal sequence of Mesoproterozoic age, moderately metamorphosed sedimentary-volcanic rocks, mainly sericitic quartzite, phyllite, conglomerate, and schistose felsic volcaniclastic rocks.

Salinas, Macaúbas, and Bambuí Groups

These groups comprise sequences of Neoproterozoic age, weakly metamorphosed sedimentary rocks, including slates, meta-siltstones, phyllites, meta-arenites, quartzite (locally iron rich), and greenstone.

7.1.2 Regional Structural Geology

The supracrustal late-Archean to early-Proterozoic rocks of the RMG are hosted within the Córrego do Cedro Archean gneissic-dome complex. The RMG rocks are found in north–south elongated belts up to 6 km long within the gneissic basement, the belts being generally parallel to strike of the Araçuaí Fold Belt. The mica schists of the RMG host the gold mineralization, exhibit well-developed planar foliation, and thrust fault-related mylonitic shear fabrics that strike N20°E and dip 35° to 45° to the southeast. Generally, lithological contacts are parallel to thrust faults that juxtapose schists, gneisses, and granitic rocks. The shear zones and thrust faults are silicified, sericitized, and sulphidized. Gold mineralization occurs as distinct tabular zones concordant with metamorphic and shear foliation. The mineralized zone at the mine site has a known continuous strike extent of 2,000 m. Geologic mapping and a linear arsenic-in-soil anomaly indicate that mineralization extends northward from the Mine for a further 10 km along strike.

Three major thermal-tectonic events are recognized in the area: Archean, Mesoproterozoic (Transamazonic), and Neoproterozoic (Brasiliano). The oldest event is related to migmatization of the gneissic basement rocks (Porteirinha Complex), and the second event possibly resulted in the structural deformation of the RMG. The third event resulted in thin-skinned décollement tectonics and the development of the west-verging Araçuaí fold-thrust belt. The regional geology is illustrated in Figure 7-1.

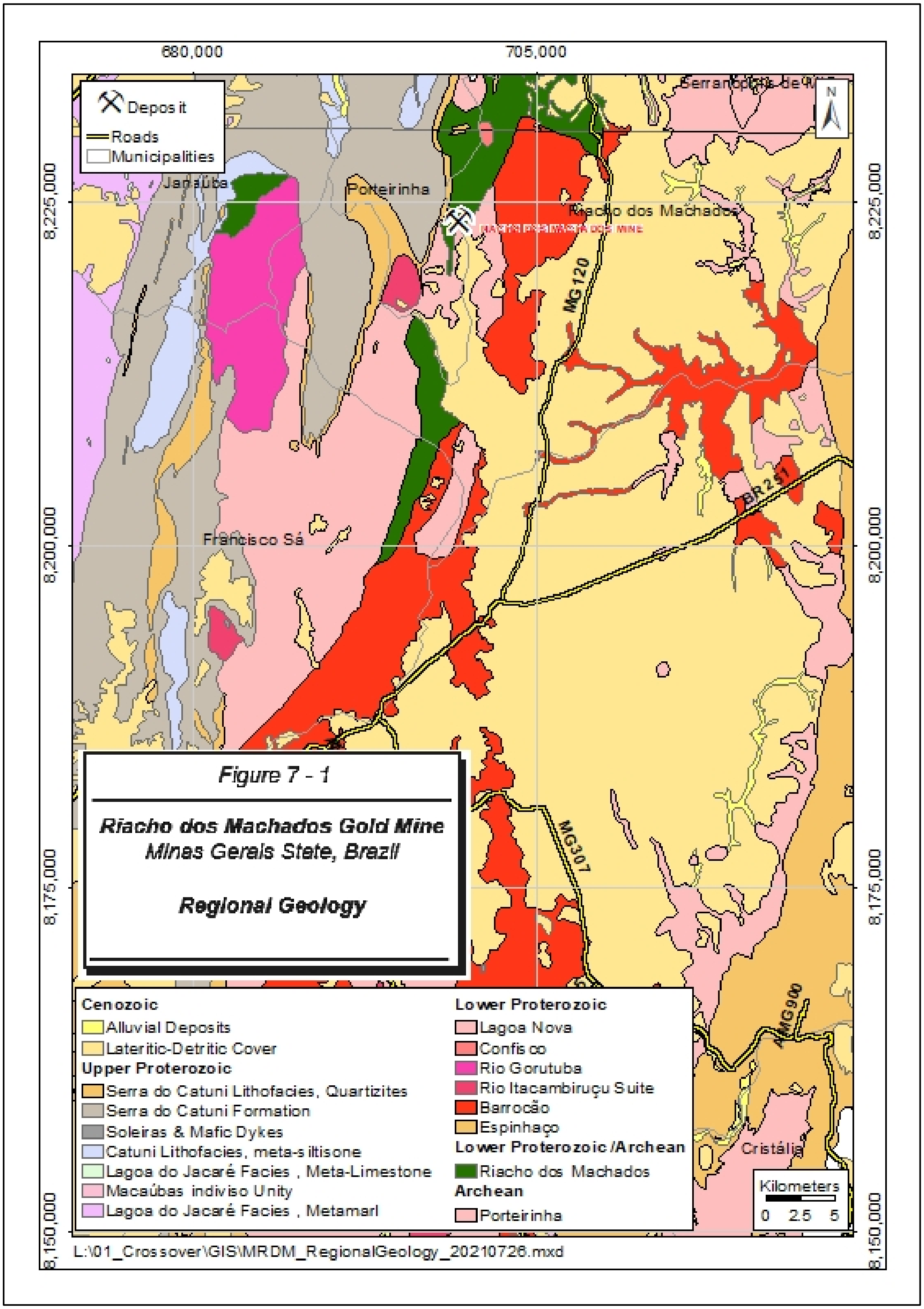


Figure 7-1: Regional Geology

7.2 Local Geology

In the local area, the following lithostratigraphic units occur, from oldest to youngest:

- Middle Archean basal migmatite gneiss of the Porteirinha complex, with associated bodies of basic rock
- Late-Archean metavolcano-sedimentary rocks of the RMG, which host gold mineralization
- Paleoproterozoic granite of the syn- to late-deformation Paciência Intrusive suite, which cut part of the RMG
- Neoproterozoic supracrustal rocks of the Macaúbas Group outcropping west of the mineralized areas, consisting of meta-diamictites, quartzites, and phyllitic meta-siltstones.

Figure 7-2 shows the local geology.

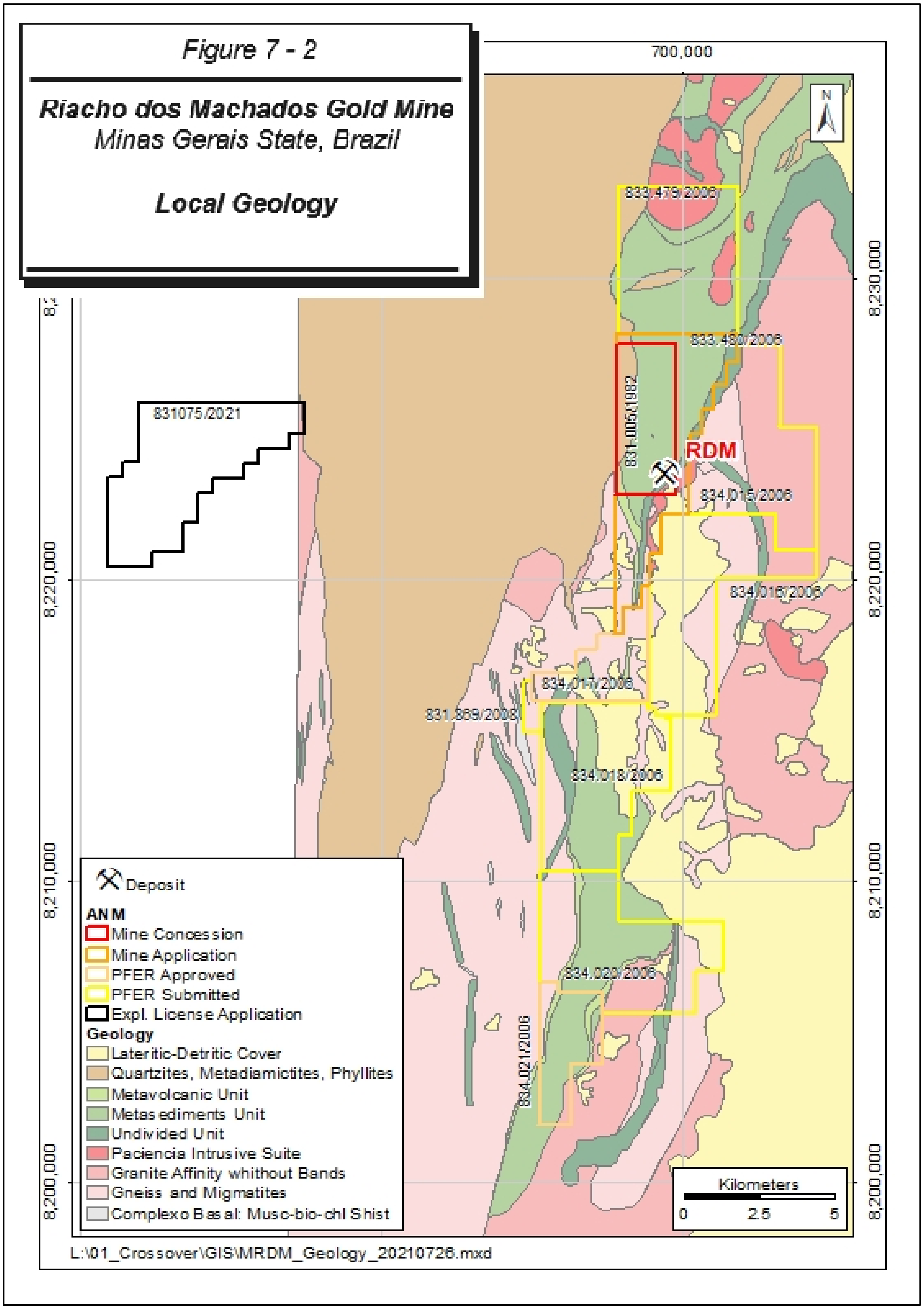


Figure 7-2: Local Geology

7.3 Property Geology

The main lithological units on the property are described as follows.

7.3.1 Biotite (Quartz-Oligoclase-Sericite) Schist with Staurolite and Garnet

This is a medium- to coarse-banded unit consisting of chloritized biotite (25% to 30% including 5% to 15% muscovite), moderately to strongly sericitized oligoclase (15% to 30%), and quartz (35% to 40%). Staurolite and garnet occur in separate bands. The staurolite clasts (up to one centimetre or more in size) are moderately to strongly sericitized and occasionally chloritized. Other accessory minerals include tourmaline, rutile, apatite, ilmenite, and epidote, with rare zircon and carbonate crystals. Petrographic studies suggest the protolith (original rock) for this unit was a pelitic sedimentary rock.

7.3.2 Quartz-Feldspar Schist

This unit has a more restricted occurrence than the other units in the central–north portion of the area. It consists of quartz, sericitized, and kaolinized oligoclase (40% to 47%), phlogopite mica (2% to 8%), microcline (3% to 5%), and muscovite (altered from phlogopite). The schist is grey (white when weathered) and has sparse fine-grained porphyroclastic texture within a moderately to well-developed mylonitic foliation. The protolith is considered to have been a felsic volcaniclastic rock.

7.3.3 Quartz-Muscovite Schist

This unit is the principal host for the gold mineralization at the Mine. The rock is white to clear greenish (yellowish-white when weathered) and consists predominantly of quartz and muscovite. Chlorite is also present in variable amounts, with small amounts of siderite or calcite, and up to 5% sulphide minerals occurring as pyrrhotite, pyrite, arsenopyrite, and rare chalcopyrite and sphalerite. Quartz-muscovite schist is potassically altered biotite schist or quartz-feldspar schist that formed in hydrothermally altered shear zones.

7.3.4 Quartz-Sericite/Muscovite-Biotite/Chlorite Schist

This is likely a transitional lithologic unit formed from the partial hydrothermal alteration of the biotite schist and quartz-feldspar schist units. Contacts with the other units are gradational.

The distribution of the above lithologies and their subtypes is illustrated in Figure 7-3. Figure 7-4 shows a geological cross-section of the Mine.

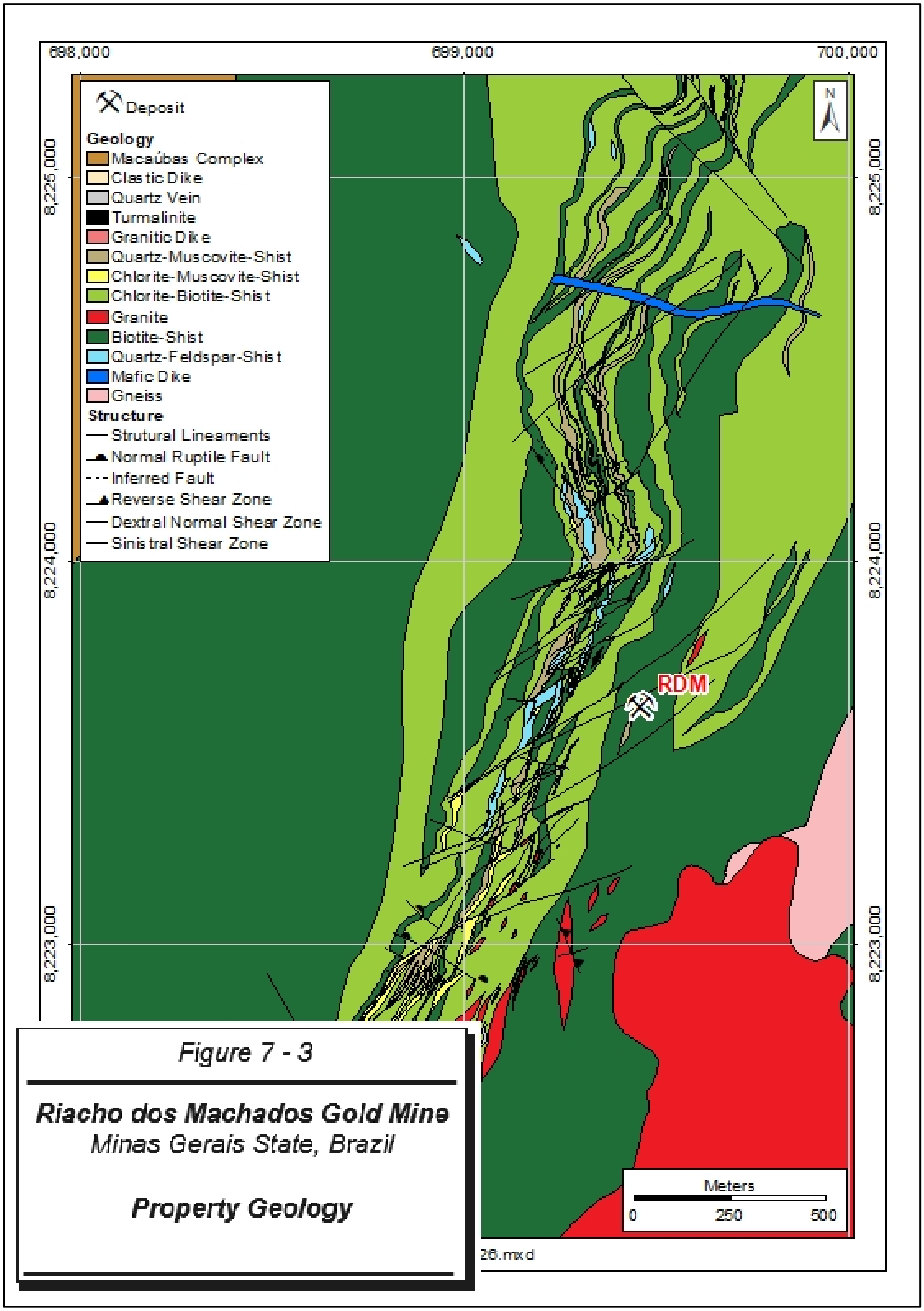


Figure 7-3: Property Geology

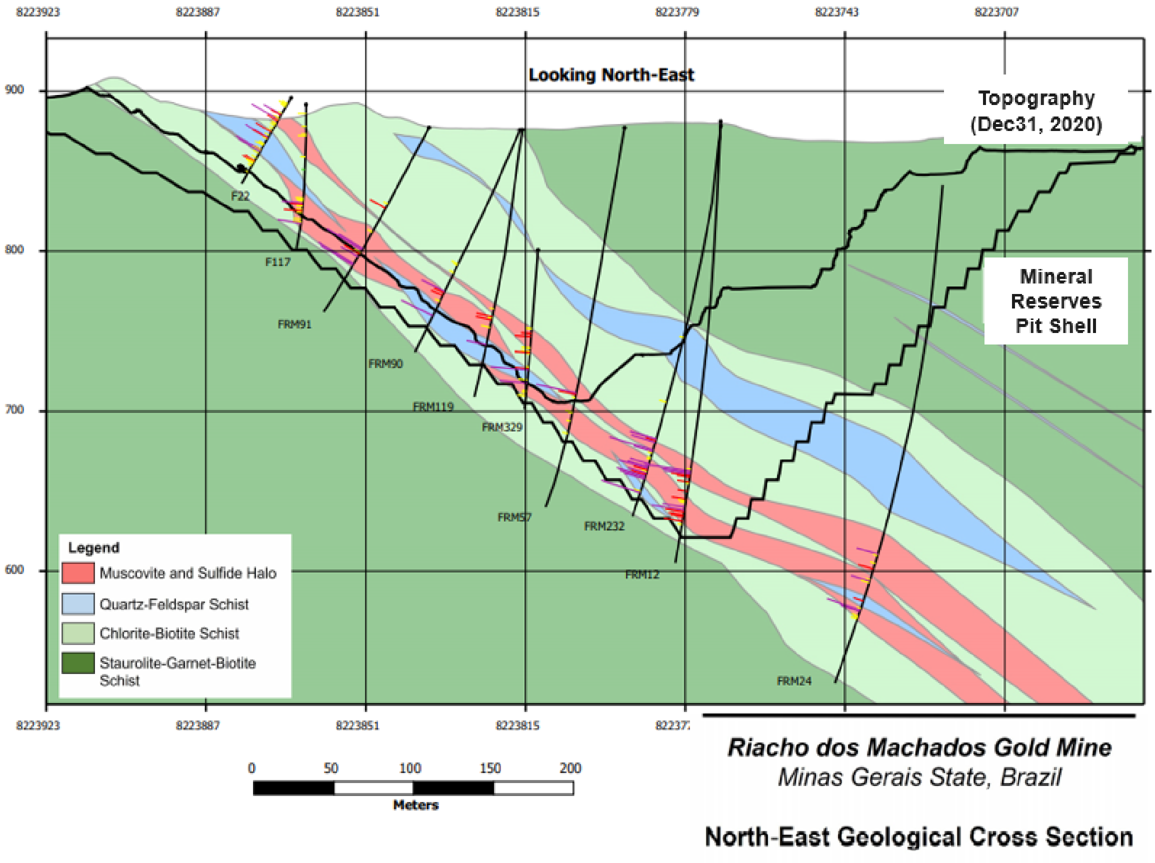


Figure 7-4: 10600N Geological Cross-Section

7.3.5 Mineralization

The principal host for the gold mineralization is the quartz-muscovite schist of the RMG, a hydrothermal alteration product formed along a district-scale shear zone. This shear zone extends almost 30 km in a N20°E strike direction, dipping 40° to 45° east. In the mineralized zone, the regional amphibolite facies mineral assemblage is progressively altered to assemblages typical of greenschist facies (da Fonseca et al., 1997). In detail, the gold mineralization occurs as "stacked" tabular horizons that are generally concordant with the overall shear zone and associated foliation. Stacked footwall and hanging wall zones are typically separated by 3 to 10 m of unmineralized rock. Continuity of the overall zone along strike and at depth is good, with gold mineralization occurring continuously over a 2,000 m strike length and up to 1,000 m down dip.

Gold grades in the mineralized zone are closely related to sulphide content, especially arsenopyrite. Gold occurs as microscopic native-gold grains typically finer than 400 mesh (37 µm). The gold grains occur interstitial to quartz grains, muscovite grains, and sulphide grains, and also as inclusions in arsenopyrite, and less commonly in pyrrhotite, quartz-veinlets, tourmaline, and pyrite.

The following minerals and features, listed from high to low importance, are noted as indicators of gold mineralization:

- Arsenopyrite (both anhedral grains and euhedral needles)
- Pyrrhotite
- Abundant quartz veinlets (sheared into foliation plane)
- Pyrite
- Crenulation folding
- Tourmaline veins (fine-grained massive intergrown).

The arsenic content of the mineralization is relatively high, with an average of approximately 4,000 ppm for samples greater than 1.0 g/t Au. Silver content is very low, with the average Ag/Au ratio of 0.5:1.0 for samples with a gold concentration of greater than 1.0 g/t. Antimony, copper, lead, and zinc are not commonly anomalous.

The gold mineralization is closely related to the structural fabric. The mineralizing fluid was probably channelled upward in the thrust-related shear zones with minor or local lateral escape into intersecting shear zones. Brittle deformation at the RDM deposit is limited to poorly defined cross-faults that may have anomalous geochemistry but do not host gold mineralization.

Spatially, geology and mineralization can be divided into three distinct areas in cluding the ore, marginal and distal zones as shown in Figure 7-5.

The area presents the occurrence of graphite, which influences the metallurgical behaviour of the ore. Graphite occurs in shear zones filling intrafolial planes, ranging from 2 to 20 cm thick, and in the form of boulders, with lenticular geometry or symmetrical boudins associated with quartz veins, with thicknesses of up to 1.5 m. They have dark grey and black coloration and low hardness, and due to graphite's lubricating characteristics, act as zones of geomechanical weakness. Graphite is in non-mineralized areas, associated with domains of marginal or waste contents, or in mineralized areas with the presence of high sulphidation.

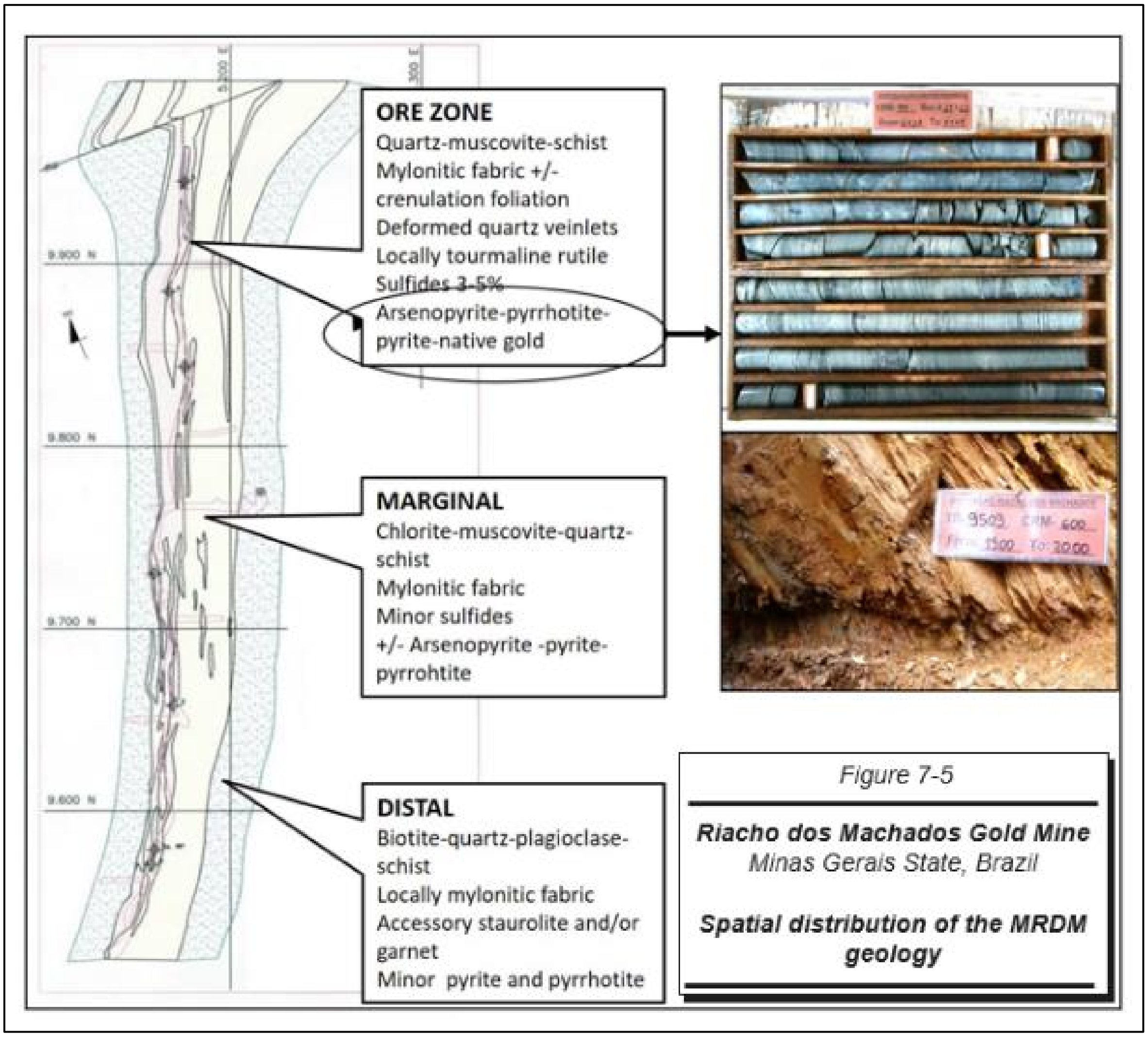


Figure 7-5: Spatial Distribution of the RDM Mine Area Geology

8 DEPOSIT TYPES

The RDM deposit is considered a classic mesothermal orogenic gold deposit in a sheared and deformed Archean- to Proterozoic-age greenstone belt sequence comprising metamorphosed volcanico-sedimentary rock units intruded by slightly younger syn-tectonic or post-tectonic igneous bodies. The deposit summary provided below is based on overview descriptions by Dubé and Gosselin (2007), Goldfarb et al. (2005), Goldfarb et al. (2001), and Groves et al. (1998).

Orogenic gold systems form some of the largest gold deposits and districts in the world (e.g. Kalgoorlie in Australia, Timmins in Canada, and Ashanti in Ghana). Their name reflects a temporal and spatial association with late stages of orogenesis. Formation of most orogenic gold mineralization was concentrated during the Neoarchean (2.8 to 2.55 Ga), Paleoproterozoic (2.1 to 1.8 Ga), and Phanerozoic (600 to 50 Ma); these periods coincide with major orogenic events. An important subtype of orogenic gold deposits is those that are dominantly hosted by mafic metamorphic rocks in granite-greenstone terranes, referred to here as greenstone-hosted orogenic gold.

Greenstone-hosted orogenic gold deposits are structurally controlled epigenetic deposits. Gold occurs in networks of laminated quartz-carbonate fault-fill veins hosted in moderately to steeply dipping, brittle-ductile shear zones and faults, with locally associated extensional veins and hydrothermal breccias. Most of these deposits are hosted by meta-mafic rocks of greenschist to locally lower amphibolite facies and formed at depths of 5 - 10 km. The relative timing of mineralization is typically syn- to late-deformation and syn- to post-peak metamorphism. They are formed from low salinity, CO_2-rich hydrothermal fluids with typically anomalous concentrations of CH_4, N_2, K, and S. Gold may also occur outside of veins within iron-rich sulphidized wall rock.

9 EXPLORATION

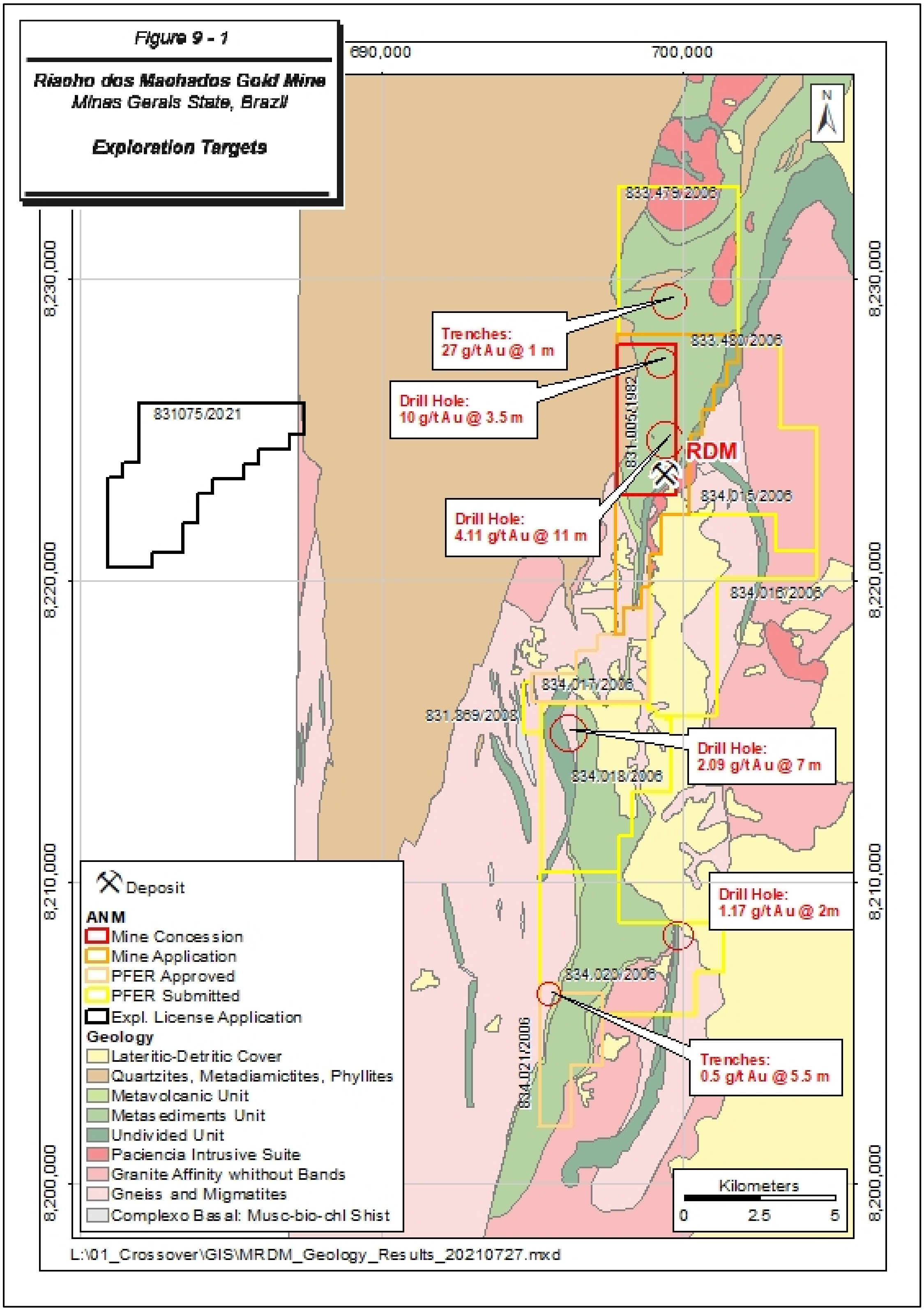
Neither Leagold nor Equinox have carried out any exploration at the Mine as of the date of this Technical Report. Exploration conducted by previous operators is documented in reports by RPA (2016, 2018) and Cube (2014).

From October to December 2017, Brio conducted a 12-hole drilling program to explore the deposit at depth to test the potential for underground mining, and better define open pit boundaries. A summary of the drilling program is included in Section 10.

9.1 Exploration Potential

The Mine remains the principal deposit in the district. Open-pit expansion potential exists along trend to the north and south, and underground mine potentisal exists down dip where mineralization has been intersected by widely-spaced drill holes.

In addition to exploration potential near the Mine, the main shear zone that controls the gold-ore zone at the Mine extends over 15 km, in both directions, and to date has not been explored in detail. Historical drilling holes show significant gold intersections, as shown in Figure 9-1.



Source: Equinox, 2020 (after Carpathian, 2015).

Figure 9-1: Exploration Targets

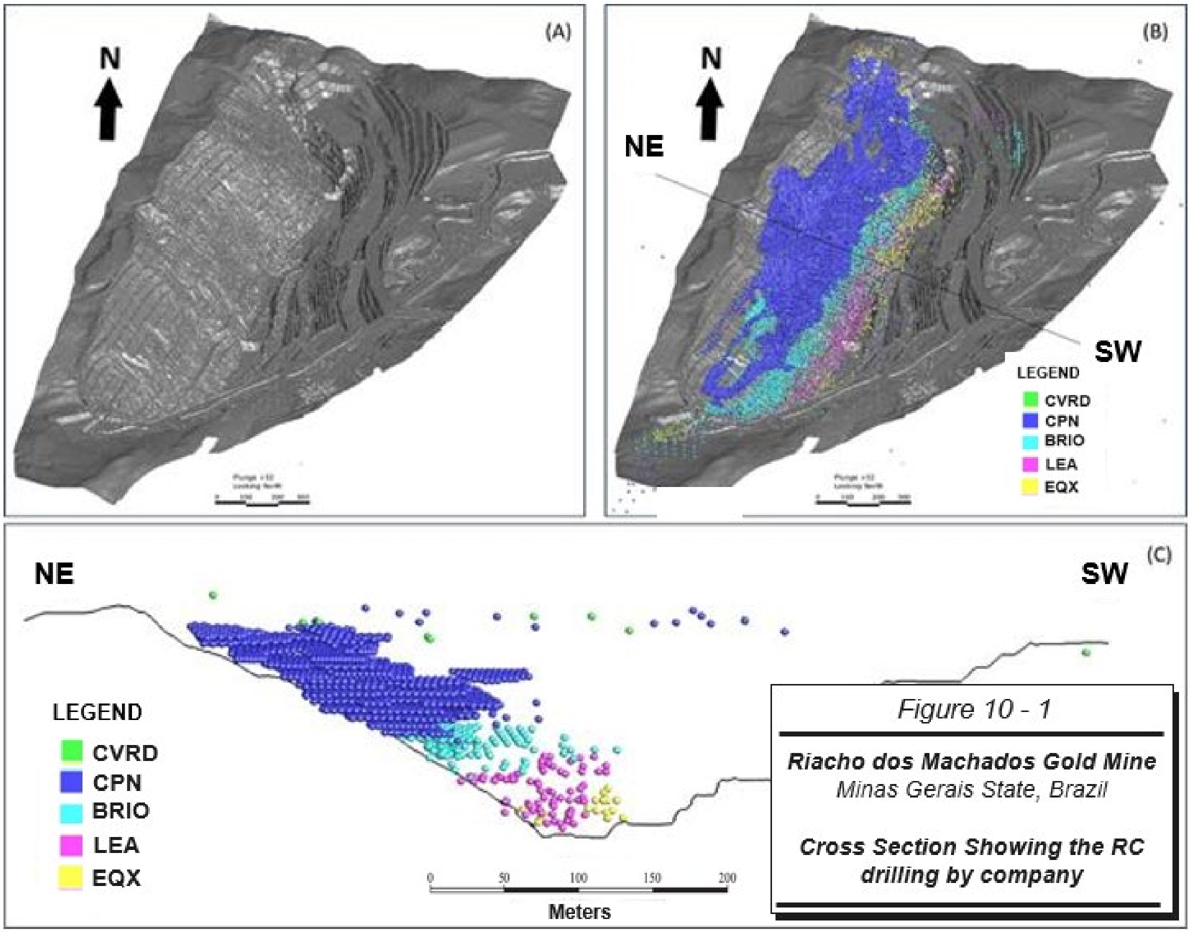
10 DRILLING

Since 1987 several companies have conducted DD and RC drilling in phases in the Mine area, as summarized in Table 10-1.

Table 10-1: Drilling Summary

Year	Company	Drilling Type	Holes	Metres
1987–1995	Docegeo (CVRD)	DD	241	29,262
		RC	192	7,583
2008	Carpathian	DD	65	11,381
2009	Carpathian	DD	31	3,865
		RC	59	4,646
		RC + DD	65	12,296
2010	Carpathian	DD	83	11,467
2012	Carpathian	DD	42	2,276
2013	Carpathian	RC	693	4,417
2014	Carpathian	RC	534	2,103
2015	Carpathian	RC	1,419	10,605
2016	Brio	DD	29	2,033
		RC	2,862	26,119
2017	Brio	DD	12	3,725
		RC	1,287	32,154
2018	Brio	RC	269	6,320
2019	Leagold	RC	535	18,827
2020	Leagold	RC	62	2,268
	Equinox	RC	417	15,239
Total			**8,897**	**206,587**

Brio completed the latest DD at RDM in 2017. Additional drilling information was obtained in short-term RC drilling programs from 2018 to 2020. Figure 10-1 shows the location of RC drilling, by company, in a typical northeast–southwest cross-section. Equinox's RC drilling was in the deeper areas of the pit topography, showing that this drilling supports the grade control program.



Notes: CVRD = Companhia Vale do Rio Doce ; CPN = Carpathian; BRIO = Brio Gold Inc.; ; LEA = Leagold Mining Corporation; EQX = Equinox Gold Corp.

Figure 10-1: Cross-Section of RC Drilling by Company

10.1 Leagold and Equinox Drilling 2019 and 2020

During 2019 and 2020, Leagold and Equinox drilled 479 RC drill holes for a total of 17,507 m. RC drilling was carried out using an MRDM-owned Atlas Copco flexiROC D65 drill rig that currently has a 140 mm (5.75 in) hammer, as shown in Figure 10-2.

Figure 10-2: MRDM RC Drill Rig

10.2 Sampling Method and Approach

Historical drilli sampling by CVRD, Carpathian, and Brio is described by RPA (2015, 2018) and by Cube (2014) in their respective technical reports. The RC has a reliable sampling as described below.

10.2.1 Reverse Circulation Sampling

MRDM geologists supervised RC sampling. Samples were taken at 1.5 m intervals, collected at the discharge cyclone, then passed through a three-tier Jones Riffle Splitter before a split was collected into a pre-labelled sample bag. The cyclone and splitter were cleaned after each sample, between each rod change, and between holes. The samples collected from each hole were arranged sequentially and transported to the sample room at the camp for preparation.

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Sample Preparation and Analysis

The internal Mine laboratory was used for the RC samples preparation and analysis. The assay method was a 50 g fire assay with a detection limit of 0.04 ppm Au. Sample preparation and analytical procedures consisted of the following steps:

- Each RC sample is dried at 100°C (±10°C).
- Crushing sample to 85% <2 mm.
- Sample homogenization and splitting to a 500 g subsample at rotary sampling divider (RSD).
- Pulverization to 95% <106 µm.
- Pulverized material is sent to an analysis by fire assay.
- The crushing and grinding equipment are cleaned with compressed air after each sample, and barren silica sand is passed through the equipment prior to running batches of samples.
- Gold determinations are carried out on 50 g (±0.10 g) samples by fire assay/atomic absorption spectroscopy (FA/AAS).
- Granulometric tests are performed three times per shift on the crushing and pulverizing processes.
- Preparation duplicates are inserted every 20 to 30 samples.

11.1.1 Sample Security

Samples are collected by a trained sampler under the supervision of a technician or a geologist, with all quality assurance and quality control (QA/QC) samples inserted within a sequentially numbered sequence and recorded.

The samples are shipped by truck directly to the Mine laboratory using the Mine Geology departments' own transport service. The samples are checked in with the submission sheet; if any problem is identified with the samples, the laboratory notifies the site geologists for clarification on the discrepancies. The sample rejects are stored in the laboratory and are returned to the department of geology or discarded with prior authorization.

Equinox finds that the sampling methods, the chain-of-custody procedures, and analytical techniques are appropriate and meet acceptable industry standards. In the Authors' opinion, the sample preparation, analysis, and security procedures are adequate for use in estimating Mineral Resources.

11.2 Quality Assurance/Quality Control

The QA/QC program used in the RC drilling campaign included inserting Certified Reference Material (CRM), blanks, and duplicates (both preparation and pulp) into the sample stream at the frequency summarized in Table 11-1. QA/QC sample types and insertion rates are summarized in Table 11-2. a total of 7,721 QA/QC samples were submitted from June 2018 to December 2020 for the RC sample program. Laboratory performance is also assessed using check assays (pulps sent to alternate labs) and participation in the Proficiency Test Program. The performance of the QA/QC samples is monitored and reviewed monthly, and in the case of failures the sample batches are reanalyzed by the lab to ensure compliance with industry standards to support a Mineral Resource estimate. In the authors' opinion, the protocols in place meet industry standards and are sufficient to produce a resource model.

Table 11-1: Laboratory QA/QC Protocols

QA/QC Type	Insertion Frequency	Acceptance Criteria
Blank	1 in 30 samples	Assay ≤0.08 g/t Au
Preparation Duplicate	1 in 20 samples	Relative Difference ≤ ±20%
Pulp Duplicate	1 in 20 samples	Relative Difference ≤ ±10%
CRM	1 in 20 samples	95% of samples ≤ ±2 SD ≤1% of samples ≥ ±3 SD
Check Pulps	100 samples per month sent to an external laboratory	Relative Difference ≤ ±10% Std. Dev ≤15% Difference between means ≤5% R^2 ≥0.9
Proficiency Test Program	3 or more in 1 year	Z-score ≤3 Accuracy (Relative Error–RE), % Precision (Amplitude–R), ppm Youden Performance

Source: Equinox.

Table 11-2: Mine Geology QA/QC Sample Insertion Rate

Number of Assays	QA/QC Sample	Insertion Rate (%)	Number of QA/QC Samples
30,922	CRM	6.0	1,852
	Blank	4.7	1,469
	Field Duplicate	5.8	1,805
	Preparation Duplicate (−2 mm)	8.4	2,595
	Check Assay Check Pulps	2.3	728

Source: Equinox.

11.2.1 Certified Reference Material

CRM samples are materials of known gold content used to check and quantify the analytical accuracy of assay laboratories. Brio, Leagold, and Equinox Gold used thirteen types of gold CRMs purchased from Geostats Pty Ltd. (Geostats), O'Connor, Western Australia. Their certified gold content is determined by extensive round-robin assaying at accredited assay laboratories (Geostat, n.d.). The certified blanks were purchased from Quimica Brasileira, Brazil. The variation from the CRM's mean value in standard deviations (SD) defines the QA/QC variance and is used to determine the acceptability of the CRM sample assay. Results within ±2 SDs are considered acceptable. The certified values, acceptable ranges for analyses, and other statistics for the CRMs are presented in Table 11-3. Approximately 50 to 65 g of sample material is submitted per CRM sample.

Table 11-3: Certified Reference Materials

CRM	Certified Au Content (ppm)	SD (ppm)	Acceptable Range (g/t) (±2 SD)		Provider
G310-2	0.20	0.04	0.12	0.28	Geostats
G310-4	0.43	0.03	0.37	0.49	Geostats
G398-2	0.50	0.04	0.42	0.58	Geostats
G316-5	0.50	0.02	0.46	0.54	Geostats
G912-8	0.53	0.02	0.49	0.57	Geostats
G915-6	0.67	0.04	0.59	0.75	Geostats
G910-2	0.90	0.05	0.80	1.00	Geostats
G910-10	0.97	0.04	0.89	1.05	Geostats
G315-2	0.98	0.04	0.9	1.06	Geostats
G313-1	1.00	0.05	0.9	1.10	Geostats
G910-1	1.43	0.06	1.31	1.55	Geostats
G910-6	3.09	0.13	2.83	3.35	Geostats
G310-9	3.29	0.14	3.01	3.57	Geostats
Quartz 403/002P				<0.025(1)	Química Brasileira(2)

Notes: (1) 5x lower detection limit used as pass/fail.
(2) Química Brasileira Ltda, Belo Horizonte, Brazil.

There is a good correlation between the CRMs used and the average economic metal concentration in the RC samples. Between June 2018 and December 2020, 97.62% of the submitted CRMs preformed within acceptable ranges (1,806 out of 1,850 submitted, 2.38% failure rate), with a minor bias of −2.36% on the average grades (Table 11-4).

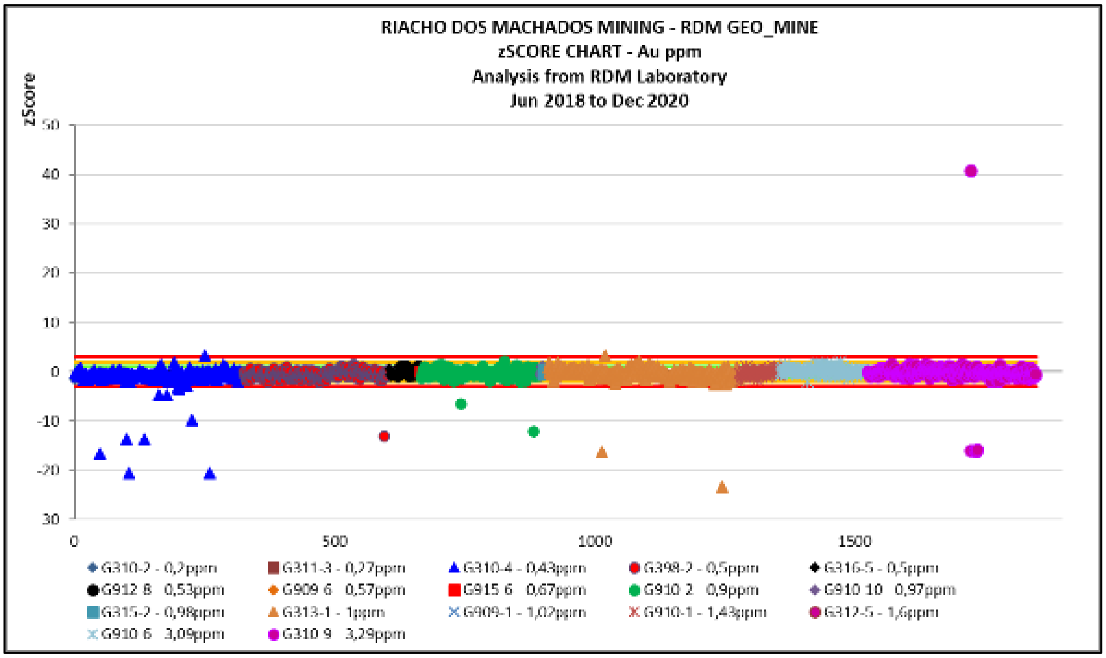
Table 11-4: Summary of June 2018 to December 2020 CRM Results

CRM	Expected Values (Au ppm)	MRDM Laboratory (Au ppm)	Diff. (ppm)	Bias (%)	No. Analyses	≥2 SD / <3 SD		≥3 SD	
						Number	% Inside Precision Limits	Number	% Outside Precision Limits
G310-2	0.20	0.189	−0.011	−5.500	1	0.00	0.00	0.00	0.00
G310-4	0.43	0.409	−0.021	−4.941	324	3.00	0.93	4.00	1.23
G398-2	0.50	0.488	−0.012	−2.478	282	1.00	0.35	1.00	0.35
G316-5	0.50	0.492	−0.008	−1.687	23	0.00	0.00	0.00	0.00
G912-8	0.53	0.499	−0.031	−5.771	35	9.00	25.71	2.00	5.71
G915-6	0.67	0.674	0.004	0.597	2	0.00	0.00	0.00	0.00
G910-2	0.90	0.885	−0.015	−1.712	229	1.00	0.44	2.00	0.87
G910-10	0.97	0.947	−0.023	−2.330	5	0.00	0.00	0.00	0.00
G315-2	0.98	0.971	−0.009	−0.908	10	0.00	0.00	0.00	0.00
G313-1	1.00	0.990	−0.010	−0.956	369	6.00	1.63	2.00	0.54
G910-1	1.43	1.413	−0.017	−1.182	79	0.00	0.00	1.00	1.27
G910-6	3.09	3.018	−0.072	−2.325	168	0.00	0.00	5.00	2.98
G310-9	3.29	3.231	−0.059	−1.808	323	3.00	0.93	4.00	1.24
			Total	**−2.36**	**1,850**	**23.00**	**1.24**	**21.00**	**1.14**

Source: MRDM, June 2018 to December 2020.

The laboratories' precision and performance over time are shown in Figure 11-1 (full z-score) and Figure 11-2 (±5 SD z-score), without significant and systematic biases.

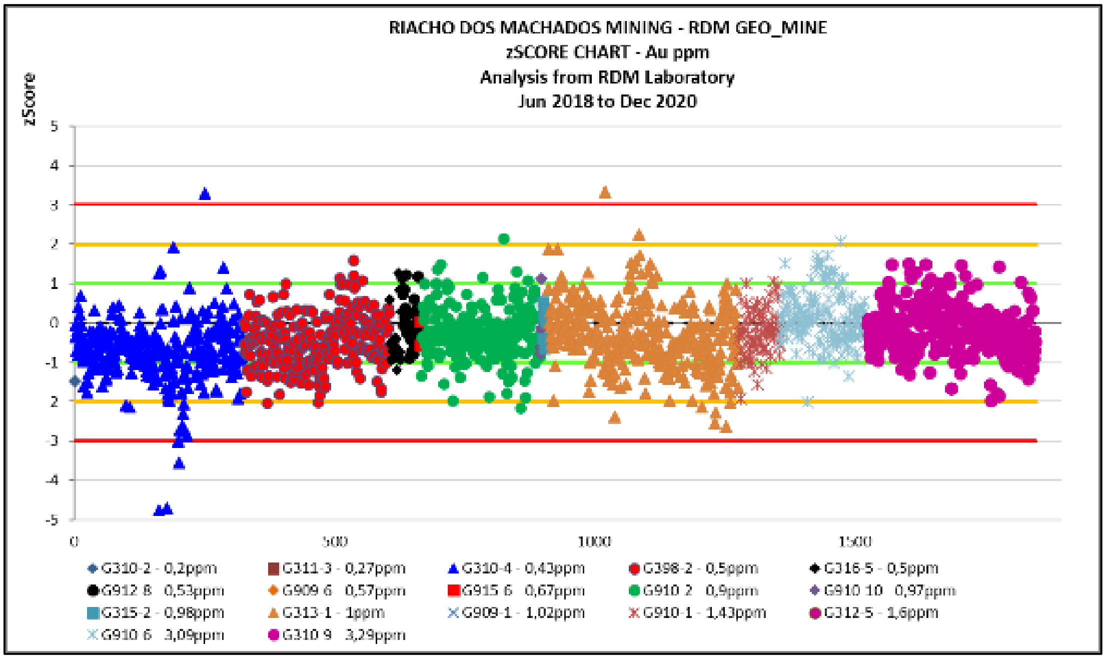
After reviewing the CRM control charts for the RC sample analysis programs, the Authors' are of the opinion that the results display acceptable accuracy and precision.



Source: MRDM, Jun 2018 to Dec 2020.

Note: "zScore" on the vertical axis is a normalization of the SD (1 SD = 1 z-score unit), allowing results for different standards to be plotted on the same chart.

Figure 11-1: CRM Results Over Time for the 2018–2020 RC Samples Program



Source: MRDM, Jun 2018 to Dec 2020.

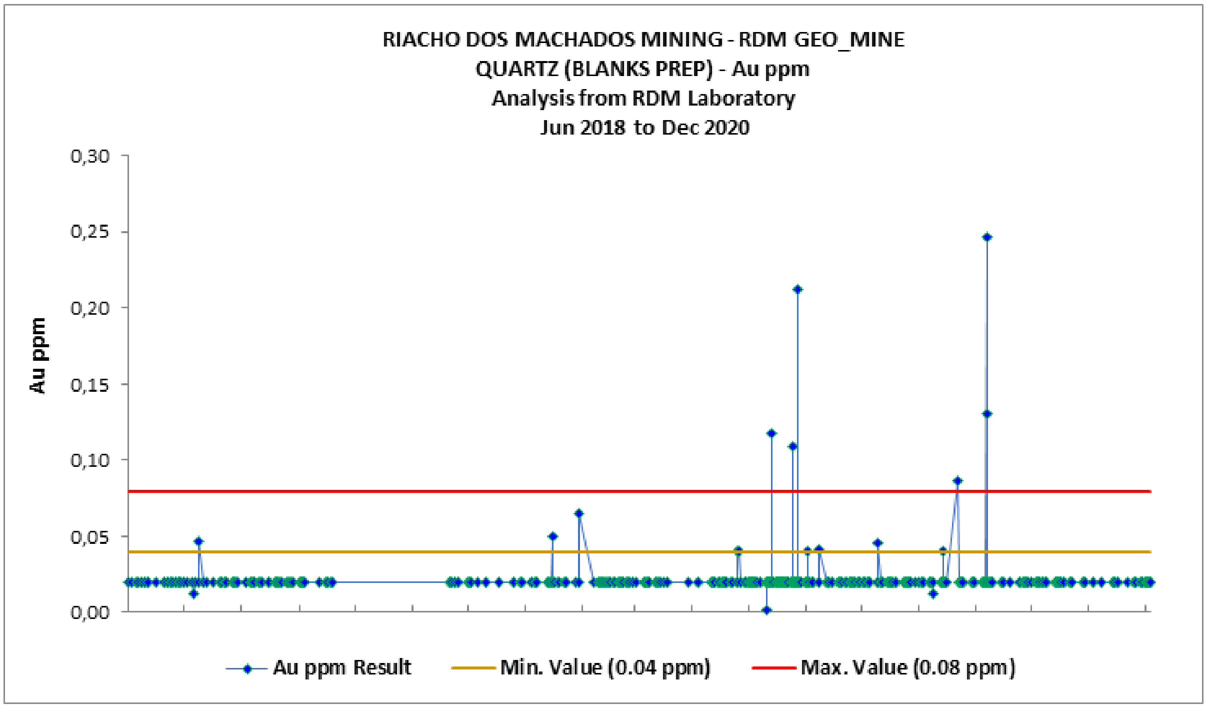
Notes: "z-Score" on the vertical axis is a normalization of the SD (1 SD = 1 z-score unit), allowing results for different standards to be plotted on the same chart.

Figure 11-2: CRM Results (±5 z-score) Over Time for the Jun 2018 to Dec 2020 RC Program

11.2.2 Blanks

Coarse blank samples barren of gold were inserted into the sample stream to check for potential laboratory contamination, drift, or tampering. The lower detection limit was 0.04 g/t Au. A failure limit was defined as greater than 0.08 g/t Au which is twice the lower detection limit.

In processing and analyzing the blank standard for gold, the Mine laboratory performed very well. Of the 1,469 blanks analyzed, only seven samples reported results above the lower detection limit for gold (0.5% failure rate), and the highest gold value reported was 0.246 g/t Au. Details of the performance of blanks are provided in Figure 11-3.



Source: MRDM, Jun 2018 to Dec 2020.

Figure 11-3: Coarse Blanks Submitted with RC Samples

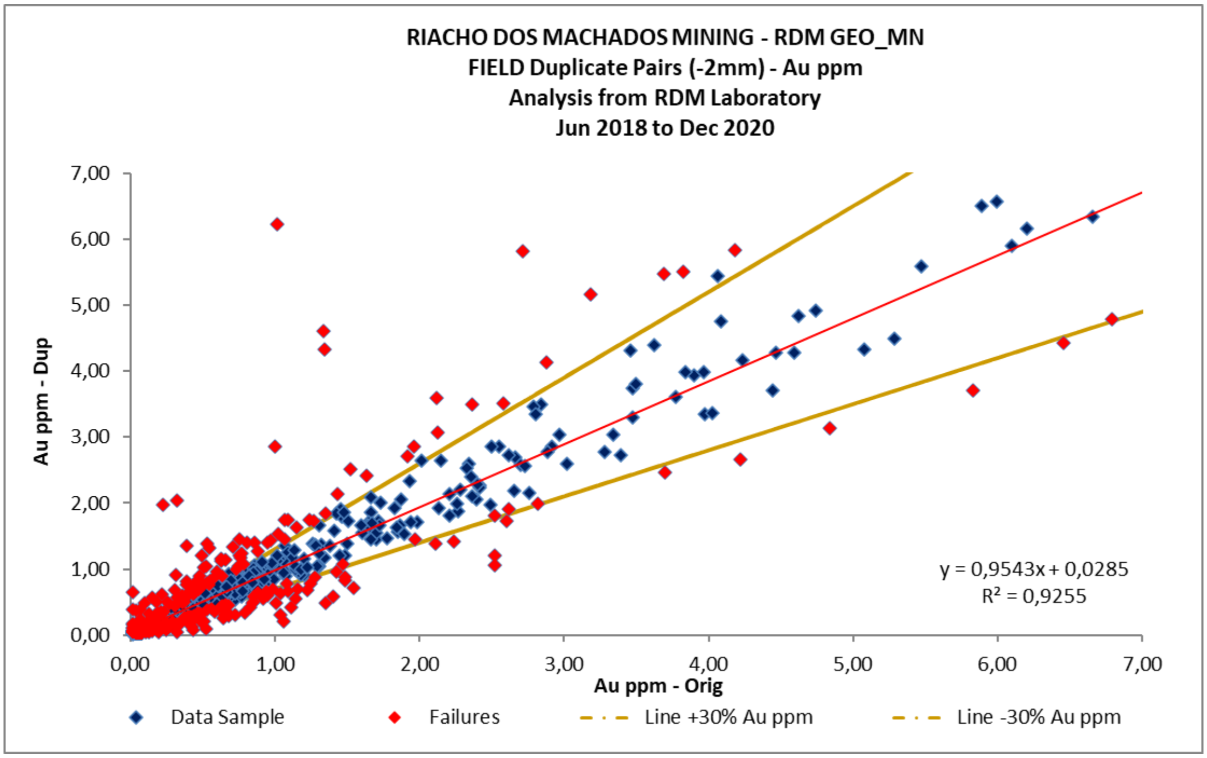
11.2.3 Duplicate Samples

Field duplicates were prepared for insertion into the sample stream to monitor sample homogeneity and laboratory precision. Field duplicates were taken by preparing two quarter-split samples from one sample interval and sending them to the Mine laboratory for analysis. Preparation duplicates were prepared by producing two pulps from the RC samples after being crushed to less than 2 mm. Comparing the results from the preparation duplicate pairs indicates the efficacy of the sample preparation procedure for producing a representative sample for analysis. The duplicate samples are compared by computing the absolute relative difference between the two analyses from each pair and by preparing scatter plots and histograms. Absolute relative difference is the absolute value of the difference in the two analyses, divided by the average of the two analyses and expressed as a percent.

Field-duplicate assays show moderate variability between the two quarter-split samples. In all, 32.41% of the pairs show more than 30% variation in returned gold grade, most notably at lowest grade ranges (43.77% <0.10 ppm Au). Variability at this lower grade range is not deemed a concern as it is significantly below the mining cut-off grade. Other grade ranges that are representative of ore grades demonstrated an amount of natural heterogeneity on the scale of quarter-split sample, indicating that splitting and sampling are generally reliable, despite this natural heterogeneity. No significant biases were evidenced, and a good correlation was established (R^2 = 0.9255). The results are provided in Table 11-5 and Figure 11-4.

Table 11-5: Field Duplicates–RDM Laboratory

Total Samples	Average Results (Au ppm)		Total Failures	% Failures	Relative Variance	Relative SD (%)	Max. Orig. Au (ppm)	Max. Dup. Au (ppm)
	Original	Duplicates						
1,805	0.5209	0.5256	585	32.14	0.1092	33.05	42.20	48.97

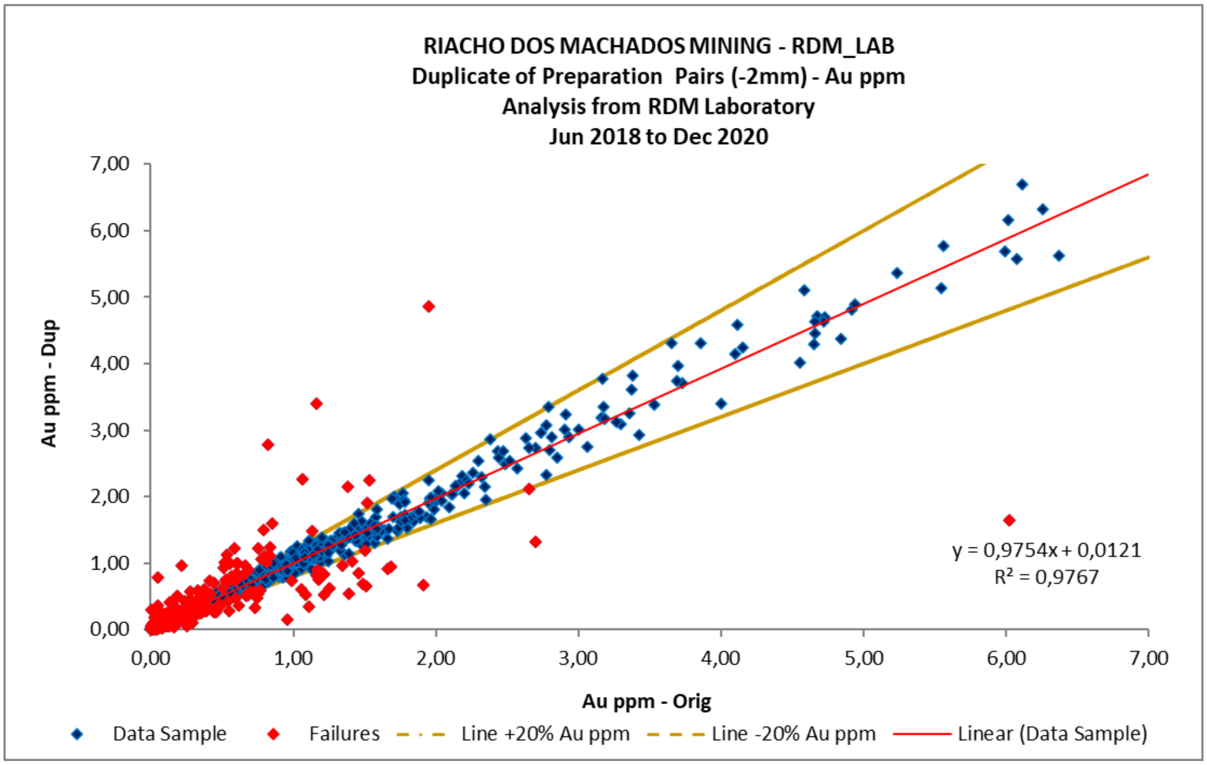


Source: MRDM, June 2018 to December 2020.

Figure 11-4: RC Field Duplicate Au Assays

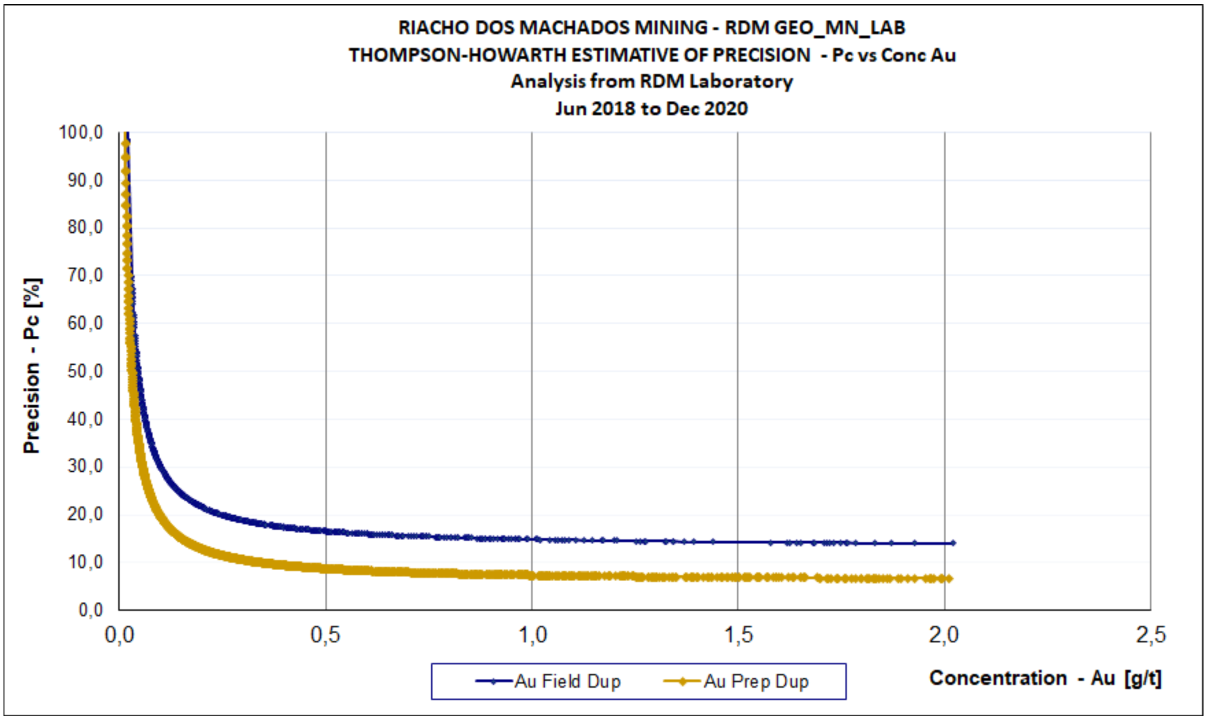
Preparation duplicates show higher correlation (R^2 = 0.9767) and lower dispersion (SD = 23.70%) than field duplicates, probably attributed to the more homogeneous particle size (85% <2 mm). However, there is a high failure rate, partly associated with lower grades (38.02% less than 10 g/t Au). For the range of grades above the cut-off grade (0.33 g/t Au), it is recommended that the secondary crushing product be close to 90% <2 mm, due to the encapsulation of gold by sulphides and arsenopyrite. Results of the preparation duplicates are shown in Figure 11-5.

Subjecting the precision results to the Thompson–Howarth criteria, the best precisions for a cut-off grade of 0.33 g/t considering all the data including the outliers are 18.29% (field duplicate) and 10.13% (preparation duplicate). The Figure 11-6 shows the Thompson–Howarth criteria considering a restriction of the data from the cut-off grade of 0.33 g/t to 2g/t, without the outliers influence. The precision are 19.75% (field duplicate) and 11.45% (preparation duplicate).



Source: MRDM, June 2018 to December 2020.

Figure 11-5: RC Preparation Duplicate



Source: MRDM, June 2018 to December 2020.

Figure 11-6: RC Duplicates Au Assays—Thompson–Howarth Criteria

The Authors' consider that the data presented on an aggregate basis have good repeatability and moderate dispersion, and are consistent with industry best practices for mining projects.

Table 11-6: Preparation Duplicate—MRDM Laboratory

Total Samples	Average Results (Au ppm)		Total Failures	% Failures	Relative Variance	Relative SD (%)	Max. Orig. Au (ppm)	Max. Dup. Au (ppm)
	Original	Duplicates						
2,175	0.5328	0.5318	826	37.98	0.0562	23.70	39.68	39.14

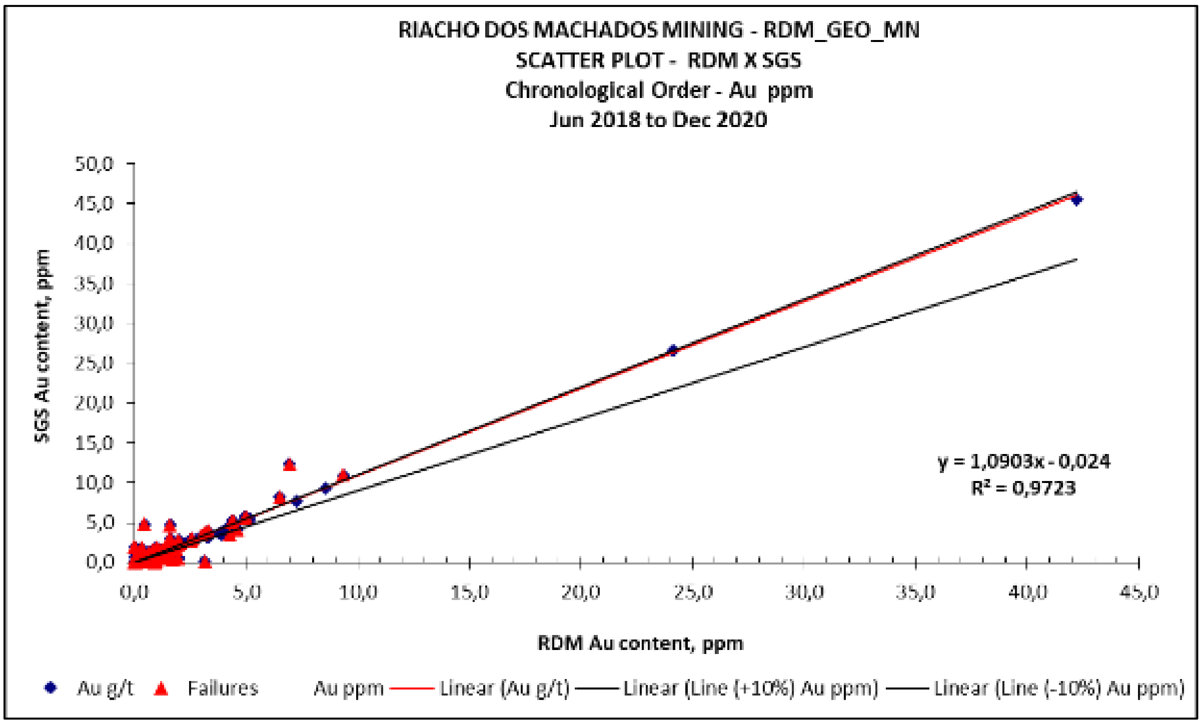
11.2.4 Check Assays

From February 2018 to December 2020, 728 pulp samples were submitted to the SGS Geosol Laboratório Ltda. (Geosol's [Minas Gerais, Brazil]) external laboratory to measure the reproducibility of the results from the Mine laboratory. The statistical summary of the data is shown in Table 11-7.

Table 11-7: Check Pulps

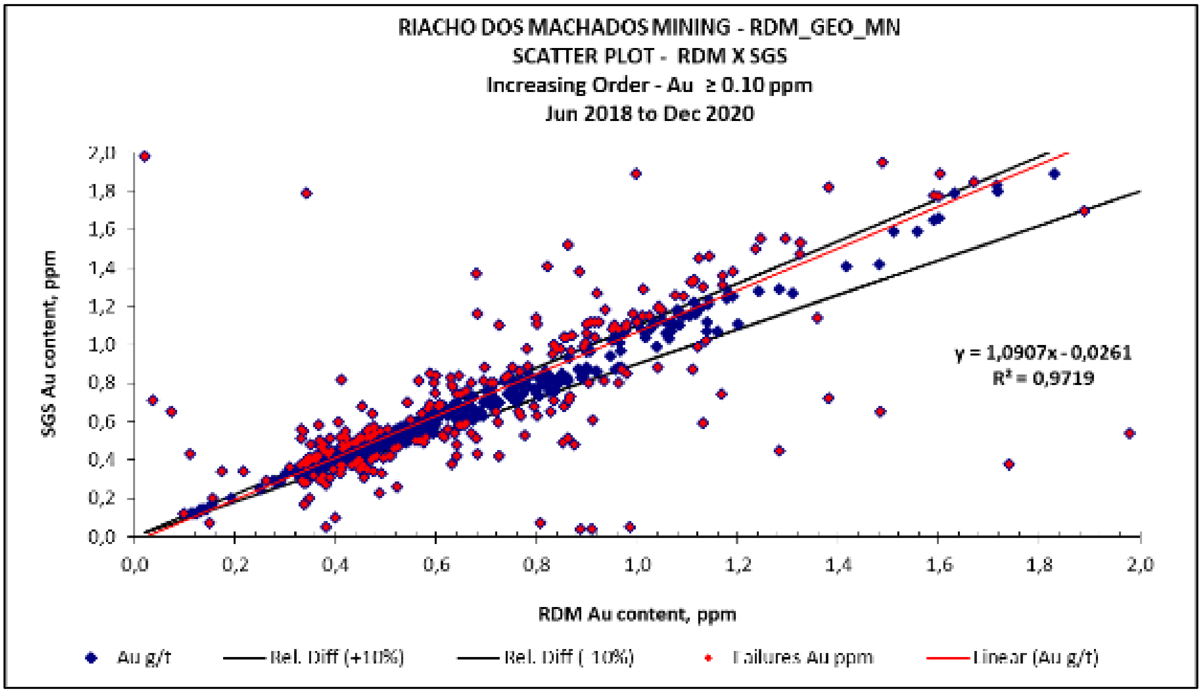
Total Samples	Average Results (Au ppm)		Total Failures	% Failures	Relative Variance	Relative SD (%)	Max. Orig. Au (ppm)	Max. Dup Au (ppm)	Au <0.50	% <0.50
	Original	Duplicates								
728	0.8717	0.9264	304	41.76	0.09	29.67	42.23	45.52	297	40.80

The results show satisfactory reproducibility with moderate dispersion (SD = 29.67%) between ordered pairs. There is a negative bias for content ranges above 0.89 g/t Au. It is also noted that considering only the average of the pairs above 0.10 g/t Au, the degree of dispersion and the failure rate (about 40%) are not attenuated. However, the general average among the laboratories represents low dispersion, making a correlation coefficient of R^2 = 0.97 (Figure 11-7 to Figure 11-11).



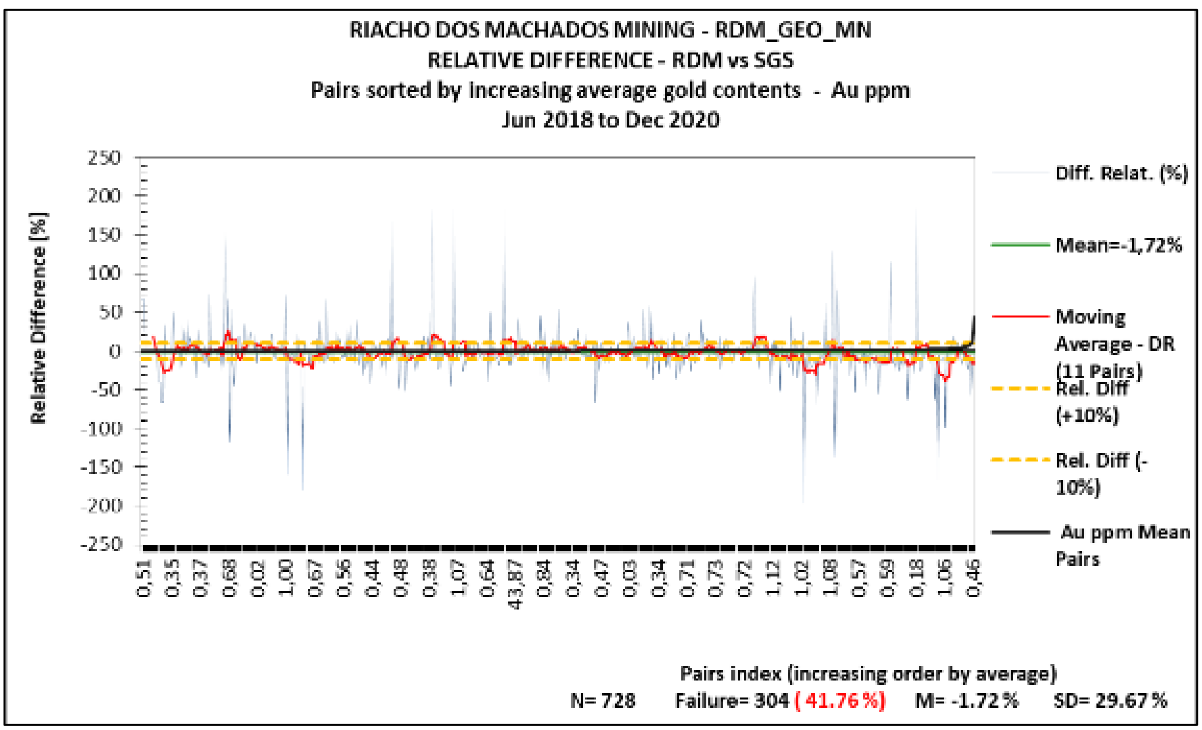
Source: MRDM, June 2018 to December 2020.

Figure 11-7: Scatter Plot—Check Pulps



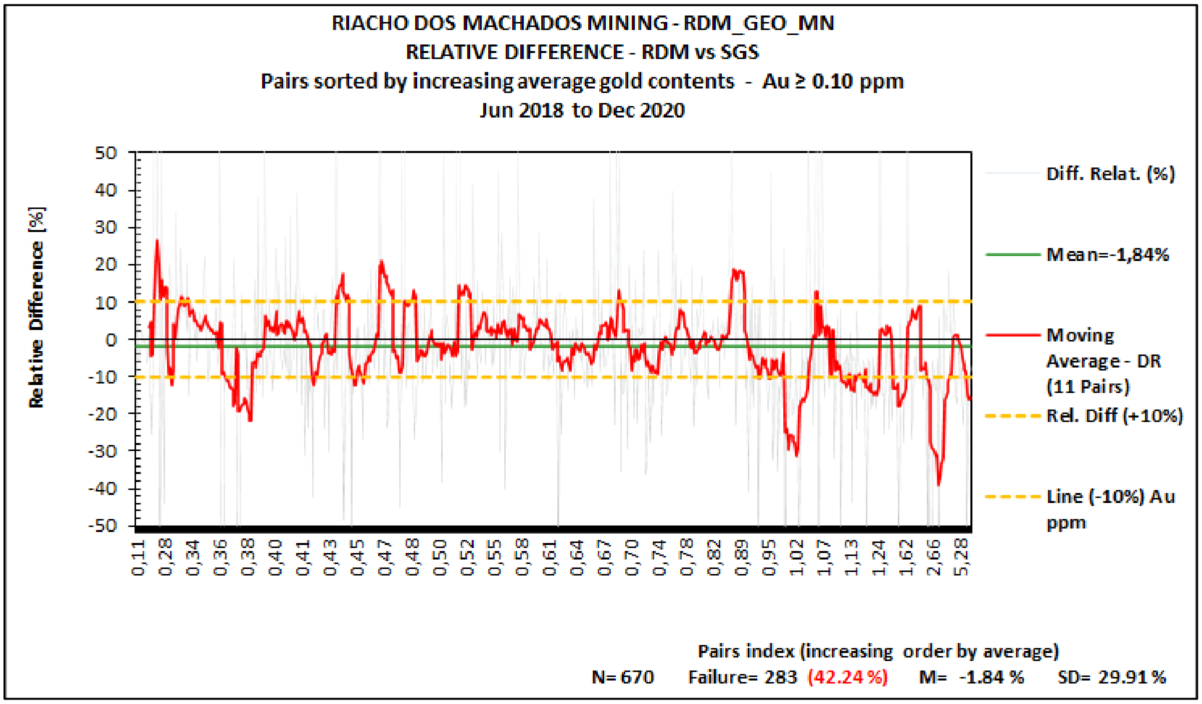
Source: MRDM, June 2018 to December 2020.

Figure 11-8: Scatter Plot—Check Pulps Au >0.10 ppm



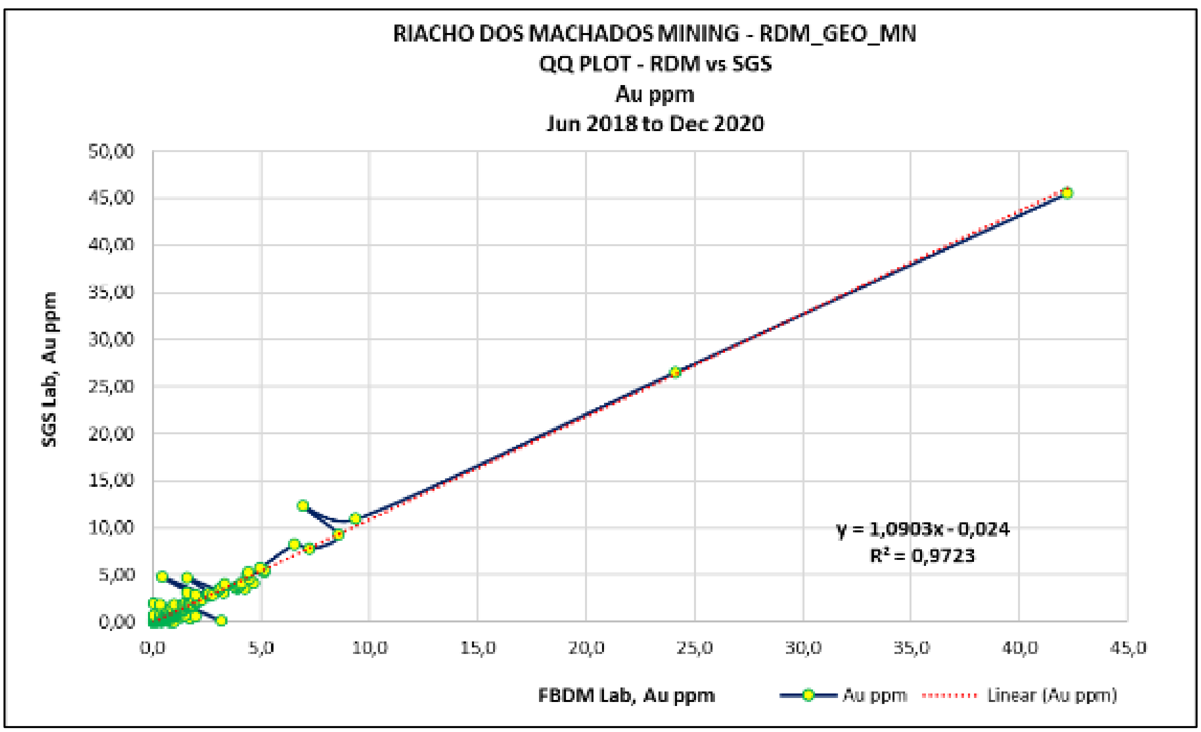
Source: MRDM, June 2018 to December 2020.

Figure 11-9: Relative Differences of the Ordered Pairs—Check Assay RC Samples



Source: MRDM, June 2018 to December 2020.

Figure 11-10: Relative Differences of the Ordered Pairs—Check Pulps Au > 0.10 ppm



Source: MRDM, June 2018 to December 2020.

Figure 11-11: Relative Differences of the Ordered Pairs—Check Pulps Au >0.10 ppm

11.2.5 Proficiency Test Program

Annually, the MRDM laboratory participates in Proficiency Testing Programs in gold ores to evaluate the technical competence and accuracy of the results provided according to validated methods. This type of program consists of an analytical round with several national and international laboratories. The results issued are submitted to a rigorous statistical treatment to standardize and certify as a true value the gold results for a pair of samples analyzed by participating laboratories.

The providers are the Instituto de Tecnologia August Kekule (ITAK), and Centro Tecnológico de Referência SulAmericano (CTRS), ISO/IEC 17043:2011-accredited Brazilian providers. These institutions support developing and revising standard techniques with ISO standards, through the Brazilian Association of Technical Standards (ABNT), the Committee for International Mining Standardization (CONIN), and the Brazilian Mining Institute (IBRAM).

Proficiency Testing Programs are part of the European Proficiency Testing Schemes as a provider of Interlaboratory Programs, which is supported by the European Co-operation for Accreditation (EA) and European Federation of National Associations of Measurement, Testing and Analytical Laboratories (EUROLAB).

The interpretation of results regarding accuracy was based on two criteria: the first, for compatibility between the results of different laboratories (Youden ellipse); the second through a standardized tool recommended by ISO (z-score), the latter being best applied because it is a statistical measure that indicates how many SDs the value found by the participating laboratory is above or below the certified value. So, a positive z-score indicates data above the certified value, while a negative value indicates data below the certified value. The interpretation of the value of the z-score index is described below:

$| z | \leq 1$ EXCELLENT result

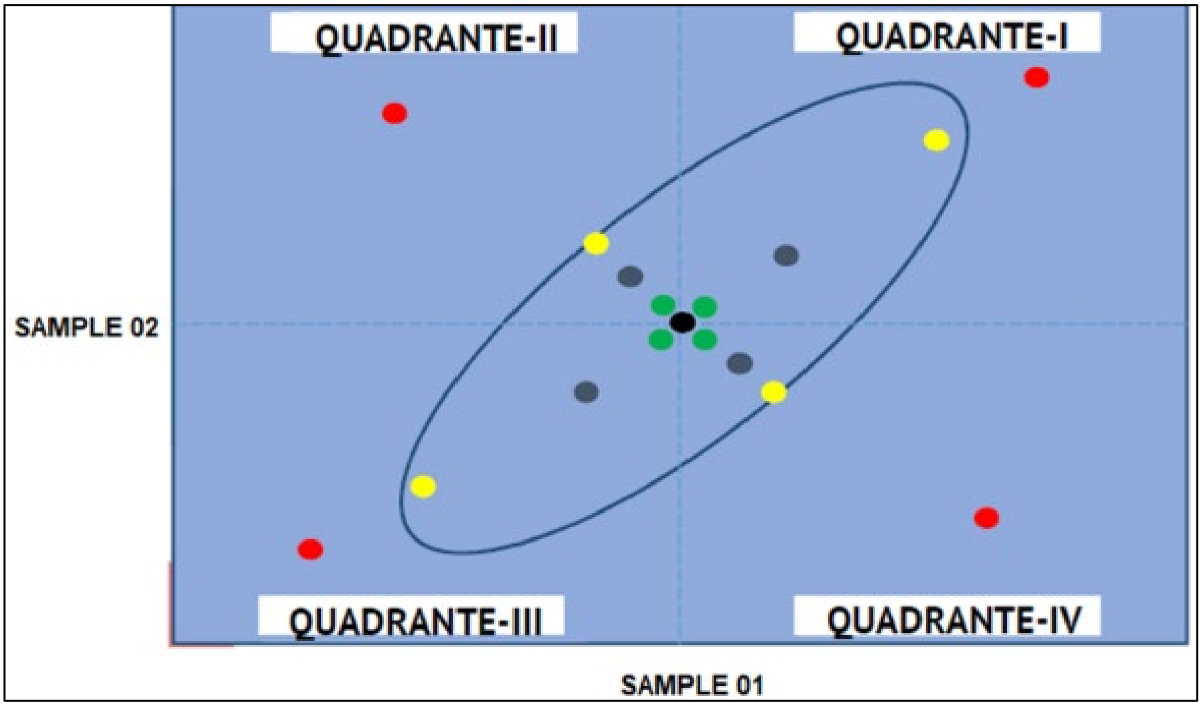
$1 < | z | \leq 2$ SATISFACTORY result

$2 < | z | < 3$ QUESTIONABLE result

$| z | \geq 3$ UNSATISFACTORY result

The Youden ellipse shown in Figure 11-12 is constructed for a pair of samples, and a dot represents each laboratory. Its structure is traced in such a way that any point has the same probability of being within the ellipse, with a 95% degree of confidence being established. Usually, the points are located inside the ellipse. The ellipse's inclination and its shape depend on the dispersion of the pair of samples from the group of laboratories evaluated. The ellipse is divided into quadrants, with lines at the certified values of the two standard samples used along the x and y axes. Points found in the upper-right and lower-left quadrants represent laboratories that may be incurring systematic errors. However, the presence of dots in the upper-left and lower-right quadrants is interpreted as the occurrence of random errors. Values outside the Youden ellipse are characterized as outliers, and have a special cause of variation.

In general, the Youden ellipse obtained for gold analyses showed normal distribution, uniform dispersion, and SATISFACTORY performance for gold analysis (according to the Youden evaluation criterion), with the pairs of samples plotting in Quadrant I of the 95% confidence ellipse (Figure 11-12). No outlier results were identified.

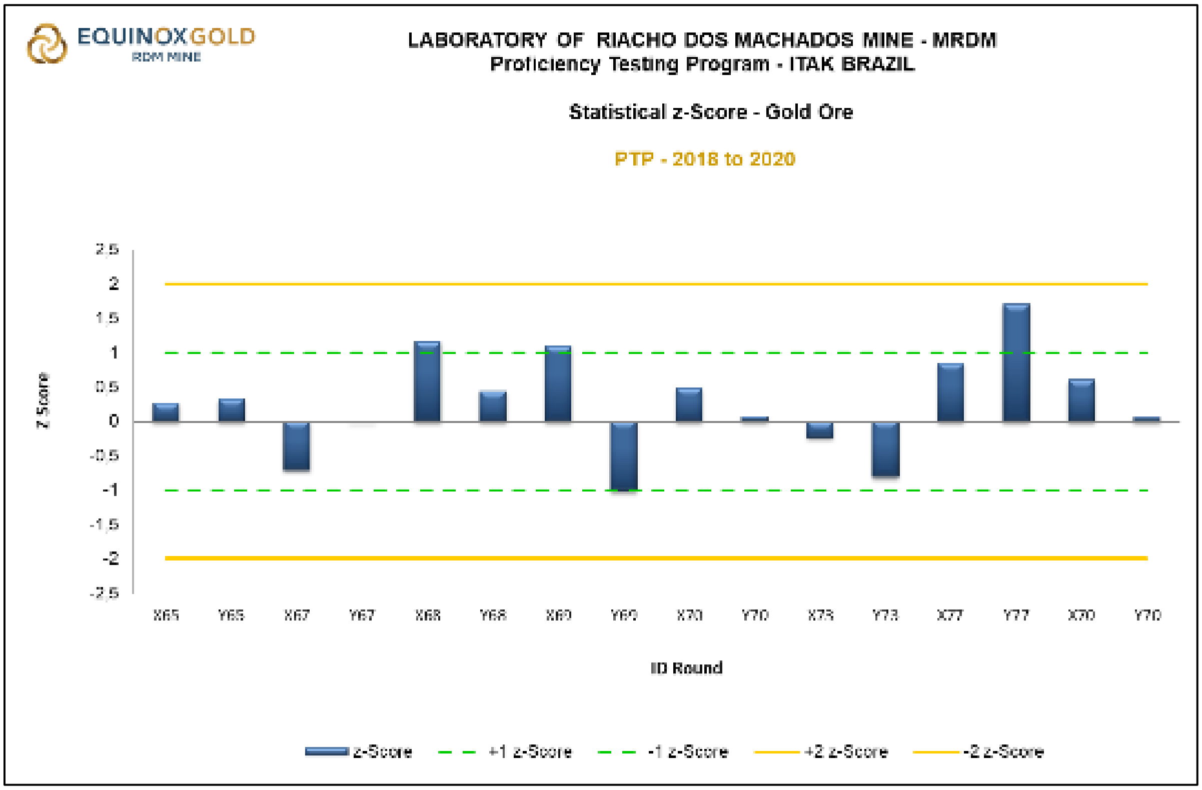


Source: ITAK, 2019.

Figure 11-12: Schematic Representation of a Hypothetical Youden Confidence Ellipse

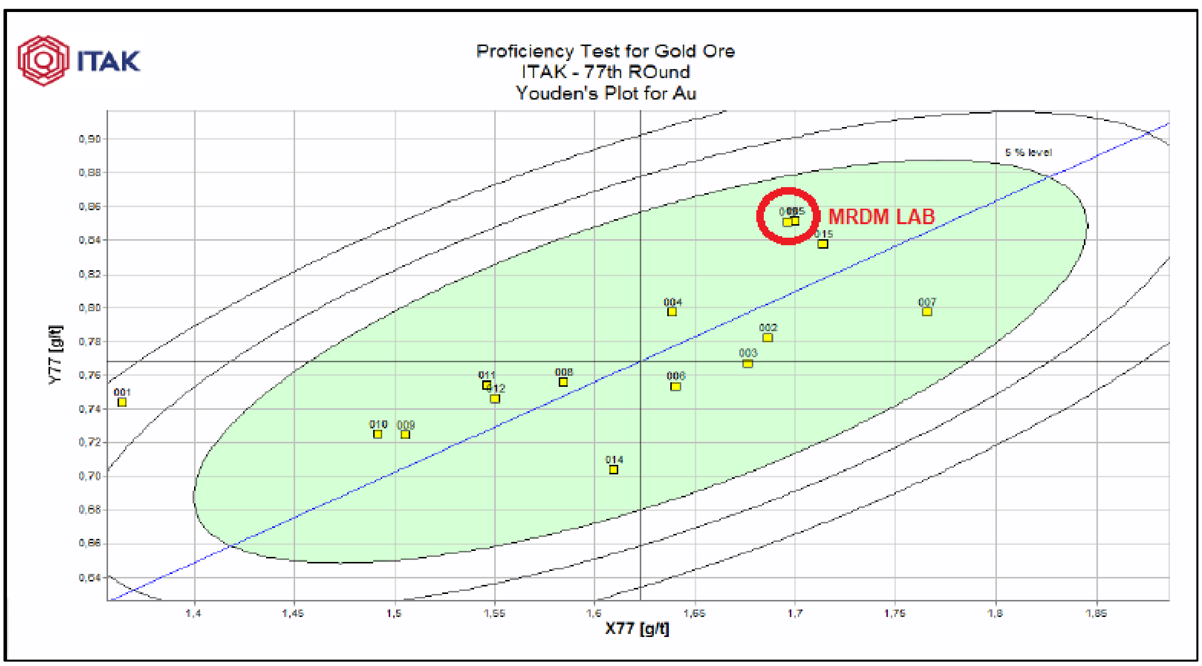
The z-Score criterion (Figure 11-13 and Figure 11-14) and the accumulated data indicate that the MRDM laboratory presented EXCELLENT and SATISFACTORY accuracy, with consistent results around the certified values.

In the Authors' opinion, the QA/QC program is adequate, and the assay results within the database are suitable for use in a Mineral Resource estimation.



Source: MRDM, June 2018 to December 2020.

Figure 11-13: Graph of Accuracy Assessment According to the Z-Score



Source: ITAK, 2020.

Figure 11-14: Youden Confidence Ellipse for Samples X75 at 0,314 g/t Au and Y75 at 0.315 g/t Au

11.2.6 Security

A security fence surrounds the mine site, and it has controlled access at a gatehouse with full-time security personnel.

At site, samples were under the control of MRDM or drilling contractor employees at all times. Sample handling procedures at the drill rig are described in Section 11.1.1. Drilling company personnel delivered samples daily to MRDM personnel at the Mine site's sample processing facility. Only MRDM or drilling contractor personnel were authorized to be at the drill sites and sample processing facility.

After logging and sampling, the samples were prepared for shipment to MRDM's internal laboratory. The samples were placed in large plastic shipping sacks, accompanied by documentation of the batch and samples, loaded onto a pickup owned and driven by the responsible operations technician, and taken to the laboratory. Samples were under constant supervision during transport.

Industry-standard chain-of-custody and work-order forms are used in sample transfers. Appropriate steps are taken to protect the integrity of samples at all processing stages. After completing analyses, data are sent securely via electronic transmission to the mine and geology teams. After sample analyses are complete, pulp and reject materials are discarded or returned to a specific area of the geology department.

In the authors' opinion, sample preparation, analysis, and the security and confidentiality protocols in use are adequate, generally conform to industry standards, and suitable for use in a Mineral Resource estimate.

12 DATA VERIFICATION

Equinox reviewed and verified the resource database used to estimate the Mineral Resources. Verification included reviewing the QA/QC methods and results, comparing the database assay table against assay certificates, standard database validation tests, and several site visits. The review of the QA/QC program and results are presented in Section 11.

The following digital queries were performed:

- Header table—searched for incorrect or duplicate collar coordinates and duplicate hole identifications (ID).
- Survey table—searched for duplicate entries, survey points past the specified maximum depth in the collar table, and abnormal dips and azimuths.
- Density—searched for duplicate entries, intervals past the specified maximum depth in the collar table, overlapping intervals, negative lengths, missing collar data, and missing intervals.
- Geochemical and assay table—searched for duplicate entries, sample intervals past the specified maximum depth, negative lengths, overlapping intervals, sampling lengths exceeding tolerance levels, missing collar data, and missing intervals.
- The data were exported from MineSight Torque to Excel CSV files and imported into a Vulcan database:
  - The Vulcan database used a similar design as the MineSight Torque Resource database.
  - Quality control was completed and validated in Excel.

Of the 6,237 drill holes in the database, 575 holes were used for the long-term database, and 5,662 holes were used for the short-term database. The resource database is reliable and appropriate to prepare a Mineral Resource estimate.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Mineral Processing Overview

13.1.1 Historical and current operational overview

Process plant feed comprises 40% North Pit, 30% Central Pit, 30% South Pit, representing zones in the pit. Each pit zone has the following characteristics:

- North Pit Zone: with high-grade ore (>1.2 g/t Au) and the highest Bond Work index (BWi) between the zones
- Central Pit Zone: with low-grade (0.33 - 0.80 g/t Au) and medium grade (0.80 - 1.2 g/t Au) ores, containing inert carbonaceous material or graphite, arsenopyrite, and pyrrhotite at relatively low concentrations
- South Pit zone: mainly oxidized low-grade ore (0.33 - 0.80 g/t Au)

Since 2014, the main operational restrictions of the plant were the lack of available water and power supply; these issues have since been solved.

Currently, the plant operates with a water volume of 630 m^3/h:

- 55% new water from the WSF, pit, and wells (if necessary)
- 45% process water recirculated from the TSF.

Diesel generators are no longer needed. Following upgrades to the local power grid at the end of the first quarter of 2019, MRDM now operates with electrical power from distribution lines operated by CEMIG; this change allowed plant throughput to be increased from 290 t/h to 342 t/h by enabling operation at a higher steel-ball load in the mill.

The original metallurgical recovery forecast was 91% at a particle size fraction of P_{80} 53 µm. However, the plant currently operates at 70% minus 53 µm (P_{80} 106 µm), recovering 87% on average. A series of process improvements were completed between 2018 and 2020 including steel ball resizing and reloading, lead nitrate addition, enhanced oxygen addition, sparging fine carbon recovery optimization, adding cyanide in the elutions, and nickel mobilization during electrowinning.

Despite the feed grade lowering each year, the processing circuit has been improved incrementally in various areas to extract gold more efficiently. Production history is summarized in Table 13-1.

Table 13-1: Production Historical Data—Evolution

Year	Tonnes Mill (kt)	Grade (g/t Au)	Recovery (% Au)	Produced (koz)
2016	8.50	1.39	77.39	31.714
2017	1.253	1.25	85.74	43.116
2018	1.942	1.08	82.69	56.398
2019	2.552	0.93	82.24	62.331
2020	2.751	0.92	85.78	69.318
Total	**9.348**	**1.04**	**83.40**	**262.877**

Figure 13-1 illustrates the monthly mill throughput and the 2016–2020 recovery improvements.

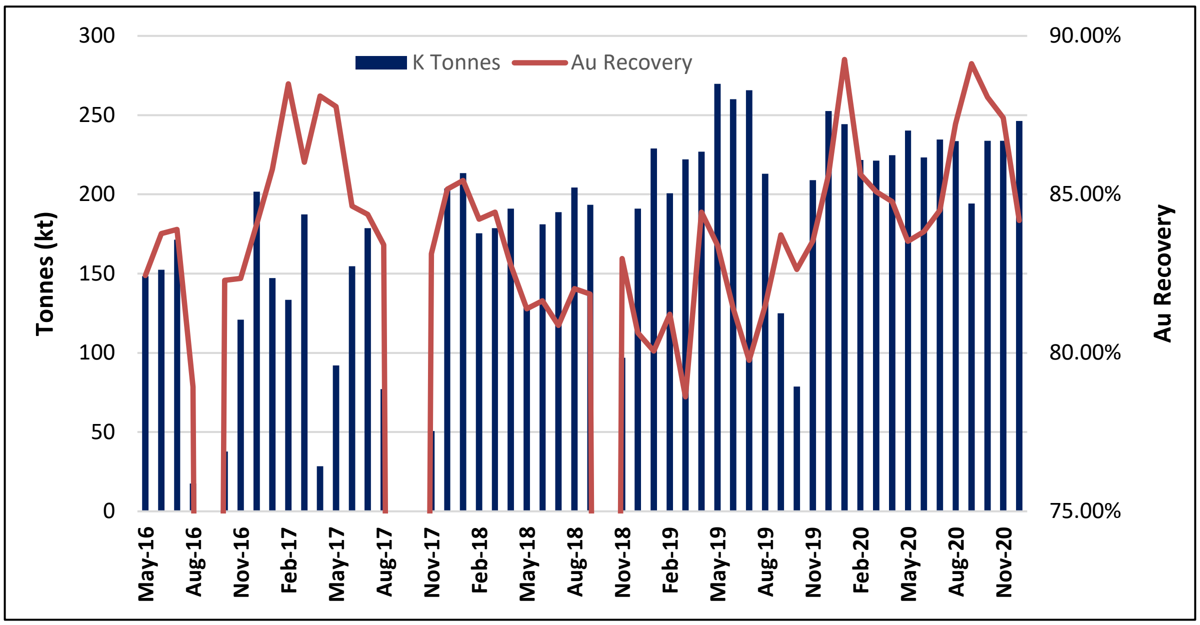


Figure 13-1: Capacity and Recovery Improvement

Process production throughput was limited or halted due to a lack of processing water several times including in 2016, 2017, 2018, and 2019. Despite completing the approximately 4 Mm^3 WSF at the start of 2018, the catchment area of the dam was significantly affected by farming activities, which slowed down the filling of the dam. The 2020 rainy season has significantly increased the volume of water stored in the WSF, making water fully available and allowing the plant to maintain its operations continuously.

Production shortfalls in 2019 were also due in part to an infraction notice from a regulator. The notice was related to historical interpretation of the LO (License to Operate) regarding TSF raise methods. It was not material and has been resolved.

13.1.2 Process Step Changes

After a series of process testworks and process improvements in the Plant in 2019 and 2020, the process team could measure an improvement in the metallurgical recovery of approximately 9%, achieving 87% recovery with a lower standard deviation. Figure 13-2 shows these modifications and the respective gains.

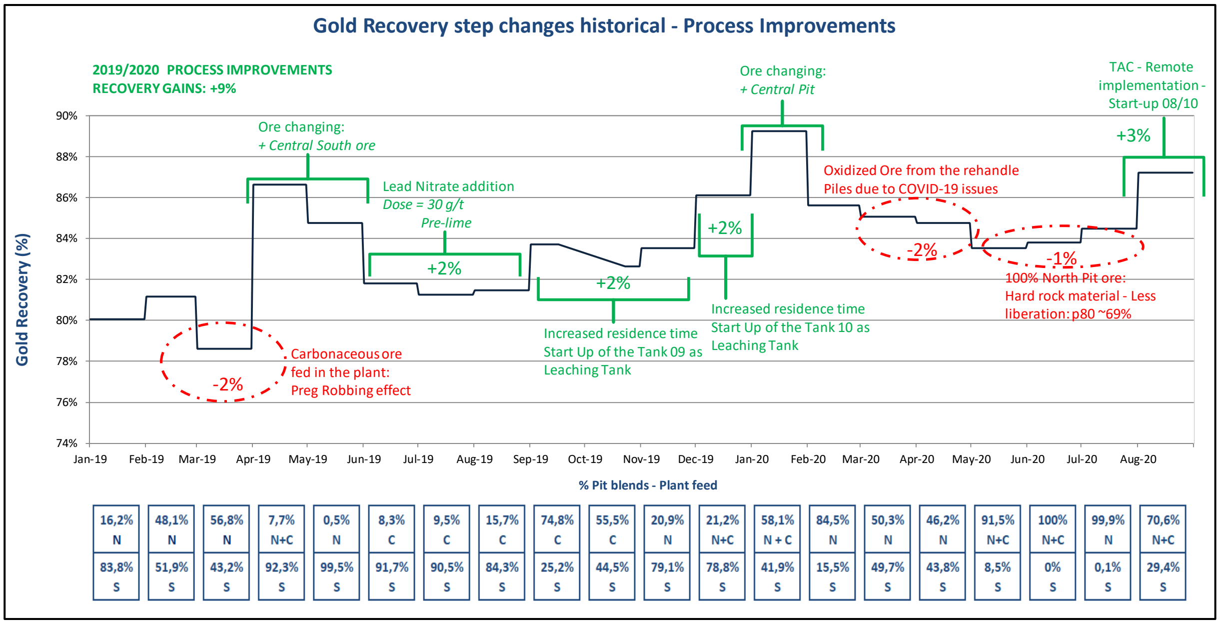


Figure 13-2: Process Improvements and the Recovery increase (%)

The following details key step changes presented in Figure 13-2 are:

- Improvements in both process throughout and metallurgical recovery resulted in a step change in recovery from a low of 76%. Grinding improvements led to the step change as the steel ball size was reduced in combination with an increase in the steel ball load due to increased power availability. This resulted in a finer grinding at higher throughput levels.
- The TAC implementation increased recovery by approximately 3% due to improved cyanide dosage control at Tank 2.
- The addition of lead nitrate to passivate higher solubility sulphide surfaces (pyrrhotite) improved both cyanide and oxygen consumption.
- The North Pit ore reduced the recovery by about 3%; however, implementing an oxygen shear reactor in combination with oxygen sparging in the pre-aeration step, led to the increase of the DO concentration to approximately 12 mg/L in the pre-aeration tank, which improved passivation of thiocyanates and cyanicides, and increased the leach reaction.

13.2 Metallurgical Testing

13.2.1 Historical data

A brief summary of the relevant testworks is presented in this Technical Report. Metallurgical testworks was conducted in four phases.

CVRD conducted testing on samples of sulphide ore at the time it was operating the mine. CVRD collected six bulk samples from an underground exploration gallery and completed cyanide leach tests at various grind sizes. The samples ranged in grade from 1.57 g/t Au to 4.78 g/t Au. Column leach tests showed average gold recovery of 67% for a minus 2 mm crush size. In bottle roll tests, the gold extraction averaged 81% at a grind size of 74 µm and the recovery increased with finer grind sizes. A significant observation was that the sulphide ores responded reasonably well to cyanide leaching.

In 2008, SGS-Geosol Brazil (SGS) conducted testworks using three composite samples from Areas III, IV, and V of the open pit. Cyanide leaching kinetics tests were conducted on a particle size of 80% passing (P80) of 75 µm. CIL tests were also conducted. The gold extraction ranged from 88.6% to 91.9% after 72 hours of leaching in the presence of activated carbon.

In 2010, G&T Metallurgical Services Ltd. (G&T) conducted tests on eleven samples that represented oxide, transition, and fresh (sulphide) ore taken from various areas of the pit at varying gold grades. The testing by G&T included grinding, leaching, cyanide destruction, and sedimentation testworks in three series of leaching tests. The first series of tests were conducted using standard cyanide leach conditions. The second series of tests were conducted with lead nitrate added to the leaching tests, and the third series of leaching tests added both lead nitrate and activated carbon. Lead nitrate did not appear to improve the results. The average gold extraction was 91% after 72 hours of leaching at a particle size fraction of a P80 of 55 µm to 60 µm.

The testworks showed that a target gold recovery of 90% can reasonably be achieved after 24 hours of leaching at a P80 of 55 µm.

A fourth series of testworks were carried out by RDM´s process team with good results in 2019 and the plant process improvements were implemented in 2019 and in 2020. The metallurgical most recent series of testing are described as follows.

13.2.2 Residence Time Testworks

After a series of bottle rolls testworks in 2019 with varying the leaching timing, it was decided in 2020 to transform the last Tanks 9 and 10, which used to be DETOX tanks, in the leaching tanks in order to increase the residence time to 27 hours adding more carbon stages to the CIL. The existing DETOX operation was then modified, using a sump box to receive the tailings. The reagents are dosed in this sump; therefore, cyanide destruction is now performed inside the pipeline that discharges tailings to the tailings dam.

13.2.3 Oxygen increase Testworks

RDM used to be operated with oxygen injection using direct air injection spargers providing around 7 mg/L of dissolved oxygen in the pre-aeration tank. In 2020 a series of testworks with a new system was conduced by the process team, using a pump to recirculate the slurry and injects oxygen gas into a shear reactor installed at the pump outlet.

The dissolved oxygen in the slurry in the pre-aeration step increased to approximately 12 mg/L. This increased the recovery by about 3% and stabilized the process, as shown in Figure 13-3.

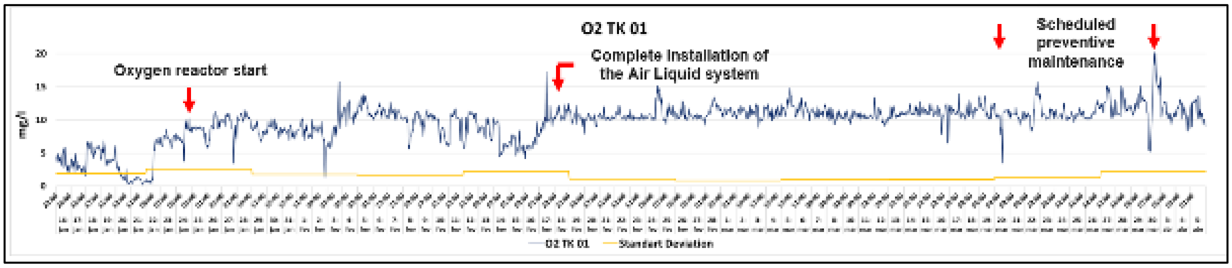


Figure 13-3: Graph of the Oxygen System Benefits

13.2.4 Lead Nitrate Testworks

In June 2019, after a series of bottle rolls and industrial scale testworks, the process team installed an automatic system to dose lead nitrate in the leaching circuit. It started with 30 g/t, and currently the process team has increased the dosage to 60 g/t, as more sulphide ore is being fed to the plant. With this testworks and process change, the metallurgical recovery increased by about 2%. Lead nitrate aids passivation of high-solubility sulphides such as pyrrhotite and arsenopyrite, by reacting and forming PbS on the sulphide surface, thereby reducing the consumption of oxygen and cyanide by these sulphides in an alkaline environment.

14 MINERAL RESOURCE ESTIMATE

Mineral Resources were estimated from a block model constructed by Equinox as of December 31, 2020, using the results of new grade-control drilling during 2019 and 2020. The QP audited the model and found that it was reasonably prepared and provided a good representation of the geologic data. Equinox summarizes the Mineral Resources exclusive of Mineral Reserves in Table 14-1 and inclusive of Mineral Reserves in Table 14-2, based on the end of December 2020 topographic surface. This Mineral Resource estimate conforms to CIM Definition Standards (2014).

Table 14-1: Mineral Resources Summary (Exclusive of Reserves)—December 31, 2020

Category	Tonnage (kt)	Gold Grade (g/t)	Contained Gold (koz)
Open Pit Resources			
Measured	264	1.19	10
Indicated	2,981	1.28	122
Measured + Indicated	**3,245**	**1.27**	**132**
Inferred	100	0.87	3
Underground Resources			
Measured	0	0	0
Indicated	0	0	0
Measured + Indicated	**0**	**0**	**0**
Inferred	3,514	1.98	223
Total Resources			
Total Measured	**264**	**1.19**	**10**
Total Indicated	**2,981**	**1.28**	**122**
Total Measured + Indicated	**3,245**	**1.27**	**132**
Total Inferred	**3,614**	**1.95**	**226**

Notes:
1. CIM Definition Standards (2014) were followed for Mineral Resources.
2. Mineral Resources are exclusive of Mineral Reserves.
3. Open pit Mineral Resources are reported at a cut-off grade of 0.30 g/t Au.
4. Underground Mineral Resources are reported at a cut-off grade of 1.36 g/t Au
5. Mineral Resources are estimated using a gold price of US$1,500/oz and constrained by conceptual pit shell and stope shells.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. The Mineral Resources statement has been prepared by Felipe Machado de Araújo, MAusIMM (CP), a full-time Equinox employee, who is Qualified Person as defined by NI 43-101.
8. Totals may not add due to rounding.

Table 14-2: Mineral Resources Summary (Inclusive of Reserves)—December 31, 2020

Category	Tonnage (kt)	Gold Grade (g/t)	Contained Gold (koz)
Open Pit Resources			
Measured	10,414	1.02	343
Indicated	8,875	1.11	318
Measured + Indicated	19,289	1.07	661
Inferred	100	0.87	3
Underground Resources			
Measured	0	0.00	0
Indicated	0	0.00	0
Measured + Indicated	0	0.00	0
Inferred	3,514	1.98	223
Stockpile Resources			
Measured	1,326	0.52	22
Indicated	0	0.00	0
Measured + Indicated	1,326	0.52	22
Total Resources			
Total Measured	**11,740**	**0.97**	**365**
Total Indicated	**8,875**	**1.11**	**318**
Total Measured + Indicated	**20,615**	**1.03**	**683**
Total Inferred	**3,614**	**1.94**	**226**

Notes: **1.** CIM Definition Standards (2014) were followed for Mineral Resources.
2. Mineral Resources are inclusive of Mineral Reserves.
3. Open pit Mineral Resources are reported at a cut-off grade of 0.30 g/t Au.
4. Underground Mineral Resources are reported at a cut-off grade of 1.36 g/t Au
5. Mineral Resources are estimated using a gold price of US$1,500/oz and constrained by conceptual pit shell and stope shells.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. The Mineral Resources statement has been prepared by Felipe Machado de Araújo, MAusIMM (CP), a full-time Equinox employee, who is Qualified Person as defined by NI 43-101.
8. Totals may not add due to rounding.

The QP is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other relevant issues that would materially affect the Mineral Resource estimate.

14.1 Resource Database

Equinox prepared the resource model with an effective date of December 31, 2020. The MRDM mine geology team supplied the Mine drill hole database in MS Excel format. The long-term database included collar, downhole survey, assay, density, and lithology tables, and the short-term database included collar, downhole survey, and assay tables. The databases were completed as of January 07,

2021. No additional drilling has been performed since that date. The MRDM mine geology team supplied the grade envelopes developed in Leapfrog Geo (Version 6.0).

Drill hole information is stored in the MineSight Torque database system, an SQL server drill hole database. The relevant contents of the database were exported to MS Excel files for import into Leapfrog and Vulcan (Version 2020.2). The drill hole database used for Mineral Resource modelling included drilling by CVRD, Carpathian, Brio, and Grade Control. The CVRD and Carpathian drilling was predominantly core drilling with limited RC holes. The RC drill holes were mostly shallow and above the current pit topography (mined out). The Brio drilling included both core and RC drilling as discussed previously in the drilling and sampling sections. Brio DD and RC holes are sampled at a nominal one-metre intervals. The Grade Control drilling included RC that has a regular QA/QC program and reliable sampling as discussed in Section 10. Table 14-3 shows the drill holes used in the Mineral Resource estimate.

The drill hole database included data obtained by CVRD from an underground gallery and underground drilling in the South Pit area.

Table 14-3: Summary of MRDM Drill Hole Database—December 2020

Drill Hole Type	Number of Holes	Length Drilled (m)	Number of Samples
RC—LT	56	4,306	2,844
DDH—LT	519	73,013	38,196
RC—ST	5,662	76,131	36,875
Total	**6,237**	**153,450**	**77,915**

The core recovery was determined for most of the drill holes and was observed to have been generally within acceptable limits. Measured values ranged from a high of 100% to a low of 84%. The average recovery is greater than 90% for most domains and 95% for the entire data set. The lowest recovery values are from near-surface oxidized material, most of which has been removed by prior mining activity.

Based on the above and the verification steps in Section 12, the Authors' opinion is that the drill hole database is sufficiently reliable and appropriate for use in the estimation of Mineral Resources.

14.2 Geological Interpretation and Mineralization Wireframes

As a first step in constructing the Mineral Resource block model, the MRDM technical team developed 3-D wireframes for the deposit using Leapfrog. Wireframes were prepared to delineate the principal geological and structural domains. These were used in conjunction with the gold grades to create wireframes of the mineralized domains, which were then used for control during the subsequent grade-modelling process.

Figure 14-1 is a cross section view of the simplified grade-shell domains of the RDM deposit, including the enveloping Low-Grade Domain (LG) (≥0.1 g/t Au) wireframe.

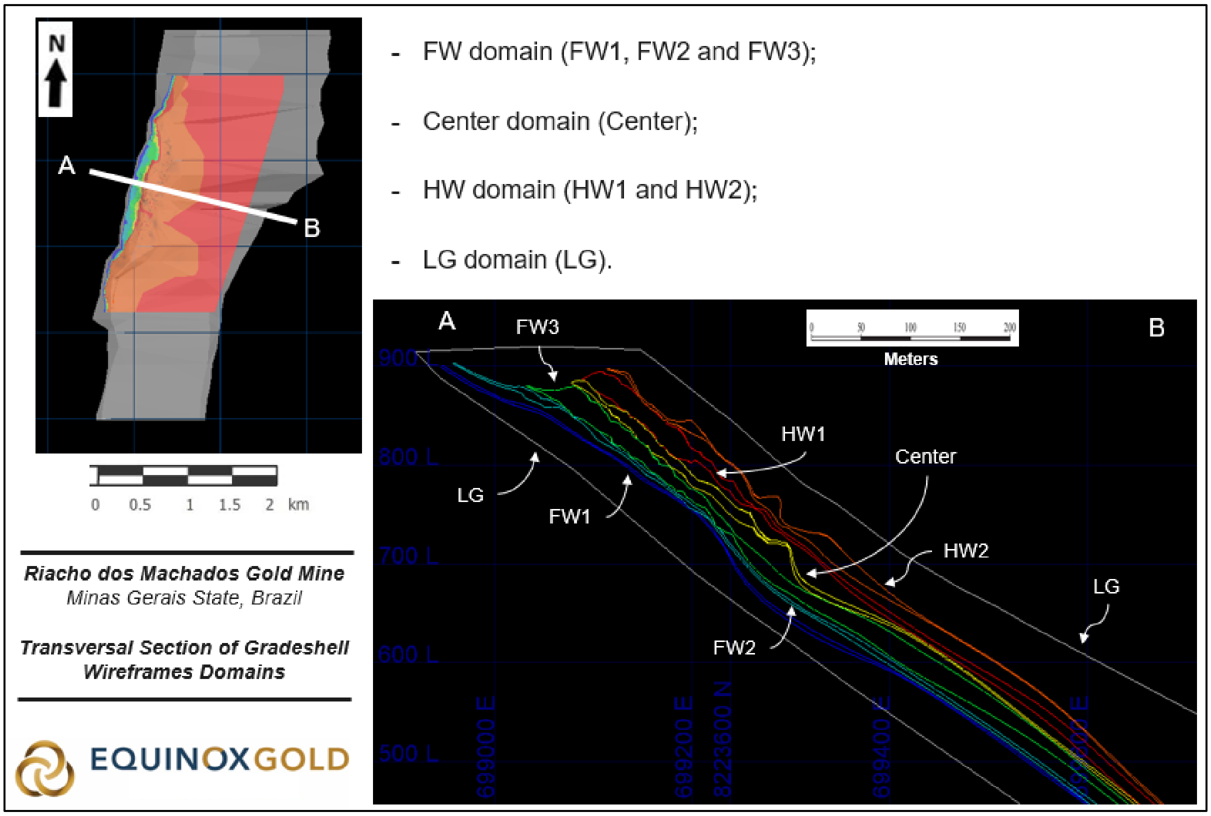
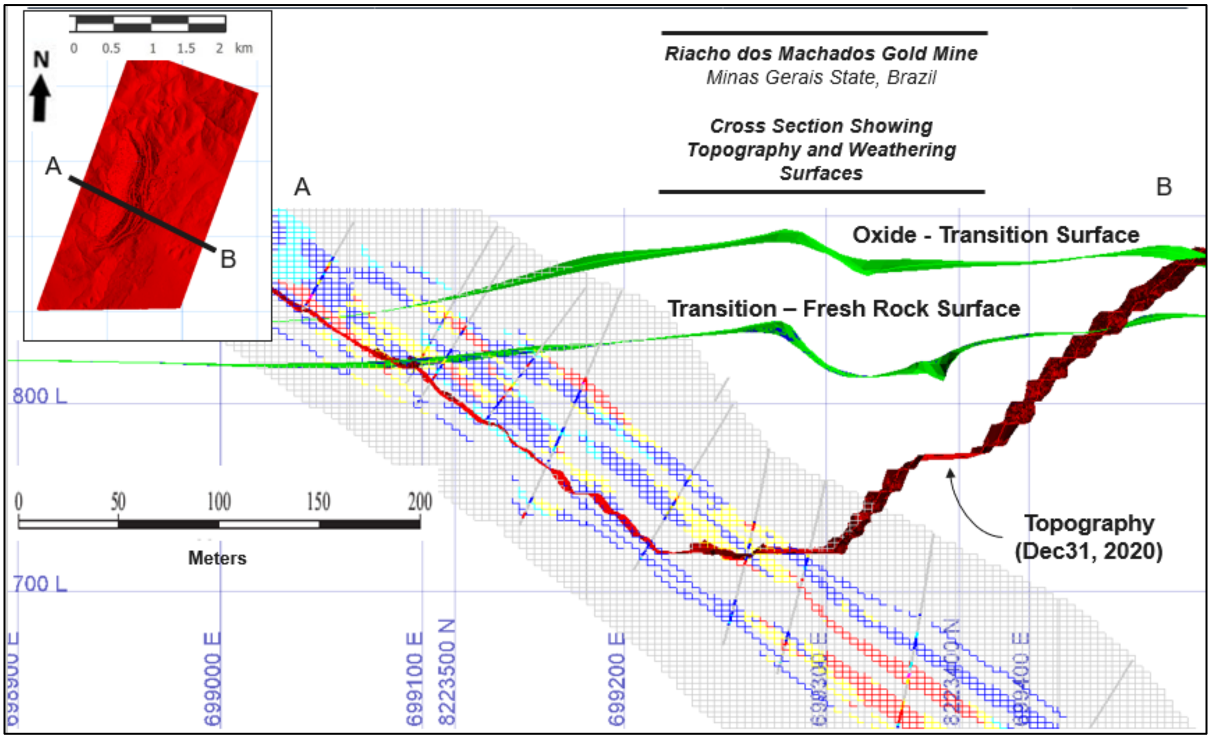


Figure 14-1: Section View of Grade-Shell Wireframes

The mineralized zone wireframes or envelopes were defined at nominal drill hole sample cut-off grades of 0.1 g/t Au for lower-grade and 0.4 g/t Au for higher-grade domains. As a result, a lower-grade shell was delineated(LG domain), within which higher-grade shells were delineated. The geometry is such that two of the higher-grade shells are consistently present near the hanging wall of the lower-grade envelope (Hanging Wall Domain or HW), with the others three shells near the footwall of the lower-grade envelope (Footwall Domain or FW). Lower-grade material is typically layered between these two higher-grade domains. In the central part of the pit, the higher-grade domains thicken to the north and south as the zones approach major cross faults. A third higher-grade domain (Center Domain or CEN) is layered between the HW and FW domains in this area. One metre was considered as a minimum thickness, which was used in generating the wireframes.

Below the December 31, 2020 topography, almost all the mineralization is considered sulphide (i.e., within fresh rock), but some portions of the Oxide Domain remain. Figure 14-2 shows the relative location of these transition horizons with respect to the current pit topography.



Source: MRDM, 2020.

Figure 14-2: Cross-Section Showing Topography and Weathering Surfaces

14.3 Statistical Analysis

Gold assays located inside the wireframe domains were tagged with domain identifiers and exported for statistical analysis. A summary of the basic statistics of the gold assays for all drill holes is provided, by domain, for long-term (LT) and short-term (ST) databases in Table 14-4.

Table 14-4: Descriptive Statistics of Gold Assays (g/t Au)

Zone Name	Variable Flag	Group	Count	Min. (g/t)	Max. (g/t)	Mean (g/t)	Variance	SD	CV
Low-Grade LT	LG	LT	21,048	0.00	23.70	0.126	0.34	0.59	4.64
Hanging Wall LT	HW	LT	4,409	0.00	56.90	0.769	3.60	1.90	2.47
Footwall LT	FW	LT	8,270	0.00	77.90	1.148	6.92	2.63	2.29
Central LT	CEN	LT	2,494	0.00	47.10	0.555	2.07	1.44	2.60
Low-Grade ST	LG	ST	16,916	0.01	8.87	0.085	0.01	0.11	1.32
Hanging Wall ST	HW	ST	5,042	0.02	46.46	0.798	3.45	1.86	2.33
Footwall ST	FW	ST	11,998	0.02	81.17	1.187	5.05	2.25	1.89
Central ST	CEN	ST	2,914	0.02	148.42	0.578	8.86	2.98	5.15

Source: MRDM, 2020.
Note: CV = coefficient of variation

Samples with assay values below the detection limit were assigned the laboratory detection limit value.

14.3.1 Composites

The composite lengths used for grade interpolation were chosen considering the predominant sample length, the minimum mining width, the style of mineralization, the width of domains, and the continuity of grade. The raw assay data contain samples that have irregular sample lengths. Sample lengths range from 0.1 to 6.50 m within the wireframe models, with 49% of the samples taken at one-metre lengths, 35% of the sample taken at two-metre lengths, and 16% of the sample taken at three-metre lengths (Figure 14-3). Given this distribution, and considering the width of the mineralized domains and mining method, the drill holes were composited at 3-m lengths. The samples were broken at domain boundaries, and residuals intervals less than 0.6 m were merged with the previous composite interval.

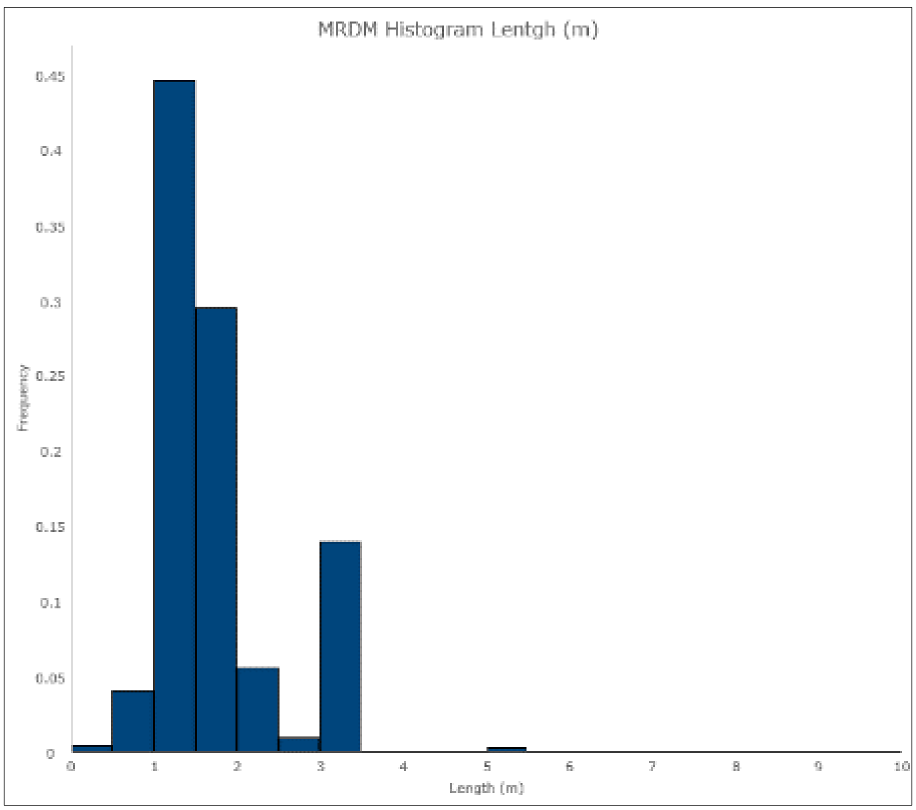
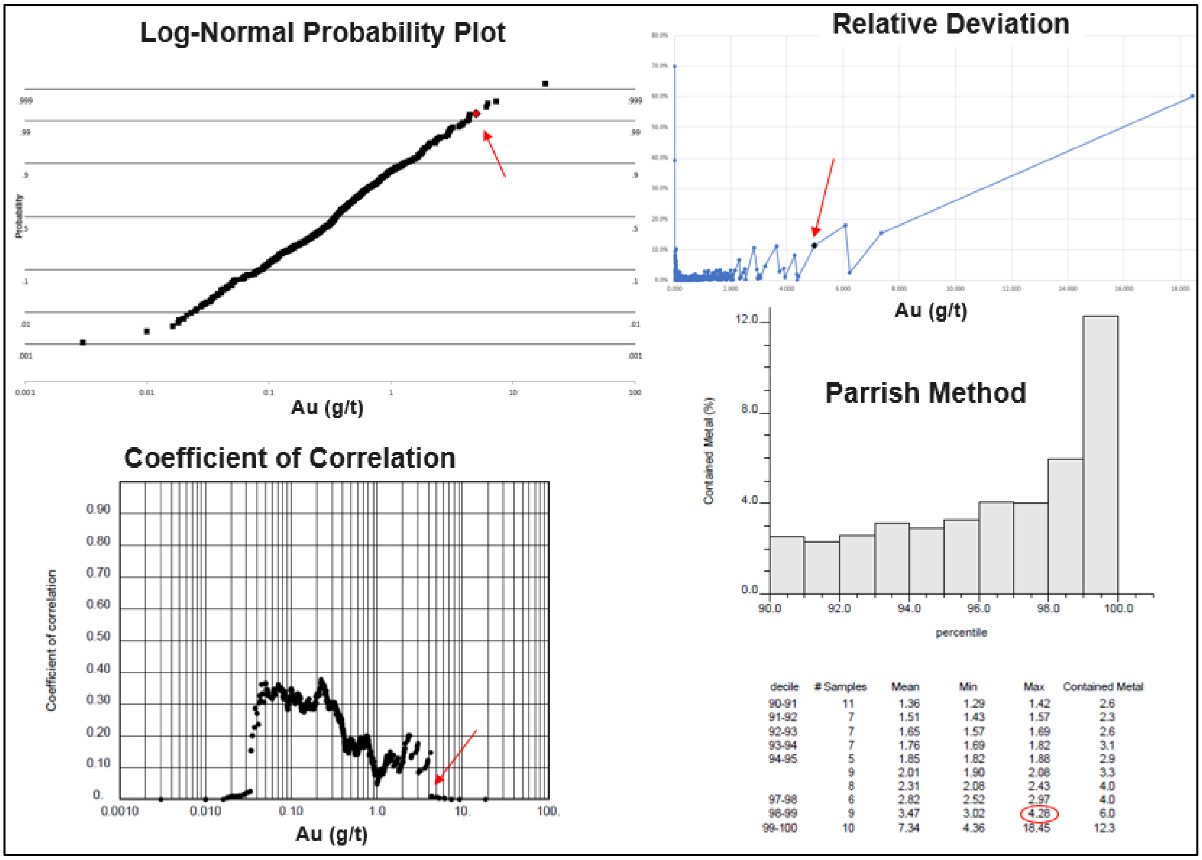


Figure 14-3: Histogram of Sample Lengths

14.3.2 Capping of High-Grade Assays

Where the assay distribution is skewed positively or approaches log-normal, erratic high-grade assay values can disproportionately affect the average grade of a deposit. One method of treating these outliers to reduce their influence on the average grade is to cut or cap them at a specific grade level. Sample capping was evaluated for each of the four mineralized domains in the LT and ST databases, including the HW, CEN, FW, and LG domains. Several methods were used to ultimately define the best threshold to use to cap outliers for each domain. Figure 14-4 shows some examples of these methods for the CEN Domain.



Source: MRDM, 2020.

Figure 14-4: Methods for Assess Outlier—Center Domain

The influence of outliers was assessed for each domain and involved reviewing the grade threshold at which the high-grade tail of the distribution begins to lose coherence. The following methods were used:

- Probability plot
- Probability plot with decluster applied
- Histograms with decluster applied
- Relative deviation with decluster applied
- Decile analysis similar to that described by Parrish (1997)
- Coefficient of correlation.

Table 14-5 shows a summary of the capping thresholds determined by the methods listed above and the ultimate top cut (or capping threshold) chosen for each domain and each data set (i.e., LT and ST).

Table 14-5: Capping Levels for Each Stationary Domain

MRDM LT	FW	Center	HW	LG
Probability Plot	10.0	6.0	7.0	2.5
Probability Plot with Decluster	10.0	5.0	8.0	2.5
Histogram with Decluster	-	-	-	-
Relative Deviation with Decluster	10.0	5.0	7.5	2.5
Parrish Method	7.8	4.3	7.0	1.5
Coefficient Correlation Plot	9.0	4.0	7.0	6.0
Top Cut Value	**10.0**	**5.0**	**7.0**	**2.5**
High-Yield Restriction	-	-	-	-
CV—Composite Database	1.71	1.74	1.86	3.96
CV—Top Cut Applied	1.40	1.34	1.64	2.62
Samples Trimmed	19	6	18	38
Percent Trimmed	0.61%	0.61%	0.93%	0.31%
MRDM ST	**FW**	**Center**	**HW**	**LG**
Probability Plot	10.0	4.0	10.0	0.6
Probability Plot with Decluster	11.0	4.0	9.0	0.6
Histogram with Decluster	-	-	-	-
Relative Deviation with Decluster	11.0	3.5	7.5	0.6
Parrish Method	8.3	3.2	6.3	0.4
Coefficient Correlation Plot	-	-	-	-
Top Cut Value	**10.0**	**4.0**	**9.0**	**0.6**
High-Yield Restriction	-	-	7.0	-
CV—Composite Database	1.72	3.20	2.14	1.31
CV—Top Cut Applied	1.31	1.22	1.60	0.84
Samples Trimmed	60	18	18	64
Percent Trimmed	0.66%	0.75%	0.44%	0.55%

Source: MRDM, 2020.

Table 14-6 shows the statistical results for the raw assay data (Raw), the capped composites (Cap) and uncapped composites (Comp). The average grades of the higher-grade domains are only slightly reduced by the capping, while there is a much greater effect on the LG domain, as would be expected. The coefficient of variation shows significant reduction due to the effects of the capping process.

Table 14-6: Summary Statistics of Uncapped vs. Capped Assays (g/t Au)

	Low-Grade LT			Hanging Wall LT			Footwall LT			Center LT		
	Raw	**Cap**	**Comp**	**Raw**	**Cap**	**Comp**	**Raw**	**Cap**	**Comp**	**Raw**	**Cap**	**Comp**
Number of Samples	21,048	12,228	12,228	4,409	1,940	1,940	8,270	3,105	3,105	2,494	984	984
Min.	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max.	23.70	2.45	7.97	56.90	7.00	19.47	77.90	1.20	42.88	47.10	5.00	18.45
Mean	0.126	0.067	0.077	0.769	0.652	0.672	1.148	1.029	1.068	0.555	0.528	0.550
Variance	0.34	0.03	0.09	3.60	1.14	1.56	6.92	2.09	3.33	2.07	0.50	0.92
SD	0.59	0.18	0.30	1.90	1.07	1.25	2.63	1.44	1.82	1.44	0.71	0.96
CV	4.64	2.62	3.96	2.47	1.64	1.86	2.29	1.40	1.71	2.60	1.34	1.74
Number of Caps	0	38	-	0	18	-	0	19	-	0	6	-
	Low-Grade ST			**Hanging Wall ST**			**Footwall ST**			**Center ST**		
	Raw	**Cap**	**Comp**	**Raw**	**Cap**	**Comp**	**Raw**	**Cap**	**Comp**	**Raw**	**Cap**	**Comp**
Number of Samples	16,916	11,656	11,656	5,042	4,113	4,113	11,998	9,087	9,087	2,914	2,397	2,397
Min.	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Max.	8.87	0.60	8.87	46.46	9.00	43.48	81.17	10.00	81.17	148.42	4.00	74.54
Mean	0.085	0.091	0.093	0.798	0.725	0.761	1.187	1.128	1.175	0.578	0.487	0.544
Variance	0.01	0.01	0.02	3.45	1.34	2.65	5.05	2.17	4.08	8.86	0.35	3.03
SD	0.11	0.08	0.12	1.86	1.16	1.63	2.25	1.47	2.02	2.98	0.59	1.74
CV	1.32	0.84	1.31	2.33	1.60	2.14	1.89	1.31	1.72	5.15	1.22	3.20
Number of Caps	0	64	-	0	18	-	0	60	-	0	18	-

Source: MRDM, 2020.

14.3.3 Short-Term vs. Long-Term Bias Analysis

To use ST and LT databases in the grade estimate, the bias between the two databases was assessed through the grade distribution, swath plot, and an estimate analysis. Figure 14-5 shows the grade distribution in log-normal probability plots. The distribution of FW, HW, and CEN domains correlate relatively well but the LG domain shows some bias. Swath plots in Figure 14-6 show that FW and HW domains have good adherence reproducing the trends, the CEN domain has some local bias, and the LG domain has significant bias between ST and LT databases.

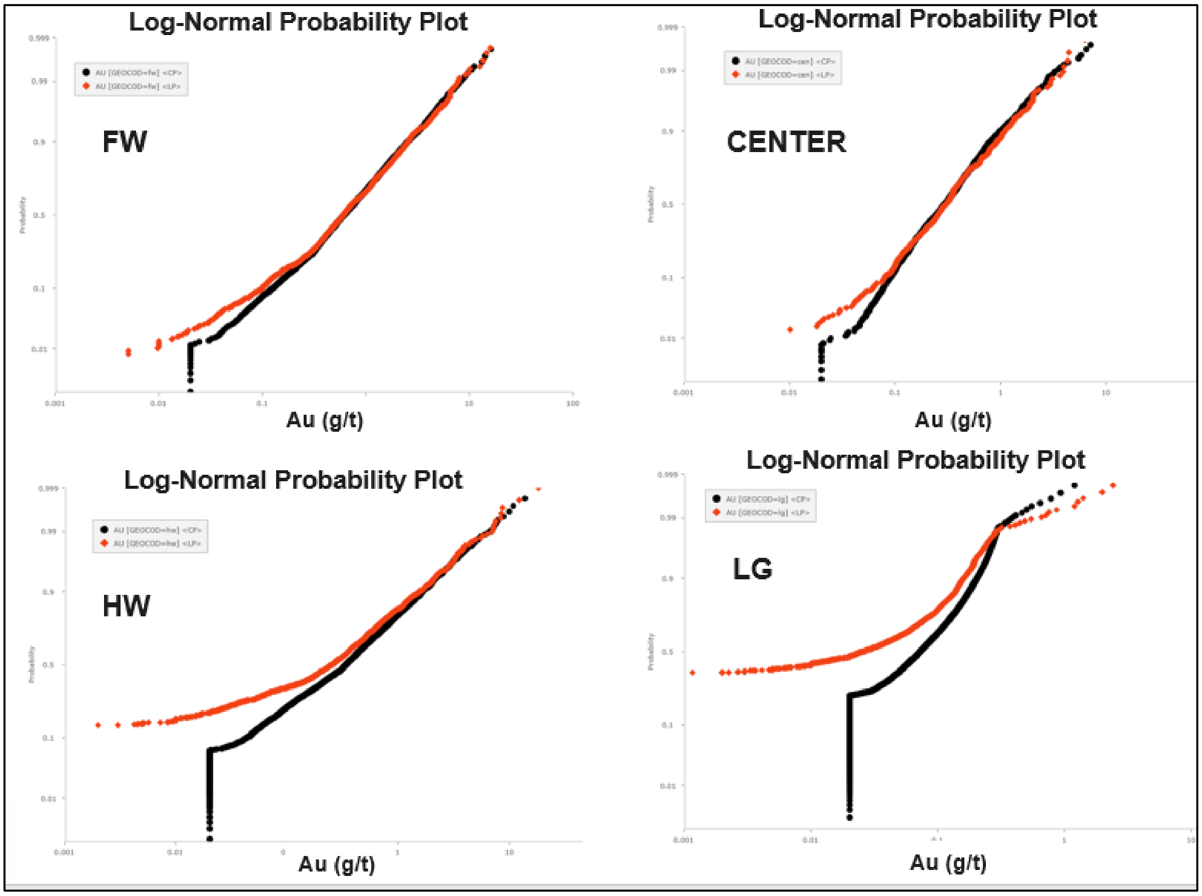


Figure 14-5: Long-Term vs. Short-Term Distribution for Each Domain in the Short-Term Area (Long-Term in Red Dots; Short-Term in Block Dots)

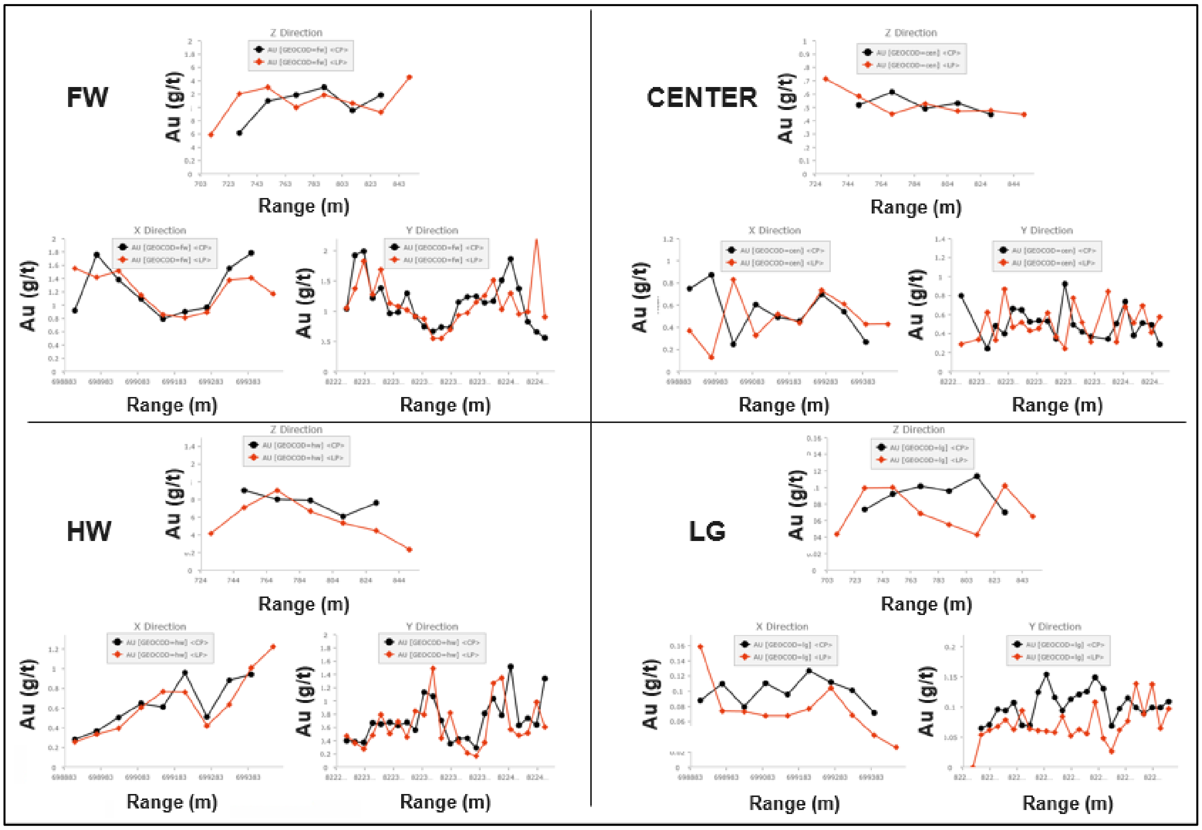


Figure 14-6: Long-Term vs. Short-Term Swath Plot for Each Domain in the Short-Term Area (Long-Term are in Red Lines and Short-Term in Black Lines)

For these bias analyses, the first and second passes were estimated using three scenarios: one using only the ST database, another with only the LT database, and the third using a combination of both ST and LT(Table 14-7). Based in the bias analysis results, a decision was made to use only the ST data in the first estimate pass. For the second estimate pass the LT and ST databases were used for the FW and HW domains where the bias differences are inside the tolerance range. The second estimate pass of the CEN and LG domains used only the LT database due to the significant differences observed in the bias analysis between the LT and the ST databases. For the third and fourth estimates passes of all the domains, only the LT database was considered.

Table 14-7: Summary Short-Term and Long-Term Statistics of Domain Estimates

	LG			HW			FW			CEN		
1st Estimate Pass	**ST**	**LT**	**ST + LT**	**ST**	**LT**	**ST + LT**	**ST**	**LT**	**ST + LT**	**ST**	**LT**	**ST + LT**
Number of Blocks	41,432	289	48,801	13,275	246	15,367	33,031	954	37,735	7,771	63	8,757
Min.	0.02	0.00	0.00	0.02	0.24	0.01	0.02	0.07	0.02	0.04	0.12	0.04
Max.	0.34	0.29	0.41	5.73	1.75	5.73	7.11	5.19	6.98	2.33	1.87	2.33
Mean	0.076	0.105	0.074	0.775	0.680	0.761	1.242	1.358	1.244	0.488	0.610	0.492
SD	0.05	0.07	0.05	0.66	0.33	0.65	0.90	0.87	0.88	0.31	0.42	0.32

1st Estimate Pass	LG			HW			FW			CEN		
	ST	LT	ST + LT	ST	LT	ST + LT	ST	LT	ST + LT	ST	LT	ST + LT
CV	0.64	0.66	0.66	0.85	0.49	0.85	0.72	0.64	0.71	0.64	0.69	0.65

2nd Estimate Pass	LG ST			HW ST			FW ST			CEN ST		
	ST	LT	ST + LT	ST	LT	ST + LT	ST	LT	ST + LT	ST	LT	ST + LT
Number of Blocks	143,905	156,645	212,124	28,019	30,319	32,251	51,434	57,232	53,445	13,102	12,561	14,817
Min.	0.02	0.00	0.00	0.02	0.00	0.00	0.03	0.03	0.03	0.06	0.06	0.06
Max.	0.37	1.48	1.48	3.84	4.21	4.10	6.16	5.92	6.23	2.25	2.20	2.25
Mean	0.079	0.056	0.067	0.659	0.603	0.614	1.019	1.126	0.963	0.452	0.506	0.455
SD	0.05	0.10	0.09	0.55	0.48	0.53	0.71	0.69	0.69	0.29	0.30	0.29
CV	0.65	1.79	1.36	0.84	0.79	0.87	0.70	0.61	0.72	0.64	0.59	0.64

14.3.4 Continuity Analysis

Geostatistical analyses were carried out using Vulcan to evaluate the grade variability changes with distance, and quantify nugget effects. Downhole correlograms were developed for the three-metre composites flagged in each of the four domains (HW, CEN, FW, and LG) and are shown in Figure 14-7 to Figure 14-10 for each domain.

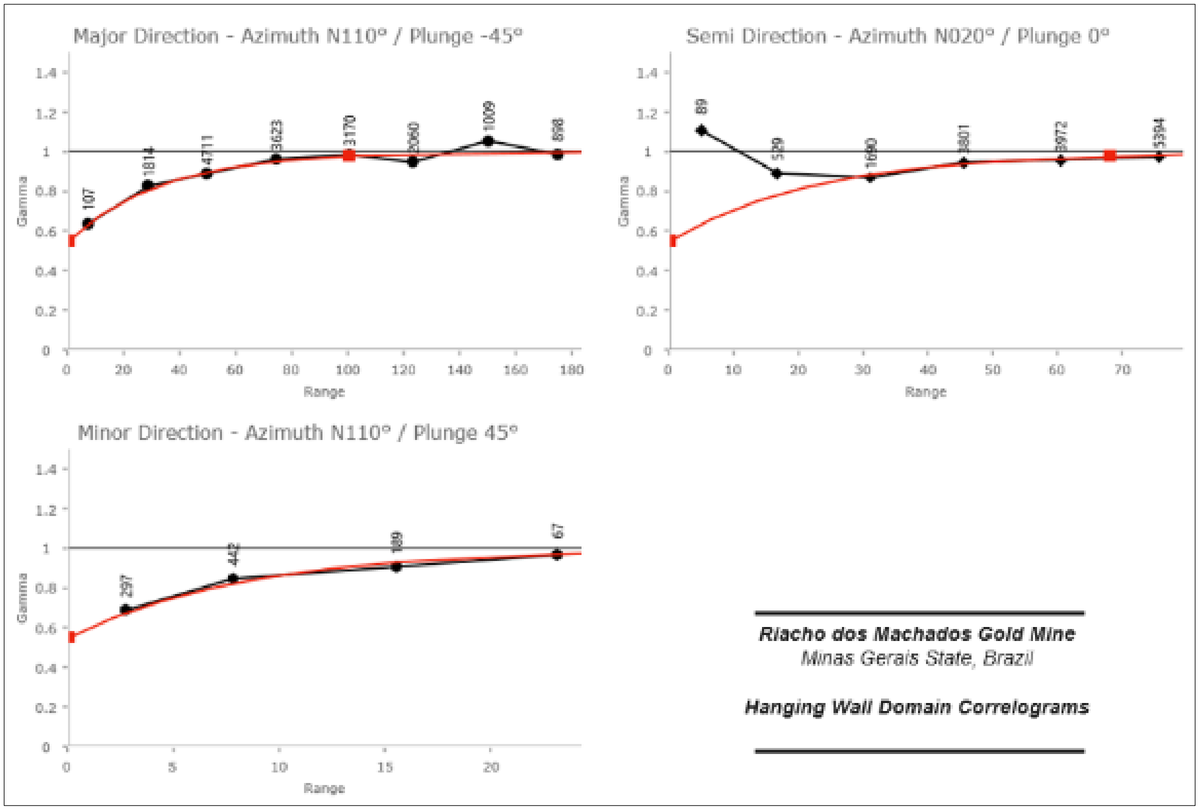


Figure 14-7: Hanging Wall Domain Correlograms

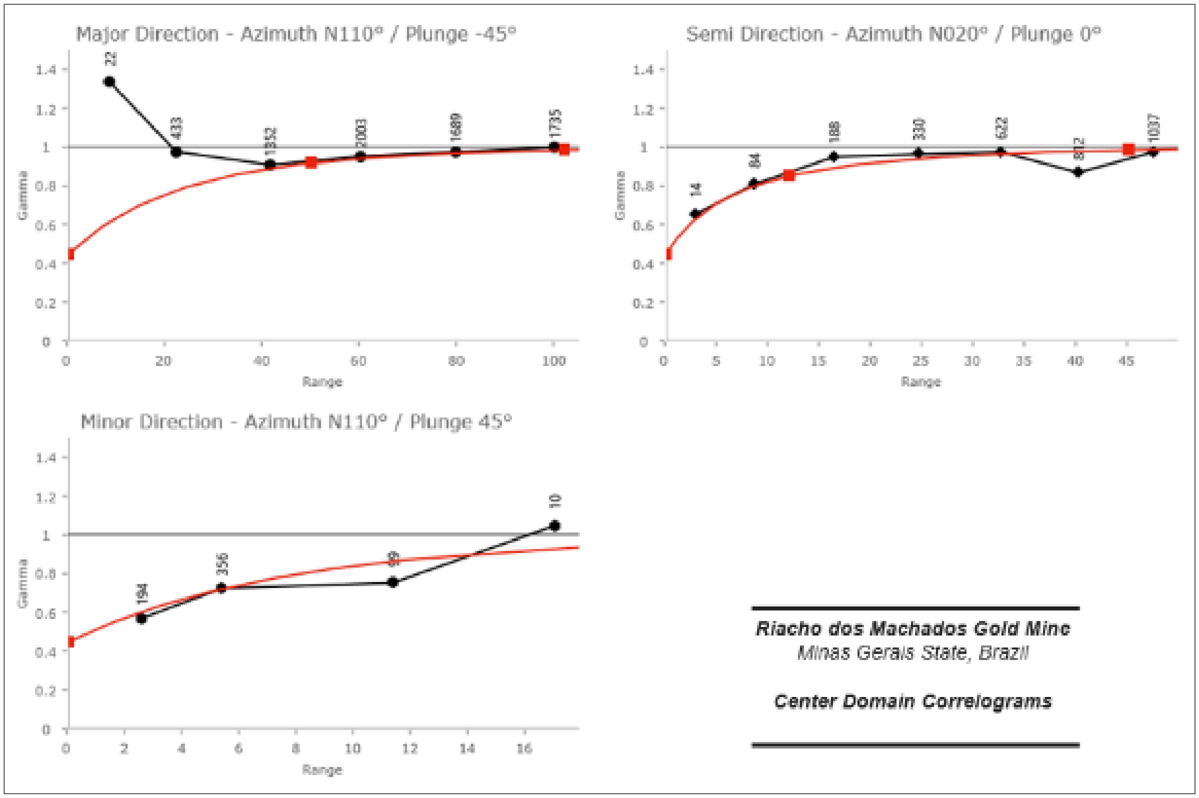


Figure 14-8: Central Domain Correlograms

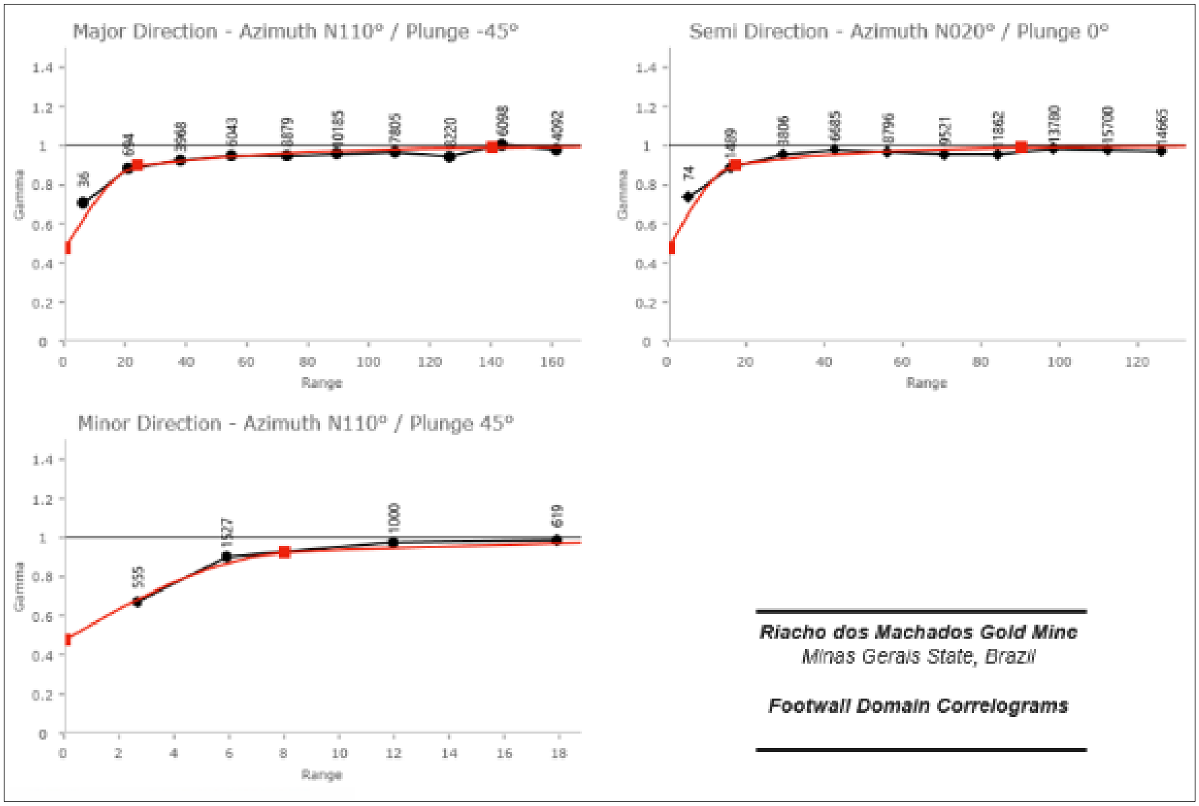


Figure 14-9: Footwall Domain Correlograms

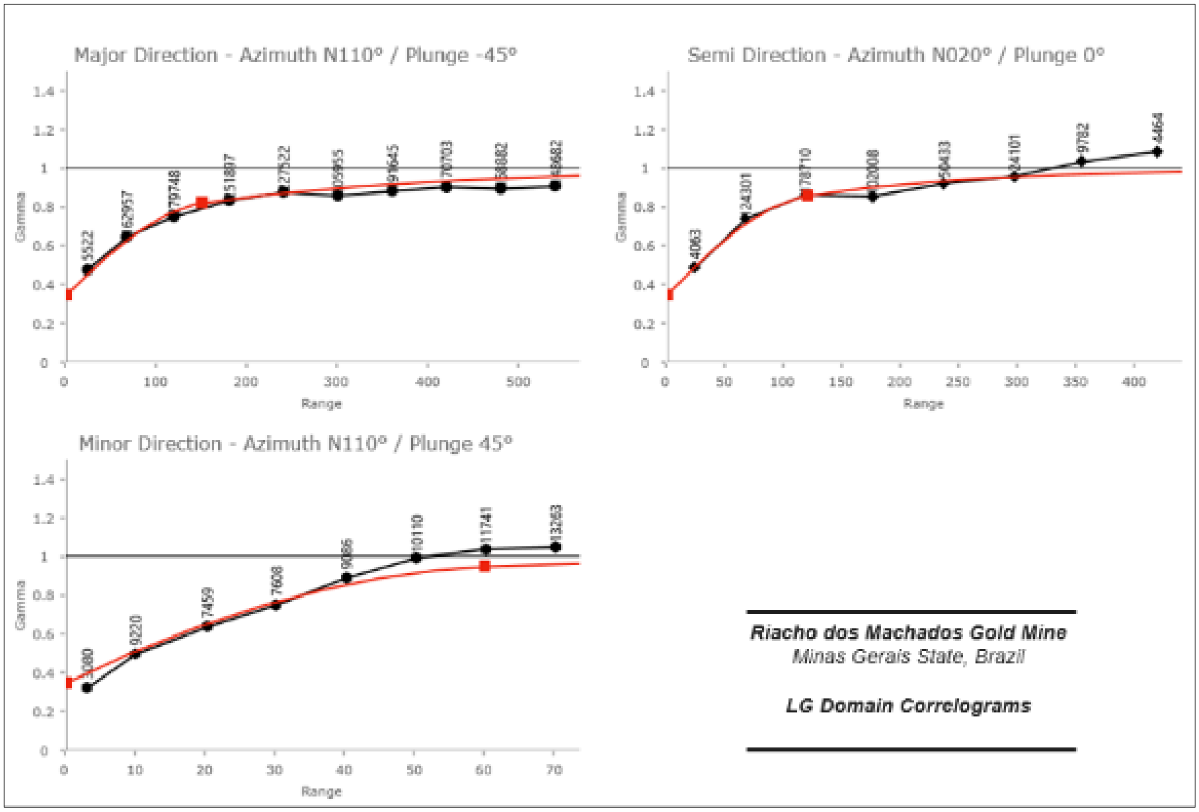


Figure 14-10: Low-Grade Domain Correlograms

The correlograms were evaluated to determine the optimum range and directions of mineral continuity, which were found to be consistent with the structural orientation of the mineralized zones. The major and semi-major search for the higher-grade domain directions are typically within a plane oriented N110° and dipping 45° southeast, which is the direction of plunge continuity of the mineralization for higher-grade domains. For the LG Domain, the major and semi-major searches are within the plane N020° and dipping 45° southwest (Table 14-8).

Table 14-8: Summary Variographic Parameters

Domain	Function	Azimuth	Plunge	Dip	Nugget	Structure 1					Structure 2				
						Type	Sill 1	Major Axis	Semi-Major Axis	Minor Axis	Type	Sill 2	Major Axis	Semi-Major Axis	Minor Axis
FW—LT	Correlogram	110	−45	0	0.48	Spherical	0.35	24	17	7.8	Exponential	0.17	140	90	30
CEN—LT	Correlogram	110	−45	0	0.45	Exponential	0.25	50	12	18	Exponential	0.3	102	45	30
HW—LT	Correlogram	110	−45	0	0.55	Exponential	0.45	100	68	25	-	-	-	-	-
LG—LT	Correlogram	20	0	−45	0.35	Spherical	0.34	150	120	60	Exponential	0.31	800	450	100

14.4 Bulk Density

Bulk density determinations are made by the MRDM production staff on core specimens using a water immersion method, after having been dried and weighed in air for the Transitional and Fresh Rock. Samples for the Oxide Domain, in which porosity and permeability were significantly high, were measured in situ.

Bulk density was determined for each weathering domain comprising Oxide, Transitional, and Fresh Rock domains (Figure 14-11). Average densities by weathering domain range from 1.89 to 2.77 g/cm^3. The CVs is in all cases are lower than 0.1, implying that the variation around the mean is not significant; and that it is reasonable to use average density values in each domain (Table 14-9).

The Authors recommend increasing the number of density measurements in the drill cores to better characterize the density spatially.

Table 14-9: Bulk Density Values by Rock Type

Variables	Fresh Rock	Transitional	Oxide
Number of Samples	46	28	6
Average	**2.77**	**2.39**	**1.89**
Standard Deviation	0.05	0.17	0.15
Variance	0.00	0.03	0.02
CV	**0.02**	**0.07**	**0.08**
Maximum	2.86	2.66	2.10
Upper Quantile	2.81	2.57	2.06
Median	2.77	2.38	1.86
Lower Quantile	2.74	2.24	1.73
Minimum	2.63	2.10	1.73
Upper Tail Cut	2.86	2.68	-
Lower Tail Cut	2.63	2.10	-
Type of Material	Drill Core	Drill Core	Rock In Situ

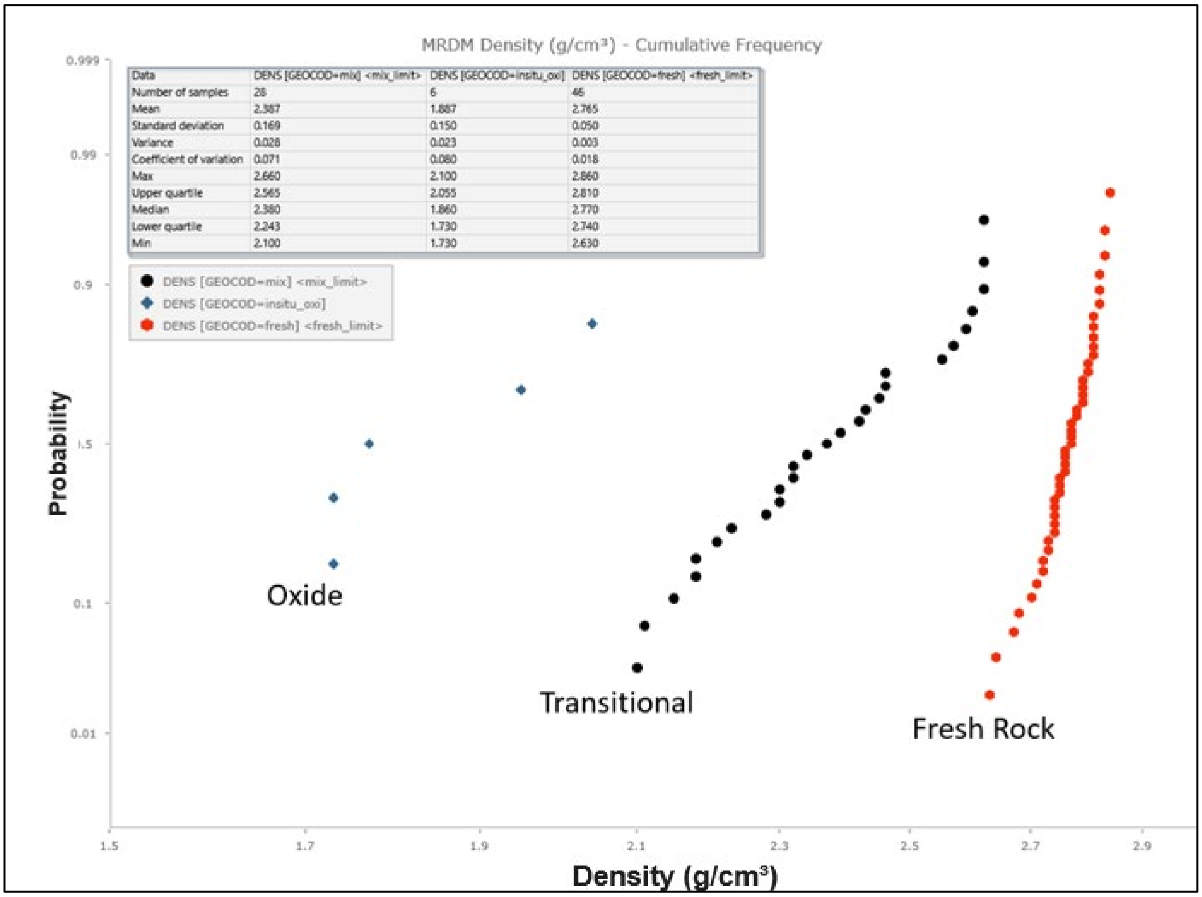


Figure 14-11: Bulk Density Cumulative Frequency Graph

14.5 Block Model

Two block models were constructed to better represent the open pit and underground resource models. For the underground resource model, a sub-blocked model was created. For the open pit a regular model was created, with a block size of 4 m by 4 m by 3 m representing the selective mining unit (SMU) size for the planned open-pit mining. The model was rotated by N020° (in Vulcan 3D the rotation is N110°) to have the long block axis (Y direction) parallel to the average overall mineralized trend (the primary strike of the orebody), which will allow for a better representation in the block model. Summaries of the block model parameters are provided in Table 14-10 and Table 14-11.

Table 14-10: Open Pit Block Model Dimensions

Origin	Value
Xmin	697,500
Ymin	8,222,000
Zmin	402
X Extents	2,600
Y Extents	3,600
Z Extents	702
Schema	Value
Parent	
DX	4
DY	4
DZ	3
Number of Blocks	650, 900, 234
Model Rotation	Value
Bearing	20
Plunge	0
Dip	0
Project Units	metres
Coordinate System	NAD83 UTM Zone 24S

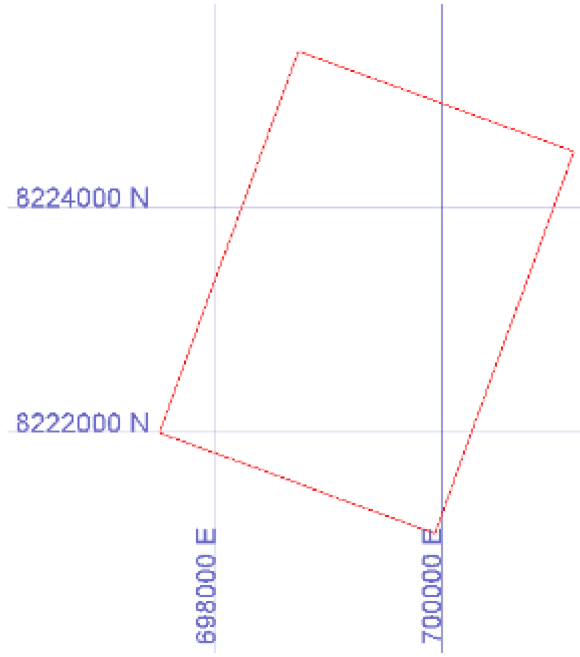
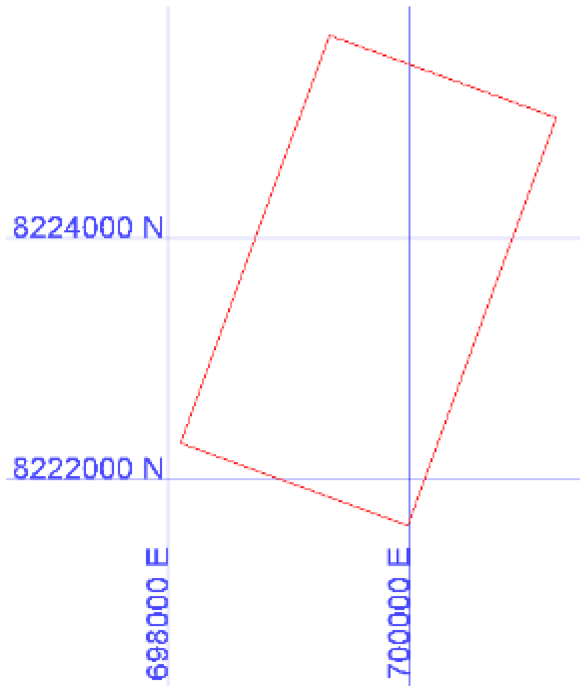


Table 14-11: Underground Block Model Dimensions

Origin	Value
Xmin	698,100
Ymin	8,222,300
Zmin	−78
X Extents	2,000
Y Extents	3,600
Z Extents	950
Schema	Value
Parent	
DX	20
DY	20
DZ	10
Number of Blocks	100, 180, 95
Subblock	
DX	1
DY	1
DZ	1
Model Rotation	Value
Bearing	20
Plunge	0
Dip	0
Project Units	metres
Coordinate System	NAD83 UTM Zone 24S



14.6 Interpolation Parameters

Block model representations of the deposit lithology and grade domains were constructed, along with grade estimations for gold. Estimation of the grades was controlled by the grade domains (LG, HW, FW, and CEN). Search ellipsoid geometry was oriented onto the structural plane of the mineralization, as indicated by the variography. Three-metre composites were used for the estimation, with composites matched to grade domain (i.e., HW composites were used only to estimate grades for the HW Domain blocks).

The ordinary kriging (OK) estimation method was used to assign a gold grade to each block. Table 14-12 shows the search parameters used for gold-grade block estimation. Several estimate passes were used, increasing search ellipse sizes with different estimation parameters. A discretization factor of 3 x 3 x 2 was applied for all the estimate passes. A nearest neighbour (NN) and an inverse distance cubed (ID3) block model were also prepared for comparison purposes.

Table 14-12: Block Estimate Search Strategy by Domain

		Samples Search Orientation (°)			Sample Search Range (m)			Samples								
Domain	Estimate Passes	Bearing	Plunge	Dip	Major Axis	Semi-Major Axis	Minor Axis	Parent Block (m)	Type of Data	Discretization	Min Samples	Max Samples	Max per Octant	Max per Hole	Min Hole	Max Hole
FW Open Pit Au	1st	110	−45	0	20	15	3	4 x 4 x 3	RC	3 x 3 x 2	6	12	3	2	3	8
	2nd	110	−45	0	50	35	10	4 x 4 x 3	DDH & RC	3 x 3 x 2	6	12	3	2	3	8
	3rd	110	−45	0	85	65	20	4 x 4 x 3	DDH	3 x 3 x 2	4	16	3	3	2	6
	4th	110	−45	0	220	200	40	4 x 4 x 3	DDH	3 x 3 x 2	2	14	4	4	-	-
CEN Open Pit Au	1st	110	−45	0	20	15	3	4 x 4 x 3	RC	3 x 3 x 2	6	12	3	2	3	8
	2nd	110	−45	0	50	35	10	4 x 4 x 3	DDH	3 x 3 x 2	6	12	3	2	3	8
	3rd	110	−45	0	85	65	20	4 x 4 x 3	DDH	3 x 3 x 2	4	14	3	3	2	6
	4th	110	−45	0	220	200	40	4 x 4 x 3	DDH	3 x 3 x 2	2	16	-	4	-	-
HW Open Pit Au	1st	110	−45	0	20	15	3	4 x 4 x 3	RC	3 x 3 x 2	6	14	3	2	3	8
	2nd	110	−45	0	50	35	10	4 x 4 x 3	DDH & RC	3 x 3 x 2	6	14	3	2	3	8
	3rd	110	−45	0	85	65	20	4 x 4 x 3	DDH	3 x 3 x 2	4	12	3	3	2	6
	4th	110	−45	0	220	200	40	4 x 4 x 3	DDH	3 x 3 x 2	2	12	4	4	-	-
LG Open Pit Au	1st	20	0	-45	20	15	3	4 x 4 x 3	RC	3 x 3 x 2	6	14	3	2	3	8
	2nd	20	0	-45	50	35	10	4 x 4 x 3	DDH	3 x 3 x 2	6	12	3	2	3	8
	3rd	20	0	-45	85	65	20	4 x 4 x 3	DDH	3 x 3 x 2	4	14	3	3	2	6
	4th	20	0	-45	220	200	40	4 x 4 x 3	DDH	3 x 3 x 2	4	14	4	4	-	-
Barren	4th	20	0	-45	220	200	40	4 x 4 x 3	DDH & RC	3 x 3 x 2	2	8	3	-	-	-
FW Underground Au	1st	110	−35	0	85	65	20	10 x 10 x 3	DDH	5 x 5 x 3	4	15	3	3	2	6
	2nd	110	−35	0	220	200	40	10 x 10 x 3	DDH	5 x 5 x 3	2	12	4	3	-	-
	1st	110	−45	0	85	65	20	10 x 10 x 3	DDH	5 x 5 x 3	4	15	3	3	2	6

Domain	Estimate Passes	Samples Search Orientation (°)			Sample Search Range (m)			Samples									
		Bearing	Plunge	Dip	Major Axis	Semi-Major Axis	Minor Axis	Parent Block (m)	Type of Data	Discretization	Min Samples	Max Samples	Max per Octant	Max per Hole	Min Hole	Max Hole
Center Underground Au	2nd	110	−45	0	220	200	40	10 x 10 x 3	DDH	5 x 5 x 3	2	12	4	3	-	-
HW Underground Au	1st	110	−45	0	85	65	20	10 x 10 x 3	DDH	5 x 5 x 3	4	15	3	3	2	6
	2nd	110	−45	0	220	200	40	10 x 10 x 3	DDH	5 x 5 x 3	2	12	4	3	-	-
LG Underground Au	1st	20	0	-45	85	65	20	10 x 10 x 3	DDH	5 x 5 x 3	4	15	3	3	2	6
	2nd	20	0	-45	220	200	40	10 x 10 x 3	DDH	5 x 5 x 3	2	12	4	3	-	-

14.7 Block Model Validation

The block model was validated using the following methods:

- Visual inspection of block vs. composite grades on plan, vertical cross-section, and long section
- Swath plots of OK block grades versus ID3 and NN grades in the X, Y, and Z directions
- Statistical comparison of OK block grades vs. ID3 and NN grades
- Reconciliation to 2020 production information.

14.7.1 Visual Comparison

The block model was visually validated by the examination of the drill hole composite grades compared with the estimated block grades on sections and plans. The grade continuity confirmed that the block grades were reasonably consistent with local drill hole composite grades. Figure 14-12 shows a cross-section.

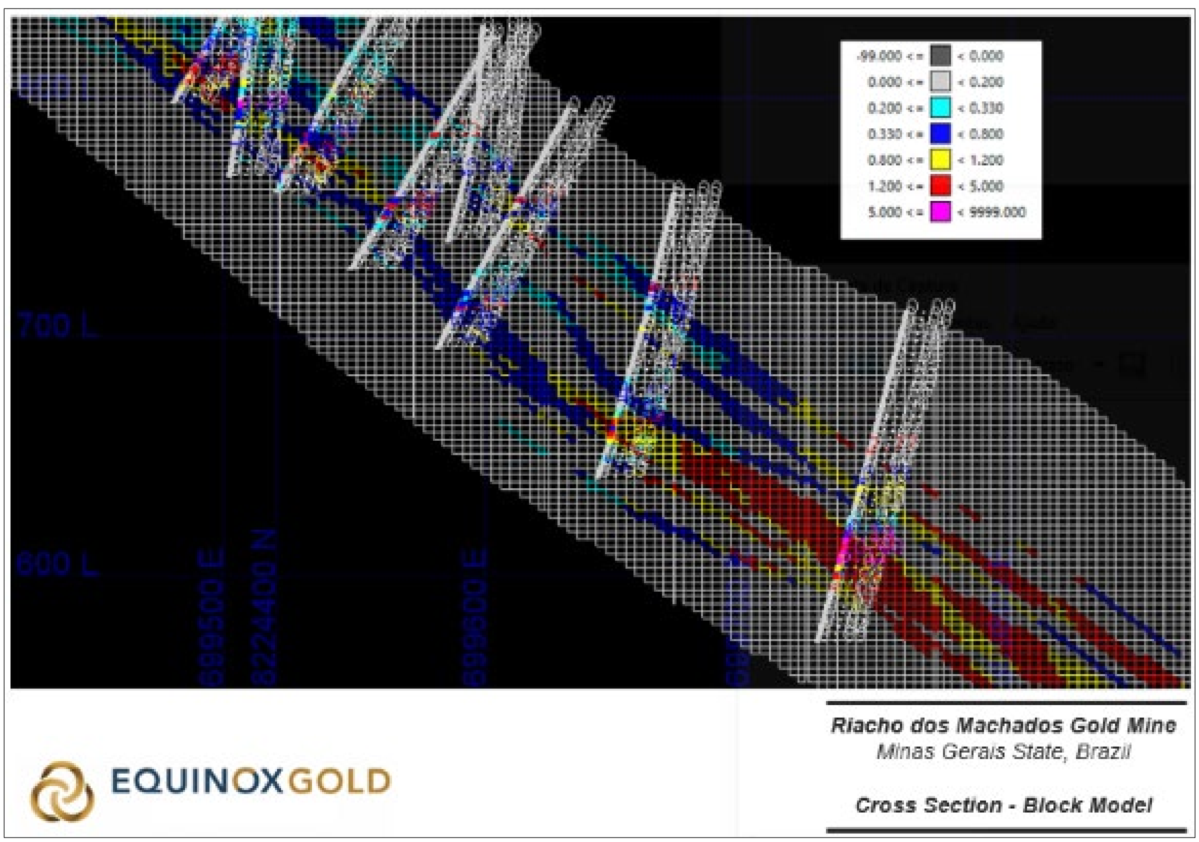


Figure 14-12: Block Model Vertical Cross-Section

14.7.2 Swath Plots

The gold-grade block model was also evaluated on a sectional basis using swath plots, as shown in Figure 14-13 and Figure 14-14. The swath plots generated X, Y, and Z directions to show the OK (red lines) model compared with the NN (black lines) and ID3 (green lines) check models. An NN estimate is considered to be an unbiased grade check, representing the highest grades that would be expected globally in the block model. The OK estimate, being a moving average estimate, will tend to be smoother. Some local variability between the NN, ID3, and OK grades is expected.

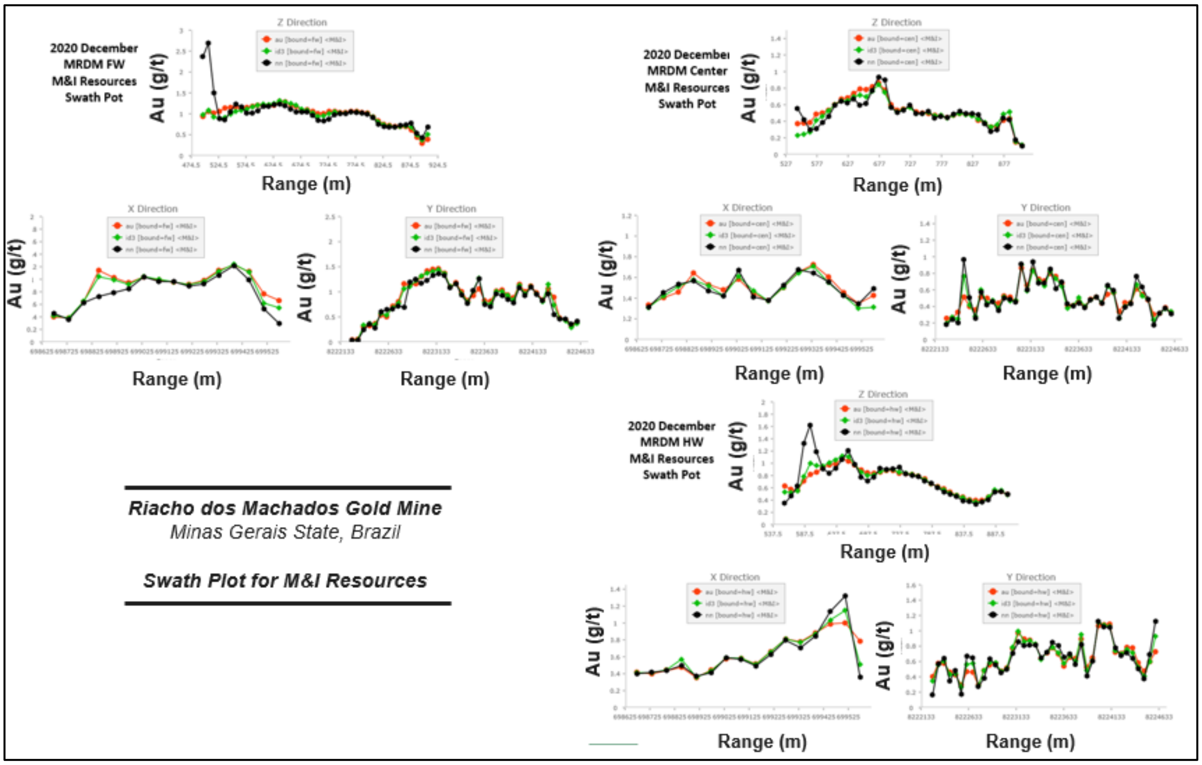


Figure 14-13: Swath Plot for M&I Resources (Footwall, Center, and Hanging Wall Domains)

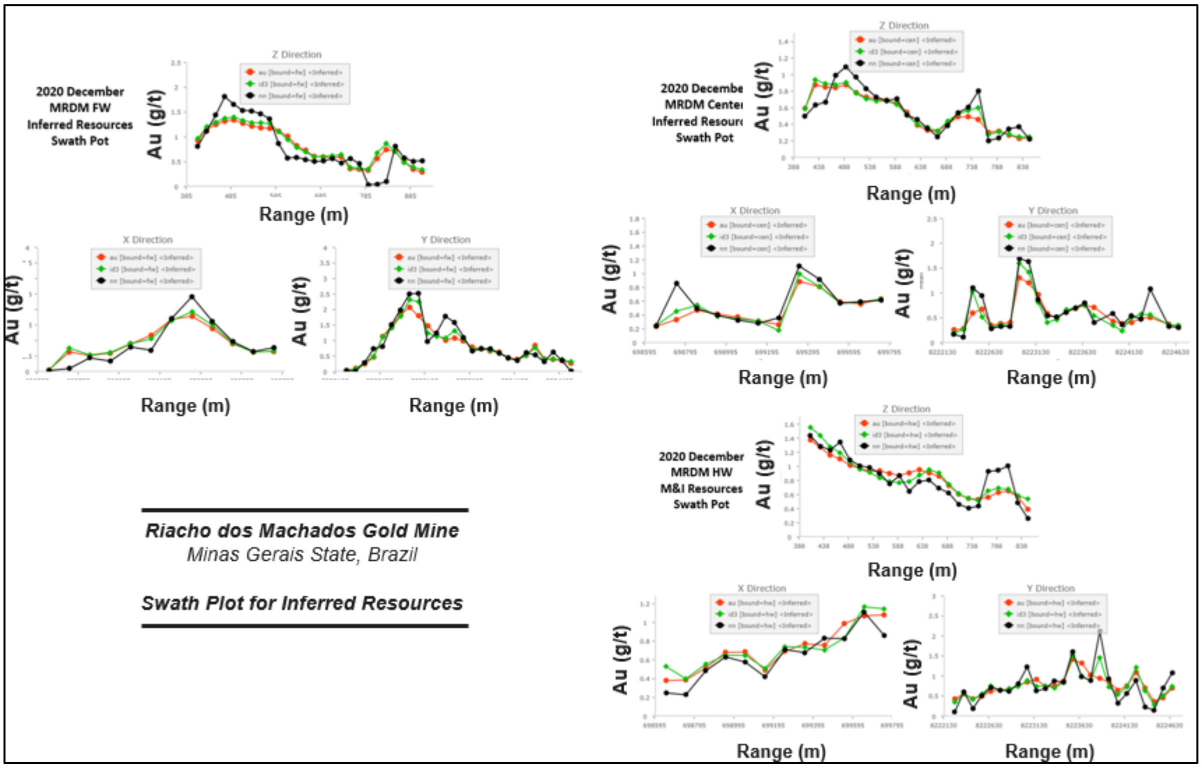


Figure 14-14: Swath Plot for Inferred Resources (Footwall, Center, and Hanging Wall Domains)

14.7.3 Statistical Comparison

A statistical comparison of the estimated OK block grades with the NN block grades is shown in Table 14-13. The OK block results compare well with the NN blocks, indicating a reasonable overall representation of the gold grades in the block model.

Table 14-13: OK Block Gold Grades vs. NN Block Gold Grades

Domain	1st Estimate Pass			2nd Estimate Pass			3rd Estimate Pass			4th stimate Pass		
	NN (g/t Au)	OK (g/t Au)	Difference (%)	NN (g/t Au)	OK (g/t Au)	Difference (%)	NN (g/t Au)	OK (g/t Au)	Difference (%)	NN (g/t Au)	OK (g/t Au)	Difference (%)
FW	1.25	1.24	-0.6%	0.97	1.00	3.3%	0.91	0.98	7.0%	1.14	1.07	-6.0%
Center	0.49	0.49	0.2%	0.44	0.44	-0.7%	0.61	0.62	2.6%	0.62	0.61	-2.7%
HW	0.78	0.78	-1.0%	0.63	0.65	3.7%	0.72	0.76	5.2%	0.88	0.89	1.9%
LG	0.08	0.08	0.0%	0.07	0.07	-5.8%	0.07	0.07	-2.7%	0.05	0.05	0.0%

14.7.4 Reconciliation to 2020 Production

To assess the accuracy of the 2020 update resources model it was compared with the grade control model (GCM) on a monthly basis. During the 2020 calendar year, Grade Control reported 1.97 Mt at an average grade of 1.16 g/t, totalling 73.4 koz of contained metal. The 2020 resources model reported 1.74 Mt at an average grade of 1.27 g/t, totalling 70.9 koz. The resources model and Grade Control model considered the same solids and the same cut-off grade for reporting. The differences in the contained metal are 3.6%, which is considered acceptable (Table 14-14). Figure 14-15 shows the reconciliation between GCM and RM on a monthly basis. Contained metal and gold grades show small differences, with variation in the tolerance range of ±15%. Ore tonnage shows positive bias in five months, but the average differences are less than 15%.

Table 14-14: 2020 MRDM Grade Control vs. Resources Model Reconciliation

	Q1	Q2	Q3	Q4	2020
Grade Control Model					
Tonnes (t)	274,280	492,233	632,746	574,905	1,974,164
Au Grade (g/t)	1.11	1.34	1.04	1.15	1.16
Contained Metals (oz)	9,796	21,169	21,176	21,270	73,410
Resources Model—December 2020					
Tonnes (t)	240,077	458,007	527,312	516,560	1,741,956
Au Grade (g/t)	1.16	1.45	1.15	1.27	1.27
Contained Metals (oz)	8,916	21,408	19,483	21,080	70,888
Grade Control vs. Mineral Resources—December 2020					
Tonnes (%)	14.2	7.5	20.0	11.3	13.3
Au Grade (%)	−3.8	−8.0	−9.4	−9.3	−8.6
Contained Metals (%)	9.9	−1.1	8.7	0.9	3.6

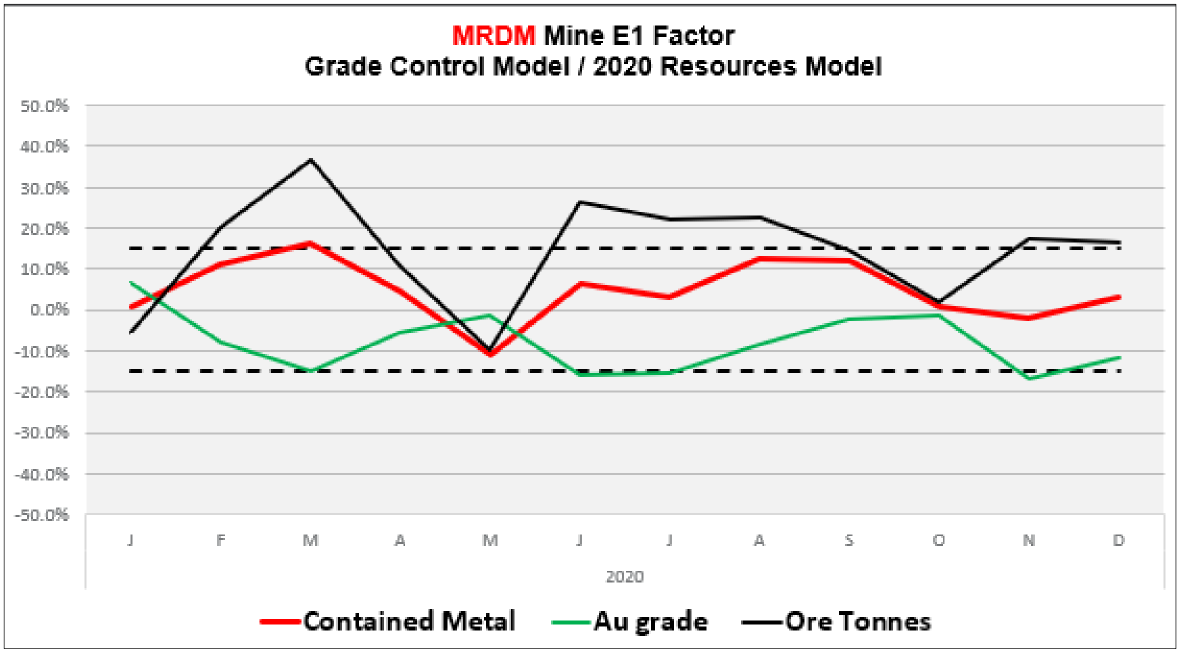


Figure 14-15: 2020 MRDM Grade Control vs. Resources Model Reconciliation Plots

14.8 Cut-Off Grade

CIM Definition Standards (2014) specify that to satisfy the definition of Mineral Resources, there must be "reasonable prospects for eventual economic extraction." This is most commonly taken to mean that a cut-off grade should be applied to the resource model, which reflects some generally acceptable assumptions concerning metal prices, metallurgical recoveries, costs, and other operational constraints. Equinox prepared a preliminary open pit shell to constrain the block model for resource reporting purposes. The preliminary pit shell was generated using Datamine NPV Schedule software.

The Mineral Resource pit shell uses US$1,500/oz as the gold price for NPV Schedule pit optimization and a 0.30 g/t Au cut-off grade. The cost and gold recovery assumptions are the same as for the Mineral Reserve estimate. The Mineral Resource pit optimization inputs are shown in Table 14-15.

Table 14-15: Resource Pit Shell Optimization Factors as of December 31, 2020

Factor	Value
Gold Price	US$1,500/oz
Royalty	1.0%
Ore and Waste Mining Costs	US$2.08/t mined
Process, G&A, and Re-Handle	US$11.14/t milled
Treatment and Refining	US$16.80/oz Au produced
Gold Recovery	87%
Slope Angle (varies by sectors)	23°–60°

Note: R$4.75 = US$1.00 exchange rate; G&A = general and administrative.

Metal prices used for Mineral Reserves are based on consensus, long-term forecasts by Equinox. For Mineral Resources, metal prices used are higher than those for Mineral Reserves.

Table 14-16 and Figure 14-16 show the sensitivity of the block model to various revenue factors (RF). The net present values (NPV) shown are for comparative purposes only and are not to be considered as Mineral Resources.

Table 14-16: Block Model Sensitivity to Revenue Factor

Revenue Factor	NPV (US$)	Waste Tonnes	Ore Tonnes	Gold Grade (g/t)	Strip Ratio
0.50	81,376,987	5,348,652	2,915,571	1.20	1.83
0.53	88,110,042	6,513,524	3,285,023	1.19	1.98
0.55	98,316,935	8,538,035	3,913,227	1.16	2.18
0.58	102,685,824	9,652,349	4,181,852	1.15	2.31
0.60	113,229,110	12,770,632	4,839,782	1.14	2.64
0.63	120,200,842	14,790,540	5,402,941	1.12	2.74
0.65	124,779,786	16,986,652	5,690,224	1.13	2.99
0.68	135,762,893	21,602,310	6,664,900	1.10	3.24
0.70	138,890,206	22,956,599	6,986,380	1.10	3.29
0.73	147,234,188	28,967,015	7,702,108	1.11	3.76
0.75	157,260,285	36,678,045	8,896,885	1.09	4.12
0.78	160,272,352	38,828,762	9,358,517	1.08	4.15
0.80	166,637,910	45,350,801	10,355,024	1.07	4.38
0.83	198,507,777	91,002,596	15,911,318	1.07	5.72
0.85	204,403,571	101,900,362	16,767,558	1.09	6.08
0.88	206,605,792	107,129,646	17,160,826	1.09	6.24
0.90	208,878,532	113,285,630	17,853,838	1.09	6.35
0.93	209,807,432	116,985,718	18,246,129	1.09	6.41
0.95	211,143,404	123,371,090	19,401,957	1.07	6.36
0.98	211,237,666	123,983,338	19,507,807	1.07	6.36
1.00	211,395,079	128,573,690	19,908,850	1.07	6.46
1.03	210,472,322	144,843,819	21,091,774	1.07	6.87
1.05	210,016,372	149,855,822	21,617,982	1.07	6.93
1.08	209,939,338	151,063,852	21,820,536	1.06	6.92
1.10	209,800,149	151,762,477	21,914,924	1.06	6.93

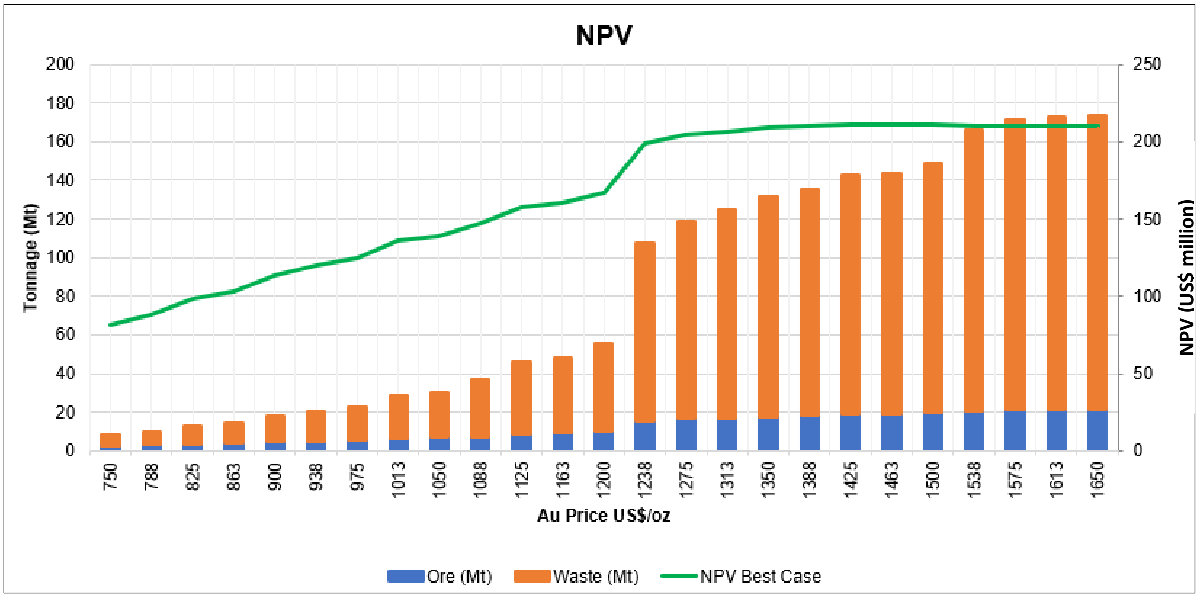


Figure 14-16: Mineral Resource NPV at Various Au Prices

14.9 Classification

Definitions for resource categories used in this report are consistent with CIM Definition Standards (2014) and incorporated by reference in NI 43-101. In the CIM classification, a Mineral Resource is defined 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." Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the "economically mineable part of a Measured and/or Indicated Mineral Resource" demonstrated by studies at prefeasibility or feasibility level as appropriate. Mineral Reserves are classified into Proven and Probable categories.

A range of criteria was used in determining an appropriate Mineral Resource classification, including:

- Representativeness, quality, and positional accuracy of samples
- Geological continuity and reasonableness of the interpreted mineralized model
- Geostatistical spatial continuity and estimation quality
- Scale of mining and associated level of risk.

The block model confidence was classified by a combination of composite-to-block distance and a minimum number of composites used for the estimation of each block, which are functions of drill hole spacing and relative drill hole configuration. The presence of the RC holes drilled on a grid for grade control was used to support the Measured category since all RC holes are mineralized. The classification strategy was as follows:

- Measured: maximum distance of 30 m, minimum four composites, RC grid presence
- Indicated: maximum distance of 60 m, minimum three composites
- Inferred: all blocks out to the maximum search ellipsoid distance (typically 150 to 200 m).

A smoothing post-processing is applied to ensure that the final classification does not have isolated blocks, also known as "spotted dogs." The smoothing process used is based on the preparation of wireframe models using the distance buffer function of Leapfrog Geo by each mineralized domain.

14.10 Mineral Resource Reporting

The resulting Mineral Resources, as of December 31, 2020, are summarized by zone in Table 14-17, and are exclusive of Mineral Reserves. For the open pit, the Measured Mineral Resources total 264 kt at an average grade of 1.19 g/t Au for a total of 10 koz Au. Indicated Mineral Resources total 2,981 kt average grade of 1.28 g/t Au for a total of 122 koz Au. Inferred Mineral Resources total 100 kt at an average grade of 0.87 g/t Au for a total of 3 koz Au. The cut-off grade for open pit Mineral Resources is 0.30 g/t Au. For the underground, there are no Measured or Indicated Mineral Resources. Inferred Mineral Resources total 3,514 kt at an average grade of 1.98 g/t Au for a total of 223 koz Au. The cut-off grade for underground Mineral Resources is 1.36 g/t Au, with minimum of 2.0 m thickness being applied in the stope shells used for reporting Mineral Resources.

Table 14-17: Mineral Resource Estimate (Exclusive of Reserves) by Zone—December 31, 2020

Category	Zone	Tonnage (kt)	Gold Grade (g/t)	Contained Gold (koz)
Open Pit Resources				
Measured	High-Grade Hanging Wall	66	0.71	2
	High-Grade Central	10	0.52	0
	High-Grade Footwall	188	1.40	8
	Low-Grade Zone	0	0.00	0
Total Measured		**264**	**1.19**	**10**
Indicated	High-Grade Hanging Wall	864	1.17	33
	High-Grade Central	309	0.79	8
	High-Grade Footwall	1,808	1.41	82
	Low-Grade Zone	0	0.00	0
Total Indicated		**2,981**	**1.28**	**122**
Total Measured + Indicated		**3,245**	**1.27**	**132**
Inferred	High-Grade Hanging Wall	56	0.73	1
	High-Grade Central	21	0.77	1
	High-Grade Footwall	23	1.33	1
	Low-Grade Zone	0	0.00	0
Total Inferred		**100**	**0.87**	**3**
Underground Resources				
Total Measured + Indicated		**0**	**0**	**0**
Inferred	High-Grade Hanging Wall	899	1.70	49
	High-Grade Center	5	1.02	0
	High-Grade Footwall	2,609	2.08	174

Category	Zone	Tonnage (kt)	Gold Grade (g/t)	Contained Gold (koz)
Total Inferred		**3,514**	**1.98**	**223**
Total Resources				
Total Measured		**264**	**1.19**	**10**
Total Indicated		**2,981**	**1.28**	**122**
Total Measured + Indicated		**3,245**	**1.27**	**132**
Total Inferred		**3,614**	**1.95**	**226**

Notes: **1.** CIM Definition Standards (2014) were followed for Mineral Resources.
2. Mineral Resources are exclusive of Mineral Reserves.
3. Open pit Mineral Resources are reported at a cut-off grade of 0.30 g/t Au.
4. Underground Mineral Resources are reported at a cut-off grade of 1.36 g/t Au
5. Mineral Resources are estimated using a gold price of US$1,500/oz and constrained by conceptual pit shell and stope shells.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. The Mineral Resources statement has been prepared by Felipe Machado de Araújo, MAusIMM (CP), a full-time Equinox employee, who is Qualified Person as defined by NI 43-101.
8. Totals may not add due to rounding.

The Mineral Resource as stated contains an element of dilution by virtue of the processes used to create the block model. Compositing to three metres contributes to an inherent dilution effect. Even more importantly, the OK method further contributes to an inherent dilution. As such, it is considered that an adequate dilution effect is built into the block model and that no additional dilution adjustment is necessary for mine planning.

The CIM Definition Standards (2014) state that Mineral Resources are “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.” To demonstrate reasonable prospects for eventual economic underground extraction, the Mineral Resource was evaluated geometrically and economically using the Stope Optimizer Deswik software. The underground Mineral Resource is not supported by a preliminary economic assessment (PEA) study. For this reason, and because of drill hole spacing, a decision was made to classify the underground Mineral Resources as Inferred. The economic parameters used for this evaluation come from other mines owned and operated by Equinox in Brazil including the Fazenda Brasileiro Mine costs, the Riacho dos Machados Plant costs, and the Aurizona sustaining costs (Table 14-18). The Mineral Resource was constrained to a 1.36 g/t Au cut-off grade shell prior to running the Deswik Stope Optimizer. Mine recovery was estimated as being 74% based on a sublevel open stoping mining method with levels separated by a 10 m sill pilar. Each level would be subdivided in three sublevels with stopes that are 25 m long and 20 m tall separated by rib pillars that are 4 m thick. On a longitudinal section the area recovered would be equal to 3 m x 20 m x 25 m, or 1,500 m^2, from a longitudinal section of resources that is 70 m tall and 29 m long, resulting in 2,030 m^2 (Figure 14-17). The ratio between the two areas is the estimated recovery.

The underground Mineral Resource is also truncated by the open pit Mineral Resource. All underground Mineral Resource lies below a 50 m thick crown pillar at the bottom of the pit shell. This crown pillar was created by offsetting the resource pit base surface using Leapfrog´s Distance Function tool.

For further work, it is recommended that a PEA be undertaken to better assess the underground Mineral Resource and convert the Inferred Resource into Indicated Mineral Resource.

Blocks within the crown pillar are not included in the Mineral Resource. A plan map of the Mineral Resource pit limits is shown in Figure 14-18. Figure 14-19 shows a perspective view of the underground Mineral Resource stopes. This Mineral Resource estimate conforms to CIM Definition Standards (2014).

Table 14-18: Resource Underground Cut-Off Calculation

Factor	Value	Source of Economic Parameters
Gold Price	US$1,500/oz	Equinox Gold
Mining Cost (without administration)	$19.05	Fazenda Brasileiro
Mining Cost (just for the Stope)	$14.15	Fazenda Brasileiro
Mine Fixed Cost (Administration)	$3.20	Fazenda Brasileiro
Total Processing Costs	**$6.55**	**Riacho dos Machados**
Variable Processing Cost	$5.39	Riacho dos Machados
G&A	$2.49	Riacho dos Machados
Rehandle	$0.34	Riacho dos Machados
Premium Cost for Ore	$0.02	Riacho dos Machados
Sustaining Cost/Tonne (Mine)	$15.67	Aurizona Pre-Feasibility Underground
Sustaining Cost/Tonne (Process)	$1.82	Riacho dos Machados
Full Grade Ore Cut-off Grade	1.36 g/t	

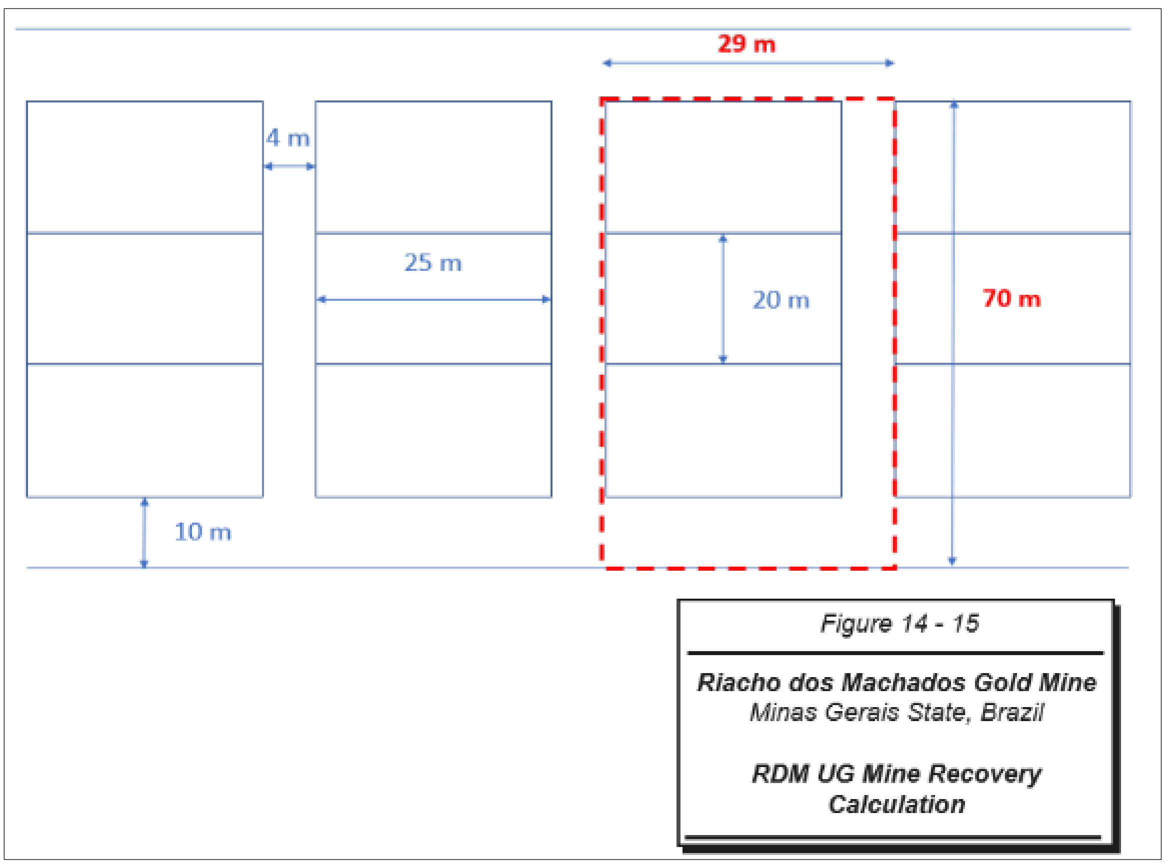


Figure 14-17: RDM Underground Mine Recovery Calculation

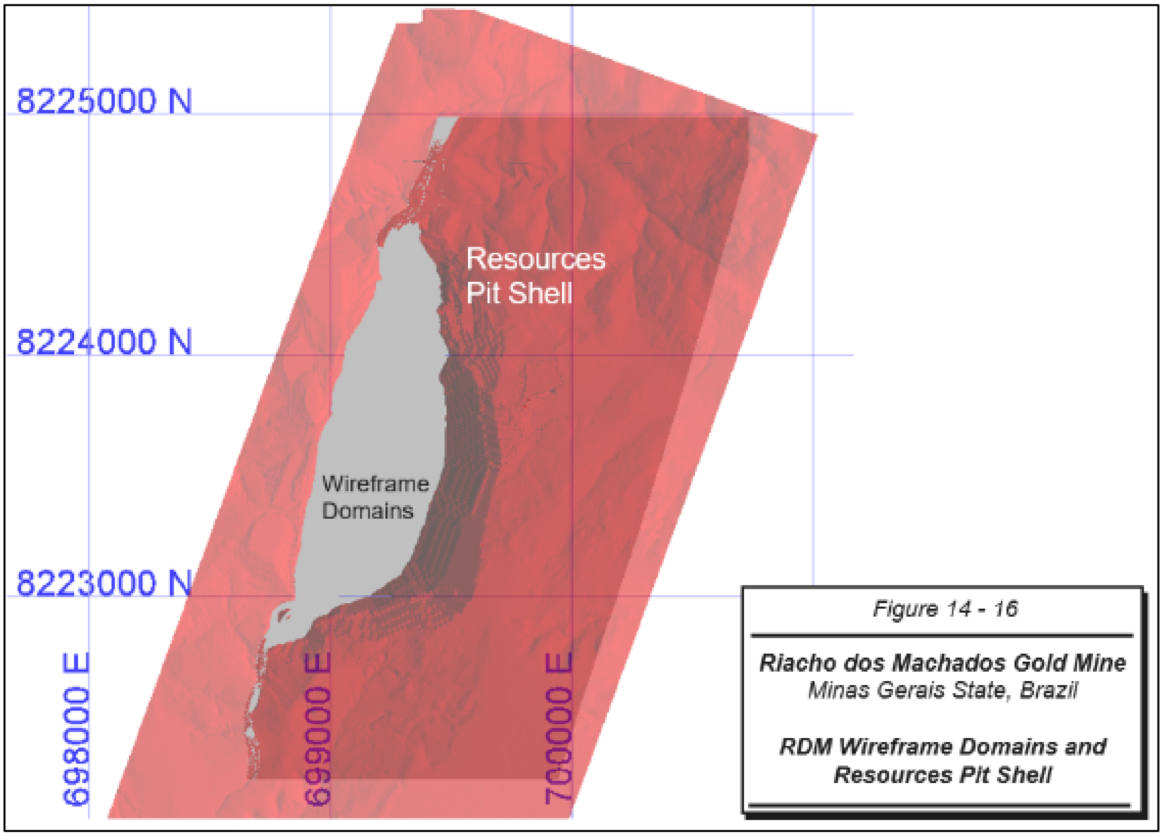


Figure 14-18: RDM Wireframe Domains and Resource Pit

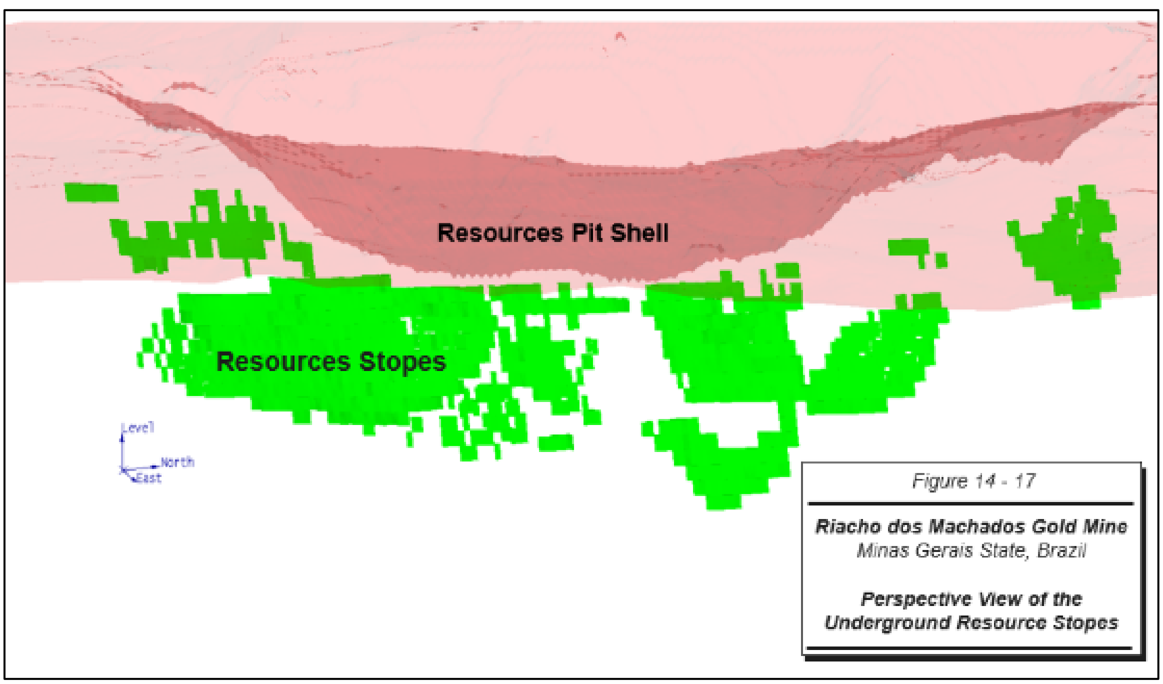


Figure 14-19: Perspective View of the Underground Resource Stopes

14.10.1 Comparison to Previous Estimate

The comparison to the previous estimate model was based on the December 31, 2020, topographic surface. The total 2020 open pit Measured and Indicated Mineral Resources have small differences from the previous estimates (RPA, 2018), with 162 kt fewer (approximately 3%) and 28 koz of contained metal, an increase of 14.6% (Table 14-19). Two factors contributed to the increase: 1) the use of RC drilling after a bias validation analysis, and 2) reinterpretation of the higher-grade domains with the modelling of internal waste. In the FW Domain, the higher-grade domains were split into three continuous solids; the HW Domain was split into two solids. This higher selectivity in modelling resulted in a higher gold grade and fewer tonnes in these domains.

Table 14-19: OP Exclusives Mineral Resources Comparison—Topography December 31, 2020

Estimate Model	Tonnage (kt)	Gold Grade (g/t)	Contained Goldl (koz)
December 2020–M&I Resources	5,436	1.09	191
May 2018–M&I Resources	5,598	0.91	163
Difference	**−162**	**0.19**	**28**
Percent Difference (%)	−2.98	17.08	14.61

The updated Mineral Resources model was compared to the Mine production and plant received data for January 2020 through December 2020 (Table 14-20). The reconciliation between the updated Mineral Resources model and Mine production shows that the overall total ounces varies less than 0.6%, and comparison between Mine production and plant received varies less than 5%. These numbers reflect good comparability with the block model.

Table 14-20: Reconciliation for January 2020 through December 2020

Reconciliation	Ore Tonnage	Gold Grade (g/t)	Contained Gold
December 2020 Updated Resources	1,741,956	1.27	70,888
Mine Production	2,209,770	1.00	71,289
Plant Received	2,201,519	1.05	74,361
Difference Resources vs. Mine Production	**26.86%**	**−21.26%**	**0.57%**
Differences Mine Production vs. Plant Received	**−0.37%**	**5.06%**	**4.31%**

15 MINERAL RESERVE ESTIMATE

The Mineral Reserve estimate was prepared by Equinox with an effective date of December 31, 2020.

The Mineral Reserves summarized in Table 15-1 are reported within a pit design, using a gold price of US$1,350/oz Au and an overall metal recovery of 87%.

The authors are of the opinion that the Measured and Indicated Mineral Resources within the final pit design can be classified as Proven and Probable Mineral Reserves, and are not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

Table 15-1: Summary of Mineral Reserves—December 31, 2020

Category	Tonnage (Mt)	Gold Grade (g/t)	Contained Gold (koz)
Proven			
Open Pit	10.355	1.02	338
Stockpile	1.326	0.52	22
Total	**11.681**	**0.96**	**360**
Probable			
Open Pit	5.872	1.04	196
Stockpile	0		0
Total	**5.872**	**1.04**	**196**
Proven + Probable			
Open Pit	16.227	1.02	534
Stockpile	1.326	0.52	22
Total Proven + Probable	**17.553**	**0.99**	**556**

Notes: **1.** CIM (2014) definitions were followed for Mineral Reserves.
2. Mineral Reserves were generated using the December 31, 2020 mining surface.
3. Mineral Reserves are reported at a cut-off grade of 0.33 g/t Au.
4. Mineral Reserves are reported using a long-term gold price of US$1,350/oz.
5. Mining dilution of 5% and 95% mining recovery.
6. Process recovery of 87%.
7. The Mineral Reserve statement has been prepared under the supervision of Tiãozito Vasconcelos Cardoso, FAusIMM, a full-time Equinox employee, who is Qualified Person as defined by NI 43-101.
8. Totals may not add due to rounding.

15.1 Density, Dilution, and Selective Mining Unit

The mine is a moderately sized operation, moving approximately 26.5 Mt/a. Ore is either hauled to a crusher for further processing, or to a low-grade stockpile for processing at the end of the mine's life.

The average material bulk densities by material type are listed below:

- Oxide: 1.89 g/cm^3
- Transition: 2.39 g/cm^3
- Fresh Rock: 2.77 g/cm^3

The resource block model was estimated as a recoverable resource, meaning that mining dilution and ore loss were largely accounted for in the Mineral Resource estimation process. The Mineral Resource estimation process estimated the recoverable tonnage and grade based on the dimensions of a SMU, 4 m by 4 m by 3 m, which represents the smallest volume of material that can practically be mined selectively during the mining operations. If the average grade of the SMU is greater than the cut-off grade, the material is classified as ore.

Additional dilution or ore loss were applied to the resource block model for use in mine planning and reporting. A 5% dilution factor and 95% mining recovery factor were applied to Mineral Resource to model operational factors typical of the MRDM mining operation.

15.2 Cut-Off Grade

Metal prices used for Mineral Reserves are based on consensus and long-term forecasts produced by Equinox. The cut-off grade used for the estimation of the Mineral Reserves is 0.33 g/t Au, based on the parameters presented in Table 15-2.

Table 15-2: Pit Optimization Cost and Recovery Inputs

Description	Unit	Value
Gold Price	US$/oz	1,350
Metallurgical Recovery	%	87
Refining Cost	US$/oz	14.15
Royalties	%	1.0
CFEM	%	1.5
Dilution	%	5.0
Mining Reference 834 masl	US$/t feed	2.08
Mining Dilution	%	5
Re-Handle	US$/t	0.34
Process	US$/t	6.55
G&A	US$/t	2.49

15.3 Pit Optimization and Pit Shell Selection

The open pit optimization for the Mineral Reserves was generated using NPV Scheduler (Version 4.30.189.0). The selected pit shell for the final pit design is based on a gold price of US$1,248.75/oz and a RF of 0.925 as presented in Table 15-3. The 0.925 RF shell was selected to avoid the discounted cash flow decrease associated with a significant incremental increase of the stripping ratio at higher RFs.

Table 15-3: Pit Optimization Results (Pre-Final Design)

Final Pit	Revenue Factor	Tonnes Processed (Mt)	Gold Grade (g/t Au)	Gold (koz)	Waste (Mt)	Total (Mt)	Strip Ratio
11	0.750	6.548	1.12	224	21.705	28.253	3.31
12	0.775	6.861	1.11	232	23.049	29.910	3.36
13	0.800	7.382	1.12	253	27.948	35.330	3.79
14	0.825	7.848	1.11	265	30.112	37.959	3.84
15	0.850	9.033	1.10	303	38.217	47.250	4.23
16	0.875	9.287	1.09	310	40.024	49.311	4.31
17	0.900	15.123	1.09	504	88.488	103.611	5.85
18	**0.925**	**16.001**	**1.10**	**536**	**97.870**	**113.871**	**6.12**
19	0.950	16.211	1.10	542	99.299	115.509	6.13
20	0.975	16.321	1.10	546	100.351	116.671	6.15
21	1.000	16.557	1.09	553	102.255	118.812	6.18
22	1.025	17.104	1.09	569	106.931	124.035	6.25
23	1.050	18.437	1.07	604	116.591	135.027	6.32
24	1.075	18.564	1.07	608	117.465	136.030	6.33
25	1.100	18.749	1.07	613	119.227	137.976	6.36

16 MINING METHODS

Conventional open pit mining methods are employed at the Mine, including drilling, blasting, loading, and hauling. Waste mining is performed by a contractor U&M Mineração e Construção (U&M), on a five-year contract, while ore mining is conducted using an owner's fleet.

The operation's strip ratio is relatively high, at approximately 6.9:1 (waste:ore). The mining rate will be relatively constant throughout the life-of-mine (LOM); total daily waste material movement is estimated at 70,000 t/d and ore mining at 7,890 t/d (2.88 Mt/a).

The mining operations are expected to last six years of mining and two additional months of processing.

Current pit bottom elevations of the north and south ends of the open pit are approximately 717 and 705 masl, respectively, and the crusher elevation is 865 masl. Surface rights cover a sufficient area to locate all the mining infrastructure required for the LOM, including waste management facilities (WMF), TSF, WSF, and processing plant.

The mining crew is composed of four teams, which alternate work over a six-day period, working eight-hour shifts. The operation runs 24 h/d, 365 d/a, which is common in Brazil.

Pit dewatering is carried out using in-pit sumps and perimeters wells.

In addition to recycled process water, the process plant relies on make-up water from a water storage dam and a well field. The WSF and water conservation measures should lessen or eliminate the impact of drier seasons on plant throughput.

Figure 16-1 shows the current site layout.

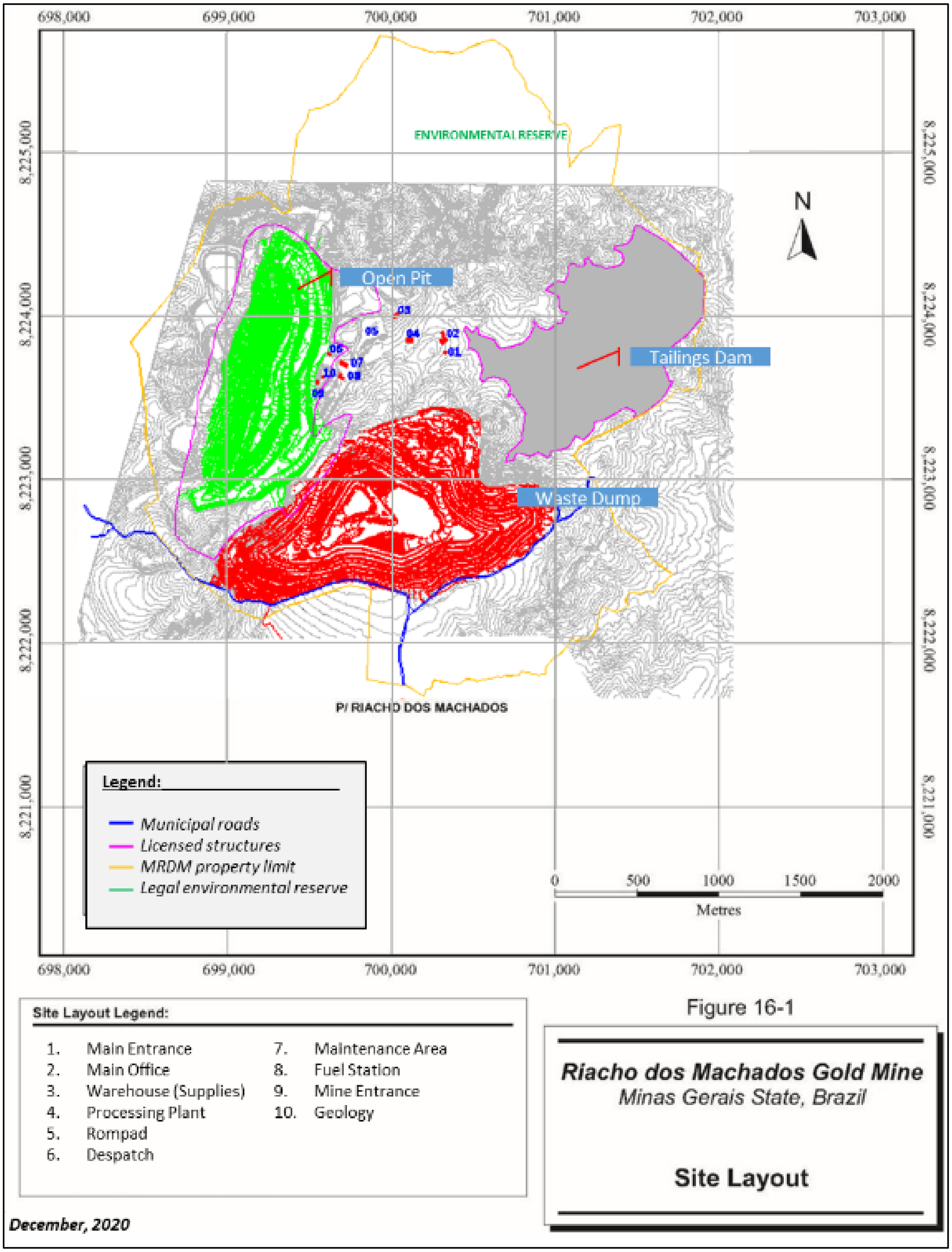


Figure 16-1: Site Layout

16.1 Mine Design

The mine design bench height is 12 m; however, mining occurs on 4 m lifts in waste and 3 m lifts in ore. Inter-ramp slopes follow geotechnical parameters defined by SRK and discuss in Section 16.2.

The final pit design is approximately 1,750 m long and 750 m wide, with elevations that range from 600 to 900 masl. Final pit exits for the south and north ramps are at approximately 860 masl. The crusher dump pocket is less than 500 m horizontal distance from the pit exit. Adequate buffers exist around the open pit for possible future expansion, for example if the gold price increases. Some condemnation holes have been drilled in the infrastructure and waste dump areas to ensure economical mineralization is not sterilized.

Figure 16-2 shows the ultimate pit and the extent of the current mining limit. MRDM received its License to Operate (LO) permit on June 9, 2015, which allows expansion of the open pit to the final design limits. The process of obtaining all the subsequent permits for the open pit, waste dumps, and tailings dam is ongoing. Figure 16-3 shows a plan map of the open pit excavation and waste dump.

Seven pit phases have been designed as a basis for the LOM production schedule (Phases 1 to 7). Table 16-1 summarizes the phased design inventory for the LOM production schedule and shows the amount of material and contained gold for each phase. The interim phases and the ultimate pits were designed based on the slope stability and pit dewatering recommendations.

Table 16-1: Mine Phases Inventory

Phase	Ore (Mt)	Au (g/t)	Contained Au (koz)	Waste (Mt)	Total (Mt)	Strip Ratio
1	1.302	1.04	43.710	8.979	10.281	6.902
2	0.239	0.99	7.576	3.975	4.214	16.62
3	1.123	1.09	39.448	6.068	7.192	5.40
4	2.182	1.08	76.070	21.348	23.530	9.78
5	3.450	0.76	83.821	16.518	19.968	4.79
6	3.951	1.00	127.535	21.237	25.188	5.37
7	3.979	1.22	155.601	34.288	38.267	8.62
Total	**16.277**	**1.02**	**533.761**	**112.414**	**128.641**	**6.93**

Note: The LOM includes approximately 1.326 Mt of existing stockpiles, which are not included in this phase design summary.

The cost of locating additional waste dumps closer to the open pit, which should reduce the overall unit mining cost, is under evaluation. The stockpiled low-grade material amounts to 1.326 Mt at 0.52 g/t Au which equates to approximately 22 koz Au as of December 31, 2020.

Figure 16-2 shows the final pit and waste dump design and Figure 16-3 the end 2020 topography.

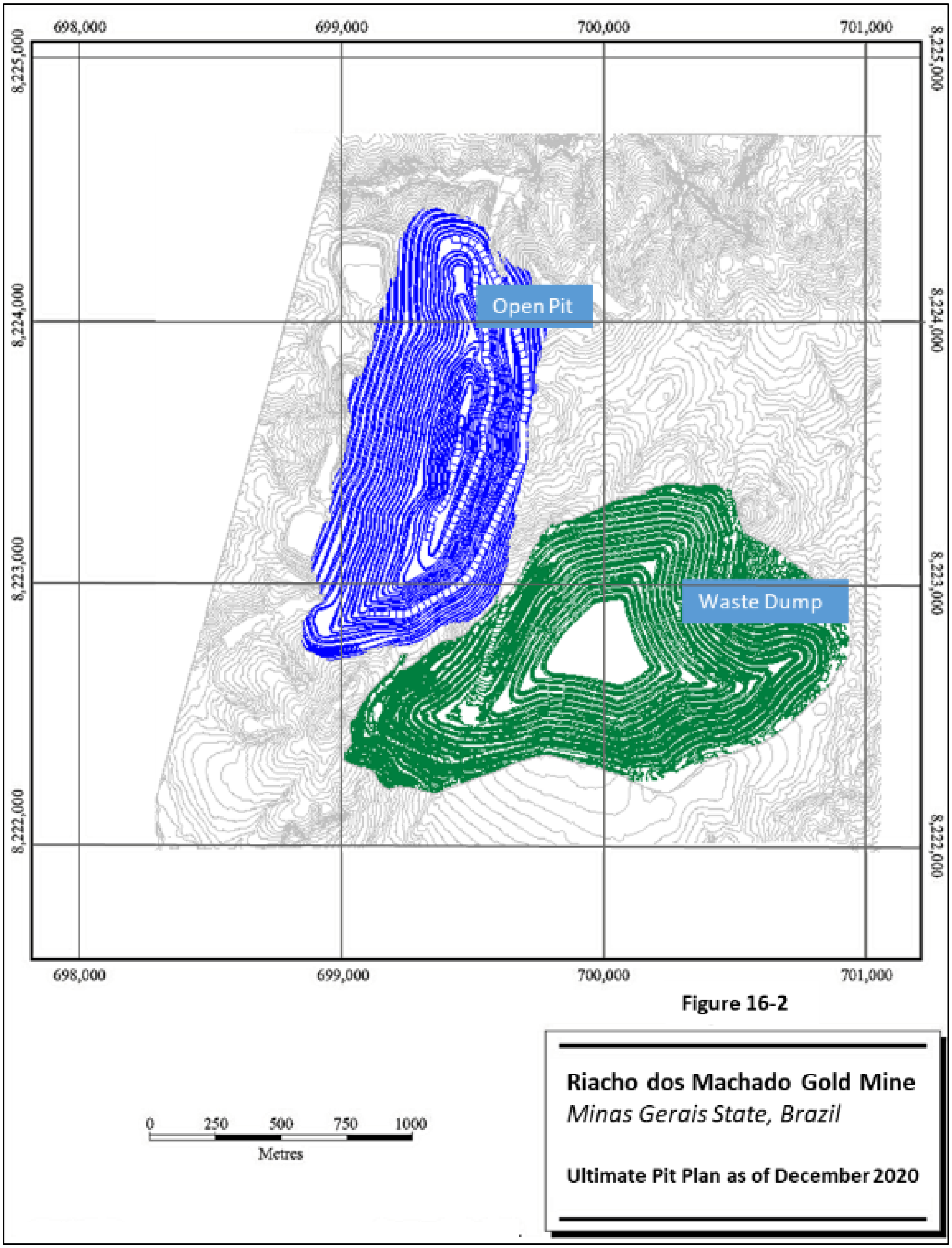


Figure 16-2: Ultimate Pit Plan

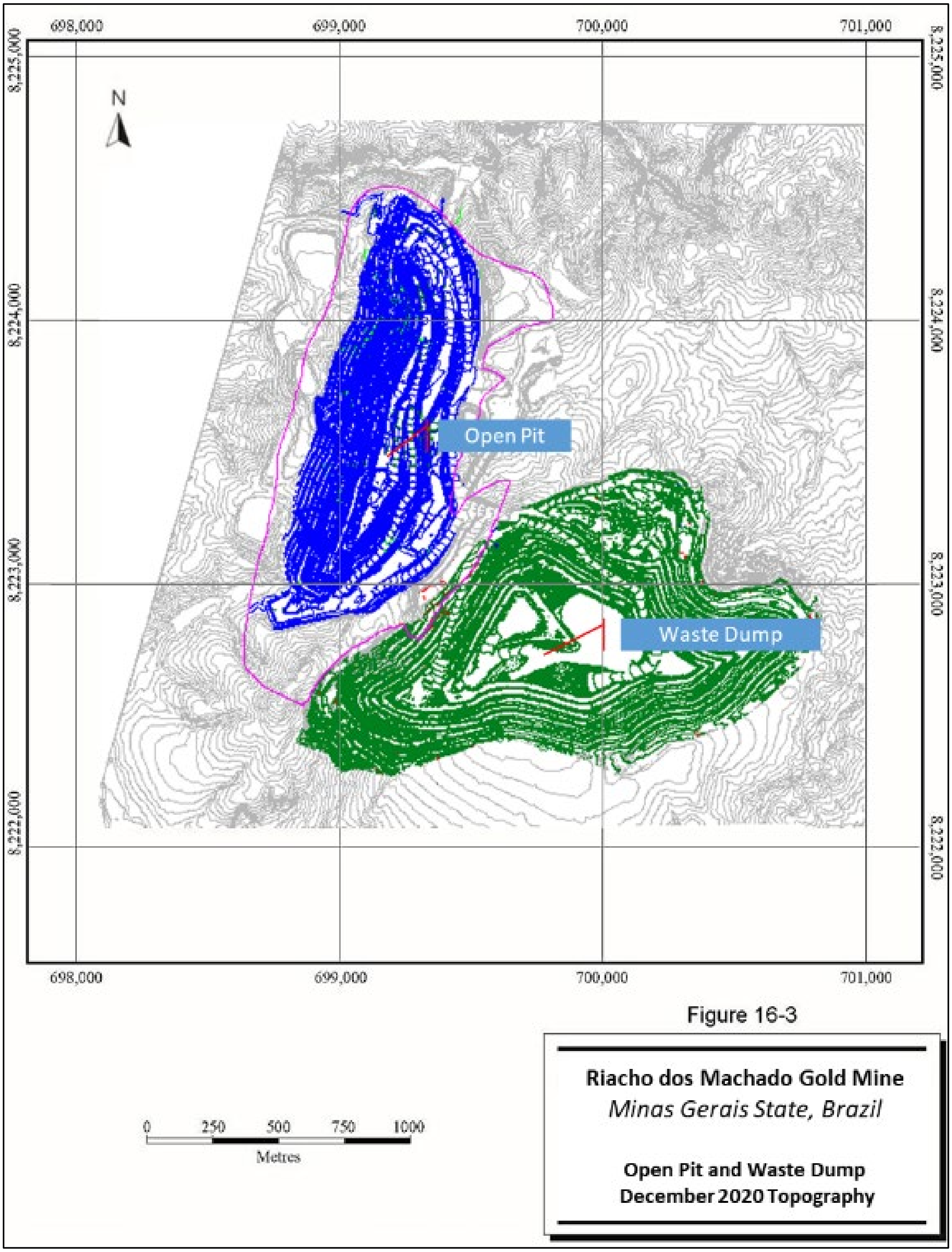


Figure 16-3: Open Pit and Waste Dump, December 2020 Topography

16.2 Geomechanics

Geotechnical designs are based on the work of SRK (Hormazabal, 2020) and TEC 3 Geotecnia e Recursos Hídricos (Panitz et al., 2018), which estimated open pit and dump slopes. In 2018, TEC 3 Geotecnica e Recursos Hídricos developed a 3-D geomechanical model and evaluated the final pit design to assess its stability. In May 2020 SRK performed a slope stability analysis to provide the geotechnical design parameters for the RDM pit's hanging wall. 2-D numerical modelling was used to assess slope stability based on geotechnical and structural characterization.

Pit slopes are dependent on geological conditions. The major geological feature that impacts the pit slopes occurs in the footwall of the shear zone and is related to the flat-dipping foliation found in the muscovite schist.

Dewatering is required for future production. Most of the water that reports to the pit bottom is either from rainfall or water that intersects the contact of the Transition and Fresh Rock weathering domains. It has been estimated that approximately 40 m^3/h will need to be pumped from the open pit, which will be used for ore processing.

Table 16-2 shows recommended slope design parameters, based on SRK (Hormazabal, 2020) for Zones 01 to 08, and TEC 3 Geotecnia e Recursos Hídricos (Panitz et al., 2018) for Zones 9 and 10. The study was done based on phreatic (groundwater) conditions and seismicity

Table 16-2: Recommended Slope Design Parameters

Zone	Bench Face Angle (°)	Bench Height (m)	Berm Width at Toe (m)	Inter-Ramp Angle (°)
01	60	12	5.5	44
02	32	12	9	23
03	38	12	9	26
04	72	12	9	42
05	40	12	7	29
06	80	12	7	53
07	64	12	7	43
08	85	12	7	56
09	38	12	9	26
10	54	12	9	34

The pit slopes used in the mine design for material on the west side (footwall) of the pit are up to 60°, and hanging wall bench face angles are up to 85°. Operating practices can have an impact on pit slopes, and careful blasting practices will be required near the final pit slopes. Final pit slopes have begun to be established on the west side (footwall) of the pit. There is not much potential for increasing the ultimate pit slopes, based on field investigation and operational challenges.

Footwall pit slope construction will continue to challenge MRDM; bench failures can occur, given the oblique intersection of the fault structure with the major plane of foliation, footwall dip, and the large unsupported wedge blocks that are created by these structural conditions.

Waste dumps are contoured to final reclamation slopes as mining progresses.

16.3 Life-of-Mine Production Schedule

Bench-by-bench, monthly production schedules have been developed to identify ore types, waste removal, and stripping requirements. A lower stripping ratio will be realized in the later years. The granularity of the mine planning process is appropriate for this stage of production. The primary reason for this level of detail of the mine scheduling is the need to have accurate information for production and budgeting.

Stockpile balance as of December 31, 2020 totals approximately 1.326 Mt at a grade of 0.52 g/t Au.

The following cut-off grades were used to generate the LOM schedule:

- Full-grade ore: cut-off grade >0.33 g/t Au, Proven and Probable Mineral Reserves.
- Waste: cut-off grade <0.33 g/t Au.

MRDM generated a yearly production schedule (2021 to 2027) for the LOM. This considers the use of in-pit sumps and a pumping system sized according to regional rainfall. MRDM cannot extract groundwater until its hydrological plans and permits have been approved by the State of Minas Gerais Environmental Agency (Superintendências Regionais de Meio Ambiente [SUPRAM]). At present, MRDM can use only surface runoff that accumulates in areas such as the sump in the pit, the sump down-gradient of the waste storage facilities, and the sedimentation pond at Piranga Creek. For these areas, there are no pumping volume limits.

Table 16-3 and Table 16-4 show the mining and processing schedules for the LOM that are achievable with the projected mining fleets.

Table 16-3: LOM Mining Schedule

Year	Ore Mined (kt)	Gold Grade (g/t)	Contained Gold (koz)	Waste (Mt)	Total (Mt)	Strip Ratio	Re-Handle (Kt)
2021	1,757	0.98	55.5	24,175	25,932	13.76	1,123
2022	2,605	0.99	83.1	23,893	26,498	9.17	257
2023	2,865	0.89	82.1	22,365	25,229	7.81	0
2024	2,810	0.92	83.5	23,634	26,444	8.41	0
2025	2,880	1.00	92.9	14,977	17,857	5.20	0
2026	3,310	1.28	136.7	3,369	6,680	1.02	0
2027	0	0	0	0	0	0	0
LOM Total	**16,277**	**1.02**	**533.8**	**112,414**	**128,641**	**6.93**	**1,380**

Year	Ore Mined (kt)	Gold Grade (g/t)	Contained Gold (koz)	Waste (Mt)	Total (Mt)	Strip Ratio	Re-Handle (Kt)
Initial Stockpile	1,326	0.52	22.2				

Table 16-4: LOM Processing Schedule

Year	Ore Milled (kt)	Gold Grade (g/t)	Contained Gold (koz)	Recovery (%)	Recovered Gold (koz)
2021	2,826	0.81	73.5	87	64.0
2022	2,862	0.95	87.4	87	76.0
2023	2,865	0.89	82.1	87	71.5
2024	2,810	0.92	83.5	87	72.6
2025	2,880	1.00	92.9	87	80.8
2026	2,880	1.30	120.4	87	104.7
2027	0,430	1.18	16.3	87	14.2
LOM Total	**17,553**	0.99	**556.0**	87	**483.8**

16.4 Mine Equipment and Mining Contractor

MRDM's loading fleet consists of Caterpillar 390, Hitachi 2500, and 1200 hydraulic excavators. Caterpillar 775, Caterpillar 777, and Komatsu 685 mechanical rear-dump trucks are used in the truck fleet. The drilling activities are undertaken by Atlas Copco flexiROC D65 (140 mm/5.5 in. diameter) diesel drill rigs.

A list of the major MRDM and contractor mining equipment currently on site is provided in Table 16-5.

Table 16-5: Major Mining Equipment List—December 31, 2020

No. of Units	Type	Make/Model
MRDM Existing Fleet		
2	Excavator	Caterpillar 390 DL
9	Off-road trucks	Caterpillar 775G
1	Dozer	Caterpillar D6T
1	Dozer	Caterpillar D9T
1	Motor grader	Caterpillar 14M
1	Motor grader	XCMG GR 215

No. of Units	Type	Make/Model
1	Drill rig (production)	Atlas Copco flexiROC D65
1	Drill rig (grade control)	Atlas Copco flexiROC D65
1	Water truck	FORD Cargo 3133
1	Water truck	XCMG NXG5650D3T
1	Dump truck	XCMG 50TFW11200010
1	Loader	XCMG LW 1200
1	Loader	XCMG LW 800K
1	Backhoe Excavator	XCMG XT870BR-I
1	Rock Breaker	EH04XCMG XE370BR
1	Excavator	EH05XCMG XE370BR

No. of Units	Type	Make/Model
Contractor Fleet		
2	Excavator	Hitachi 1200
2	Excavator	Hitachi 2500
9	Truck	Caterpillar 777F
10	Truck	Komatsu 685
3	Water Truck	Mercedes 4144
1	Water Truck	Volkswagen 31320
2	Track Dozer	Caterpillar D9T
3	Track Dozer	Caterpillar D8T
1	Motor Grader	Caterpillar 16-H
2	Motor Grader	Caterpillar 140-K
2	Blasthole Drill Rig	FlexROC D65
2	Blasthole Drill Rig	Atlas Copco DM 30

Excavator and truck availabilities are estimated to be 70% and 75%, respectively. Major rebuilds and replacement capital will be required for some of the mine equipment. Weather and elevation do not impact mining equipment productivities; however, severe rainfall may occur in the region.

Haul distances to the waste dumps and run-of-mine (ROM) ore stockpile at the crusher area are moderate (approximately 1.8 to 2.6 km) and were used to calculate truck numbers for the LOM. MRDM continues to evaluate alternate WMF locations to shorten haul distances potentially. However, alternative dump locations are limited, and the mining permit will require an amendment to modify WMF designs.

17 RECOVERY METHODS

17.1 Summary

CVRD began production at MRDM in early 1986 and operated through 1997 using the heap leaching method for the higher-grade oxide ore. The mine remained idle until 2012, when Carpathian Gold re-established the mine and the processing plant, adding a CIL process plant in 2013, commissioned at the end of 2014. The plant has operated since then, and the leaching circuit has been reconfigured to use 10 tanks, the first of which is pre-aeration; the other nine are CIL stages. The circuit was designed to process an average of 7,890 t/d (2.88 Mt/a), but based on operational experience has the potential to be expanded to produce up to 9,000 t/d (3.28 Mt/a) with limited capital, mainly expanding the tertiary crushing capacity.

17.2 Production Historical Data

Table 17-1 presents the key operating parameters and the performance indicators for the MRDM processing facility for 2019 and 2020.

Table 17-1: Processing Operating Parameters (2019 and 2020)

Operating Parameter Description	2019	2020
Ore Mined, Total (t/a)	2,458,895	2,610,407
Mill Production (t/a)	2,548,393	2,751,548
Production Rate (t/h)	343.2	314.0
Grinding Availability (%)	85.32	95.06
Grinding Utilization (%)	99.36	99.48
Grinding Product P_{80} (µm)	66.34	71.78
Gold Head Grade (g/t)	0.93	0.91
Overall Recovery (%)	82.2	85.8
Produced Gold (oz)	62,331	69,318
NaCN Consumption (g/t)	713	685
Grinding Media Consumption (g/t)	1,225	1,233
Lime Consumption (g/t)	1,267	912
Power (kWh/t)	29.19	32.12
Plant Unitary Operating Costs (US$/t)	10.66	9.01
Lead Nitrate (g/t)	0	29
Dissolved Oxygen (mg/L)	2.26	2.44
% Solids Leaching Feed	42.99	41.10
Carbon Concentration (g/L)	5.78	3.23

Production at MRDM is primarily affected by the ore blend, mine water supply, and plant availability. The 2020 performance was better than 2019, even though the mill feed rate was slightly lower—314 t/h versus 343 t/h. Nevertheless, the availability was higher, at 95%, which resulted in an annual production of 2.75 Mt/a compared with 2.55 Mt/a in 2019. The metallurgical recovery was 69 koz in 2020, 7 koz (3.5%) more than in the previous year.

17.3 Process Description

The overall process flowsheet consists of:

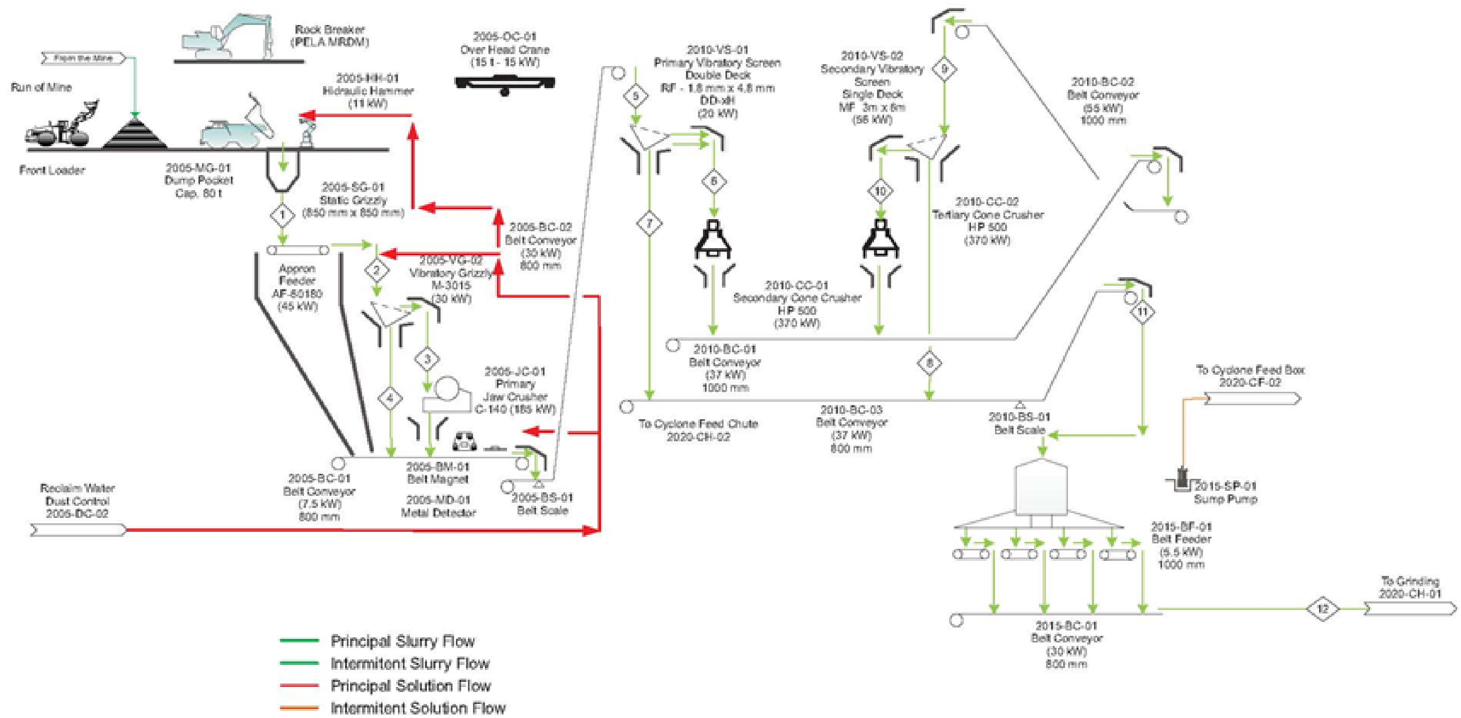
- Three-stage crushing circuit
- Ball mill grinding, in closed circuit with hydrocyclones
- Thickening to produce a leach feed of up to 39% solids
- CIL circuit
- Cyanide detoxification
- Zadra pressure stripping of the loaded carbon
- Electrowinning of the carbon eluent
- Casting of gold bars in an induction furnace.

17.3.1 Crushing

The crushing circuit flowsheet is shown in Figure 17-1. Briefly, the process entails dumping ore into a feed hopper from which a variable-speed apron feeder reclaims the ore onto a vibrating grizzly with openings set at 152 mm. The oversize from the grizzly feeds a Metso C140 primary jaw crusher with a closed side setting of 130 mm. The undersize from the grizzly is combined with the crushed product from the jaw crusher and fed onto a conveyor belt. The belt feeds the primary double-deck vibrating screen. The first deck opening is set at 56 mm; the second is set to 19 mm. The undersize (<19 mm) is conveyed to a fine-ore bin via conveyor belt; the oversize feeds a secondary Metso HP500 cone crusher with a closed side setting of 24 mm. The product from the secondary cone crusher is transferred to a secondary double-deck vibrating screen with openings set at 34 and 19 mm. The undersize from the secondary screen is conveyed to the same fine-ore bin. The oversize feeds a tertiary Metso HP500 cone crusher with a closed side setting of 13 mm. The product from the tertiary crusher returns to the feed of the secondary screen, thus operating the tertiary crusher in a closed circuit.

The nominal rate of the crushing circuit is designed to be 408 t/h. The plant can potentially be expanded to 475 t/h with the addition of another tertiary crusher and another tertiary screen.

The ore is reclaimed from the fine-ore bin by four feeders with a nominal rate capacity of 342 t/h. The ore from the fines bin can be fed to an emergency stockpile with a capacity of 10 kt. The emergency stockpile provides feed to the ball mill during crushing circuit shutdowns.



Flow Number		1	2	3	4	5	6	7	8	9	10	11	12
Solids	tph	364.6	364.6	209.3	155.3	364.6	336.2	28.3	336.2	649.0	312.7	364.6	310.3
Water	tph	19.2	19.2	11.0	18.2	19.2	17.7	1.5	17.7	35.4	17.7	19.2	16.3
Total Flow	tph	383.8	383.8	220.3	163.5	383.8	353.9	29.8	353.9	707.9	353.9	383.8	326.6
% Solids		95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Ore S.G.		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Slurry Density	t/m3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Total Flow	m3/h	213.2	213.2	122.4	90.8	213.2	196.6	16.6	196.6	393.3	196.6	213.2	181.5

Figure 17-1

Riacho dos Machados Gold Mine
Minas Gerais State, Brazil

Crushing Circuit Flowsheet

March 2020

Source: Carpathian Gold Inc., 2015.

Figure 17-1: Process Flowsheet—Crushing

17.3.2 Grinding

The grinding circuit flowsheet is shown in Figure 17-2. The crushed ore is transferred from the ore-storage bin to the ball mill feed conveyor. The water mixes with the ore in the ball mill feed chute and the hydrocyclone underflow feeds the ball mill through the feed chute, closing the circuit.

The mill has a diameter of 6.7 m and is 11.1 m long, with twin 4500 kW GE motors. After the power line was constructed, the steel load was increased from 19% to 27% (the current operational ball charge). The maximum steel ball charge is 33%.

The ground slurry passes through the trommel screens to remove ball chips. The ball mill BWi of open pit ores averages 17.4 kWh/t, and the ball consumption is in the range of 1,300 g/t. The ball mill operates at a slurry solids content of approximately 72%. The ground slurry is pumped to a battery of ten Weir Cavex 500 hydrocyclones. Nine hydrocyclones are operational, with one on standby, for spigot and vortex finder changes and to do maintenance. The hydrocyclones operate with an opening set at 90 mm diameter spigot and 140 mm diameter vortex finder. The hydrocyclone feed slurry density is controlled at approximately 40% solids, resulting in an overflow with 30% solids and a particle size distribution of P_{80} 74 µm (the objective is to achieve P_{80} 53 µm). The underflow solids content is approximately 75%.

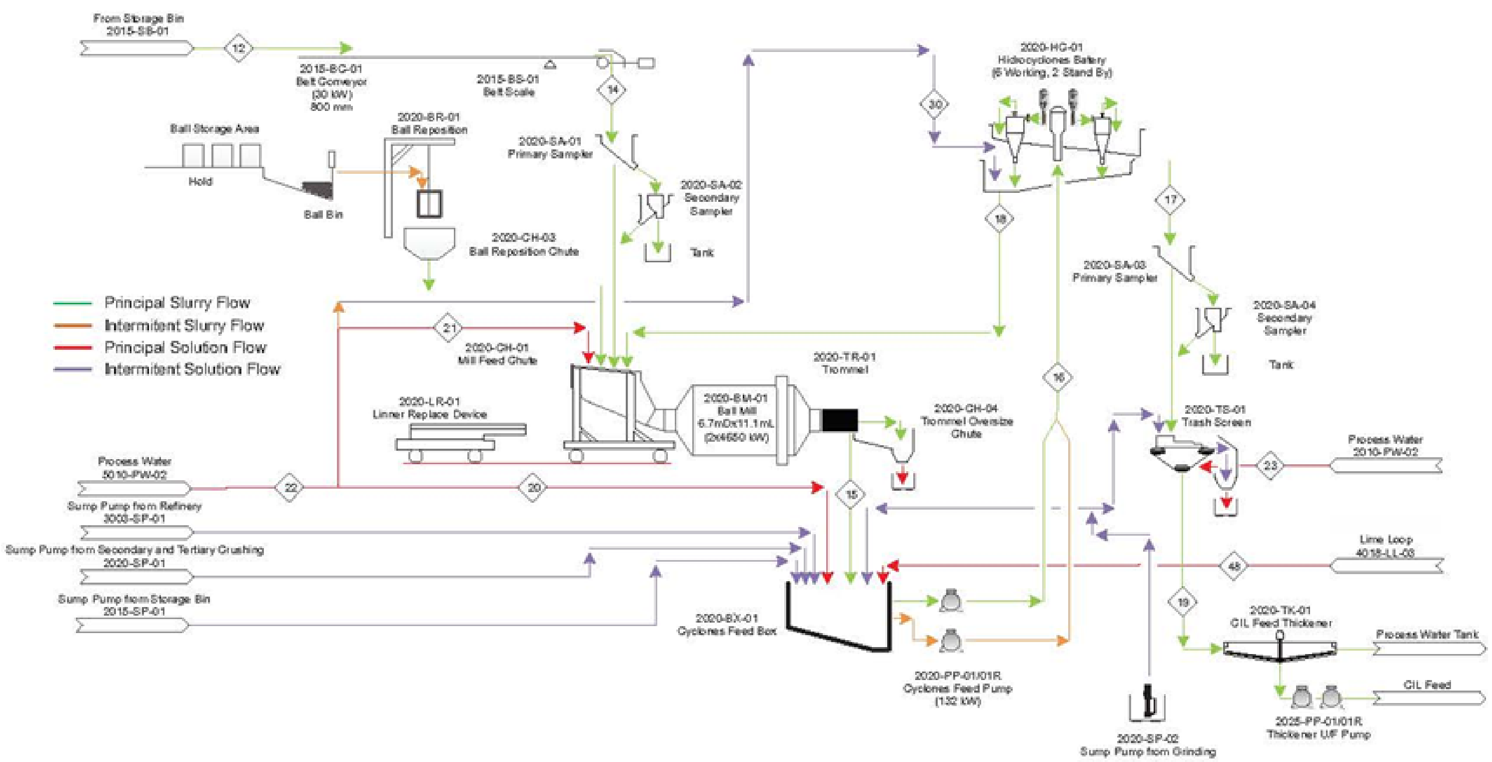
17.3.3 Thickening

The 30% solids hydrocyclone overflow gravity feeds a linear trash screen with the opening set at 0.8 mm to remove trash and impurities that come from the mine and milling circuit. The underflow from the trash screen feeds a 45 m diameter WesTech HiFlo thickener. Flocculant is currently dosed at 30 g/t in the feed box. The thickener currently achieves a maximum underflow density of approximately 39% solids (SG = 1,345 t/m^3), and the underflow pumps have a variable-speed motor. The underflow slurry is then pumped to the leaching feed box. The thickener overflow (water) flows to the process water pump box to be distributed to the processing facilities, mainly the grinding circuit.

17.3.4 Carbon in Leaching

The flowsheet for the CIL circuit is provided in Figure 17-3. The CIL tanks are fed with a volume of about 700 m^3/h. The circuit consists of 10 tanks in total; each holds 1,924 m^3 and is 13.5 m in diameter and 14.5 m high. The first tank is used as a pre-lime and pre-aeration tank.

A process improvement was made, adding 60 g/t of lead nitrate to avoid the preg-borrow effect as explained in Section 13. The pH is maintained from 9.8 to 10.2. Lime is added to increase the pH to 10.2. Oxygen is sparged into the tank by lances, and a slurry recirculation pump with a shear reactor installed in-line.



Flow Number		14	15	16	17	18	19	20	21	22	23	48
Solids	tph	310.3	1086	1086.0	310.3	775.7	310.3					0.62
Water	tph	16.3	465.4	1746.0	1413.5	332.4	1433.5	1280.5	116.6	1397.2	20.0	5.59
Total Flow	tph	326.6	1551.4	2832.0	1723.8	1108.2	1743.8					6.21
% Solids		95%	70%	38.3%	18%	70%	17.8%					10%
Ore S.G.		2.5	2.5	2.5	2.5	2.5	2.5					2.5
Slurry Density	t/m3	2326	1724	1299	121	1724	1120					1.06
Total Flow	m3/h	140.4	899.8	2180.4	1537.6	642.7	1557.6	1280.5	116.6	1397.2	20.0	5.83

Figure 17-2

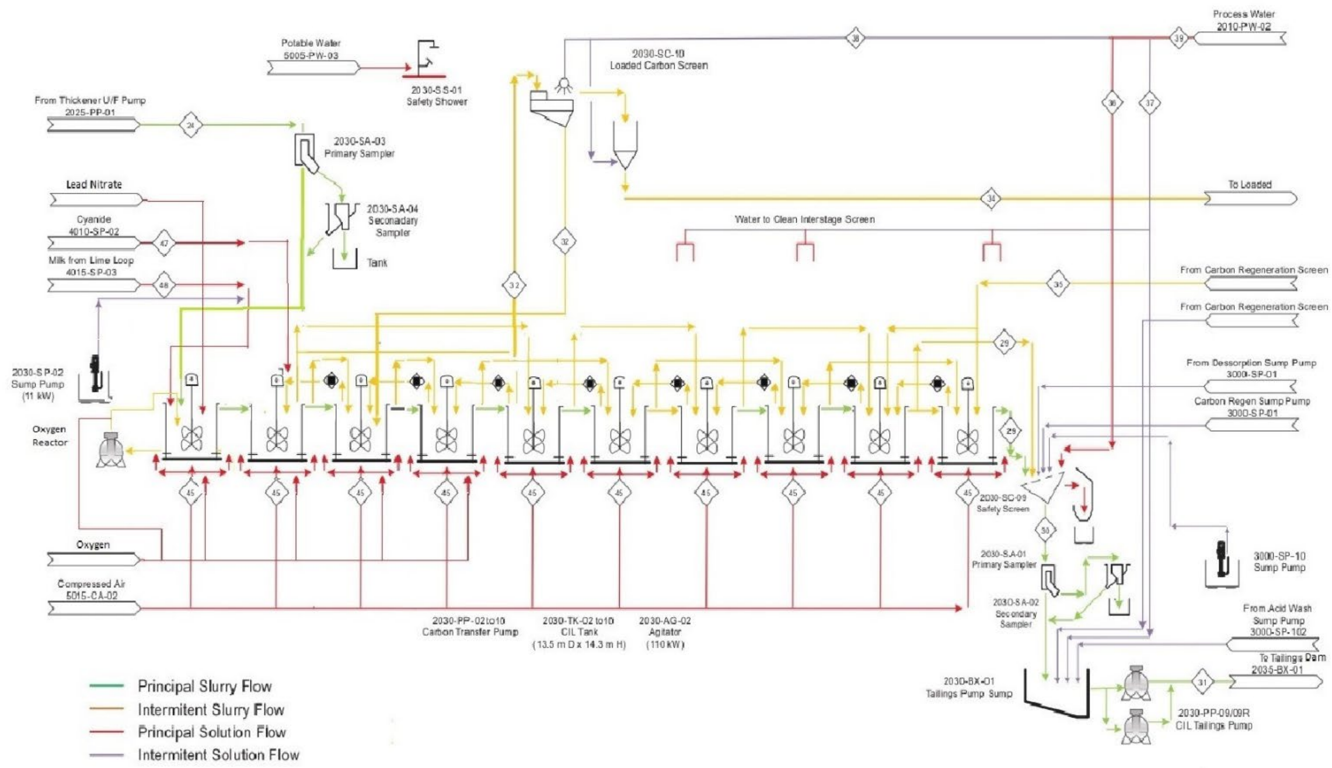
Riacho dos Machados Gold Mine
Minas Gerais State, Brazil

Grinding Circuit Flowsheet

March 2020

Source: Carpathian Gold Inc., 2015.

Figure 17-2: Process Flowsheet—Grinding and Thickening



Flow Number		24	28	29	30	31	32	33	34	35	36	37	38	39	45	46	101	102
Solids	tph	310.3	310.3	310.3	310.3	310.3	39.6	39.6	2.73	2.7							0.31	0.62
Water	tph	455.88	462.8	462.8	472.8	472.8	59.1	64.1	2.73	10.9	10	0	5	15	696	5568	1.41	5.59
Total Flow	tph	766.1	773.1	773.1	783.1	783.1	98.8	103.8	5.46	13.7								
% Solids		40.5%	40.1%	40.1%	39.6%	39.6%	40.1%	38.2%	50.0%	20.0%								
Ore S.G.		2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.3	1.3								
Slurry Density	t/m3	1321	1317	1317	1312	1312	1317	1297	1130	1048								
Total Flow	m3/h	580	587	587	597	597	75	80	4.8	13	10	0	5	15	696	5568	1.57	5.83

Figure 17-3

Riacho dos Machados Gold Mine

Minas Gerais State, Brazil

Carbon-In-Leach Circuit Flowsheet

Figure 17-3: Process Flowsheet—Leaching

Tank 1 is a pre-aeration tank where oxygen is added and final pH adjustments made. Lead nitrate is also added to Tank 1. Cyanide is added to Tank 2 at 300 ppm. The system of cyanide addition is controlled by an automatic TAC system. The TAC measures free cyanide online and sends information to a Programmable Logic Controller (PLC) to control the dosing pump's speed. The CIL proceeds from Tank 2 through Tank 10 (the last in the circuit) providing nine carbon stages. Activated carbon is added to Tank 10 to initiate the adsorption process, counter-current and upstream to the gravity flow of the slurry, which is downstream from Tank 1 through to Tank 10. The activated carbon is pumped upstream to each stage, ending at the final stage in Tank 2. From Tank 10 the slurry is transferred by gravity to the detox pump box.

Activated carbon has a grain size of 6 x 12# and is dosed at 30 g/t to replace the fines lost. The activated carbon concentration in the circuit varies from tank to tank, with the highest concentration in Tank 2, around 10 g/L, and the lowest concentration in Tank 10, around 1.1 g/L.

Loaded carbon is pumped from the first CIL tank to the loaded-carbon wash screens. The carbon is retained over the screen and transferred by gravity to the elution circuit for gold stripping and thermal regeneration at 700°C, while the screen-underflow slurry returns to the first CIL tank.

Since bringing Tanks 9 and 10 into the circuit, retention time is 27 h.

Process controls in the leaching circuit include analyzers for online pH and cyanide concentration measurements (i.e., the TAC).

17.3.5 Elution

The gold is eluted from the carbon using the pressure Zadra process. Each elution cycle treats 3.5 tons of loaded carbon in an 8 h cycle. The first step is acid washing, which removes base metals and scaling compounds such as calcium carbonates and sodium silicates. The carbon is added to a 3.5 ton-capacity acid wash column. The column is then filled with 8% hydrochloric acid solution and recirculated for 2.5 h. Fresh water is then added to displace the acid solution, wash it, and neutralize the carbon. Afterward, the carbon is pumped to the next column.

The second step of the process is desorption (or elution). After the washed, loaded carbon is transferred, a solution flows upward from the bottom, containing 0.5% sodium cyanide and 1.8% sodium hydroxide at a temperature of 140°C and a pressure of 360 kPa. The solution is circulated through the elution column for 8 h to elute the gold.

The pregnant solution is pumped to the electrowinning cells operating at a current density of 2.0 A/cm^2, and the gold is plated out on steel-wool cathodes. The barren solution is then pumped to the barren solution tank, where the cyanide and soda concentrations are adjusted. The barren solution is recirculated to the heat exchanger to raise the temperature back to 140°C.

The current elution recovery is 90%.

17.3.6 Electrowinning and Smelting

As discussed above, the pregnant solution is circulated through the electrowinning cells, and the gold in solution is plated out onto steel-wool cathodes. Once the cathodes are loaded, the cathodes are removed from the cells, washed, and the cathode sludge is added in an electric induction furnace at

1,200°C with fluxes, and smelted to produce gold doré bars. The doré bar typically contains 68% Au and ±15% Ag.

17.3.7 Carbon Regeneration

Currently, 70% of the barren carbon is reactivated in two horizontal kilns operating at 700°C; the other 30% returns to the leaching circuit without regeneration. The hot carbon exits the kiln, quenched in the absence of air in a quench tank and screened to remove carbon fines. The carbon is regenerated to around 60% of virgin carbon activity, then transferred to the CIL circuit to be reused. The combined capacity of the two kilns is about 400 kg/h.

17.3.8 Cyanide Detoxification

The final leaching tailings feed a pump box where ammonium bisulphite is dosed at 800 g/t to lower the cyanide from around 100 ppm to around 30 ppm.

The tailings are then pumped from the detox pump box to the TSF, where the detoxification occurs inside the pipe. The TSF is lined with a geomembrane to protect the environment from cyanide residue while it continues to be destroyed by solar radiation. The tailings from beaches and the clear solution percolate to a low-point collection area from which it is pumped back to the process water tank in the process plant. The water balance is managed to maintain water freeboard levels as low as possible.

Figure 17-4 presents the plant layout.

Figure 17-4: Plant Layout

18 PROJECT INFRASTRUCTURE

All the necessary infrastructure for the operation is in place, which includes, but is not limited to:

- Open pit mine
- Waste management facilities (WMF)
- Internal mine property roads
- Processing facilities
- Offices and support buildings
- Water wells
- Electrical power grid
- Access road
- Transportation and shipping facilities
- Communications
- Tailings storage facility (TSF)
- Water storage facility (WSF).

18.1 Power

Power consumption has been estimated to be approximately 12.9 MW. The site is currently connected to the national electrical grid. MRDM also has four diesel generators, with a production capacity of 6.4 MWh on stand-by as an alternative to the grid. There is a transmission line already in operation between the SE-Janauba-4 Substation (located in Janaúba), connecting the substation to MRDM's internal facilities (6016-SE-00). The project was completed in March 2019, allowing a 138 kV connection to the Sistema Interligado Nacional (SIN) with power purchased on the open market. With the establishment of the transmission line and substations MRDM reduced its operating costs and increased production capacity. The current power supply contract is for 12.9 MWh. The current supply contract is 12.9 MW, peak and off-peak hours, with the possibility of increasing demand to 15 MW if there is a need to expand and increase production capacity.

18.2 Water Balance

Due to the duration of the dry season that can be expected under the worst-case scenario, on a month-by-month analysis, a high priority for MRDM has been to understand the water balance and plan appropriately. In the past, production has been limited due to insufficient water supply. Optimizing all aspects of water usage in the processing plant is required to mitigate the risk to production.

Knight Piésold Pty Ltd (KP) was engaged by MRDM in 2015 to re-evaluate the mine's water balance. MRDM experienced a shortfall of approximately 1.5 Mm^3 for the 2014/2015 period due to reduced rainfall impacting plant production. Recommendations from KP in August 2015 were to improve collection of runoff entering the mine area, construct a purpose-built raw water supply dam, and procure water from external sources. According to the KP water balance, a water reservoir with a capacity of 3.0 to 4.0 Mm^3 is sufficient to allow for the operation of the plant at full capacity during two rainy seasons of drought.

Currently, water from the TSF and WSF and eight freshwater wells provide water to the MRDM mine site. The quantity of water that can be pumped from the wells is limited by permit. The permitted quantities of water that can be pumped from the water wells is shown in Table 18-1.

Table 18-1: Water Well Pumping Allowance

Wells	Months	Flow (m^3/h)	Hours/Day	Total (m^3/d)	Total (m^3/60 d)
13, 14, 15	Mar, Apr	37	14	518	31,080
11, 17	May, Jun	43	14	605	36,320
13, 14, 15	Jul, Aug	37	14	518	31,080
12, 16, 17	Sep, Oct	60	14	840	50,400
15	Jan to Dec	5.9	12	71.4	26,061 (365 days)

Make-up water required to run the operation is highly dependent on precipitation. Historically the average rainfall has been approximately 945 mm/a. Rainfall in a typical dry year is approximately 500 mm, and in a wet year approximately 1,300 mm. Rainfall is concentrated between October and April.

MRDM has secured permits for the water supply and pit dewatering wells; however, the wells are unable to compensate for drought conditions, since the total amount of water that can be drawn from all the wells combined is 18 m^3/h on average.

Based on the water balance, the mine will require 1,640 m^3/h of make-up water at the full processing capacity of 2.88 Mt/a (7,890 t/d). A breakdown of the water-supply components is provided in Table 18-2.

Table 18-2: Future Required Make-Up Water Sources Summary

Source	Water Demand (m^3/h)	Water Demand (%)
Thickener Overflow (Recycled/Reused)	1,099	67
Tailing Dam Recycle (Recycled/Reused)	394	24
Dewatering, Water Wells, Rain Water Collection Areas (Make-Up Water)	148	9
Total Demand	**1,640**	**100**

As shown in Table 18-2, the total amount of fresh make-up water required is approximately 148 m^3/h at full production of 2.88 Mt/a. Only a small amount of water is available from dewatering of the open pit mine, and less than 20 m^3/h is available from the wells. This leaves over 128 m^3/h that is required from rain collection and storage. A freshwater reservoir with a permitted capacity of 4.0 Mm^3 was completed in 2016 to store water collected during the rainy years and has been used in the dry years ever since.

It is anticipated that with the water storage reservoir and the increased power supply the production targets should be achievable.

18.3 Tailings Storage Facility

The current TSF is built to 833 masl with a raise scheduled to begin in July 2021. The current TSF project was sized for a Mineral Reserve of approximately 18.6 Mt; to achieve this, the TSF will be raised to 840 masl. The costs are included in the sustaining capital over the LOM. Detailed engineering for raising the TSF to 840 masl is under final review.

The estimated volume of each dam level is shown in Table 18-3.

Table 18-3: TSF Estimated Volume Increase and Total Volume for Each Metre of Increased Elevation

Elevation (masl)	Estimated Volume Increase per Metre of Increased Elevation (m^3)	Estimated Total Volume at Each New Elevation (m^3)
834	953,640.92	14,437,136.14
835	984,540.29	15,406,771.68
836	1,018,246.14	16,408,620.92
837	1,050,769.19	17,442,686.75
838	1,082,917.84	18,509,355.82
839	1,117,017.98	19,608,922.33
840	1,153,294.52	20,742,589.58

18.4 Water Storage Facility

The WSF is a 4.0 Mm^3 freshwater reservoir to store water collected during the rainy years. The WSF was built in 2016 to ensure a reliable source of water for MRDM operations. After its installation, in 2017 the environmental agency (SUPRAM) issued the authorization for its operation. The WSF has been used in the dry years since then.

19 MARKET STUDIES AND CONTRACTS

The principal commodity from the MRDM operation is gold, which is freely traded at prices that are widely known, so that prospects for sale of any production are virtually assured.

Equinox Gold's comments on terms of contracts, arrangements, rates, or charges are as follows:

- Mining—A contract with U&M Mineração e Construção S.A. is in place for contract mining of the waste material and a minor amount of the ore material. MRDM also performs all mining functions, except for loading of the blast holes. Megatorq supplies maintenance services to MRDM for the mining fleet.
- Concentrating—No concentrating contract is needed for MRDM material, since MRDM processes all ore.
- Smelting and Refining—Final commercial smelting and refining is completed off site.
- Sales, Hedging, Forward Sales—There are no hedging and forward sales contracts in place for the MRDM gold production.

In the QP's opinion, all major contracts are within industry norms.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental Studies

The Mine is in a remote and dry location, and vegetation and faunal compositions are critical habitats for many biodiversity resources. The general area of the Mine was previously disturbed by CVRD, which operated the Mine from 1989 to 1997. The mining operations will result in vegetation suppression over an area of approximately 362 ha.

As part of conditions of the environmental license, MRDM conducts environmental monitoring programs of surface water, groundwater, soil, fauna, and flora to closely monitor potential changes in the quality of these resources. Due to the previous mining activities and environmental liabilities, MRDM conducted supplementary baseline studies to assess groundwater, surface water, and soil quality before the start of operations. MRDM has ongoing reclamation programs and has set aside areas for biodiversity conservation.

20.2 Environmental Permitting History and Current Situation

CVRD put the Mine into production in 1989 and operated it until 1997. The Mine operations consisted of open pits and heap leach pads. The Mine remained idle from 1997 until October 2008, when Carpathian acquired the mineral rights and started prospecting and exploration. In 2009, Carpathian completed a PEA report, submitted it to ANM, and obtained approval to proceed.

As part of the environmental permitting process, Carpathian conducted environmental and social baseline studies to prepare an Environmental Impact Assessment (EIA) in accordance with the terms of reference as required by the regulatory agency, SUPRAM. Baseline studies included fauna, flora, soils, geology, archaeological sites and historical buildings, and social and economic conditions in the general area of the Mine. The EIA was submitted to the SUPRAM in October 2009, and the preliminary environmental license (Licença Preliminar [LP]) was granted in April 2010. Upon approval of the Plan of Environmental Control (Plano de Controle Ambiental - 'PCA'), the installation license (Licença de Instalação - 'LI') was issued in November 2011.

The Mine is unique in that it operated simultaneously under both an LI and a temporary operating licence (Licença de Operação - 'LO') that SUPRAM issued on December 3, 2013. On June 9, 2015, MRDM received the LO for the mine operations and groundwater wells from SUPRAM. The LO contains 50 conditions, including environmental and social monitoring plans, environmental compensations, and reclamation.

In 2013, the Mine received a notice of violation from the State of Minas Gerais Public Ministry (PM), a governmental agency that commonly brings charges against large projects during the permitting process (equivalent to the Attorney General in the United States). Following the notice of violation, MRDM signed a term of adjustment of conduct (TAC, or consent order) in July 2013. MRDM complied with the terms and conditions of the July 2013 TAC and, prior to issuing the LO in June 2015, MRDM signed an agreement with the PM that includes a total of 36 conditions, such as provisions for external audits of the Mine and funds for environmental and social programs to be developed in coordination with local communities. As reported by MRDM, from the 36 conditions agreed with the PM, 16 have already been completed, and 17 are still ongoing.

On September 7, 2016, MRDM received both LP and LI to install a WSF to guarantee a reliable water source for the mining operations. After its installation, SUPRAM issued a temporary LO for the operation of the WSF on May 22, 2017.

On July 16, 2020, MRDM received the LO to continue the operation of the WSF (Rodeador Dam) valid for ten years, which contains 21 requirements, including environmental monitoring plans, compensation, and environmental recovery reports, in addition to socio-environmental actions for the community where MRDM operates.

The Mine currently operates under conditions of the permits and licences listed in Table 20-1. As of the date of this readdressed report, Equinox Gold has advised that all licences and permits are in good standing.

Table 20-1: MRDM Permitting Status

Licences and Permits	License Number	Issue Date	Expiration Date
Operation Licence—MRDM	007/2015	06/09/2015	06/09/2019(1)
Preliminary and Installation Licence—Water Dam	007/2016	09/13/2016	09/13/2020
Operation Licence—Water Dam	011/2020	07/16/2020	07/16/2030
Environmental Permit—Fuel Station 90 m³	5228/2020	11/27/2020	11/27/2030
Environmental Permit for Fauna Monitoring—Mine	102.001/2016	07/29/2016	06/09/2019(1)
Environmental Permit for Fauna Rescuing—Mine	102.002/2016	07/29/2016	06/09/2019(1)
Environmental Permit for Fauna Monitoring and Rescuing—Water Dam	102.080/2020	16/07/2020	16/07/2030
Environmental Permit for Fauna Monitoring and Rescuing—Water Dam	102.081/2020	16/07/2020	16/07/2030
Water Permit—New Water Dam	38465/2016	09/27/2016	09/13/2020
Water Permit—North Pit	934/2012	03/28/2012	03/28/2016(1)
Water Permit—South Pit	935/2012	03/28/2012	03/28/2016(1)
Water Permit—Groundwater well 03	3797/2011	12/22/2011	12/23/2015(1)
Water Permit—Groundwater well 07	3798/2011	12/22/2011	12/23/2015(1)
Water Permit—Groundwater well MRDM 15	3240/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Piranga 13	3243/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Piranga 14	3242/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Piranga 15	3239/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Mumbuca 11	3245/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Mumbuca 12	3244/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Mumbuca 16	3241/2017	09/28/2017	09/28/2022
Water Permit—Groundwater well Mumbuca 17	3246/2017	09/28/2017	09/28/2022

Notes: (1) Under Renewal.

MRDM operates in compliance with the requirements of the above-listed permits and authorizations. MRDM will also comply with other applicable regulations, such as physical integrity and stability of large structures (e.g., tailings dam, pit, waste rock piles, and stockpiles) that must be reported to ANM, and occupational health and safety performance indicators and plans that are submitted to the Ministry of Labour and Employment. MRDM will apply for permits for future expansions or changes in project design, as required by Brazilian regulations.

20.3 Other Environmental Issues

20.3.1 Power

The site is currently connected to the national electrical grid. MRDM also has four diesel generators, with a production capacity of 6.4 MWh on standby as an alternative to the grid. A transmission line is already in operation between the SE-Janauba-4 substation (located in Janaúba), connecting the substation to MRDM's internal facilities (6016-SE-00). The project was completed in March 2019, allowing a 138 kV connection to the SIN with power purchased on the open market.

20.3.2 Tailings Dam

The supervision of the tailings operation is the responsibility of ANM. Several legal regulations established the National Dam Safety Policy and Safety Information System, including the general criteria for risk categorization.

According to the National Dam register, MRDM's tailings dam has the following classification: (i) medium volume; (ii) low risk; and (iii) high potential damage associated. MRDM developed a Dam Safety Plan and an Emergency Action Plan (known by its acronym in Portuguese, PSB and PAEBM, respectively). Additionally, the technical team carries out safety inspections on a regular basis, and the inspection reports are registered in the PSB.

ANM carried out an inspection in March 2016 to assess the safety of MRDM's tailings dam. Several measures were necessary to guarantee its safe operations, including vegetating the tailings dam area to avoid erosion; review of the PSB, considering the hydrological studies that were used to define the water balance, among other information; and installing a scale to enable visual checks of the water level. As reported by MRDM, all actions required by ANM were implemented, and there are no pending actions related to the inspection report.

On June 29, 2021, ANM carried out another inspection assessing the tailings dam raise to 833 masl, safety factors and verified the twenty-four-seven robotic electronic monitoring system covering the dam walls and piezometers. All in compliance with the legislation.

20.3.3 Cyanide

Cyanide is transported to the site in a liquid form via trucks, and transferred to a tank in the process area. Unigel (or Proquigel Química), a company in the State of Bahia, manufactures the cyanide, which is transported to the site by Niquini Transportes Ltda and Transportadora Moscato, companies also from the State of Bahia. Both companies are certified. Efforts for complete alignment with the International Cyanide Management Code (ICMI) are ongoing, and emergency procedures related to the use of cyanide are described in MRDM's PAEM.

20.4 Historical Environmental Liabilities

Overall, historical environmental liabilities at the site have been related to acid rock drainage (ARD) and arsenic concentrations in water resources, and off-site runoff and sedimentation of nearby surface water bodies.

In 1999, two years after CVRD stopped operations at the Mine, CVRD reported evidence of ARD at the site. In 2001, CVRD contracted the services of an international consulting firm to assess the problem and to develop a remediation plan. From 2002 through 2004, CVRD conducted various remediation and reclamation activities. Since that time, there has been no evidence of ARD at the site, as shown by the results of the water analyses from the site monitoring points (Tecnomin, 2011).

In 2005, CVRD initiated a remediation project to treat arsenic-contaminated water that had accumulated in the shaft. In 2006, CVRD presented to SUPRAM a long-term monitoring plan, which was approved in March 2006.

In 2011, MRDM prepared a plan for managing and controlling ARD, which included several measures to control the generation of ARD, a stormwater drainage system, and semi-annual groundwater and surface water monitoring program.

In 2015, MRDM retained an external consultancy (Pimenta de Ávila Consultoria) to reassess the geochemical studies for the prediction of ARD from MRDM operations. The preliminary results showed a great reactivity of the materials, suggesting that the generation of ARD and/or leaching of metals can occur at the Mine. The results also highlighted the need to implement several actions to prevent ARD, such as:

- Field inspections to identify possible signs of acid drainage in the area
- Implementation of an additional program to characterize the materials that will be exploited in the mine, especially the ARD materials
- Revision of the mine closure plan, to include closing actions and associated costs for ARD management
- Modelling the future water quality of the pit lake (if a lake is formed at the closing).

In 2020, MRDM retained an external consultancy (HIDROGEO Engenharia e Gestão de Projetos) to reassess the geochemical studies for predicting ARD from MRDM operations. The main objective of HIDROGEO'S technical report is to evaluate the existing data regarding the generation potential of ARD, and to make suggestions for improving the geochemical program, as a basis for the environmental diagnosis of the potential for ARD and leaching of chemical elements at the MRDM.

As a condition of the environmental licence, MRDM will continue to monitor ground and surface water resources, and additional mitigation measures will be implemented should ARD be detected.

20.5 Environmental and Social Management System

MRDM has environmental and social staff, policies, and procedures required for compliance with Brazilian regulations; however, the company does not have an integrated Environmental and Social Management System (ESMS). Environmental monitoring data are compiled into an online system, CAL 4.0 by IUS Natura, which is an Integrated Management System certified as ISO 9001, 14001, and

18001. In addition, as a double-check, environmental monitoring data are compiled into an MS Excel spreadsheet and managed with external consultants' aid. MRDM plans to implement an integrated ESMS consistent with ISO 14001 requirements and obtain external certification by the end of 2022.

20.6 Social Aspects

MRDM's relations with local communities started in 2009 when the company initiated baseline studies and subsequently conducted formal (regulatory-driven) and informal meetings with directly and indirectly affected stakeholders. MRDM currently employs approximately 851 people, including direct employees and contractors, and the majority are from local communities and towns. MRDM conducts monthly meetings with local communities and coordinates with directly affected stakeholders regarding issues related to water resources. As part of TAC and environmental and social compensation programs defined in the LO, MRDM is continuing to develop social programs aligned with the communities' interests.

Socio-economic surveys with the residents in the vicinity of the operation are in the final phase for a subsequent evaluation and acquisition of the properties. The current dam legislation requires a reallocation for the residents within the TSF self-rescue zone.

20.7 Health and Safety Issues

The Mine has a small on-site health clinic, with an onsite doctor during the day (Monday to Friday) and one nurse and one technician per shift. The on-site fire brigade has approximately 73 trained members, and there is a brigade for each of the three shifts. MRDM has prepared plans and procedures for full compliance with the applicable Brazilian regulatory norms (NR) and expects to obtain full compliance within the next few years, together with implementing a management system consistent with ISO 45.000 that should be completed by the end of 2022.

20.8 Mine Closure and Reclamation

The Closure Plan for MRDM will follow the directions given by ANM in terms of what is requested in the Plano de Aproveitamento Econômico (Economic Exploitation Plan). This also incorporates the recommendations of the Reclamation Plan presented in the EIA and PCA.

The closure plan contains:

- Characterization of the remaining Mineral Reserves
- Plan for demobilizing installations and equipment
- Updating the topographic map with the definition of the recovered mined areas, tailings dam, waste dumps, and other remaining installations
- Identification and remediation of liabilities
- Environmental monitoring plans relative to slope stability, potentiometer levels, surface water and groundwater quality, revegetation, and wildlife
- Future uses of the area, according to reclamation plans
- Physical and financial schedule of the closure works.

The costs estimated for mine closure are presented in Table 20-2 for Years 2020 to 2034.

Table 20-2: Estimated Closure Costs

Area	Cost (US$ 000s)
Studies Management	346
Open Pit	39
Waste Dump	73
Tailings Dam	6,802
Industrial Plant	1,727
Support Areas	7
Environmental Monitoring	747
Total	**9,741**

Note: Assumes an exchange rate of R$4.75 = US$1.00

New legislation demands an updated Closure Plan to be submitted to ANM up to June 30, 2022.

21 CAPITAL AND OPERATING COSTS

21.1 Capital Costs

The total remaining LOM capital is estimated to be US$94.4 million over a six-year mine life (2021 to 2027). In addition, closure and reclamation costs are estimated to be approximately US$9.741 million (Table 21-1).

Exclusions from the capital cost estimate include, but are not limited to, the following:

- Project financing and interest charges
- Sunk costs
- Costs of fluctuations in exchange rates.

Table 21-1: Summary of Total Capital Costs

Category	LOM Total (US$ 000s)
Infrastructure and Equipment	20,476
Properties and Land Acquisition	1,263
Capitalized Stripping	27,998
Tailings Dam	19,003
Subtotal Sustaining	***68,740***
Capitalized Stripping	25,611
Others	-
Subtotal Non-Sustaining	***25,611***
Total LOM Capital	**94,353**
Reclamation	9,741

Note: R$4.75:US$1 exchange rate.

The summary of the overall LOM costs, excluding the finance costs, is shown in Table 21-2.

Table 21-2: LOM Capital Cost Summary by Year

Category (US$ 000s)	2021	2022	2023	2024	2025	2026	2027–2032
Infrastructure and Equipment	4,881	5,053	463	5,807	3,570	702	0
Properties and Land Acquisition	1,263	0	0	0	0	0	0
Capitalized Stripping	0	13,023	5,668	9,308	0	0	0
Tailings Dam	7,846	5,158	6,000	0	0	0	0
Subtotal Sustaining	***13,990***	***23,234***	***12,131***	***15,115***	***3,570***	***702***	***0***
Capitalized Stripping	25,611	0	0	0	0	0	0
Subtotal Non-Sustaining	***25,611***	***0***	***0***	***0***	***0***	***0***	***0***
Total LOM Capital	**39,601**	**23,234**	**12,131**	**15,115**	**3,570**	**702**	**0**
Reclamation	97	24	30	183	65	4,009	5,332

Notes: **1.** Mining ends in 2026; processing ends in 2027; reclamation and closure continue to 2032.
2. Capital costs at R$4.75:US$1 exchange rate.

21.1.1 Closure Costs

The allowance included for the reclamation and closure cost is R$35,32 million, or approximately US$9.741 million.

21.2 Operating Costs

A summary of the operating costs over the LOM is shown in Table 21-3, estimated based on expected consumption rates and prices, and contractual agreements. LOM mining costs are reported to be US$2.27/t of total material (considering the mining and rehandling and grade control cost). Processing costs are estimated to be US$10.38/t milled for the LOM.

Table 21-3: Summary of LOM Operating Costs

Year	Mining Cost (US$/t moved)	Mining Cost (US$/t milled)	Processing Cost (US$/t milled)	Rehandling & Grade Control Cost (US$/t milled)	Mine Site G&A–Fixed (US$/t milled)	Total Cost (US$/t milled)
2021	1.82	19.47	9.71	0.34	2.98	32.50
2022	1.85	19.95	10.36	0.34	3.12	33.78
2023	1.91	19.51	10.54	0.34	3.25	33.64
2024	1.89	20.68	10.50	0.34	2.70	34.22
2025	2.01	14.25	10.59	0.34	2.55	27.73
2026	2.70	6.70	10.46	0.34	2.55	20.05
2027	-	-	11.20	-	6.84	18.06

Notes: R$4.75:US$1 exchange rate.

The processing unit costs are in line with historical performance, and consider processing inputs adjustments to achieve a better metallurgical recovery; as the plant throughput increases and the grind size improves, the unit operating costs are expected to decrease. Historical unit operating costs are summarized in Table 21-4.

Table 21-4: Summary of 2018–2020 Historical Operating Costs

Year	Recovery (%)	Mine (US$/t moved)	Mine (US$/t feed)	Plant (US$/t feed)	G&A (US$/t feed)	Total Costs (US$/t feed)
2018	82	2.08	20.35	14.21	3.25	37.81
2019	86	2.66	22.19	8.91	2.95	34.04
2020	86	1.76	15.15	9.01	2.13	26.30

21.2.1 Labour Force

Current labour force levels for the operation are listed in

Table 21-5; these numbers are expected to remain constant for the LOM.

Table 21-5: Summary of MRDM 2021 Labour Force Levels

Location	Total Quantity
Permanent Full-Time Employees	404
Third-Party Contractors	421
Total	**825**
Employees on Leave	14

22 ECONOMIC ANALYSIS

Under NI 43-101 rules, "producing issuers" (as that term is defined in NI 43-101) may exclude the information required for Section 22 on properties currently in production, unless the Technical Report includes a material expansion of current production. Equinox Gold is a producing issuer, MRDM is currently in production, and a material expansion is not being planned. Equinox Gold has performed an economic analysis of MRDM using the estimates presented in this Technical Report and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

23 ADJACENT PROPERTIES

There are no adjacent properties to report in this section.

24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

25 INTERPRETATION AND CONCLUSIONS

Based on reviews of the Mine documentation and discussions with MRDM personnel, the QPs have the following conclusions.

25.1 Geology and Mineral Resources

- The Mineral Resource estimate herein has an effective date of December 31, 2020. The QP has reviewed the Mineral Resource statement and is of the opinion that the parameters, assumptions and methodology used are appropriate for the style of mineralization.
- Mineral Resources were prepared in accordance with the Canadian Institute of Mining (2014) Definitions Standards.
- The geological model is reasonably well understood and is well supported by field observations in both outcrop and drill intersections.
- Interpretations of the geology and the 3-D wireframes of the estimation domains derived from these interpretations are reasonable.
- 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 for interlaboratory checks, standards, blanks, and duplicates.
- The resource model has been prepared using appropriate methodology and assumptions. These parameters include:
  - Treatment of high assays
  - Compositing length
  - Search parameters
  - Bulk density
  - Grade estimate validation
  - Cut-off grade
  - Classification.
- The block model has been validated using a reasonable level of rigour consistent with standard industry practice.
- Definition drilling laterally along strike to the north and south directions will likely result in the upgrading of Inferred Mineral Resources to the Indicated category. Down-dip underground potential has only been drilled to a limited extent and requires further drilling.
- Exploration potential at the Mine, and in the surrounding property, is expected to be relatively high. Potential exists laterally along strike both north and south of the existing pit, and potential exists for additional down-dip resources that may be amenable to underground mining.

25.2 Mining and Mineral Reserves

- The economic assumptions and methodology used for the Mineral Reserves estimate are appropriate.
- Proven and Probable Mineral Reserves for the Mine, as of December 31, 2020, total 17.6 Mt grading 0.99 g/t Au andcontain 556 koz gold.
- The bench height is 12 m; however, mining will occur on 4 m lifts in waste and 3 m lifts in ore. The average mining rate is planned to be approximately 70 kt/d of ore and waste as part of the LOM plan, including ore production of up to 7,890 t/d (2.88 Mt/a).
- All systems (safety, geological control, mining, processing, administration and environmental) have been implemented for mining at the MRDM pit and are operating efficiently.
- Mineral Reserves are restricted to the MRDM pit which is composed of the north, central and south areas.
- Mining of the RDM pit began in 2012 with limited pre-stripping. Mill production started in March 2014, and the mine and mill have been operating since then. The current estimated mine life is approximately seven years of processing and six years of mining.
- The LOM mining and processing schedules do not include Inferred Mineral Resources. Upgrading the Inferred Mineral Resources to a higher category may potentially increase the mine life.
- MRDM personnel perform mining for ore, and a contractor mines waste material.
- Dewatering and slope stability represent the most significant risks to the mining area; however, there does not appear to be any reason for concern at this tim in QP's opinione.

25.3 Mineral Processing and Metallurgical Testing

- The main operational restrictions of MRDM's plant since 2018 have been the lack of available water and electrical grid power; these issues were solved in 2020.
- Currently, MRDM operates through the distribution power lines from supplier CEMIG, and there is no longer the need for diesel generators; this allowed the plant throughput to be increased from 290 t/h to 342 t/h.
- MRDM was given an original metallurgical recovery prediction of 91% at a particle size fraction of P_{80} 53 µm. However, MRDM operates at around P_{80} 106 µm and to achieve 87% recovery at this granulometry, a series of process improvements were implemented in 2019 and 2020. The measured improvement in the metallurgical recovery is approximately 9%, beyond the better processing stability.
- MRDM changed the oxygen system in late 2020 and early 2021. This new system increased the dissolved oxygen to approximately 11 mg/L; the work resulted in an increase in recovery of 3% and the stabilization of the process.
- The grinding mill was aligned after consulting with Metso, which has increased the capacity from 342 to 365t/h. With additional improvements there is room to increase the ball charge to 33% and achieve P80 53 µm.

25.4 Infrastructure

- The Mine site is currently connected to the national electrical grid (operated by CEMIG). MRDM also has four diesel generators on standby as an alternative to the grid, with a capacity of 6.4 MWh. With the establishment of the transmission line and substations, MRDM reduced its operating costs and increased production capacity. The current power supply contract is for 12.9 MWh. The current demand contract is 12.9 MW, peak and off-peak hours, with the possibility of increasing demand to 15.0 MW if there is a need to expand and increase production capacity.
- The Mine is susceptible to drought. According to the KP water balance, a water reservoir with a capacity of 3.0 to 4.0 Mm^3 is sufficient to allow for plant operation at full capacity during two rainy seasons' drought. Based on the water balance, the Mine will require 1,640.13 m^3/h of make-up water at the full processing capacity of 2.88 Mt/a (7,890 t/d). A freshwater reservoir with a capacity of 4.0 Mm^3 was completed in 2016 to store water collected during the rainy years, and has been used in the dry years ever since. Currently, water from the TSF and WSF and eight freshwater wells provide water to the MRDM mine site. The quantity of water that can be pumped from the wells is limited by permit.
- Most of the workers reside in small towns within 20 km of the site are transported to the Mine by commercially operated buses. MRDM provides subsidies for transportation in accordance with the law that governs the "Vale-Transporte," whose monthly costs cannot exceed 6% of the worker's salary.
- The Mine is in an easily accessible area in Minas Gerais in Brazil at elevations that range from approximately 770 to 900 masl. The driving distance to the Mine from Belo Horizonte is 560 km, which takes from nine to eleven hours on the existing roads. The nearest commercial airport is in Montes Claros, approximately 145 km from the mine site.
- The nearest major hospital is in Montes Claros (145 km away); however, the city of Riacho dos Machados (15 km away) has a health clinic. A contractor provides the medical staff. The clinic includes two onsite nurses and one doctor who works four hours per day and is on call during his off-site hours.

25.5 Environmental, Social, and Permitting Considerations

- The Mine is a conventional CIL operation incorporating environmental mitigation into daily operations (i.e., water mitigation, concurrent reclamation/closure design).
- No outstanding environmental and permitting technical issues were identified. As of the date of this report, Equinox Gold has advised that all licenses and permits are in good standing. Historical acid rock drainage (ARD) issues and high concentrations of arsenic in ground and surface water need to be closely monitored to prevent off-site contamination of water resources. In 2020, MRDM retained an external consultancy (HIDROGEO Engenharia e Gestão de Projetos) to reassess the geochemical studies to predict ARD from MRDM operations. As a condition of the environmental license, MRDM will continue to monitor ground and surface water resources, and additional mitigation measures will be implemented should ARD be detected. MRDM has the necessary in-country permits and licenses to operate in compliance with Brazilian regulations. Additional permits will be obtained, as needed, to accommodate the future Mine operations.

25.6 Capital and Operating Costs

- The most recent capital and operating cost estimates have been updated to reflect the current plan for the Mine and current prices. Most of the capital and operating cost estimates were completed in Brazilian Real (R$) and converted using 4.75 to 1.0 (R$:US$) exchange rate.

26 RECOMMENDATIONS

The QPs make the following recommendations as discussed below.

26.1 Geology and Mineral Resources

- Carry out additional drilling to upgrade Inferred Mineral Resources at the northern and southern Mine extensions.
- Increase the number of density measurements to better characterize the density spatially.
- Undertake a preliminary economic assessment study to better assess the Riacho dos Machados Underground Mineral Resources.
- Conduct drilling and geological interpretive work along strike both north and south of the deposit to increase the Mineral Resources for the Mine. Potential exists for additional down-dip resources that may be amenable to underground mining.

26.2 Mining and Mineral Reserves

- Fully implement pre-split drill holes at final pit walls.
- Develop a combined pit optimization and stockpile strategy to define better pushback shapes.
- Implement mine-to-mill concept to improve loading and hauling productivities and associated gains in the plant throughput.
- Continue with the assessment of footwall stability to maintain the safety of continuing works.

26.3 Mineral Processing and Metallurgical Testing

- Implement routine chemical analyses of sulphur and arsenic to predict the required process' changes better.
- Analyze the particle size distribution of the blasted ore to improve the F_{80} of the grinding mill.
- Increase the steel load to 33% in the grinding mill to improve the P_{80}.
- Engange a milling consultant for grinding diagnosis to improve grindability and throughput.
- Increase thickener underflow density for residence-time gain.
- Carry out geometallurgy of the north pit ore to develop process routes to mitigate the impact of high sulphur and arsenic minerals in the plant.

26.4 Infrastructure

- Continue with wells research program to mitigate drought risk.

26.5 Environmental, Social, and Permitting Considerations

- Complete the implementation of the integrated management system for environmental licenses and its requirements, avoiding control and monitoring through several spreadsheets and different files.
- Update the Mine Closure Plan in accordance with the new LOM.
- Complete the process of removing residents from the area surrounding the mine operation, known as Piranga, and residents from the self-rescue zone under the TSF influence.

26.6 Capital and Operating Costs

- Re-evaluate the mining cost, focusing on better usage of worked hours and costs, cycle times, powder factor, and maintenance, as well as rebuild and replacement costs, slope stability, and workforce.

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28 DATE AND SIGNATURE PAGE

This report titled *NI 43-101 Technical Report on the Riacho dos Machados Gold Mine, Minas Gerais, Brazil* dated October 22, 2021 with an effective date of December 31, 2020 was prepared and signed by the following authors:

	Original Signed and Sealed
Dated at Belo Horizonte, Minas Gerais	***Felipe M. Araújo, MAusIMM (CP)***
October 22, 2021	*Principal Geologist – Brazil*
	Equinox Gold Corp.
	Original Signed and Sealed
Dated at Belo Horizonte, Minas Gerais	***Tiãozito V. Cardoso, MBA, FAusIMM***
October 22, 2021	*Technical Services Director – Brazil*
	Equinox Gold Corp.
	Original Signed and Sealed
Dated at Belo Horizonte, Minas Gerais	***Gunter C. Lipper, M.Sc., FAusIMM***
October 22, 2021	*Principal Metallurgist – Brazil*
	Equinox Gold Corp.
	Original Signed and Sealed
Dated at Belo Horizonte, Minas Gerais	***César A. Torresini, FAusIMM***
October 22, 2021	*VP Public Affairs and Permitting – Brazil*
	Equinox Gold Corp.

29 CERTIFICATE OF QUALIFIED PERSON

29.1 Felipe M. Araújo, MAusIMM(CP)

I, Felipe M. Araújo, MAusIMM(CP), as an author of this report titled *NI 43-101 Technical Report on the Riacho dos Machados Gold Mine, Minas Gerais, Brazil* (the Technical Report) with an effective date of December 31, 2020, prepared for Equinox Gold Corp. (the Issuer) on October 22, 2021, do hereby certify that:

- I am Principal Geologist—Brazil of the Issuer, with an office at Rua Antônio de Albuquerque, 300, 13º andar, Funcionários, Belo Horizonte, Minas Gerais.
- I am a graduate of Federal University of Bahia State, Brazil in 2005, with a B.Sc. degree in Geology.
- I am registered as a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy, Registered Member #318862. I have worked as a geologist for a total of 16 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Mineral Resource estimation and preparation of NI 43-101 Technical Reports.
  - Mineral Resource and Reserve estimation, due diligence, corporate review and audit on exploration projects and mining operations worldwide.
  - Mineral Resources Manager, with Yamana Gold Inc., Lundin Mining Corp., and Equinox Gold Corp., responsible for mineral resource evaluation and reporting for gold, copper, and silver projects in Brazil, Argentina, and Chile.
- 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.
- I have visited Riacho dos Machados mine several times, most recently from June 28 to July 2, 2021.
- I am responsible for Sections 4 to 12, and 14 of the Technical Report, and the related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
- I am not independent of the Issuer. I am a full-time employee of the Issuer.
- I have had no prior involvement with the property that is the subject of the Technical Report.
- I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections for which I am responsible in the Technical Report contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 22nd day of October 2021.

Original Signed and Sealed

Felipe M. Araújo, MAusIMM(CP)
Principal Geologist—Brazil

29.2 Tiãozito V. Cardoso, MBA, FAusIMM

I, Tiãozito V. Cardoso, MBA, FAusIMM, as an author of this report titled *NI 43-101 Technical Report on the Riacho dos Machados Gold Mine, Minas Gerais, Brazil* (the Technical Report) with an effective date of December 31, 2020, prepared for Equinox Gold Corp. on October 22, 2021, do hereby certify that:

- I am Technical Services Director—Brazil of the Issuer, with an office at Rua Antônio de Albuquerque, 300, 13º andar, Funcionários, Belo Horizonte, Minas Gerais.
- I am a graduate of the Federal University of Minas Gerais, with a B.Sc. degree in Mining Engineering in 2003, and Instituto de Educação Tecnológica, with an MBA in Project and Business Management in 2010.
- I am registered as a Fellow of the Australasian Institute of Mining and Metallurgy, Registered Member #324858. I have worked as a mining engineer for a total of 18 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Technical Services Director—Equinox Gold Corp., in Brazil.
  - Technical Services Manager—Nexa Resources, zinc and lead, in Brazil.
  - Corporate Senior Mine Planning Engineer—Vale, phosphate and potash, in Brazil and Perú.
  - Geology and Mine Planning Manager—MMX, iron, in Brazil.
  - Mine Planning Coordinator—Intercement, limestone, in Brazil.
  - Mining Consultant—Gemcom, several commodities, in Brazil.
  - Mining Consultant—Maptek, several commodities, in Brazil, Chile and Colombia.
  - Mine Operations Engineer—Vale, copper, in Brazil.
- 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.
- I have visited Riacho dos Machados mine several times, most recently from June 23 to 24, 2021.
- I am responsible for Sections 2, 3, 15, 16, 18, 19, 21, 22, 23, and 24 of the Technical Report, and the related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
- I am not independent of the Issuer. I am a full-time employee of the Issuer.
- I have had no prior involvement with the property that is the subject of the Technical Report.
- I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections for which I am responsible in the Technical Report contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 22nd day of October 2021.

Original Signed and Sealed

Tiãozito V. Cardoso, MBA, FAusIMM

Technical Services Director—Brazil

29.3 Gunter C. Lipper, M.Sc., FAusIMM

I, Gunter C. Lipper, M.Sc., FAusIMM, as an author of this report titled *NI 43-101 Technical Report on the Riacho dos Machados Gold Mine, Minas Gerais, Brazil* (Technical Report) with an effective date of December 31, 2020, prepared for Equinox Gold Corp. on October 22, 2021, do hereby certify that:

- I am Principal Metallurgist—Brazil of the Issuer, with an office at Rua Antônio de Albuquerque, 300, 13º andar, Funcionários, Belo Horizonte, Minas Gerais.
- I am a graduate of the Federal University of Ouro Preto, with a B.Sc. degree in Mining Engineering in 2000 and Federal University of Minas Gerais, with a M.Sc. degree in Metallurgical Engineering in 2013.
- I am registered as a Fellow of the Australasian Institute of Mining and Metallurgy, Registered Member #3000172. I have worked as a metallurgist for a total of 21 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Principal Metallurgist—Equinox Gold Corp., in Brazil.
  - Technology Manager—Mineração Rio do Norte, in Brazil.
  - Process Coordinator—Yamana Gold Inc., in Brazil.
  - Plant Manager—Gerdau, in Brazil.
  - Master Metallurgist Engineer—Vale, in Brazil.
  - Business Development Manager—Consultant on numerous development and production mining projects—Outotec, in United States of America.
- 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.
- I have visited Riacho dos Machados mine several times, most recently on May 17 to 21, 2021.
- I am responsible for Sections 13, 17 and 21 of the Technical Report, and the related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
- I am not independent of the Issuer. I am a full-time employee of the Issuer.
- I have had no prior involvement with the property that is the subject of the Technical Report.
- I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections for which I am responsible in the Technical Report contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 22nd day of October 2021.

Original Signed and Sealed

Gunter C. Lipper, M.Sc., FAusIMM
Principal Metallurgist—Brazil

29.4 César A. Torresini, FAusIMM

I, César A. Torresini, FAusIMM, as an author of this report titled *NI 43-101 Technical Report on the Riacho dos Machados Gold Mine, Minas Gerais, Brazil* (Technical Report) with an effective date of December 31, 2020, prepared for Equinox Gold Corp. on October 22, 2021, do hereby certify that:

- I am VP Public Affairs and Permitting—Brazil of the Issuer, with an office at Rua Antônio de Albuquerque, 300, 13º andar, Funcionários, Belo Horizonte, Minas Gerais.
- I am a graduate of the University of Vale do Rio dos Sinos—Rio Grande do Sul, Brazil, with a B.Sc. degree in Geology in 1984.
- I am registered as a Fellow of the Australasian Institute of Mining and Metallurgy, Registered Member #3003552. I have worked in the mining industry for a total of 35 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Strong regulatory and community relations skills, with a good record of accomplishment in obtaining permits.
  - Aurizona Gold Mine—Equinox Gold Brazil
  - El Gigante Gold Proyect—AUX Colombia
  - Tucano Mine—Beadell Resources Brazil
  - Amapari Gold Mine—Goldcorp Brazil
- 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.
- I have visited Riacho dos Machados mine several times, most recently on May 20, 2021.
- I am responsible for Section 20 and 21 of the Technical Report, and the related disclosure in Sections 1, 25, 26, and 27 of the Technical Report.
- I am not independent of the Issuer. I am a full-time employee of the Issuer.
- I have had no prior involvement with the property that is the subject of the Technical Report.
- I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections for which I am responsible in the Technical Report contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 22nd day of October 2021.

Original Signed and Sealed

César A. Torresini, FAusIMM

VP Public Affairs and Permitting—Brazil