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Mineral Resource and Mineral Reserve Estimate of the NX Gold Mine, Nova Xavantina

Mato Grosso, Brazil

Report Prepared For:

Ero Copper Corp.
1050 - 625 Howe Street
Vancouver, BC V6C 2T6 Canada

Authors and Qualified Persons:

Porfírio Cabaleiro Rodriguez, MAIG
Leonardo Apparicio da Silva, MAIG
Leonardo de Moraes Soares, MAIG

GE21 Consultoria Mineral

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The effective date of this report is August 31, 2018. The issue date of this report is January 21, 2019. See Appendix A for certificates of Qualified Persons, as such term is defined under National Instrument NI 43-101, Standards of Disclosure for Mineral Projects ("NI 43-101")

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1.0. EXECUTIVE SUMMARY

1.1. Introduction

The purpose of this report (the "Report" or "Technical Report") is to set out and provide background and supporting information on the current Mineral Resources and Mineral Reserves for the NX Gold Mine (as defined below), a producing underground gold mining operation located in the State of Mato Grosso Brazil and wholly-owned by NX Gold S.A. ("NX Gold", "NX", or the "Company"), a company formed under the laws of Brazil. This Report has been prepared by GE21 Consultoria Mineral Ltda. ("GE21") on behalf of Ero Copper Corp. ("Ero Copper") of Vancouver, Canada and existing under the British Columbia *Business Corporations Act*.

Ero Copper is a publicly listed company that trades on the Toronto Stock Exchange under the ticker, "ERO". Ero Copper's principal asset is its 99.6% ownership interest in Mineração Caraíba S.A. ("MCSA"). MCSA's predominant activity is the production and sale of copper concentrate from the Vale do Curaçá Property, which is located within the Curaçá Valley, northeastern Bahia State, Brazil, with gold and silver produced and sold as by-products. Ero Copper also currently owns, directly and indirectly (through MCSA) a 97.6% ownership interest in NX Gold.

The NX Gold Mine was constructed and commenced commercial production in 2012, with the first full year of production occurring in 2013. As of the end of June 2018, approximately 166,000 troy ounces (herein referred to as "oz" or "ounces") of gold had been produced from the NX Gold Mine. Subsequent to the effective date of this Report, full year 2018 production totaled 39,808 ounces of gold and 24,573 ounces of silver produced as a by-product. As of the date of this Report, there are currently 5 drill rigs operating on the property. Exploration activities are underway on the central Santo Antônio exploration target as well as extensions of the Brás and Buracão orebodies to depth and along strike. Additional drill testing of exploration targets located east of the Buracão orebody is planned for 2019.

Doré bars containing gold and silver, as well as lesser amounts of lead, are shipped from the mine weekly by airplane via a gravel airstrip located on the property. Ore is currently produced from two adjacent high-grade, north-dipping and east-west striking, shear-zone hosted, quartz vein orebodies called Brás and Buracão, accessed from a single mine portal and decline.

This Report and estimates herein have been prepared following the guidelines of the Canadian Securities Administrators' National Instrument 43-101 – *Standard of Disclosure for Mineral Projects* ("NI 43-101").

The Report provides a summary of the work completed by NX Gold and its independent consultants as of the effective date of this Report, August 31, 2018 (the "Effective Date"). All dollar amounts presented in the Report are stated in US dollars unless otherwise specified.

1.2. Property Description

NX Gold owns a 100% interest in the NX Gold Mine, located in the eastern portion of the State of Mato Grosso, Brazil. The mine is located 18km west of the town of Nova

Xavantina, with a population of approximately 20,000 people, and approximately 670 km east of Cuiabá, the capital city of Mato Grosso. The total NX Gold Mine property, including exploration concessions, measures 31,716.2 hectares ("ha"). The property is comprised of one mining concession, where all current mining and processing activities occur (registration number 866269/1990), that totals 620 ha and eight exploration licenses covering an area of 31,096.2 ha. Within the mining concession, NX Gold holds 100% legal and beneficial ownership, including surface rights. There are no time constraints provisioned with the mining concessions; however, operating permits and licenses are extended and renewed in normal course of business according to the nature of each permit and requirements therein. All relevant licenses and operational permits in support of the mine's operation are in good standing.

Within the exploration concessions, NX Gold's interests include the right to access the property and to engage in exploration, development, processing, and construction activities in support of mineral exploration and development. Where applicable, compensation is provided to the holder of surface rights for occupation or loss caused by the work. All exploration concessions are currently valid and, for those concessions where expiration dates are approaching, applications are expected to be submitted for renewal at the time of expiry.

Table 1. NX Gold Mining and Exploration Concessions

DNPM Process Number	Area (ha)	DNPM Status	Holder	Expiration
866269/1990	620.00	Mining Concession	NX Gold	-
866120/2013	17.87	Exploration Concession	NX Gold	January 2020
866015/2014	7,098.54	Exploration Concession	NX Gold	December 2018
866013/2014	9,559.75	Exploration Concession	NX Gold	December 2018
866559/2015	4,571.90	Exploration Concession	NX Gold	March 2019
866320/2017	43.99	Exploration Concession	NX Gold	September 2019
866685/2014	9,325.20	Exploration Concession	NX Gold	October 2020
866207/2018	84.73	Exploration Concession	NX Gold	July 2021
866208/2018	394.17	Exploration Concession	NX Gold	July 2021
Total Hectares:	**31,716.15**			

1.3. Geology & Mineralization

Gold and silver mineralization at the NX Gold Mine can be characterized as a shear-zone hosted, sulphide-rich, laminated quartz vein. Economic mineralization on the property, to date, has been hosted within the northeast trending Araés shear zone that cross-cuts the deformed and metamorphosed volcano-sedimentary sequence of the Proterozoic Cuiabá Group and is generally associated with felsic dikes.

Economic gold and silver mineralization at the NX Gold Mine is structurally controlled within the Araés shear zone. Gold and silver is currently mined from two major sulphide-rich, laminated quartz veins dipping approximately 40 degrees to the north-northwest and striking to the west-southwest – the Brás and Buracão veins. Vein dimensions are variable throughout the deposit, with an average thickness of 4 meters. Local occurrences of up to 10 meters in vein thickness are common. Where gold and silver grades are found in economic concentrations, the veins typically contain approximately 2 to 15 percent total sulphide represented mostly by pyrite and galena, as well as minor chalcopyrite, bornite, pyrrhotite, and sphalerite. Higher gold and silver grades are generally associated with galena, chalcopyrite, bornite, and sphalerite.

1.4. Exploration

The occurrence of gold in the Araés shear zone has been known for over 80 years. Although limited information exists, extensive artisanal ("garimpeiro") mining activity has occurred in open pit and in underground operations prior to the formalization of the mine concessions in 1990. Between 1985 and 2004 two companies, Mineração Araés and Mineração Nova Xavantina, conducted geological and metallurgical studies, geological mapping and a total of 2,306 meters of drilling in 8 diamond drill holes. In 2004, MCSA acquired the mineral and surface rights for the property. Between 2006 and 2012, MCSA drilled a total of 41,135 meters in 204 surface diamond drill holes. In 2013, the property was transferred to NX Gold, a subsidiary of MSCA. Between 2013 and 2015, NX Gold drilled a total of 27,822 meters in 104 surface diamond drill holes and a total of 9,427 meters in 107 underground diamond drill holes. In December of 2016, MCSA (and its interest in NX Gold) was acquired by Ero Copper.

Other exploration activities undertaken from 2013 to 2015 included regional geological mapping, soil sampling and a 1,969 line-kilometer airborne magnetic survey completed in 2013.

In 2018, prior to the Effective Date of this Report and in support of the current mineral resource and reserve estimate, NX Gold drilled a total of 3,324 meters in 7 surface diamond drill holes. The drilling followed standard industry procedures including measuring core recovery, rock quality design (RQD), taking photos of the core boxes, geological logging of the core, sampling, and assaying. The Company inserts a series of certified reference material, blanks, and laboratory duplicates in the stream of samples to verify the assay results as part of its quality assurance, quality control ("QA/QC") procedures.

Subsequent to the Effective Date, a total of 7 core drill rigs were mobilized to the property to undertake exploration drill programs focused on extending the mine's life by adding mineral reserves and mineral resources through exploration drilling. Priority exploration targets currently being drilled include the central Santo Antonio zone, down-dip extensions of the Brás and Buracão orebodies and newly identified exploration targets east of the Brás orebody.

1.5. Drilling, Sample Preparation, Analysis and Security

Several drill programs have been conducted at the NX Gold Mine. The bulk of the drilling occurred during the period from 2006 to 2012 when the property was held by MCSA, and then more recently by NX Gold. During the period from 2006 to 2012, approximately 43,000 meters of drilling in 236 drill holes was performed in support of moving the mine into commercial production. The global drill hole database at the NX Gold Mine includes 323 drill holes totaling 74,586 meters of surface drilling, and 139 drill holes totaling 11,322 meters of underground drilling.

Drilling and assaying undertaken in support of the current mineral resource and reserve estimate has been carried out using sampling, security and QA/QC procedures that are in line with industry best practices.

Beginning in 2015, a full QA/QC program meeting generally recognized industry best practices has been in use. Standardized procedures are used in all aspects of the exploration data acquisition and management including surveying, drilling, sampling, sample security, assaying, and database management.

QA/QC measures, as part of the routine core sampling procedures, use blank, standard and duplicate samples to allow verification of the fire assay results produced by the NX Gold laboratory. For the 2014 to 2018 drilling programs, control samples were inserted at the frequency of 1 gold certified reference, 1 blank sample and 1 duplicate pulp sample every 20 samples.

The authors of this Report performed an evaluation of the data used in the determination of the Company's Mineral Resource estimate and found the results to be in accordance with industry best practice and appropriate for use in the current Mineral Resource estimate.

1.6. Mineral Resources and Mineral Reserves Estimates

Mineral Resource

Block model tonnage and grade estimates for the NX Gold Mine were classified according to the Canadian Institute of Mining Definition Standards for Mineral Resources and Mineral Reserves (May 2014) (the "CIM Standards") by Sr. Porfirio Cabeleiro Rodriques and Sr. Leonardo de Moraes Soares, both Qualified Persons as such term is defined in NI 43-101. A gold cut-off grade of 1.40 grams per tonne ("gpt" or "g/t") was considered for Mineral Resources using cost parameters for similar sized underground mines operating in Brazil based on the experience of the Qualified Persons and peak gold price over the last 10 years. All block sizes used in the Mineral Resource estimate are 10 meters (x), by 10 meters (y), by 2 meters in height (z) with sub-blocks of 2.5 meters (x), by 2.5 meters (y), by 0.5 meters in height (z).

Both the Stock Work and Santo Antônio exploration targets have not been included in the current Mineral Resource and Mineral Reserve estimate due to lack of sample density as at the Effective Date.

Table 2. Mineral Resource Estimate

Deposit	Classification	Tonnes (kt)	Au (g/t)	Au (koz)
Brás Vein	Indicated	80.9	15.04	39.1
	Inferred	*39.6*	*18.96*	*24.1*
Buracão Vein	Indicated	4.8	30.39	4.7
	Inferred	*1.7*	*23.54*	*1.3*
Total	**Indicated**	**85.7**	**16.01**	**44.1**
	Inferred	***41.3***	***19.13***	***25.4***

1. Effective date of August 31, 2018.

2. Presented Mineral Resources inclusive of Mineral Reserves. All figures have been rounded to reflect the relative accuracy of the estimates. Summed amounts may not add due to rounding.
3. Cut-off gold grade of 1.40 g/t.
4. Mineral resource estimated by ordinary kriging inside 10m by 10m by 2m blocks (sub-blocks of 2.5m by 2.5m by 0.5m).

Mineral Reserves

The Mineral Reserve estimates for the NX Gold Mine were prepared in accordance with the guidelines of NI 43-101 and the CIM Standards by NX Gold Mine engineering personnel under the supervision of GE21.

It is the opinion of GE21 that the current Mineral Reserves for the underground operation have been estimated in a manner consistent with industry best practices, CIM Standards and NI 43-101 guidelines.

Table 3. Mineral Reserve Estimate

Deposit	Probable Reserves	Tonnage (kt)	Au Grade (g/t)	Au Total (koz)
Brás Vein	Planned Stopes	60.9	11.40	22.4
	Gallery Development	2.5	11.00	0.9
	Probable Reserves	**63.4**	**11.40**	**23.3**
Buracão Vein	Planned Stopes	1.9	13.80	0.8
	Gallery Development	0.5	6.60	1.1
	Probable Reserves	**2.4**	**12.30**	**1.9**
Total Probable Reserves		**65.8**	**11.40**	**25.2**

1. Effective date of August 31, 2018.
2. All figures have been rounded to reflect the relative accuracy of the estimates. Summed amounts may not add due to rounding.
3. Mineral Reserve cut-off gold grade of 3.2 g/t.
4. The Mineral Reserve estimates are prepared in accordance with the CIM Definition Standards, and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines, using geostatistical and/or classical methods, plus economic and mining parameters appropriate for the deposit. Mineral Reserves are based on a long-term gold price of US$1,250 per oz, and a USD:BRL foreign exchange rate of 3.20. Mineral Reserves are the economic portion of the Indicated Mineral Resources. Mineral Reserve estimates include mining dilution at 5% grading 0.5g/t Au and 7% grading 0.5g/t Au for the Brás and Buracão Veins, respectively. Practical mining shapes (wireframes) were designed using geological wireframes / mineral resource block models as a guide.
5. Assumes mining dilution of 5% grading 0.5g/t Au and 7% grading 0.5g/t Au for the Brás and Buracão Veins, respectively.
6. Mining recovery of 95%.

Other modifying factors considered in the determination of the Mineral Reserve estimate include:

- A cut-off grade of 3.2 g/t gold was applied in the determination of economic blocks within the Mineral Resource Estimate based on actual operating cost data and past operating performance of the mine.
- The mining method employed for the Brás and Buracão veins is overhand cut and fill, with backfill requirements generated from waste development.

- Maximum stope spans between sill pillars of 17m by 17m for the Buracão vein and 39m by 10m for the Brás vein based on geotechnical mapping, modeled rock quality and uniaxial compression (“UCS”) test results.

Additionally, GE21 presents the following accompanying comments to the Mineral Resource and Mineral Reserve estimate:

- NX Gold holds the surface rights and requisite permits required support the mining operation as outlined in the Mineral Reserve estimate. Future development beyond the stated Mineral Reserves may require the acquisition of additional surface rights.
- GE21 has not identified any known mining, metallurgical, infrastructure, permitting, legal, political, environmental or other relevant factors that could materially affect the development or extraction of the stated Mineral Reserves.
- GE21 has carried out the appropriate review to satisfy that the Mineral Reserve can be technically and profitably extracted. Consideration has been given to all technical areas of the operations, the associated capital and operating costs, and relevant factors including marketing, permitting, environmental, land use and social factors. GE21 is satisfied that technical and economic feasibility has been demonstrated.

1.7. Mining Methods

Underground mining operations (primary ramp development) at the NX Gold Mine started in 2009 with the opening of the main mine portal at level +300 (surface elevation). The current development of the underground mine reaches level -195 for the Brás vein and +43 Level for the Buracão vein. Ore above levels -115 and +61 for the Brás and Buracão veins, respectively, have been assumed to have been extracted for the purposes of the current Mineral Reserves and no sill pillar recovery is planned. Current operating depths are 450 meters and 250 meters below surface for the Brás and Buracão veins, respectively.

The mining method employed for the Brás and Buracão veins is overhand cut and fill, with backfill requirements generated from waste development. The application of this mining method has been in use since the start of the NX Gold Mine and is based on desired selectivity, geometry of the orebodies (both planned and previously mined) as well as the rock mechanic characteristics of the footwall and hanging wall. With only a few exceptions, all development occurs in the more competent footwall of the deposit. The geometries of the Brás and Buracão orebodies vary down plunge and along strike, but can broadly be described along the following:

Table 4: Brás and Buracão Average Orebody Dimensions

Vein	Dip (°)	Avg. Strike Length (m)	Avg. Thickness (m)
Brás	32 to 45	100	6.0
Buracão	32 to 40	70	2.5

The Brás vein is divided into vertical panels of approximately 64 meters on average with inter-level spacing of 14 meters, while the Buracão vein is divided into vertical panels of approximately 25 meters with inter-level spacing of 14 meters. Based on geotechnical studies, the maximum hydraulic radius adopted for inter-level spacing is 4 meters. Mining blocks are separated by pillars that average approximately 5 meters along strike and 5 meters down plunge.

On average, the mining method results in approximately 6,300 tonnes per month of waste, with stope backfilling requirements of approximately 4,000 tonnes per cut and fill cycle. Ore production currently averages approximately 4,000 tonnes per month for Brás and approximately 1,250 tonnes per month for Buracão. In its current configuration, the mine is capable of producing up to 120,000 tonnes of ore per annum.

1.8. Recovery Methods

The metallurgical process has been engineered and optimized to leach gold ores containing preg-robbing units capable of adsorbing gold from cyanide solutions, such as the carbonaceous phyllite unit that exists in the Brás and Buracão veins.

Metallurgical recoveries at the NX Gold Mine have been sequentially optimized since commissioning to recover gold and silver from the quartz vein orebodies containing carbonaceous phyllite (a preg-robbing unit found in the orebodies at the NX Gold Mine). This optimization work has resulted in recoveries increasing from approximately 40% in 2012 when the plant was commissioned, to current metallurgical recoveries of 91% (average from January through June 2018). Average feed grade to the plant is currently approximately 13 g/t gold and 22 g/t silver. 2018 Production from the NX Gold Mine to the effective date is shown below in Table 5.

Table 5: Nova Xavantina Plant Performance to Effective Date

	January 1st – August 31st, 2018
Mill Feed (000 tonnes)	66,859
Gold Grade (gpt Au)	13.65
Metallurgical Recovery (%)	91.4
Mass of Bullion (kg)	2,629
Au Production (oz)	**26,824**
Ag Production (oz)	**16,449**

Subsequent to the effective date of this Report, full year 2018 production totaled 39,808 ounces of gold and 24,573 ounces of silver produced as a by-product. The 2018 results were highlighted by 117,857 tonnes of ore grading 11.55 grams per tonne gold processed, resulting in the production of 39,808 ounces of gold after metallurgical recoveries that averaged 91.0% during the period.

Processing takes place at the Nova Xavantina Plant. Unit operations include a conventional 3 stage crush, milling and a combination of gravity concentration with intensive leaching and flotation followed by carbon in leach (“CIL”). Gold and silver are produced from solution via electrolysis followed by smelting of doré bars containing both gold and silver. The installed crushing and grinding capacity is approximately 80 tonnes per hour ("tph") and 44.5 tph, respectively, resulting in an installed annual plant capacity in excess of 300,000 tonnes per annum. The plant is currently operating at less than one-third of its installed capacity.

Based on the current mineral reserve estimate, the production plan for the Nova Xavantina Plant is set forth below in Table 6. As at the time of this Report, seven drill rigs were actively conducting exploration activities within in-mine exploration targets (Santo Antônio vein) as well as down-plunge extensions of Brás and Buracão. These programs are focused on increasing Mineral Reserves and Mineral Resources and extending mine life.

Table 6: Nova Xavantina Plant Production Plan

	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Total
Production (000 tonnes)	10,162	10,191	9,546	9,651	10,723	8,365	5,479	1,719	65,835
Gold Grade (gpt Au)	11.15	10.86	11.87	12.14	10.92	12.40	11.05	10.11	11.44
Metallurgical Recovery (%)	90.1	90.1	90.1	90.1	90.1	90.1	90.1	90.1	90.1
Mass of Bullion (kg)	218	235	226	218	218	235	226	218	1,792
Au Production (oz)	**3,279**	**3,202**	**3,279**	**3,389**	**3,389**	**3,002**	**1,751**	**503**	**21,794**
Ag Production (oz)	**1,748**	**1,888**	**1,818**	**1,748**	**1,399**	**1,510**	**1,454**	**1,399**	**12,965**

1.9. Project Infrastructure

The facilities at the NX Gold Mine include the mine portal, the Nova Xavantina Plant, tailings storage facility mechanical workshop, administrative offices, metallurgical laboratory, security gate and guard facilities, medical clinic, cafeteria and gravel airstrip used to fly out doré bars after production.

National electrical service is available on site from the town of Nova Xavantina, located approximately 18 km from the NX Gold Mine. Water in sufficient quantities to support mining and processing operations is sourced from surface run-off and a fully permitted groundwater well located on the property.

1.10. Permitting, Environment and Social Considerations

The NX Gold Mine is a fully permitted gold mine currently in operation. An environmental action program was developed for the Company prior to the mine reaching commercial production. The Company follows the guidelines set forth in the program to reduce its impact and recover impacted areas within the vicinity of the mine. NX Gold adheres to a program of frequent environmental monitoring including water quality control, as well as re-vegetation of historic artisanal mining areas that pre-date the Company.

The mine's closure plan, adapted to the current social and environmental context within the area of the NX Gold Mine, has been designed to maximize the physical, chemical, biological, and socio-economic stability of the area after mining activities have concluded. The current estimated reclamation liabilities are approximately $20.2 million Brazilian Real (“BRL” or “R$”).

NX Gold maintains an excellent relationship with the neighboring community of Nova Xavantina, as well as smaller neighboring land-owners, providing among others, community outreach, children’s educational programs and sponsorship of local sporting events and teams. The Company has provided technical and financial support towards the environmental rehabilitation of areas previously impacted by historic artisanal mining activities and has remained an important economic contributor to the region through both direct and indirect jobs, royalties and tax revenue.

1.11. Capital and Operating Costs

Capital and operating costs are shown for 2018 and 2019 reflecting the period of operation from September 2018 to April 2019. For the purposes of the Technical Report, mine reclamation and closure are assumed to commence on the conclusion of mining of the Mineral Reserves; however, the Company is actively undertaking exploration activities to increase the mine’s life. It is anticipated that a combination of Mineral Resource conversion, extension of the Brás and Buracão veins, and delineation of target areas will serve to augment the production profile and increase mine life subject to satisfactory exploration results, technical, economic, legal and environmental conditions.

Total capital costs are estimated at R$21.2 million, of which R$20.2 million is related to mine closure in 2019. Due to the nature of the production plan, as outlined by the current Mineral Reserve estimate, there are no capital requirements (development or ventilation) required to access the ore bodies nor any equipment needs; however, an investment of R$1.0 million over 2018 and 2019 is planned to refurbish the mine’s secondary escapeway.

Table 7: Forecast Capital Expenditures

Total Capital Expenditures		**2018**	**2019**
Secondary Escapeway	R$	800,000	200,000
Mine Closure	R$	0	20,218,405
Total	**R$**	**800,000**	**20,418,405**

An operating cost forecast was prepared using the mine’s operating history and current consumption coefficients. Mine and plant activities are subdivided and adjusted based on production allocation between Brás and Buracão as well as modeled plant head grade. The expected C1 Cash Cost of the NX Gold Mine averages US$594 per ounce of gold produced.

Table 8: Operating Cost Summary

		2018	**2019**	**Total**
Exchange Rate	US$/BRL	3.80	3.80	3.80
Ore Treated	tonnes	39,549	26,286	65,835
Gold Contained	**oz**	**13,150**	**8,644**	**21,794**

Operational Support	000 R$	3,488	4,070	7,558
Underground Mining	000 R$	12,786	11,810	24,596
Processing	000 R$	9,197	8,665	17,863
Sub Total	**000 R$**	**25,471**	**24,545**	**50,017**
Less Silver Credit	000 R$	(479)	(383)	(862)
Total	**000 R$**	**24,992**	**24,162**	**49,155**
C1 Cash Cost	**R$/oz**	**1,901**	**2,795**	**2,255**
C1 Cash Cost	**US$/oz**	**500**	**736**	**594**

1.12. Economic Analysis

An economic analysis was prepared for the NX Gold Mine using the following primary assumptions:

- Considers commencing on the Effective Date and does not include actual performance achieved prior to August 31, 2018
- Total ore processed of 65.8 thousand tonnes at an average head grade of 11.37 g/t gold
- Production is assumed to equal sales, with total sales of 21,794 ounces of gold and 12,965 ounces of silver
- Metal prices of US$1,250 per ounce of gold and US$17.50 per ounce of silver
- USD:BRL foreign exchange rate of 3.80
- No taxes payable over the production forecast as a result of accumulated net operating losses (“NOLs”) being applied against taxes payable
- CFEM royalty based on 1% of gross revenue

The NX Gold Mine produces an undiscounted after-tax cash flow of approximately R$31 million (approximately US$8.2 million) over the remainder of the production forecast of approximately 7.5 months.

The after-tax Net Present Value (“NPV”) at a 5% discount rate is US$8.1 million. Due to the relatively short mine life and limited up-front and ongoing capital requirements to achieve the stated production plan, the after-tax cash flow is similar to the NPV. As there is no meaningful capital required to achieve the production forecast and cash flows as outlined, internal rate of return (“IRR”) and payback are not meaningful measures. The results of the economic analysis are shown below in Table 9.

In addition, an after-tax sensitivity analysis was performed considering changes in gold price, foreign exchange rates, and capital and operating costs. The analysis shows that the NX Gold Mine is most sensitive to gold prices and foreign exchange rates.

Table 9: Economic Analysis of the NX Gold Mine

Assumptions		2018 [1]	2019
Exchange Rate	R$/US$	3.80	3.80
Gold Price	US$/oz	1,250	1,250
Production			
Ore Mined	tonnes	39,549	26,286
Gold Grade Mined	g/t	11.49	11.37
Ore Processed	tonnes	39,549	26,286
Gold Grade Processed	g/t	11.49	11.37
Global Recovery	%	90.0	90.0
Gold Contained	**oz**	**13,150**	**8,644**
Capex			
Total	**000 R$**	**800**	**20,418**
Operating Costs			
General & Administrative	000 R$	2,147	1,943
Operational Support	000 R$	3,488	4,070
Underground Mining	000 R$	12,786	11,810
Processing	000 R$	9,197	8,665
Sub Total	**000 R$**	**27,619**	**26,488**
Depreciation/Exhaustion	**000 R$**	**12,082**	**9,273**
Total Costs	**000 R$**	**39,701**	**35,762**
Revenue			
Gold Sales	tonnes	13,150	8,644
Gross Metal Revenue	000 R$	62,463	41,061
Total Net Metal Revenue	000 R$	62,312	41,030
Total Net Revenue	**000 R$**	**62,966**	**57,088**
Cash Flow			
Revenue	000 R$	62,966	57,088
Opex (ex-Depreciation & Exhaustion)	000 R$	(27,619)	(26,488)
Income & Social Contribution Taxes	000 R$	(6,465)	(819)
Other Taxes & Credits	000 R$	(1,273)	(1,177)
Employee Bonuses	000 R$	-	(4,000)
Operating Cash Flow	**000 R$**	**27,609**	**24,604**
CAPEX	000 R$	(800)	(20,418)
Free Cash Flow	**000 R$**	**26,809**	**4,186**
Accumulated Free Cash Flow	000 R$	26,809	30,995
Free Cash Flow	**000 US$**	**7,055**	**1,102**
Accumulated Free Cash Flow	000 US$	7,055	8,157

Results		
After-Tax NPV_5	000 US$	8,056
IRR	%pa	n/a
Simple Payback	years	n/a

(1) 2018 based on the 4 months from the Effective Date to December 31, 2018

1.13. Conclusions and Recommendations

The procedures and processes adopted by NX Gold personnel to produce the geological models was reviewed in detail by GE21 and, in the opinion of the Qualified Persons, was executed according to industry standards. Sampling, QA/QC, security and data control were similarly in line with industry best practices and support the current Mineral Resource and Reserve estimate.

Regarding the Mineral Resources and Mineral Reserves estimation process, and to ensure continuity of the mining operations, the authors recommend a work program that includes the following:

- Validate the integration between surface and underground topographic bases, allowing better adherence between the drill hole survey data sets and underground channel samples in stopes;

- Consolidate the integration of the geological model with surface and underground geological mapping, applying sample assay data as a base for horizontal projection of underground maps;
- Intensify the exploratory program in the regions classified as exploration potential to further define and classify these zones into incremental Mineral Resources (and Mineral Reserves);
- Undertake an additional infill drilling campaign to promote the classification of Indicated Mineral Resources into Measured Resources.
- The hanging wall of the deposit, in the opinion of the authors of this Report, is competent enough for the current mining method with appropriate mining support. GE21 recommends the Company undertake a third-party geotechnical study to further evaluate the potential to reduce sill pillar thickness with the aim of increasing mine recovery.

Table 10 below presents a proposed budget for recommended work programs:

Table 10: Recommended Work Programs

Program	**Budget (US$ 000)**
Check between surface and underground topographic bases	$10
Integration of geological model with surface and underground geological mapping	$50
Exploration drill program in the regions classified as exploration potential (estimated 14,400 meter program)	$1,800
Infill drill program to promote the classification from Indicated to Measured Mineral Resources (estimated 9,600 meter program)	$1,200
Geotechnical sill pillar design review to improve mine recovery	$300
Total	**$3,360**

2.0. INTRODUCTION

The purpose of this report (the "Report" or "Technical Report") is to set out and provide background and supporting information on the current Mineral Resources and Mineral Reserves for the NX Gold Mine (as defined below), a producing underground gold mining operation located in the State of Mato Grosso Brazil and wholly-owned by NX Gold S.A. ("NX Gold", "NX", or the "Company"), a company formed under the laws of Brazil. This Report has been prepared by GE21 Consultoria Mineral Ltda. ("GE21") on behalf of Ero Copper Corp. ("Ero Copper") of Vancouver, Canada and existing under the British Columbia *Business Corporations Act*.

Ero Copper is a publicly listed company that trades on the Toronto Stock Exchange under the ticker, "ERO". Ero Copper's principal asset is its 99.6% ownership interest in Mineração Caraíba S.A. ("MCSA"). MCSA's predominant activity is the production and sale of copper concentrate from the Vale do Curaçá Property, which is located within the Curaçá Valley, northeastern Bahia State, Brazil, with gold and silver produced and sold as by-products. Ero Copper also currently owns, directly and indirectly (through MCSA) a 97.6% ownership interest in NX Gold.

The NX Gold Mine was constructed and commenced commercial production in 2012, with the first full year of production occurring in 2013. As of the end of June 2018, approximately 166,000 troy ounces (herein referred to as "oz" or "ounces") of gold had been produced from the NX Gold Mine. Subsequent to the effective date of this Report, full year 2018 production totaled 39,808 ounces of gold and 24,573 ounces of silver produced as a by-product. As of the date of this Report, there are currently 5 drill rigs operating on the property. Exploration activities are underway on the central Santo Antônio exploration target as well as extensions of the Brás and Buracão orebodies to depth and along strike. Additional drill testing of exploration targets located east of the Buracão orebody is planned for 2019.

Doré bars containing gold and silver, as well as lesser amounts of lead, are shipped from the mine weekly by airplane via a gravel airstrip located on the property. Ore is currently produced from two adjacent high-grade, north-dipping and east-west striking, shear-zone hosted, quartz vein orebodies called Brás and Buracão, accessed from a single mine portal and decline.

This Report and estimates herein have been prepared following the guidelines of the Canadian Securities Administrators' National Instrument 43-101 – *Standard of Disclosure for Mineral Projects* ("NI 43-101").

The Report provides a summary of the work completed by NX Gold and its independent consultants as of the effective date of this Report, August 31, 2018 (the "Effective Date"). All dollar amounts presented in the Report are stated in US dollars unless otherwise specified.

2.1. Scope of Work

The scope of work undertaken by GE21 included:

- Review and validate the Company's QA/QC program and data used to estimate the current Mineral Resource;
- Perform a validation of the Company's geologic models;

- Update Mineral Resource block models using an industry standard geostatistical approach; and,
- Classify the Company's Mineral Resources into Measured, Indicated and Inferred categories according to GE21 protocols, CIM Standards and CIM Guidelines for the known gold and silver mineralization of the NX Gold Mine.

GE21 was commissioned to prepare the mineral resources and reserves for this project, and this technical report conforms to the standards set out in the National Instrument 43-101 and has been prepared in accordance with Form 43-101F1.

2.2. Qualifications, Experience and Independence

GE21 is an independent mineral consulting firm based in Brazil.

Each of the authors of this Report has the appropriate qualifications, experience, competence and independence, to be considered as a Qualified Person ("QP"), as defined in NI 43-101. Neither GE21 nor the authors of this Report have or have had any material interest in NX Gold, Ero Copper, Mineração Caraíba or related entities. The relationship between these companies and NX Gold, Ero Copper and Mineração Caraíba is solely of professional association between client and independent consultant. This Report was prepared in exchange for fees based on rates set by commercial agreement. Payment of these fees is in no way dependent on the results of this Report.

The principal Qualified Person with respect to the objectives of this Report is Porfírio Cabaleiro Rodriguez. Mr. Rodriguez is a mining engineer with over 36 years of experience in the field of Mineral Resource and Mineral Reserve estimation. Mr. Rodriguez is a member of the Australian Institute of Geoscientists (MAIG).

In accordance with NI 43-101 guidelines, each of the Qualified Persons visited the NX Gold Mine during the period from May to September 2018, and on prior occasions, as shown below:

Table 11: Qualified Persons

Company	Qualified Person	Site Visit	Responsibility
GE21	Porfírio Cabaleiro Rodriguez, MAIG	2 days' duration in September 2018	Lead QP. Overall responsibility on behalf of GE21, Resource Estimation, Mine Planning, Mineral Reserves, Capital and Operating Costs
GE21	Leonardo de Moraes Soares, MAIG	2 days' duration in September 2018	QA/QC, Exploration, Resource Estimation
GE21	Leonardo Apparicio da Silva, MAIG	4 days' duration in both of February and May 2018	Metallurgical Testing and Recovery Methods

2.3. Primary Sources of Information

In addition to the personal inspection of the NX Gold Mine during 2018 by each Qualified Person, GE21 was involved in multiple discussions regarding processes and procedures including surveying, sampling, QA/QC, and previous internal resource estimation methods. The results of this Report have been generated from information compiled by the NX Gold technical team with review by GE21, which includes:

- Historical Exploration Activities;
- Mineral Processing and Metallurgical testing data;
- Mining Methods;
- Data from the NX Gold Drilling Campaign;
- Mineral Resource and Mineral Reserve estimate complied by GE21;
- NX Gold database;
- External consulting reports (GE21; Desrochers, J. P., etc), reviewed by GE21 and used exclusively to provide background on the mine and its operations.

2.4. Effective Date

The effective date of this Technical Report is August 31, 2018 (the “Effective Date”).

2.5. Units of Measure

Unless otherwise stated, the units of measurement in this Report are all metrics in the International System of Units (“SI”). All monetary units are expressed in Brazilian Reals (“R$”, or “BRL”) or United States Dollars (“US$” or “USD”), unless otherwise indicated. Although substantively all costs are incurred in BRL, these amounts have been converted to USD for presentation and assembly of the economic analysis.

3.0. RELIANCE ON OTHER EXPERTS

The authors of this Report are Qualified Persons as defined under NI 43-101, with relevant experience in mineral exploration, data validation, mine planning, Mineral Resource and Mineral Reserve estimation.

The information presented regarding the tenure, status and work permitted by permit type within the NX Gold Mine in Chapter 4 – Property Description and Location, is based on information published by the National Department of Mineral Production ("DNPM") of Brazil and is available to the public.

The gold market conditions and key contracts included in Chapter 19 – Market Studies and Contracts, and environmental licensing status information and work plans related to community and social outreach included in Chapter 20 – Environmental Studies, Permitting and Social or Community Impact, were prepared by NX Gold and Ero Copper and reviewed by GE21. GE21 determined that the economic factors used in the determination of specific technical parameters of this Report, including, gold, silver and the USD:BRL assumptions used were in-line with industry norms, broader market consensus and are acceptable for use in the current mineral resource estimate, current reserve estimate, and in the economic analysis presented herein. The authors of this Report have not identified any significant risks in the underlying assumptions, as in addition to the above, the underlying assumptions are in-line with spot market conditions as at the date of this Report.

The forecast capital expenditures, operating costs included in Chapter 21 – Capital and Operating Costs, and incorporated into the economic analysis, were prepared by NX Gold and Ero Copper based on the operating history of the operations and ongoing nature of the operations. The forecasts were reviewed against historic information and deemed to be reasonable and adequate for the purposes of NI 43-101 by the authors of this Report.

4.0. PROPERTY DESCRIPTION AND LOCATION

4.1. Location

The properties that encompass the NX Gold Mine, and exploration concessions controlled by the Company, are located approximately 18km from the town of Nova Xavantina in the eastern portion of the State of Mato Grosso, West-Central Brazil. The mine is located approximately 670 km east of Cuiabá, the capital of Mato Grosso and approximately 720 km northwest of Brasília, the capital city of Brazil. The properties are centered at UTM coordinates 339000E, 8381000N (UTM zone 22S, SAD69).

Figure 1. NX Gold mine location map (NX Gold, 2018).

Primary access to the properties is from the airport at Barra do Garças, featuring daily flights to Cuiaba, via federal and state highways. From the Barra do Garças airport, it is approximately 150km to the town of Nova Xavantina (population of approximately 20,000 people) via BR-158. From the center of Nova Xavantina, the mine gate is located approximately 18km west on a well-maintained year-round dirt road.

4.2. Mineral Title in Brazil

Mining legislation as it relates to mineral title in Brazil has been in place since 1967, and the last significant amendment took place in 1996. Nonetheless, in 2017, there were changes to the institutional framework and to royalty legislation. Institutionally, a new National Mining Agency (Agência Nacional de Mineração – ANM) was created to replace the current National Department for Mineral Production (Departamento Nacional de Produção Mineral, "DNPM"); which was enacted subsequent to the Effective Date of this report. As it relates to royalties on mineral production, new legislation enacted in December 2017 established new rates for mineral substances and excluded deductions previously allowed, such as transportation and insurance costs. The royalty on gold production remained the same at 1% of the gross revenue from sales.

In addition to the changes in legislation described above, in June 2018, the Federal Government enacted new regulations to the Mining Code. The purpose of the new regulations is to modernize parts of the previous legislation that do not require legislative action (i.e. no amendments to the Mining Code are required). These changes do not affect the methods for granting mineral rights, nor establish investment commitments per license, but rather seek to ease the transition process from Exploration to Mining

Licenses in as much as the Mining Code allows, particularly as it relates to supplementary work performed after the submission of a final exploration report. As of the Effective Date of this Report, the authors do not anticipate any significant change in Brazil's mining legislation that would adversely impact the operations of the Company.

4.3. Mining Legislation, Administration and Rights

The primary mining legislations in Brazil are the 1967 Federal Mining Code (Decree-law No. 227), updated in 1996 (Law No. 9314), and parts of the 1988 Federal Constitution. Mining rights are under the jurisdiction of the Federal Union and mining legislation is enacted at the federal level though the General Assembly. Mining laws are currently administered through the DNPM, which maintains offices in each state capital. Brazilian citizens and legal entities incorporated in Brazil may carry out mineral exploration under authorization of the federal government. There are no restrictions on foreign participation in these entities.

Landowners and governments (municipal, state and federal) are entitled to royalties ranging from 1 to 3.5% Gross Overriding Royalty ("GOR") depending on the mineral being extracted. Mining activities are subject to both federal and state level environmental licensing. NX Gold's operations for gold are subject to a 1% royalty on gross metal sales net of taxes levied on sales.

Exploration License holders are entitled to access their license area and work on it whether it is public or privately held, but such holders must compensate the owner or occupier of the surface rights for losses caused by the work (indemnification) and for the occupation of the land (rent). Compensation may be negotiated on a case-by-case basis, but the Mining Code provides that, should a court of law be required to set the amounts, the rent for occupation of the land cannot exceed the maximum net income that the owner or occupier would earn from its agricultural-pasture activity in the area of the property to be explored, and the indemnification cannot exceed the assessed value of the area of the property intended for exploration.

4.4. Exploration Licenses

Exploration licenses are granted for up to three-year periods and may be renewed for another three years on the approval of a DNPM inspection and satisfaction of environmental requirements. The size of an individual license area ranges from 50 hectares ("ha") to 10,000 ha depending on the state and the commodity.

4.5. Annual Fees and Reporting Requirements

Annual license fees for Exploration Licenses are based on size and are calculated at R$3.29/ha for the first license term and R$5.00/ha in subsequent terms. Each license holder must submit an exploration plan, budget and timeline, although there is no work or expenditure requirement. Licenses require an interim report two-months prior to license expiration (if an extension is to be applied for), describing exploration results, interpretation and expenditures. The renewal of a license may be granted at the discretion of the DNPM considering the exploration works undertaken by the holder. A final report is due at the end the term or on relinquishment of the license.

In addition to royalty amounts, NX Gold has to pay a Rural Property Tax ("ITR") to the Brazilian Federal Government annually based on its total land holdings.

4.6. Mineral Titles

Mining rights in Brazil are governed by Mining Code Decree Number 227, dated February 27, 1967 and via subsequent rules and amendments enacted by the DNPM. As of the Effective Date, property held by NX Gold consists of one mining concession and 8 adjacent exploration concessions covering a total of 31,716.15 hectares. The land area encompassing the NX Gold properties is shown below in Figure 2. The primary mining concession covers approximately 620 hectares of the total area controlled by the Company. The mine was granted a mining permit by the DNPM under process number 866269/1990, and all of the properties are further detailed below in Table 12.

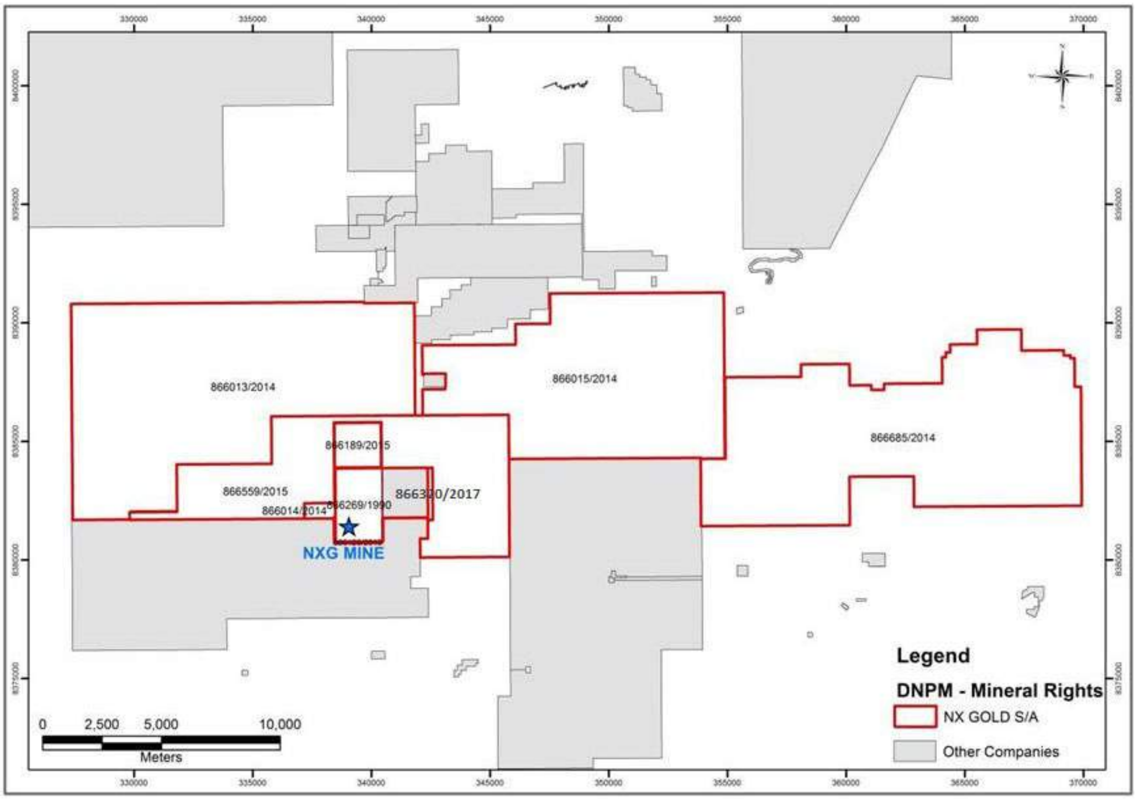

Figure 2. NX Gold mineral concessions map (NX Gold, 2018).

Table 12. NX Gold Mineral Concessions

DNPM Process Number	Area (ha)	DNPM Status	Holder	Expiration
866269/1990	620.00	Mining Concession	NX Gold	-
866120/2013	17.87	Exploration Concession	NX Gold	January 2020
866015/2014	7,098.54	Exploration Concession	NX Gold	December 2018
866013/2014	9,559.75	Exploration Concession	NX Gold	December 2018
866559/2015	4,571.90	Exploration Concession	NX Gold	March 2019
866320/2017	43.99	Exploration Concession	NX Gold	September 2019
866685/2014	9,325.20	Exploration Concession	NX Gold	October 2020
866207/2018	84.73	Exploration Concession	NX Gold	July 2021
866208/2018	394.17	Exploration Concession	NX Gold	July 2021
Total Hectares:	**31,716.15**			

As of the date of this Report, all Exploration Concessions were in good standing. Exploration concessions 866207/2018 and 866208/2018 were renewed in July 2018.

The reports for renewal of permits 866015/2014 and 866013/2014, expiring in December 2018, are in progress and will be filed before the due date.

4.7. Surface Rights

All surface rights for the area encompassing the mine, the current Mineral Resources and Mineral Reserves, and associated infrastructure is owned by NX Gold.

The Company does not own surface rights on the Exploration Concessions and as at the Effective Date, there were no contracts or obligations with any of the neighboring landowners. Within the Exploration Concessions, the main activities are concentrated in small rural cattle ranches and farms that occupy approximately 50 percent of the surface area within the Exploration Concessions. Prior to the Company conducting any exploration activities within the Exploration Concessions, permission is requested from the landowners. As at the date of this Report, the Company has always received consent from local landowners to conduct regional exploration activities, and the authors have not identified any risks associated with land access.

4.8. Environmental Permits, Previous Studies and Considerations

The NX Gold Mine infrastructure has been engineered to avoid short-term environmental damage and reduce long-term environmental effects. Some environmental impact and mitigation activities have been underway since the mine commenced commercial production, such as recovery and re-vegetation of historically mined areas (garimpeiro workings), re-vegetation of drilling areas, environmental monitoring, and regional water quality control.

All environmental permits supporting the current operations were provided to the Environment Secretary of Mato Grosso (SEMA) in 2007. The Environmental Impact Study (EAI; 296438/2007) and Environmental Impact Report (RIMA; 296438/2007) were subsequently approved along with the Company's Environmental Control Plan (PCA) by SEMA (217586/2008). Together these documents were conditionally released with the mining Installation License. Following construction and commissioning of the mine, and after receipt of the Installation License, the Company was issued its Operating Licence. Ongoing environmental monitoring associated with the Operating Licence is required and performed by the Company in partnership with the State University of Mato Grosso (UNEMAT).

All environmental monitoring required to be undertaken by the Company is in good standing, and no new permits must be acquired to conduct the contemplated operations and work programs outlined in this Report. The authors of this Report are not aware of any material environmental or permitting risks to the current operations nor the envisioned production plan associated with the current Mineral Reserves. Further, GE21 is not aware of any other significant risks that may affect access, title, or the right or ability to perform the recommended work program on the property. Subsequent to the Effective Date, 7 drill rigs were mobilized to site, and as at the time of this Report, there were 5 drill rigs conducting exploration drill programs on the property.,

5.0. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1. Accessibility

Primary access to the properties is from the airport at Barra do Garças, featuring daily flights to Cuiaba, via federal and state highways. From the Barra do Garças airport, it is approximately 150km to the town of Nova Xavantina (population of approximately 20,000 people) via BR-158. From the center of Nova Xavantina, the mine gate is located approximately 18km west on a well-maintained year-round dirt road.

The proximity of the Mine Gate to the town of Nova Xavantina provides ample housing for mine employees as well as third-party contractors. There is daily bus service from town to the mine site. The town of Nova Xavantina has hotels, elementary and secondary schools, a university, athletic facilities, medical facilities, shops and restaurants.

5.2. Physiography

The NX Gold properties exhibit a rugged relief with enclosed erosional valleys and slopes with local topographic variations of more than 50 meters towards the north and center of the properties. Drainage across the property is from the North to South (towards the Mortes River). Vertical relief in the southern-most portions of the properties, closer to the Mortes River is planar and less rugged, with vertical relief of less than 10 meters.

5.3. Climate

The local climate in the region of Nova Xavantina and its surroundings can be classified as monsoon-influenced humid subtropical, or Cwa per the Köppen climate classification system. The region can be further characterized as having two well-defined seasons: (i) a relatively dry and cooler period extending between April and September with average temperatures of approximately 19.5 °C and (ii) a wet and hot period from October to March with average temperatures of approximately 33.2 °C.

Average annual precipitation in the region is approximately 1,540 mm per annum. The distribution of rainfall is axiomatic of the Cerrado (“Savanna”) region of Matto Grosso, where approximately 92% of the precipitation occurs during the rainy season from October to March. The operating season at the NX Gold Mine is year-round.

5.4. Vegetation

The primary type of vegetation in the vicinity of the mine is a subsystem called “cerrado sensu stricto”, which can be classified by having two primary types of vegetaton: dense semi-tropical trees growing up to 6m in height and intercollated grasslands. Trees typically grow in dense patches primarily on the flat to gently undulating relief as well as on hillsides. Areas of open grasses are found on steeper hillsides where soils are shallow, or flat lying areas where soil depth is limited. Along watercourses, mainly the Santo Antônio Stream and the Mortes River, gallery forests are observed, which provides a stark contrast with the trees typical of the region.

5.5. Infrastructure

The mine infrastructure is entirely contained within the Company’s single Mining Concession where surface rights are held by the Company. Primary infrastructure includes the mine portal, the processing plant, waste piles, a tailings pond, an area of operational support (laboratory, maintenance, supplies among others), administrative offices, a security gate, a medical clinic, a cafeteria, a surface water runoff capture site, a groundwater well, and a gravel airstrip. The layout of the mine with key infrastructure is shown in Figure 3, and described in greater detail below.

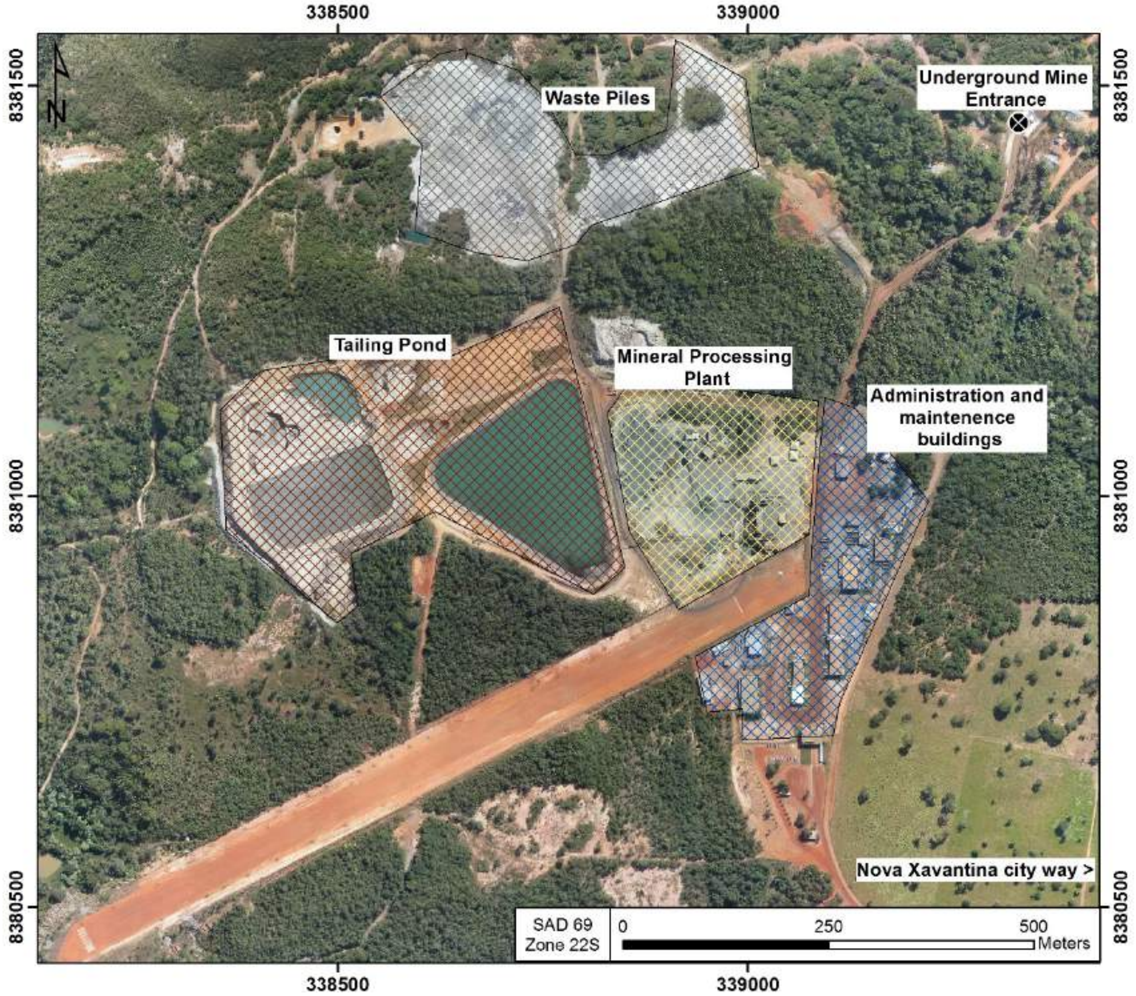

Figure 3. NX Gold property layout (NX Gold, 2018)

5.5.1. Mine Ramp

The underground mine is accessed via a single primary ramp to surface (which intersects a crosscut between the Brás and Buracão Veins. The ramp contains fixed structures such as electrical infrastructure, pumps, compressors, exhaust fans, cooling fans, and ducts and pipelines for ventilation and water. The mine portal is shown below in Figure 4.

Figure 4. Mine Portal (NX Gold, 2018)

5.5.2. Processing Plant

The Nova Xavantina Plant processes ore produced from the mine into finished doré bars containing gold and silver. This plant occupies a large portion of the primary Mining Concession and is subdivided into specific areas of processing. The plant area is composed of primary and secondary crushers, conveyor belts, an apron feeder, grinding facilities, gravity separation, a recently installed regrind mill, flotation, carbon-in-leach (CIL), elution, desorption, electrodeposition, and a foundry.

5.5.3. Waste Pile

Inert waste rock and tailings are stored in historically mined areas (garimpeiro open pit workings).

5.5.4. Tailings Ponds

There are two separate tailings ponds on the property. Tailings generated from flotation are disposed of into a pond near the mine designed for inert tails. The pond was designed in several cells which allow coarse and fine suspended solids to preferentially settle within each cell. Water at the far end of each cell is recycled for use in the plant. Cells from the pond are periodically cleaned by removing the thickened tails. The thickened tails are deposited in the waste piles (within the historic garimpeiro open pit workings).

Tailings from the CIL process comprise a solution that is rich in cyanide. As a result, these tails are disposed of in an impervious dam constructed with double layers of high-density polyethylene membranes (“HDPE”). Between the HDPE membranes, there is a system for leak detection and sand drainage so that any leaks will be transported by gravity to a secondary containment pond where they would be pumped back into the dam. The non-inert thickened tails are stored in this pond while the clarified water is transported by gravity to the cyanide detox plant, which reduces the cyanide concentration in solution. After detox, water is transported to a separate process water storage unit where is then recirculated and ultimately recycled to the flotation unit operation.

5.5.5. Operational Support

The operational support area includes the Company's laboratory, supplies warehouse, fuel station, storerooms for explosives and fuses, industrial maintenance facility, and fleet and equipment maintenance facility.

5.5.6. Administrative Offices and Support

The Administrative offices and ancillary support buildings include the Company's primary administrative offices, security (main entrance with a security gate), occupational health, human resources, the restaurant, geology, and short- and long-term planning.

5.5.7. Medical Clinic

The medical clinic located on site provides simple and emergency stabilizing care. The medical clinic has a fully equipped ambulance to transport employees and contractors from site to the municipal hospital in Nova Xavantina (18km from NX Gold) for medical emergencies.

5.5.8. Water Supply

Water is available in sufficient quantities to support the contemplated mining and processing operations. A water station for the mine's primary water source is located along the banks of the Mortes River. The water supply along the river consists of an electric gen-set and a 150 hp water pump. The pumping capacity of the water station is 150 m^3/h, and the pumped water is fed via pipeline from the Mortes River to a storage reservoir located at the mine.

In addition, the Company maintains an underground water well for fresh water that supplies non-industrial facilities and the administrative offices. The well has a capacity to provide approximately 5.0 m^3/h of water.

5.5.9. Gravel Airstrip

The airstrip measures 1,200 metres in length and is used to fly out doré bars produced by the mine. The airstrip is maintained by NX Gold.

5.5.10. Energy Supply Infrastructure

Electrical power is provided to the mine from the substation in Nova Xavantina via a 34.5 kV power line (with the potential for 600 kVA) installed and maintained by the Energy Supply Company of Mato Grosso (ENERGISA S/A).

6.0. HISTORY

The documented knowledge of gold occurrences near the Nova Xavantina Mine dates back to the middle of the 17th century during early exploration by the Bandeirantes. Historically, the area was known as Garimpo do Aráes, and was the subject of significant garimpeiro mining activity that first focused on secondary gold deposits/alluvium near the Mortes River, and later the extraction of primary ore from weathered outcropping of gold-bearing quartz veins. During the 1980's, a gold rush in Brazil brought up to an estimated 5,000 artisanal miners (garimpeiros) to extract gold in several sectors of the property, initially in open pits targeting the weathered gold-bearing quartz vein to a maximum depth of approximately 50 metres. Additionally, garimpos dug over 70 small shafts and adits to a depth of approximately 70 meters. Occurrences of historic mine shafts reaching over 100 metres have been found on the property.

In the late 1980's the garimpo activities declined due to the depth of the shafts, the cost of pumping, and low gold prices.

In 1990, engineering company Paulo Abib Engineering carried out geological and metallurgical studies and initiated negotiations with the remaining garimpeiros on site. Mineração Nova Xavantina Ltda. was then co-founded by Paulo Abib Engineering, Andrade Gutierrez Group, and Brazilian Copper Company (CBC) to formalize exploration and development of the project. In 1992, the Andrade Gutierrez Group took the lead in the area by carrying out topographic surveys and geological mapping.

In 1995, under a new company name, Nova Xavantina Mineração Ltda., testwork was performed to test the continuity of the veins to a depth of up to 300 meters. Drill company GEOSOL completed 8 diamond drill holes for a total of 2,306 metrers in the Brás and Buracão Veins.

In 2003, Nova Xavantina Mineração Ltda., despite having received authorization for mining from the DNPM, failed to submit the Economic Development Plan (PAE) related to social stability in the region, and as a result, the mineral rights became available.

In May 2004, following the release of the *Availability Notice nº 162/2004, DNPM - MT released, DNPM process nº 866.269/1990*, whereby the property had become available for application, six companies applied for the mineral exploration and mining rights at the NX Gold Mine. The list included IMS Empreendimentos Ltda, Sertão Mineração Ltda, Brazmin Ltda, São Bento Mineração Ltda, Coopermine (Ore Producers Cooperative of Nova Xavantina, MT) and MCSA. The mineral exploration and mining rights for the Mining Concession were granted to MCSA.

Between 2007 and 2009, MCSA conducted a new drilling program to confirm the continuity of the Buracão and Brás veins and to increase the quality of the geological information. The drill program(s) undertaken by MCSA included 29,649 metres in 153 diamond drill holes. In September 2009, MCSA commenced construction of the mine portal and primary ramp and commercial production commenced in May 2012. During 2012, MCSA drilled a total of 11,486 metres in 51 surface drill holes and 1,895 metres in 32 underground drill holes in support of the mining operations.

In 2013, the property was transferred to NX Gold S/A, a subsidiary of MCSA. Between 2013 and 2015, the Company drilled a total of 27,822 metres in 104 surface diamond drill holes and an additional 9,427 meters in 107 underground diamond drill holes. Other exploration activities during this period included geological mapping and a 1,969 line-kilometer airborne magnetic survey.

6.1. Exploration and Drilling

There has been a considerable amount of both surface and underground drilling performed on the property during pre-production and after the start of commercial production. Pre-production drilling totalled 161 surface drill holes for a total of 31,955 meters, and after the start of commercial production in 2012 an additional 162 drill holes were drilled from surface and 139 drill holes were drilled from underground in support of the operations. Total meterage drilled in support of operations was 42,632 meters and 11,322 meters for surface and underground drilling, respectively.

Table 13. Historical Drilling

	Surface Drilling			Underground Drilling		
Year	**Drill Holes**	**Meters**	**Core Size**	**Drill Holes**	**Meters**	**Core Size**
2006	8	2,306	NQ			
2007	81	17,619	NQ			
2008	70	11,531	NQ			
2009	2	499	NQ			
2012	51	11,486	NQ	32	1,895	NQ/BQ
2013	37	9,514	NQ	63	4,894	NQ/BQ
2014	43	12,494	NQ	29	2,752	NQ/BQ
2015	24	5,814	NQ	15	1,781	NQ/BQ
2018	7	3,324	NQ			
Total	**323**	**74,586**		**139**	**11,322**	

6.2. Previous Mineral Resource and Reserve Estimates

There are no relevant historic mineral resource or mineral reserve estimates.

6.3. Historical Production

The NX Gold mine started production in May 2012 and poured its first bullion in June of the same year. The mine has been in continuous production since 2012 with a total production to date of 173,302 ounces of gold produced from approximately 1.25 million tonnes of ore processed.

Table 14. Historic Production of the NX Gold Mine

Year	Tonnes (t)	Au (oz)	Recovery
2012	137,980	6,637	40%
2013	261,726	26,380	67%
2014	208,259	23,653	83%
2015	226,608	35,247	87%
2016	213,776	29,274	84%
2017	134,163	25,287	88%
Jan to August 31, 2018	66,859	26,824	91%
Total	**1,249,371**	**173,302**	

7.0. GEOLOGICAL SETTING AND MINERALIZATION

7.1. Regional Geology

The NX Gold property is located in the Paraguay Belt, part of the Tocantins Geological Province. This fold belt was formed during the Neoproterozoic era at the south-east margin of the Amazon Craton during the Brasiliano cycle and is characterized by a series of tectonic events. The Paraguay Belt represents an arcuate shaped tectonic domain extending for 1,500 km in a NE-SE to E-W direction with an average width of 300 km.

The Paraguay Belt is a sequence of metamorphosed and folded volcanic and sedimentary rock units presenting deformation and metamorphic variations in the direction of the craton. The belt can be subdivided into three main structural domains: (i) the Internal Structural Zone characterized by intensely folded and metamorphosed volcano-sedimentary sequences intruded by granite and referred to as the Cuiabá Group, (ii) the External Structural Zone consisting of folded sedimentary sequences affected by low metamorphic grade and referred to as the Alto Paraguay Group and (iii) the Sedimentary cover referred to as the Parecis and Paraná basins (Almeida, 1984, Alvarenga and Trompette, 1993, and Alvarenga et al., 2000).

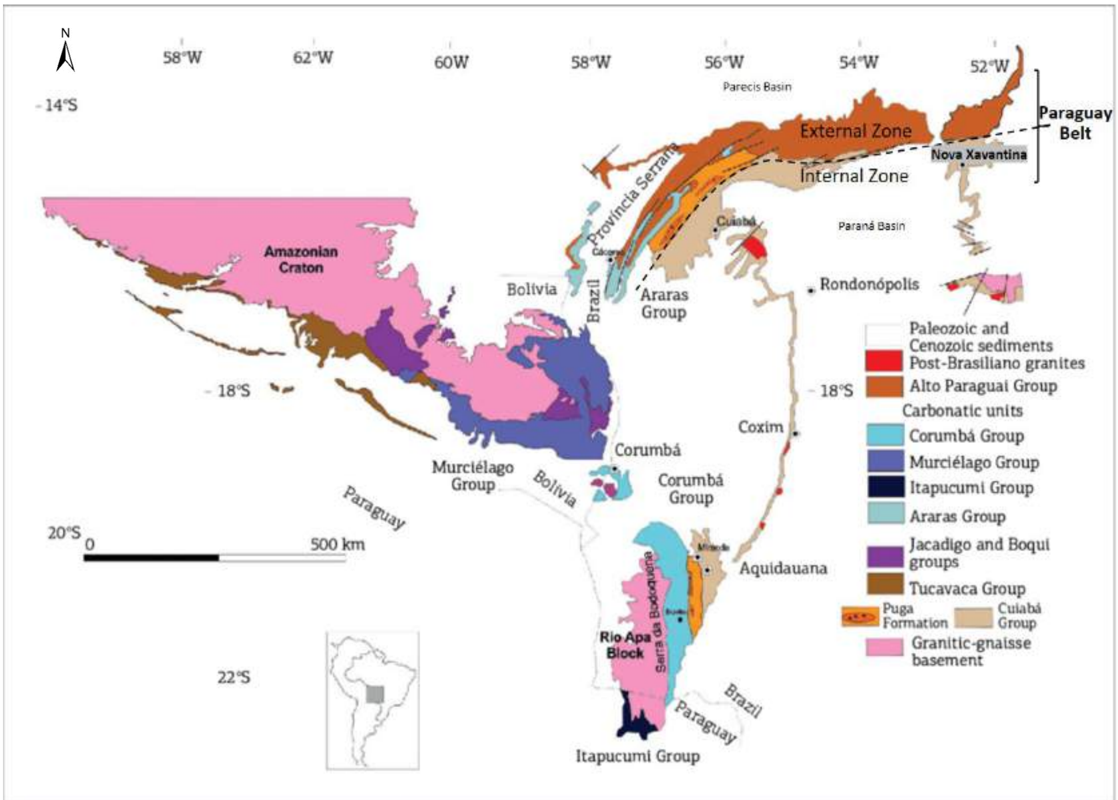

Figure 5. Simplified geological map of the Paraguay Belt showing the areas of outcrop of the Araras, Cuiabá, Corumbá, Itapucumi and the Murciélago groups (Sial et al. 2016, modified from Boggiani et al. 2010).

The Nova Xavantina region, which has been described as a possible basal sequence of the internal zone of the Paraguay Belt, comprises meta-volcanic and meta-sedimentary rocks, and was initially defined as the Cuiabá Group by Ameida (1984). Pinho (1990) further characterized the rock units in the region of the NX Gold Mine as the Nova Xavantina Volcano-Sedimentary Sequence.

In the work, Pinho (1990) interpreted the Nova Xavantina Volcano-Sedimentary Sequence as a sub-marine environment in a back-arc basin setting; however, the geochemical analysis performed by Silva (2007) suggests the rock units of this sequence were generated in an intracontinental rift environment involving bimodal magmatism with the presence of a mantle plume at the base of the continental crust. The model formulated by Silva (2007) further included the opening and formation of an oceanic crust during the evolution of the rift.

7.2. Local Geology

7.2.1. Lithologic Units

The rock units present within the NX Gold Mine belong to the Nova Xavantina Volcano-Sedimentary Sequence as defined by Pinho (1990), part of the upper regional Cuiabá Group.

In subsequent geological classification surrounding the mining area, the Nova Xavantina Volcano-Sedimentary Sequence was renamed the Araés Volcano-Sedimentary Sequence and was further subdivided into three lithological associations (Martinelli *et al.* 1997; Martinelli 1998; Martinelli and Batista 2007; Socio 2008; Martinelli 2010). From the base to the top of the sequence these lithological associations are:

i. basic and intermediate metavolcanic association represented by meta-basalt, meta-andesite, meta-tuff, and meta-lapilli-tuff;
ii. chemical metasedimentary rock association containing meta-chert and meta-banded iron formation;
iii. clastic sedimentary rock association such as meta-sandstone, metasiltite, and meta-phyllite.

In more recent work, the rock units of the NX Gold Mine have been re-defined into metavolcanic, metasedimentary, and intrusives by Desrochers (2017). The volcanic units include massive to fragmental basalt with frequent amygdules.

The sedimentary units include (i) debris flow characterized by centimetric subangular to angular fragments of volcanic rock units and fragments of black calcareous phyllite, (ii) siliceous siltstone with poorly developed bedding which may contain pyrite-rich layers parallel to bedding, (iii) siliceous to magnetite-rich chert, (iv) thinly laminated carbonaceous phyllite.

The intrusive units include two types of diorite dyke and one type of felsic dyke. The diorite dyke units can be classified as either foliated or cross-cutting and the felsic dyke units are classified as cross-cutting. Cross-cutting diorite and felsic dykes post-date the main deformation event.

All rock units have been metamorphosed to greenschist facies as indicated by chlorite, sericite and calcite assemblages.

Table 15. Simplified Lithologic Categories (Desrochers, 2017).

Volcanic rock units	Sedimentary rock units	Intrusive rock units	Vein and breccias
Basalt (amygdular, massive to flow breccia)	Debris flow	Diorite dykes	Quartz vein
	Siltstone	Felsic dykes	Silica matrix breccia
	Carbonaceous phyllite		Carbonaceous matrix breccia
	Laminated chert		

7.2.2. Structural Geology

The volcano-sedimentary rock units, and some diorite dykes, are strongly foliated and frequently display intense transposition. There are two main phases of folding recognized at the NX Gold Mine (Campos Neto, 2013, Desrochers, 2017).

The first phase of folding is associated with a variably oriented, shallowly to moderately dipping schistosity (S1) (Figure 6). The S1 schistosity is deformed by a crenulation cleavage (S2) oriented generally 234/66 but varying in strike from 190 to 270 degrees with westerly to northerly dips varying between 30 and 80 degrees (Figure 6). Both foliations (schistosity and cleavage) are present at the mine and at least as far as the Cristal vein located 1,800 metres to the northeast of the mine (Campos Neto 2013).

The development of the S2 cleavage is heterogeneous and is generally better developed near the mine to a point where the S1 is completely re-oriented along the S2 foliation planes. This S2 cleavage is attributed to the Araés Shear zone by NX Gold geologists and by Martinelli and Batista (2007).

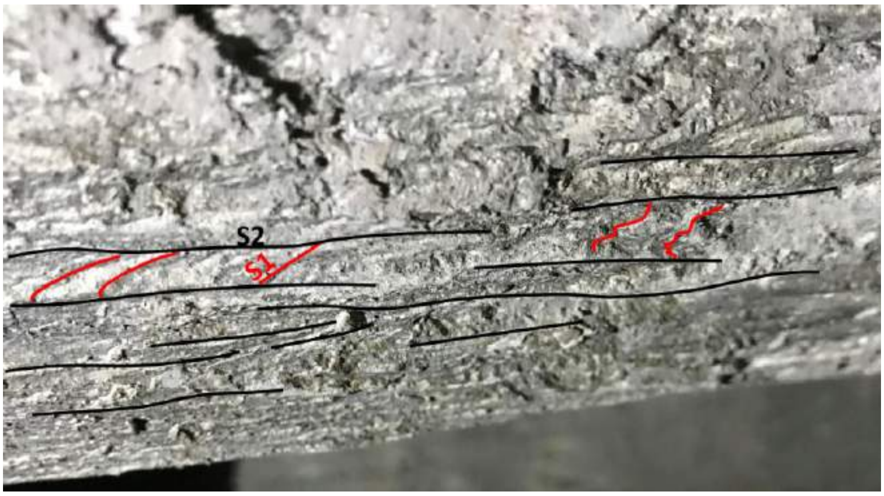

Figure 6. Photograph of S1 and S2 foliations. Access ramp to Buracão vein (NX Gold, 2018).

7.3. Mineralization

Known gold mineralization at the NX Gold mine is structurally controlled and hosted in two major sulphide-rich quartz veins, with hyaline quartz druse, dipping 40 degrees to the north-northeast and striking between east-west and west-southwest. The veins are hosted in strongly deformed metamorphosed sedimentary rock units and diorite that trend generally to the northeast with a 30 to 65-degree dip to the northwest. The veins exhibit a typical laminated pattern in parallel with the vein contacts. The laminations are characterized by alternating centimetric to decimetric quartz bands and foliated host rocks indicating multiple pulses of mineralized fluids during their formation (Figure 7).

The Buracão vein is located on the western part of the property and includes a primary laminated vein measuring 100 metres in length and dipping 45 degrees to the northwest in the upper portion of the mine and 70 metres in length dipping 40 degrees to the northwest in the lower portion of the mine. The average thickness of the vein is 4.5 metres with a maximum thickness of up to 6 metres.

The Brás vein is located to the east of the Buracão vein and includes a primary laminated vein measuring 220 metres in length in the upper part of the mine and 50 metres in length in the lower levels of the mine. The average thickness of the vein is 5 metres with a maximum thickness of up to 10 metres.

The gold mineralization in both veins is associated with sulphides (Figure 8) that are primarily disseminated within the quartz, but can also be associated with very minor gold-bearing sulphides disseminated in the host rocks. The veins generally contain 2 to 15 percent total sulphide represented largely by pyrite and galena, with minor chalcopyrite, bornite, pyrrhotite, and sphalerite. Higher gold grades are generally associated with galena, chalcopyrite, bornite, and sphalerite.

The veins are frequently bordered on the eastern and western edges by discontinuous tectonic/hydrothermal breccias typically less than 2 metres thick. Breccias with a siliceous matrix contain angular fragments of quartz veins, and a matrix that contains pyrite and galena. This type of breccia demonstrates gold grades that are generally below 5 grams per tonne of gold. Breccias with a carbonaceous matrix contain sub-rounded to sub-angular fragments of diorite and quartz vein. The matrix contains fine pyrite dust, and some minor fragments of quartz vein have been shown to contain pyrite. Breccias with carbonaceous matrix do not have demonstrated gold grades.

Figure 7. Laminated quartz vein inside the Buracão mine (NX Gold, 2018).

Figure 8. Quartz vein with high sulfadation (Pyrite and Galena) and high gold grade (NX Gold, 2018).

8.0. DEPOSIT TYPES

The geology of the Property is characterized by strongly deformed volcano-sedimentary rocks altered to greenschist metamorphic grade. The gold mineralization is structurally controlled and hosted in sulphide-bearing, laminated shear veins that cross-cut the previously deformed and metamorphosed volcanic and sedimentary rock. The laminated nature of the veins indicates multiple pulses of quartz intruding a shear zone.

The characteristics of the gold mineralization at NX Gold are similar to orogenic gold described by Groves et al. 1998. Those deposits represent the main source of gold in deformed Precambrian metavolcanic environments and are characterized by high gold grades that range from 5 grams per tonne to over 10 grams per tonne and are hosted in quartz-carbonate veins associated with shear zones. Well-known examples of important gold deposits of this type include the Yilgarn Craton in Australia (Golden Mile and Norseman mines) and the Superior Province in Canada (McIntyre-Hollinger and Kerr-Addison mines).

9.0. EXPLORATION

Historical exploration work completed in the area of the Property by the property's operators prior to NX Gold is discussed in greater detail in Chapter 6, History.

9.1. Geological Mapping

In 2011, Callori and Maronesi (2011) mapped the area at a scale of 1:10,000. Their work illustrates the folding of the volcano-sedimentary units hosting the NX Gold deposit together with an ENE-striking thrust fault parallel to the deposit as shown in Figure 9.

In 2014, a group of geologists from the General Geological Department of the Federal University of Mato Grosso ("UFMT"), with the assistance of NX Gold Mine geologists, mapped an area beginning at the mine property to the north, approximately 35 kilometers from the mine at a scale of 1:50,000. The map produced in this effort is similar to that produced by Callori and Maronesi (2011) but shows a greater abundance of sedimentary rock units and additional interpreted thrust faults.

University professor and structural geologist, Campos Neto (2013), conducted detailed structural mapping in the underground mine, at surface expressions of the gold bearing quartz veins and in other quartz vein distributed throughout the property (in showings stretching over approximately 1.8 kilometres). He divided the area into 2 structural sectors with the southern sector being the most deformed and culminating along the Araés shear zone located approximately 80 metres to the south of the known gold-bearing veins of the NX Gold mine as shown in Figure 10.

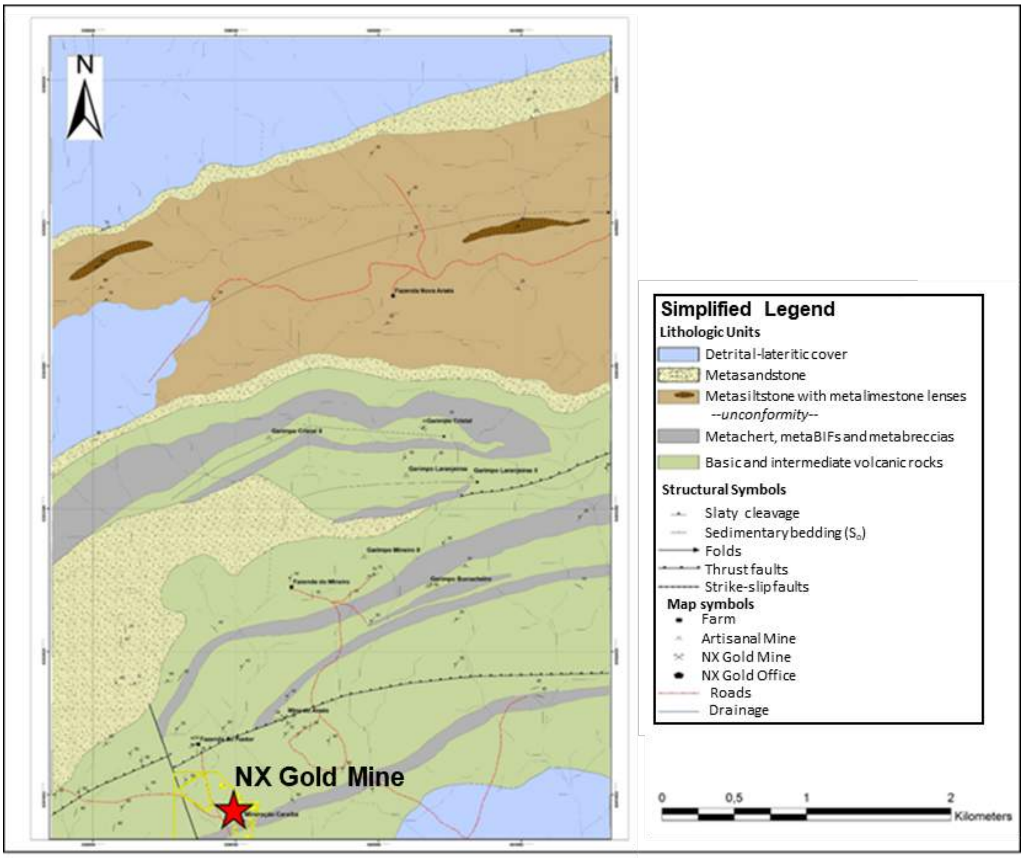

Figure 9. Geology map in the area of the NX Gold Mine at a scale of 1:10,000 showing the folded volcano-sedimentary sequence (Callori, D. and Maronesi, M., 2011).

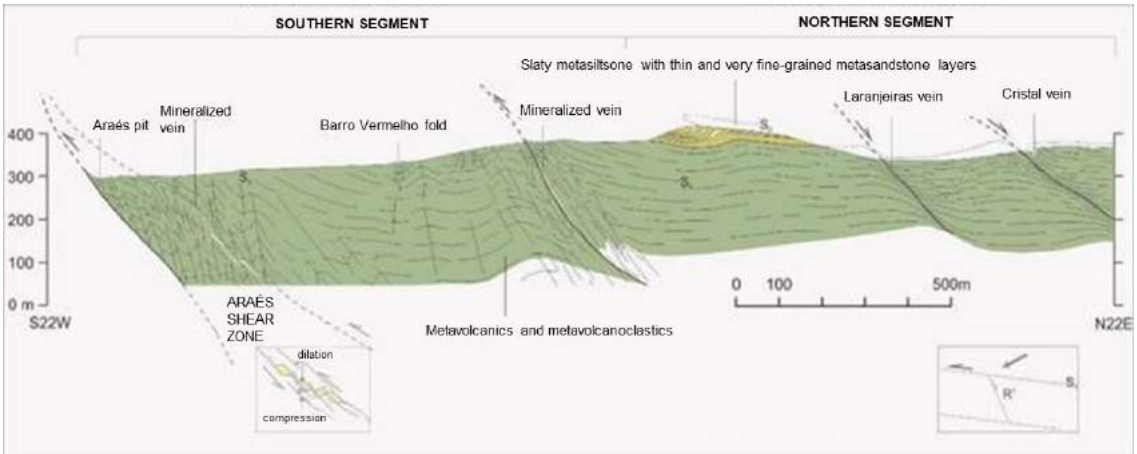

Figure 10. Composite vertical cross-section looking west. The northern segment (*segment meridional*) demonstrates less deformed rock units when compared to the southern segment (*segment meridional*). The foliation of the rock units become progressively more developed towards the Araés shear zone that marks the southern limit of the section (Campos Neto, 2013).

9.2. Soil Sampling

Between 2012 and 2014, NX Gold collected a total of 2,271 soil samples to evaluate the potential for additional gold mineralization on the property. In 2012, a total of 776 samples were sent were sent to ALS Minerals for gold analysis together with 53 other elements. In 2014, a total of 37 samples were sent to ACME labs for gold analysis and a suite of 39 other elements.

Later in 2014, NX Gold collected 828 soil samples that were sent to SGS GEOSOL for gold analysis and an additional 117 samples that were sent to SGS GEOSOL for gold analysis plus 39 other elements. In 2015, NX Gold collected 513 samples that were sent to SGS GEOSOL for gold analysis and a suite of 37 other elements.

The results of the soil sampling program have been used to inform the targeting priorities of the Company's planned exploration efforts.

9.3. Channel Sampling

Channel samples from mine drifts are routinely taken from the walls of the drifts for geological control and mapping purposes. Sampling is designed to crosscut the entire thickness of the quartz vein wherever possible. The channel sampling database includes sampling lines that are spaced at approximately 3 meters and sample lengths that vary from 0.5 meters to 1.0 meter. The procedure of channel sampling in the NX Gold Mine is similar to a chip sampling where discontinuous fragments are broken in a rectangular zone along the sampling line. The average weight of samples utilized by the Company for mapping and planning purposes are approximately 4 kg for each sample line.

9.4. Geophysical Survey

In August 2013 Mineração Caraíba S/A contracted Lasa Prospecções S.A to execute an airborne magnetic and gama-spectrometry survey in the Nova Xavantina area, including the NX Gold Mine and adjacent exploration areas as shown in Figure 11. The survey totaled 1969.40 line-km flown at a nominal 100 metres above ground and covered a total area of 156 km^2. The north-south flight lines were flown at 100 metre spacing and the East-West tielines were flown with 1000 metre spacing.

The data processing was completed by FUGRO-LASA using the Oasis Montaj software developed by GEOSOFT. The report included maps of the total magnetic intensity, magnetic analytical signal, and magnetic first vertical derivative as well as maps of the potassium, uranium, and thorium concentrations and ratios. The report also included a map of the digital topography.

The analytical signal of the magnetic data shows a strong lineament to the south of the gold-bearing lenses that correspond to the Araés shear zone. The magnetic highs located near the known ore veins of the NX Gold Mine are interpreted to be folded magnetic banded iron formations.

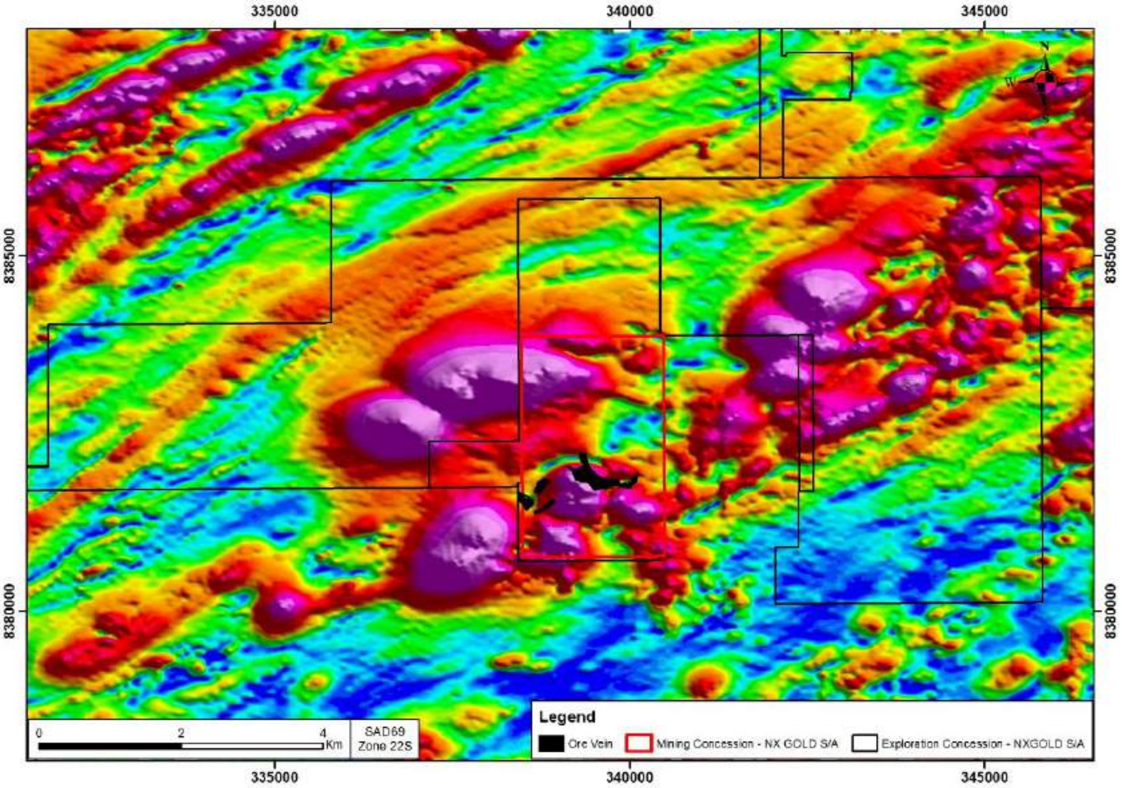

Figure 11. Airborne geophysical magnetic data of NX Gold Mine (NX Gold, 2018).

9.5. Densities

Drill core density measurements of the quartz veins are routinely taken during drilling campaigns at the NX Gold Mine. Segments of drill core are coated with wax and their bulk densities determined using the buoyancy method. The average density of all rock types in the area of the NX Gold Mine, based on a density database that includes over 1,700 samples of drill core, is approximately 2.83 tonnes per cubic meter. The density of the mineralized quartz vein is 2.81 tonnes per cubic meter, based on approximately 79 samples, while the average for all units is 2.83 tonnes per cubic meter.

Density data from drilling performed at the NX Gold Mine is presented in Table 16. For the purposes of the current mineral resource estimate, density data from drilling campaigns conducted post-2013 were included in the density database.

Table 16. Density data (post-2013)

Lithology	Samples	Density (g/cm3)
Saprolite	20	2.61
Sandstone/siltite	120	2.85
Debris Flow	27	2.87
Carbonous phyllite	280	2.80
Chert	100	2.92
Felsic dike	38	2.87
Meta Volcanic	243	2.84
Diorite	80	2.77
Quartz vein	79	2.81
Total	**987**	**2.83**

9.6. Drone Survey

A 37 line-kilometer drone survey covering an area of 14.5 km^2 was completed during June, 2018. This survey produced a high-quality image with a 17 cm spatial resolution as well as a Digital Elevation Model (spatial resolution of 1 m and a vertical precision of 2 m). The survey covers the mine area and the area of the planned 2018 drilling program. The primary use of the survey results was for planning access roads and drill platform locations.

9.7. Sampling Method and QA/QC

During recent drilling campaigns undertaken by NX Gold in support of the current mineral resource estimate (2015 and 2018 programs), NX Gold personnel performed gold assays on drill core according to written sampling procedures. The remaining core is stored on-site in core boxes on covered metal racks. All holes drilled by Mineração Caraíba and NX Gold that intersect the gold-bearing quartz vein are NQ diamond core size.

Preparation of selected core intervals to be sampled was completed by the following method (summarized in Figure 12):

- Core boxes were delivered to the core logging facility by the drilling crew where the core was laid out in sequence. The core was checked by NX Gold technicians before logging to ensure that core was correctly placed in boxes by the drillers.

- The core was then marked up using a marker pencil showing 1-m depth intervals allowing for better depth precision between the 3-m core block markers inserted by the drillers. The core boxes were labelled with the start and end of the interval for that box and the range of sample numbers and photographed.

- Core was logged by a geologist who recorded features including structure, veining, lithology, and mineralisation. Geotechnical logging was carried out, including measurements of total core recovery, rock quality designation ("RQD"), and fracture angle and type.

- Samples were selected for bulk density measurements and measurements were performed on site with wax coated core using the water displacement method.

- Intervals of core selected for sampling were marked up using a red pencil showing arrows that indicated the "from" and "to" range of each sample interval and a reference line drawn parallel to the core axis and through the approximate centre of the rock fabric.

- The samples were defined on a geological basis to respect lithological or structural contacts. The samples were collected with a minimum length of 0.2 metres and a maximum length of 2 metres with an average length of 0.5 metres. As much as was geologically reasonable, the sample lengths were 0.5 metres in mineralized section and 1 metre in host rock.

- Half-core samples were taken for sampling and the remaining half-core was carefully stored. Sampling commenced at least 1 meter before the start of the mineralised zone and extended at least 1 meter beyond the limit of the mineralised zone.

- Control samples (blanks and reference material) were inserted as core was sampled to ensure that sample numbers were in sequence with core samples and therefore could not be identified based on sample numbers.

- Duplicate pulp splits were generated by the laboratory facility.

- Core marked and tagged for sampling was moved to a different location to be cut using diamond bladed rock saws. The technician would saw and sample the core one sample at a time, starting with the first tag and following through the sample number sequence until the end of the sampled interval.

- Unbiased sampling was managed by consistent selection of the left half from each split core. The left half of the core samples was placed in a heavy-duty transparent plastic bag and the right half was placed back into its original position in the core box. Broken core, such as fault gouge or fault breccia, was sampled by scooping the left half into a sample bag while the right half remained in the core box.

- Packets of certified gold reference standards were assigned by the core-logging geologist and verified by the technicians.

- Each sample shipment to the assay laboratory comprised samples from only one borehole; this practice allowed laboratory batches to represent one borehole only and simplified tracking of assay quality control samples as well as requests for batch re-assays.

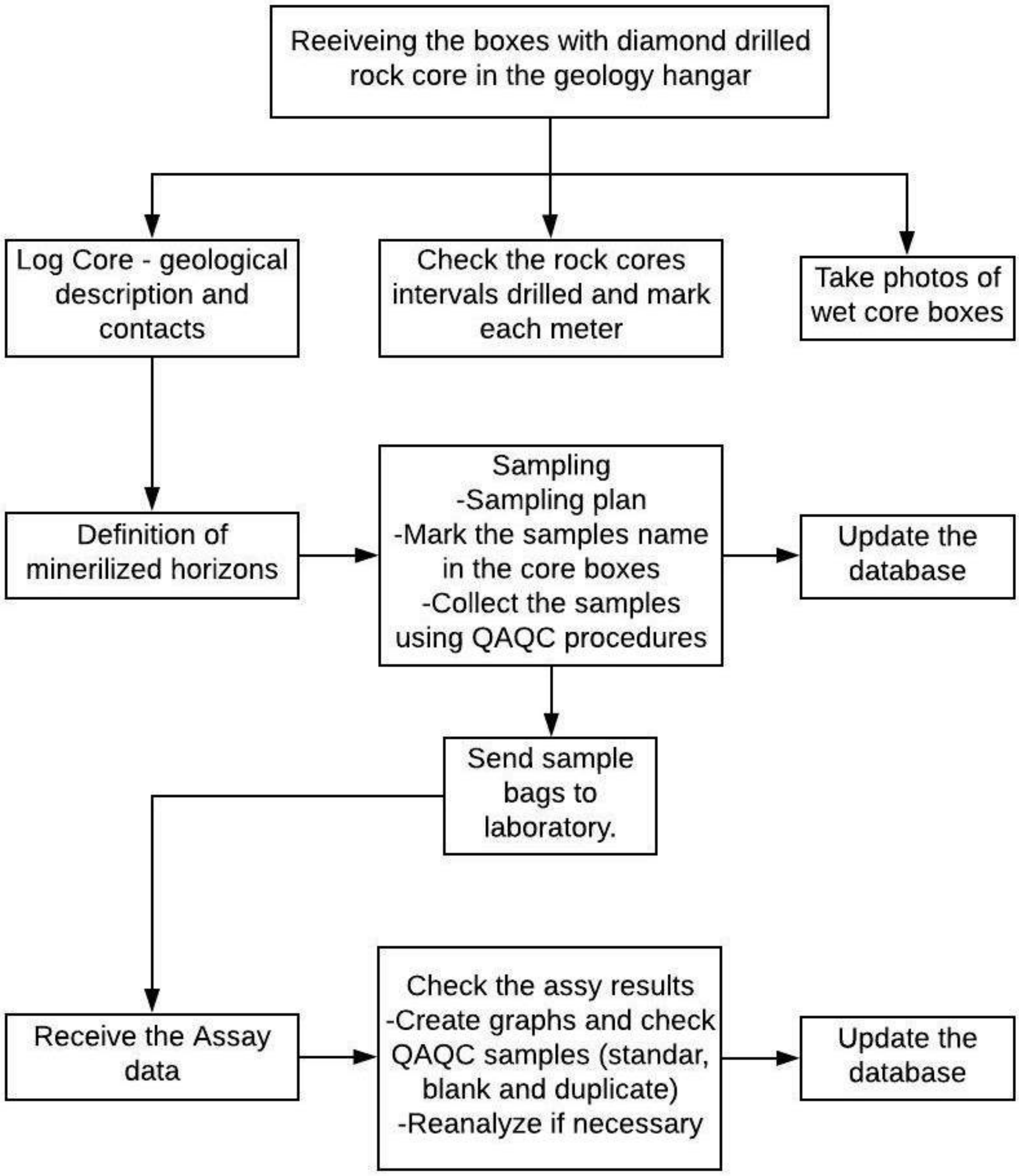

Figure 12. Flowchart with sample preparation and analysis.

Figure 13. Pictures of the work site and standard operating procedure: (A) Geological description and geotechnical selection of the best intercepts for laboratory analysis; (B) Density Assay; (C) Cutting the rock cores; (D) Sampling; (E) batch ready to send to laboratory; (F) Hangar to file the core boxes (NX Gold, 2018).

9.8. GE21 Comment

GE21 reviewed the sampling methods and quality control methods used by NX Gold with a focus on sources of information used in the current mineral resource and reserve estimate. Their review concluded that drill core sampling procedures are in accordance with industry standards. Channel sampling procedures were classified as having a moderate confidence level for resource estimation, primarily due to a lack of information on crosscut sampling. Accordingly, the influence of channel samples was limited in the current mineral resource estimate.

GE 21 generated the following recommendations based on observations from technical visits and discussions with the NX Gold technical team:

- Create a photographic register of front wall drift channel sampling to improve geological information and reviews on mineralization controls;

- Have GE21 audit channel samples (chip samples) when they are produced; The objective is to maximize the use of the chip sampling for the next mineral resource estimations;

- Conduct a structural survey of exploration drill core from the new drilling campaign. Orientate core to produce quality structural data on deep mineralization intercepts; and,

- Perform detailed mapping on underground drifts, including structural surveys together with channel sample assay results to improve geological control of mineralization and geological data integration.

9.9. Subsequent Exploration Activity

Subsequent to the effective date of this Technical Report, 7 drill rigs were mobilized to the property to evaluate down-dip extensions of the main veins of Brás and Buracão as well as test the central Santo Antonio target (5 drill rigs are currently operating as at the date of this Report). Additional exploration drilling is planned east of the Bras vein later in 2019. While the results of these programs are preliminary, structural analysis and initial drill testing of these zones are prospective for adding incremental extensions or new quartz-vein structures that, subject to successful exploration drilling, could serve to extend the life of the mine beyond the scope contemplated in this Technical Report.

10.0. DRILLING

Between 2013 and 2018, NX Gold drilled 111 surface diamond drill holes totaling 31,146 meters and 107 underground diamond drill holes totaling 9,427 meters on the Property. The total number of surface diamond drill holes drilled on the Property since 2006 by all operators is 323 totaling 74,587 meters and the total number of underground diamond drill holes is 139 totaling 11,322 meters (Figure 14 and Table 17).

NX Gold initiated a drill program in early 2018 with the objective of testing the down-plunge extension of the Buracão and Brás veins, as well as the area between the two veins, and below the existing access ramp connecting the two veins. As of February 2018, a total of 7 drill holes for 3,324 metres have been drilled, with 2 drill holes to the west of the Brás vein and 5 drill holes in the Buracão extension.

The mineral resource evaluation presented considers only a part of the drilling completed by NX Gold in 2015 and 2018, as a large portion of the mineralization defined by these programs had been mined out at the Effective Date. A total of 14 surface diamond drill holes were used in the mineral resource calculation, as shown in Table 17.

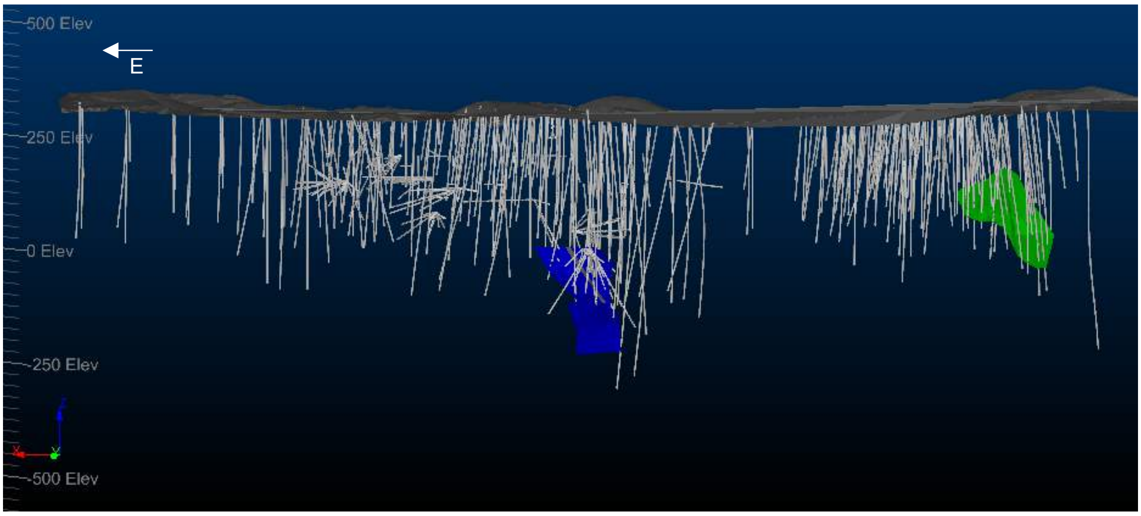

Figure 14. All holes drilled at the NX Gold mine. Mineral resources of the Brás mine shown in blue, with mineral resources of the Buracão mine shown in green (NX Gold 2018).

Table 17. Historical Surface Drilling Summary

SURFACE DRILLING					
COMPANY	*YEAR*	*Holes*	*Quantity of drillholes*	*Meters drilled*	*Core Size*
Andrade Guitierrez	1995	SAR1 - SAR8	8	2 306.26	
Caraíba S/A	2007	FSA3001,FSA3101,FSA3201,FSA3202,FSA3203,FSA3301,FSA3302,FSA3303,FSA3401,FSA3401A,FSA3402,FSA3501,FSA3501A,FSA3502,FSA3502A,FSA3601,FSA3602,FSA3603,FSA3702,FSA3702A,FSA3902,FSA4002,FSA4102,FSA4102A,FSA41501,FSA41502,FSA41503,FSA4201,FSA4202,FSA4203,FSA4204,FSA42501,FSA42502,FSA42503,FSA4301,FSA4302,FSA4303,FSA4303A,FSA43501,FSA43502,FSA43503,FSA4401,FSA4401A,FSA4402A,FSA4402B,FSA4403,FSA44501,FSA44501A,FSA44501B,FSA447502,FSA4501A,FSA4501B,FSA4502,FSA45501,FSA45501A,FSA45502,FSA457501,FSA457503,FSA457504,FSA4601,FSA4602,FSA4603,FSA46501,FSA46502,FSA4701,FSA4702,FSA4702A,FSA4801,FSA4801A,FSA4802,FSA4802A,FSA4901,FSA4901A,FSA4902,FSA4902A,FSA5001,FSA5002,FSA5002A,FSA5101,FSA5101A,FSA5102	81	17 618.58	NQ
Caraíba S/A	2008	FSA3201A,FSA3203A,FSA3204,FSA3301A,FSA3301B,FSA3303B,FSA33501,FSA33502,FSA33503,FSA33504,FSA3401B,FSA3402A,FSA34501,FSA34502,FSA34503,FSA3501B,FSA35501,FSA35501A,FSA4003,FSA40503,FSA4103,FSA412501,FSA412502,FSA412503,FSA41501A,FSA417501,FSA417502,FSA417503,FSA417503A,FSA417504,FSA4201A,FSA4204A,FSA422501,FSA422501A,FSA422502,FSA422503,FSA42501A,FSA42503A,FSA427501,FSA427502,FSA427503,FSA427504,FSA432501,FSA432501A,FSA432502,FSA432503,FSA437501,FSA437502,FSA437502A,FSA437503,FSA442501,FSA442502,FSA447501,FSA4703,MCA40501,MCA4101,MCA4101A,MCA41501,MCA4201,MCA42501,MCA42501A,MCA4301,MCA43501,MCA43501A,MCA4401,MCA44501,MCA4501A,MCA45501,MCA4601,REV01	70	11 530.67	NQ
Caraíba S/A	2009	FSA3102,FSA3903	2	498.85	NQ
Caraíba S/A	2012	BP1001,FSA3102A,FSA312501,FSA312502,FSA31501,FSA317501,FSA317502,FSA317502A,FSA317502B,FSA322501,FSA322502,FSA322503,FSA322504,FSA32501,FSA32502,FSA32503,FSA327501,FSA327502,FSA327502A,FSA327503,FSA332501,FSA332502,FSA332503,FSA332503A,FSA337501,FSA337502,FSA337502A,FSA337503,FSA342502,FSA342503,FSA342503A,FSA347501,FSA347502,FSA347503,FSA352501,FSA352501A,FSA352502,FSA357501,FSA442503,FSA442504,FSA443701,FSA443702,FSA44502,FSA44503,FSA447503,FSA447504,FSA4503B,FSA452501,FSA45503,FSA45504,FSA458701	51	11 485.84	NQ
NXGold S/A	2013	BS01 - BS17, BUS01 -BUS16, FSBVE01, RB01 - RB02	37	9 513.64	NQ
NXGold S/A	2014	BS18 - BS36, BUS17 - BUS35, MS01 - MS04, RB04	43	12 494.32	NQ
NXGold S/A	2015	BS37 - BS39, BUS36 - BUS55, RS01	24	5 814.09	NQ
NXGold S/A	2018	BS40, BS42, BUS58 - BUS62	7	3 324.25	NQ
TOTAL			**323**	**74 586.50**	
UNDERGROUND DRILLING					
COMPANY	*YEAR*	*Holes*	*Quantity of drillholes*	*Meters drilled*	*Core Size*
Caraíba S/A	2012	BP1002,BP1E01,BP1E02,BP1E03,BP1E04,BP2001,BP2002,BP2003,BP2004,BP2005,BP2006,BP2007,BP2008,BP2009,BP2010,BP2011,BP2012,BP2013,BP2014,BP2015,BP2015A,BP2015B,BP2016,BP2016A,BP2017,BP2017A,BP2017B,BP2018,BP3001,BP3002,BP3002A,BP3003	32	1 895.06	NQ/BQ
NXGold S/A	2013	BP3003A,BP3003B,BP3007,BP3013,BP3013A,BP3013B,BP3014,BP3014A,BP3015,BP3015A,BP3015B,BP3016,BP3017,BP3017A,BP3017C,BP3017D,BP3018,BP3019,BP3020,BP3022,BP3022A,BP3023,BP3024A,BP3025,BP3026,BP3027,BP3028,BP3029,BP3029A,BP3031,BP3032,BP3033,BP3034,BP3034A,BP3035,BP3040,BP3041,BP3041A,BP3041B,BP3042,BP3043,BP3044,BP3045,BP3052,BP3053,BP3054,BP4002,BP4002A,BP4003,BP4004,BP4005,BP4006,BP4007,BP4010,BP4011A,BP4012,BP4013,BP4014,BP4015,BP4015A,BP4016,BP4017A,BP4018,	63	4 893.49	NQ/BQ
NXGold S/A	2014	BP3046,BP3047,BP3048,BP3049,BP3050,BP3051,BP3055,BP3055A,BP3056,BP3057,BP3058,BP3059,BP3060,BP3061,BP3062,BP3063,BP3064,BP3064A,BP3065,BP4021,BP4022,BP4023,BP4024,BP4025,BP4026,BP4027,BP4028,BP4029,BP4030	29	2 752.26	NQ/BQ
NXGold S/A	2015	BP3046,BP3047,BP3048,BP3049,BP3050,BP3051,BP3055,BP3055A,BP3056,BP3057,BP3058,BP3059,BP3060,BP3061,BP3062	15	1 781.41	NQ/BQ
TOTAL			**139**	**11 322.22**	

A brief discussion of the historic drilling programs outlined in the table above is as follows:

10.1. Nova Xavantina Mineração Ltda. (1995)

In 1995 Nova Xavantina Mineração Ltda. tested the depth extension of the veins to a maximum depth of 200 metres below surface. Drill company GEOSOL completed 8 diamond drill holes for a total of 2,306 metres in the Brás and Buracão sectors, including one drill hole testing the continuity between the two veins.

The sampling method and approach used by Nova Xavantina Mineração Ltda in 1995 is unknown and the core is not available.

10.2. Mineração Caraíba S/A (2007-2014)

Mineração Caraíba S/A drilled a total of 204 surface diamond drill holes totaling 41,134 meters and 32 underground drill holes totaling 1,895 meters in the period from 2007 to 2014. These holes were drilled to a vertical depth of 380 meters below surface in the Brás vein and to a vertical depth of 200 meters below surface in the Buracão vein. All surface drill holes were drilled using NQ size and underground drill holes were drilled using NQ and BQ size.

Collar locations were measured using differential GPS with a precision of less than 1 centimeter by surveyors from the mine. Borehole deviation data was collected at intervals of 3 meters with a Maxibor tool for the surface drill holes and with an EZ-track tool for the underground drill holes.

10.3. NX Gold (2013-2014)

After the property was transferred to NX Gold, the company drilled a total of 22,008 meters in 80 surface diamond drill holes and a total of 7,645 metres in 92 underground diamond drill holes. The drilling tested the Buracão vein to a depth of 240 meters below surface and the Brás vein to a depth of 420 meters below surface. All surface drill holes were drilled using NQ size and underground drill holes were drilled using NQ and BQ size.

Collar locations were measured with a precision of less than 1 centimeter by surveyors from the mine. Borehole deviation data was collected at intervals of 3 meters with a Maxibor tool for the surface drill holes and with an EZ-track tool for the underground drill holes. The drilling program consisted of infill drilling and drilling at depth to evaluate the depth extension of the two veins.

10.4. NX Gold (2015)

In 2015 NX Gold drilled a total of 5,814 metres in 24 surface diamond drill holes and 1,781 metres in 15 underground holes. All surface drill holes were drilled using NQ size and underground drill holes were drilled using NQ and BQ size. Only 5 surface drill holes in the Buracão sector and 2 surface drill holes in the Brás sector drilled in 2015 are used in the current resource calculation.

Collar locations were measured with a precision of less than 1 centimeter by surveyors from the mine. Borehole deviation data were collected at intervals of 3 meters with a Maxibor tool for the surface drill holes and with an EZ-track tool for the underground drill holes. The drilling program consisted of testing the extension of the Brás vein to a depth of 440 metres below surface and the Buracão vein to a depth of 320 metres below surface.

10.5. NX Gold S/A (2018)

In 2018 NX Gold drilled a total of 3,324 metres in 7 surface NQ-size diamond drill holes. Those drill holes are used in the current resource calculation. The objective of this drilling was to test the western extension of the Brás vein together with the down-plunge extension of the Buracão vein.

Collar locations were measured with a precision of approximately 1 centimeter by survey. Downhole deviations were monitored during drilling using a DeviShot tool to control and, if necessary, compensate for drift. After completion of drilling, all boreholes were surveyed at 3-meter intervals with a DeviShot tool.

As most of the drilling conducted in prior campaigns (pre 2015), only a selection of more recent drill data was used in the calculation of the current mineral resource estimate. The drill holes used in the current estimate total 6,150.1 meters of drilling. Drill holes are listed below in Table 18.

Table 18. List of NX Gold drill holes from 2015 and 2018 included in the current mineral resource estimation.

Vein	Drill Hole ID	Length (m)
Buracão	BUS50	328.0
	BUS51	328.2
	BUS52	354.3
	BUS53	381.3
	BUS55	348.4
	BUS58	401.0
	BUS59	596.3
	BUS60	461.0
	BUS61	397.9
	BUS62	498.0
Sub-Total		**4,094.2**
Brás	BS37	598.4
	BS38	486.8
	BS40	497.9
	BS41	472.8
Sub-Total		**2,055.9**
TOTAL		**6,150.1**

11.0. SAMPLE PREPARATION, ANALYSES, AND SECURITY

In drilling programs undertaken by both MCSA and NX Gold, a combination of an external laboratory, ALS Chemex Laboratories (ALS Chemex), and the NX Gold Mine laboratory were used for sample preparation and analyses. ALS Chemex sample preparation was performed in Goiânia, Brazil then sent to Chile to be assayed for gold using a fire assay procedure and atomic absorption finish on a 50-g charge (ALS Minerals code AA25). The management system of the ALS Minerals group of laboratories is accredited ISO9001:2000 by QMI Management Systems.

A brief synopsis of the sampling, analyses and security for each of the drill programs has been provided below; however, it should be noted that only information from the 2015 and 2018 drilling campaigns undertaken by NX Gold has been used in the determination of the current mineral resource estimate.

11.1. Historical Sampling (1995)

The drillhole sampling preparation, analyses, and security procedures utilized by Nova Xavantina Mineração Ltda during 1995 are unknown. There is no core remaining from this drilling program.

11.2. Mineração Caraíba Sampling (2007-2012)

All selected core samples were assayed for gold using fire assay procedures. The analyses were performed in the NX Gold laboratory and at the ACME Labs when needed. The sampling operational procedure was followed as described in Chapter 9.

11.3. NX Gold Sampling (2013-2015)

All selected core samples were sent to the NX Gold laboratory. On a few occasions, the samples were sent to the ACME Labs or SGS GEOSOL. The sampling operational procedure was followed as described in Chapter 9.

11.4. NX Gold Sampling (2018)

All selected core samples were sent to the ALS laboratory. In rare events, the core samples were analyzed at the NX Gold laboratory, however those assay data were not included in the database for the 2018 campaign, and those samples were reanalyzed at the ALS laboratory. The sampling operational procedure was followed as described in Chapter 9.

11.5. Quality Assurance and Quality Control Programs for 2014 to 2018 Exploration Programs

QA/QC programs have been put in place to verify the use of exploration datasets used in estimating mineral resources and evaluating exploration potential. These include written field procedures and independent verifications of aspects such as drilling, surveying, sampling and assaying, data management, as well as database integrity.

Analytical control measures include both internal and external laboratory control checks implemented to monitor the precision and accuracy of the sampling, preparation, and assaying, as well as prevent sample mix-up and to monitor contamination of samples. Assaying protocols involve regular duplicate and replicate assays and insertion of quality control samples. Check assaying is performed as an additional reliability test of assaying results and includes the routine re-assaying a set number of rejects and pulps at a second umpire laboratory.

11.5.1. Soil Sampling Analytical Quality Control

NX Gold analytical quality control for soil sampling was carried out using a QA/QC control program that meets generally recognized industry best practices. NX Gold has used the integration of blank and standard reference sampling, as discussed in greater detail below.

Laboratories that conducted the assaying were SGS GEOSOL, ACME Lab, and rarely the NX Gold laboratory.

Prior to 2014 there was no analytical quality control for soil sampling.

11.5.2. NX Gold Analytical Quality Control

The exploration work conducted by NX Gold since 2015 was carried out using a QA/QC program meeting generally recognized industry best practices. Standardized procedures were used in all aspects of the exploration data acquisition and management including surveying, drilling, sampling, sample security, assaying, and database management.

NX Gold has included analytical quality control measures as part of the routine standard core sampling procedures since 2014 and, in addition, has used the integration of blank and standard samples allowed for the verification of fire assay analysis in the laboratory.

Analytical quality control measures for the 2014, 2015 and 2018 drilling programs consisted of inserting quality control samples (comprised of both blank and standard reference material) within all sample batches submitted for assaying. The control samples were inserted at the frequency of 1 gold certified reference material every 20 samples and 1 blank sample every 20 samples. The company also requested that the laboratory prepare a duplicate sample every 20 samples.

NX Gold used certified reference materials procured from ROCKLABS and ITAK (Table 19). During the course of the 2014 to 2018 soil, rock chip and drill campaigns a total of 488 blank, 342 duplicate and 449 standard samples were analyzed.

Table 19. Analytical data table showing quantities of blank, standard and duplicate samples.

	Year	Blank	Duplicate	Standard	Standard Type
Soil	2014	47	36	46	**ROCKLABS** (OxC88, OxD108, OxE86, SG66, SJ80)
	2015	25	13	25	**ROCKLABS** (OxG103, SG66, SI64,SJ80)
Rock Chip	2014	18	8	17	**ROCKLABS** (OxC88, OxD108, OxH112, SG66, SH69,SJ80)
	2015	8	4	7	**ROCKLABS** (OXG103, SI64, SJ80)
Drilling	2011	5	5	5	**ROCKLABS** (SL51, SK52)
	2012	33	33	33	**ROCKLABS** (SK52,SJ53, SK62, SI64, SH55, SL51, SH41)
	2013	90	84	88	**ROCKLABS** (SG56, SG66, SK62)
	2014	59	42	88	**ROCKLABS**(OxD108,SG66,SJ80,SK78)
	2015	188	105	114	**ROCKLABS** (OxG103, SJ80, SK78, SI64)
	2018	15	12	26	**ITAK** (ITAK-527, ITAK-567,ITAK-586,ITAK-591)
TOTAL		**488**	**342**	**449**	

11.6. Sample Security

The sample security procedures for the pre-2013 sample preparation, analyses and transportation is unavailable. However, all drill core, including the remaining half core of the sampled intervals, are stored in an orderly fashion at a secure facility at the NX Gold Mine. It should be further noted that no pre-2013 samples were used in the determination of the current mineral resource estimate.

For the exploration conducted by NX Gold in 2015 and 2018, all drilling assay samples were collected by NX Gold personnel. Where applicable, sample batches were shipped from the property to the ALS Minerals laboratory in Goiânia by a reliable third-party transportation company, trusted by NX Gold.

The core sample batches from NX Gold's drilling were typically shipped either the same day or the day following the completion of the sampling. Samples awaiting transport were assembled in an area of the core shack until they were ready to be taken to ALS Minerals for preparation and assaying. The core shack was locked after hours and the samples were secured at all times, from splitting to delivery to the laboratory by an NX Gold employee. Transportation of the samples from the property to ALS Minerals was performed by a reliable transportation company trusted by NX Gold.

11.7. GE21 Comment

GE21 visited the NX Gold internal assay lab and observed sample preparation procedures. Sampling preparation was found to be in accordance with industry standards and procedures, and are inside accepted limits of quality, to guarantee correct sample splitting, and avoid sample contamination.

Assaying methodology and procedures were deemed to be in accordance with industry standards. The laboratory follows national industry standard certification institute (INMETRO) rules. External monthly assaying checks are performed, and certified standard samples are applied on QA/QC procedures.

Exploration program and QA/QC sampling procedures and result analysis were found to be performed according to industry standards.

12.0. DATA VERIFICATION

12.1. Verification by NX Gold Geology Department

The exploration work completed by NX Gold in 2015 and 2018 was conducted using documented procedures and involved verification and validation of exploration data. During drilling, experienced NX Gold geologists implemented measures that are in line with industry standards and designed to provide the Company with confidence in the quality of the exploration data being collected.

NX Gold monitored the analytical quality control data on a real-time basis. Failures of quality control samples were investigated, and appropriate actions were taken, including requesting re-assaying of certain batches of samples. If there was insufficient sample available to re-assay, the decision to re-assay relied on the performance of the laboratory quality control data. Where appropriate, results from re-assayed batches replaced the original assay of the failed batch.

It is the opinion of the QPs, that the data used in the current mineral resource and mineral reserve estimate, which was verified by GE21 as described in greater detail in Chapter 12, is adequate for the purpose of this Report.

12.2. Verifications by GE21

In order to validate the data used in the current mineral resource estimate, GE21 selected a series of QA/QC samples from those performed by NX Gold. The set of samples was taken from the current mineral resource estimate zone as well as adjacent areas.

The results of the blank, duplicate and standard control samples are discussed in the following sections.

12.2.1. Blanks

Figure 15 and Figure 16 show the results of the blank sample analysis for drill hole and channel samples. All results were within the acceptance limit of 0.07 ppm Au. No contamination problems were detected in the samples and chemical analyses.

The blank sample results were demonstrated to be within the acceptance limits for the classification of mineral resources at the Nova Xavantina Project.

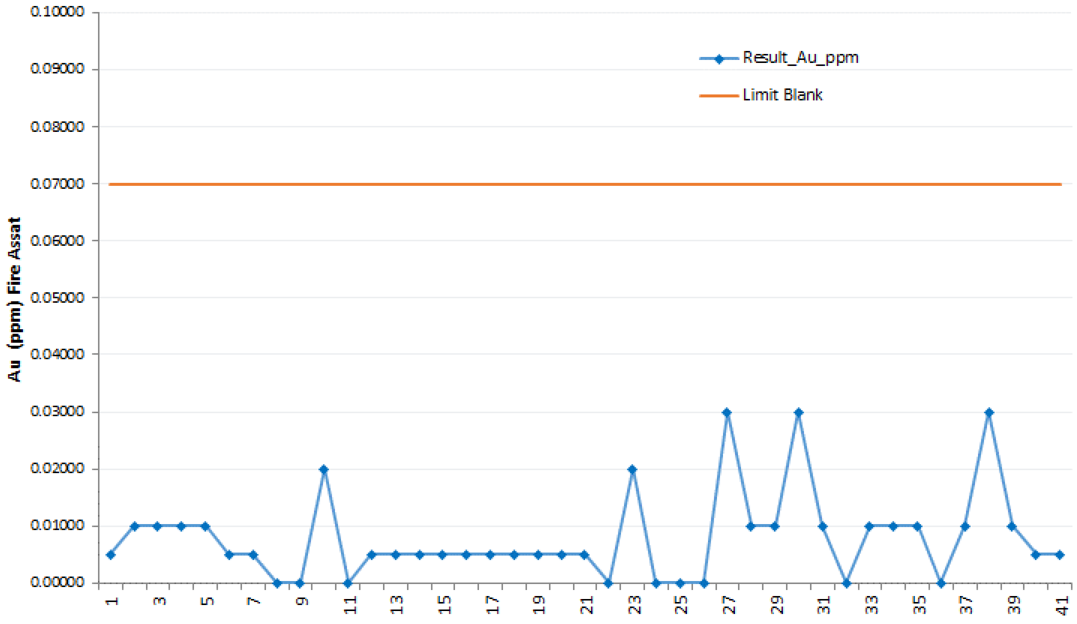

Figure 15: Blank sample analysis for drill holes

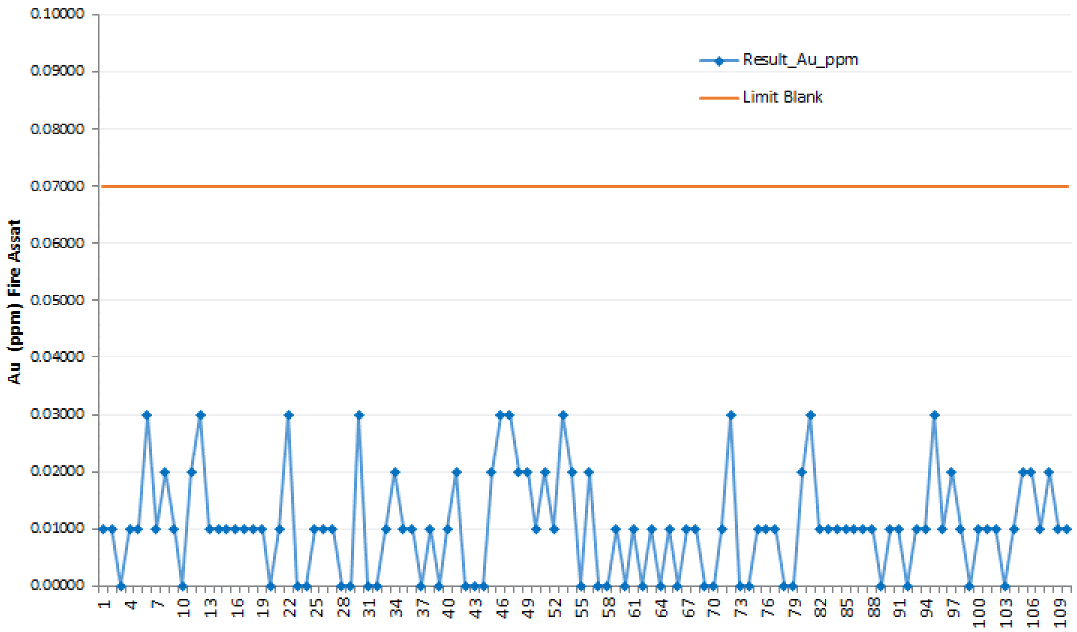

Figure 16: Blank sample analysis for channel samples

12.2.2. Standard Sample Analysis

Figure 17 to Figure 21 present the results for the standard sample analysis for both drill hole and channel samples. The majority of the standard samples demonstrated results within two standard deviations of the mean. This was considered to be within the acceptance limits.

The results for the MRC-ITAK-586 samples demonstrated results that included sample change error. These results were not included in the qualitative analysis.

No bias was observed for the mean values of the standard samples.

The standard sample results were considered to be within the acceptance limits for the classification of the current mineral resources at the Nova Xavantina Project.

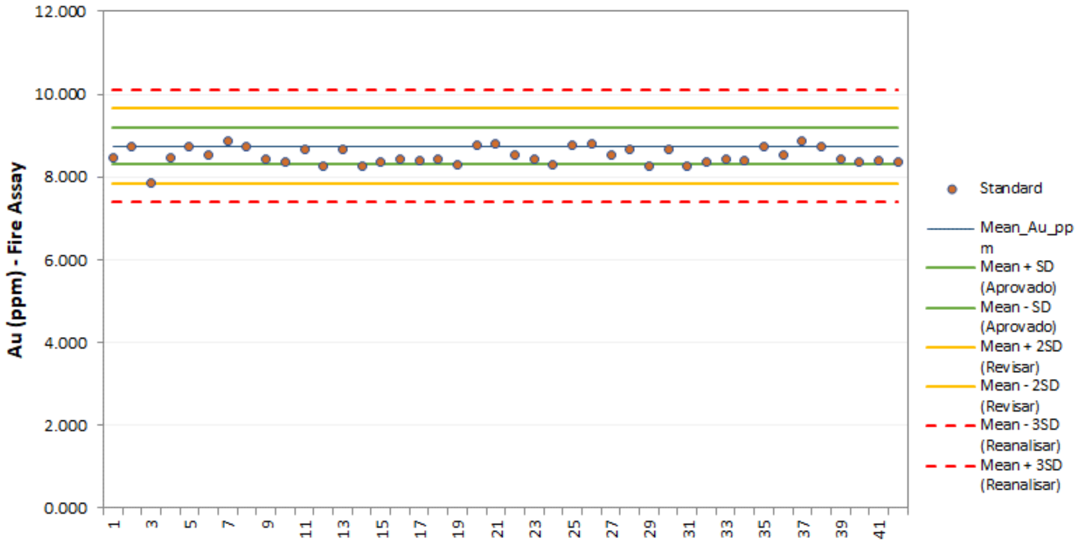

Figure 17: Standard sample analysis - MRC-ITAK-527 for drill hole and channel samples

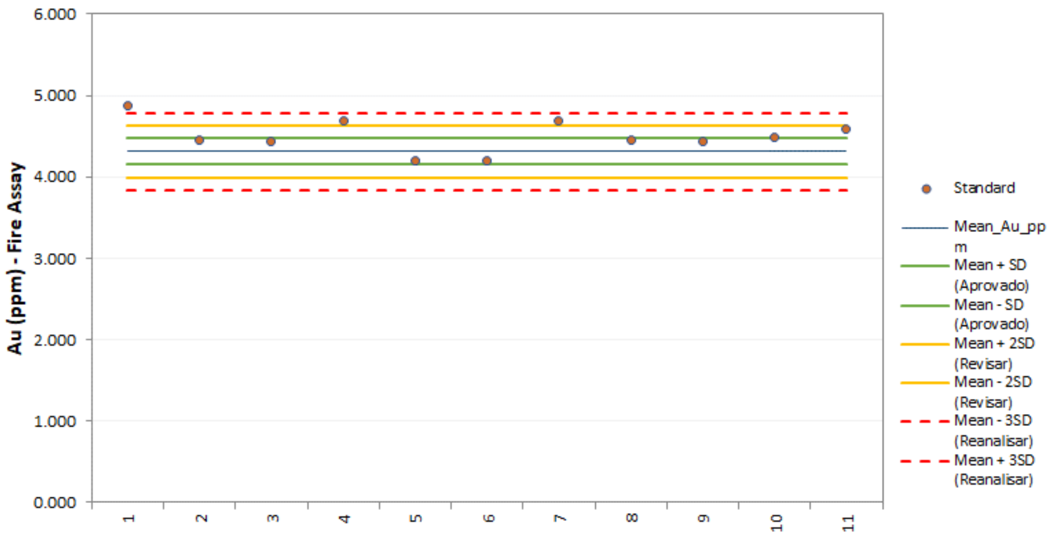

Figure 18: Standard sample analysis - MRC-ITAK-568 for drill hole and channel samples

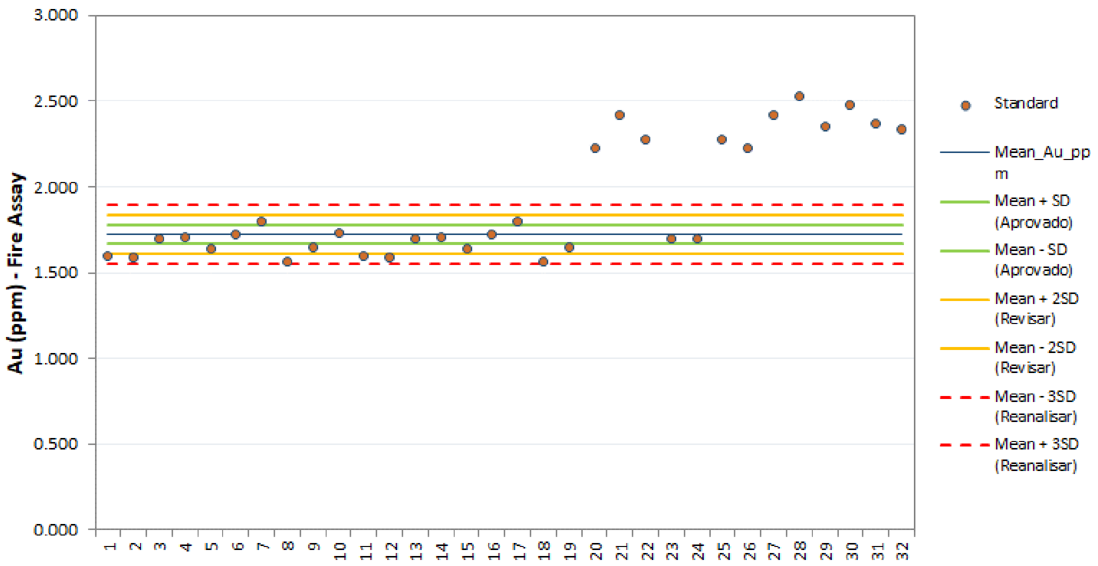

Figure 19: Standard sample analysis - MRC-ITAK-586 for drill hole and channel samples

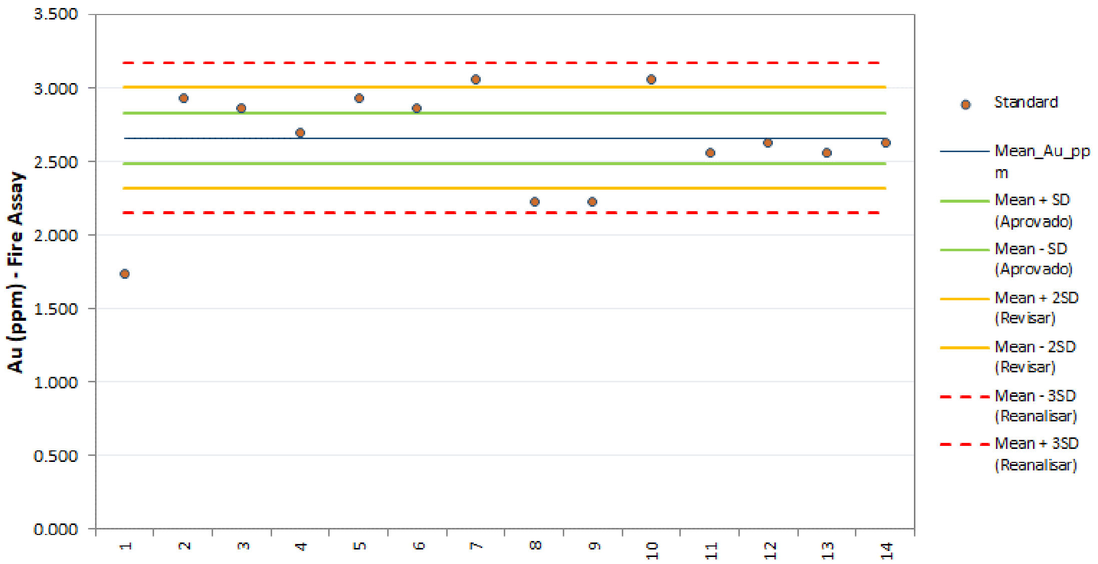

Figure 20: Standard sample analysis - MRC-ITAK-591 for drill hole and channel samples

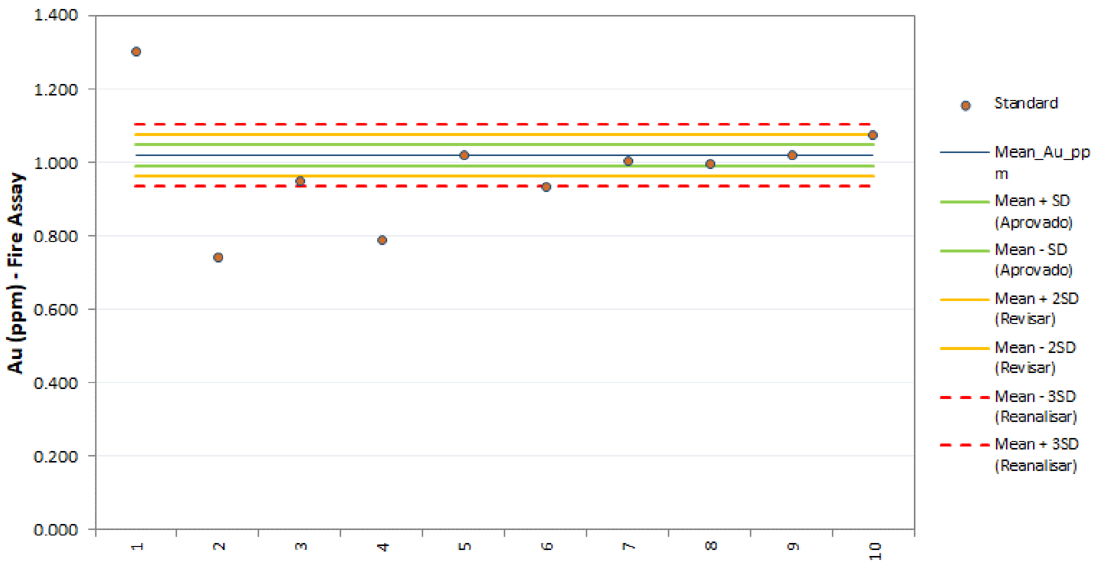

Figure 21: Standard sample analysis – OxG103 for drill hole and channel samples

12.2.3. Duplicate Samples

Duplicate samples were analyzed separately for drill hole samples and channel samples. The results of the duplicate sample analysis for drill hole and channel samples are presented in Figure 22 and Figure 23, respectively. Limits for the analysis were set at 5% and 10% relative standard deviation ("RSD").

For significant values above 0.5 ppm the majority of the samples were found to be within the 10% RSD limits, demonstrating that the accuracy of the chemical analyses is within limits and in line with industry best practices.

The duplicate sample results were shown to be within the limits of acceptance for the classification of the current mineral resources at the Nova Xavantina Project.

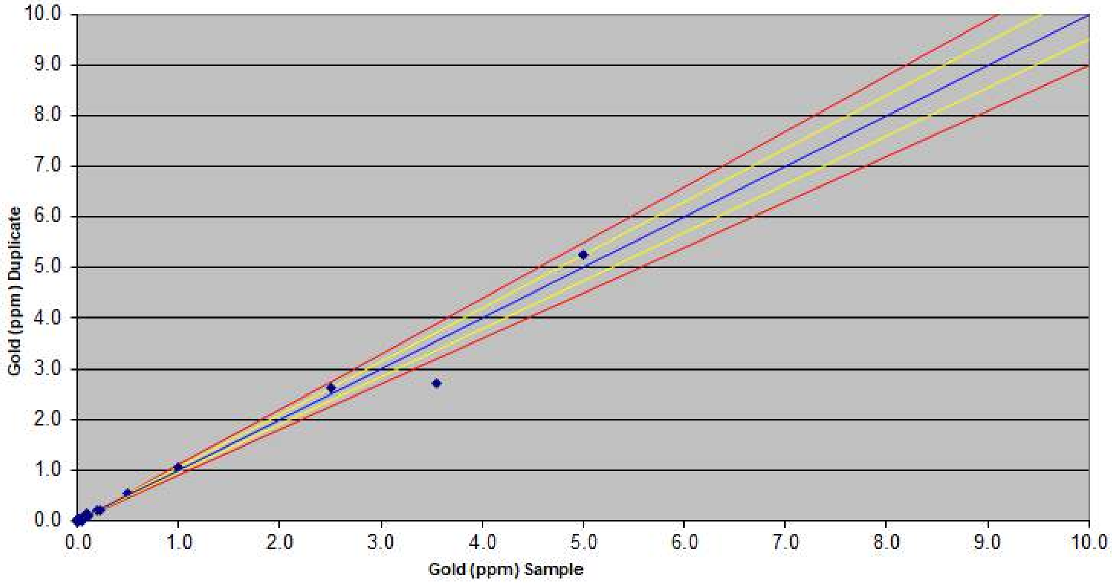

Figure 22: Duplicate sample analysis for drill hole samples

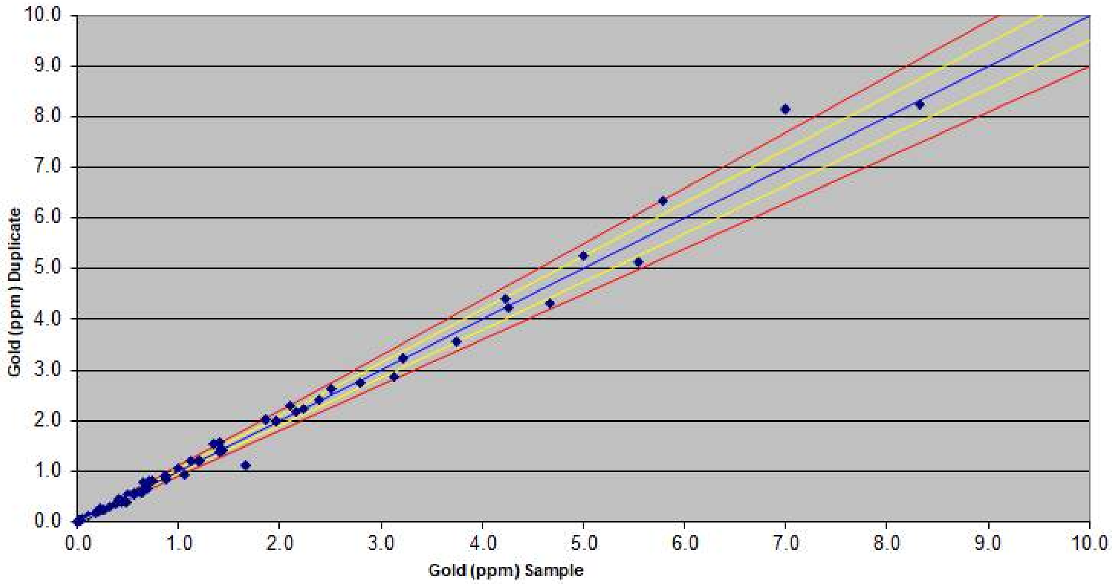

Figure 23: Duplicate sample analysis for channel samples

13.0. MINERAL PROCESSING AND METALLURGICAL TESTING

The NX Gold Mine is currently in operation and achieving metallurgical recoveries in excess of 90%. This Chapter provides an overveiw of prior testwork performed in support of mine development. The Company's forecast recovery of 90% is based on actual plant performance and modeled reserve grades as set out in the production plan herein.

Prior to the transition of the NX Gold Mine to NX Gold S.A, MCSA requested that Amdel Mineral Laboratories investigate the metallurgical response of samples from the NX Gold Mine in support of its development.

The aim of the testwork was to investigate processing options and to optimise gold recovery. The testwork included:

- Sample characterisation;
- Gravity separation;
- Cyanide leach tests;
- Flotation optimisation; and,
- Bulk processing under optimised conditions.

The testwork, described in greater detail below, showed that despite preg-robbing characteristics, the combination of gravity, flotation and CIL leaching resulted in overall gold recoveries of 96% being achievable at a target grind size of 106 micron ("µm"). The results of the optimization testwork evaluating varying process routes is shown below in Table 20.

Table 20. Processing Route results.

Processing Route	Au Calc Head (g/t)	Gravity Con 1 (dist %)	Float Con (dist %)	Gravity Con 2 (dist %)	Process Recovery (%)
Gravity- Float (regrind cons) - CIL – Gravity Float tails	2.44	73.0	24.9	1.01	96.4
Gravity - Deslime - Float (regrind cons) - CIL	2.58	70.2	16.3	-	86.6
Gravity-Float (regrind cons) - CIL	2.41	71.4	25.7	-	96.0
Gravity-CIL	3.11	66.1	-	-	96.2

Additional evaluation showed that a simple gravity/CIL circuit resulted in similar recoveries as gravity, flotation, followed by CIL of the flotation concentrate. Kerosene addition of 3kg/t was required to optimise CIL recovery from the float concentrate. Regrinding the flotation concentrate, from 106µm to 30µm, resulted in an additional 1% gold recovery.

13.1. Metallurgical Testwork

13.1.1. Sample Characterisation

A sub sample of the Nova Xavantina/Araés Composite was assayed in duplicate to determine the head grade. A summary of these results can be found in Table 21.

Table 21. Assayed Head Grades.

Assay	Au (g/t)				As	S	Org C (%)
					(ppm)		
Original	3.55	3.11	4.04	2.00	21	8700	0.48
Duplicate	5.36	2.40	2.81	-	19	8800	0.49

In initial characterization work, the gold grade in the Nova Xavantina/Araés Composite ranged from 2.00g/t to 5.36g/t while the average grade was 3.32 g/t. The discrepancy indicated the presence of coarse gold in the sample. In addition, significant amounts of organic carbon were found to be present in the sample (approximately 0.5%), indicating that preg-robbing was likely to occur in leaching stages.

ICP analysis was also conducted on the composite sample, as shown below in Table 22. The assay data indicated significant quantities of lead were present, approximately 0.14%, while only trace quantities of arsenic and antimony were present.

Table 22. ICP Composite Characterization

Element	Unit	Detection Limit	Assay
Ag	ppm	0.5	3.25
Pb	ppm	1	1385
As	ppm	1	20
Sb	ppm	0.2	3.5
Fe	%	0.01	1.56
Si	%	0.1	43.95
CO_2	%	0.1	1.05
Tot C	%	0.01	0.77
Na	%	0.01	0.01
Mg	%	0.01	0.295
Ca	%	0.01	0.58

13.1.2. Sequential Leach

For sequential leach testwork, a 1kg composite sample charge was ground to 80% passing 106µm, and subjected to a sequential leach analysis, involving gravity concentration, leaching of the concentrate and tails, followed by a regrind and re-cyanidation step, and finally aqua regia digestion to determine final recoveries.

High final tail gold grades, and lower than expected recovery from the first three stages of the diagnostic test, indicated that preg-robbing may have occurred. To confirm this, a portion of the tailings from the reground intense cyanidation test were subjected to acetonitrile leaching, followed by roasting for 2 hours at 900°C to remove the carbonaceous component. The roast residue was then subjected to aqua regia digestion.

Based on the acetonitrile leaching, it was determined that only 1% of the gold was found to have preg-robbed in the first two stages. Recovery in the aqua regia digest was significantly higher on the roasted product, indicating that carbonaceous material was interfering with the aqua regia digestion, which is a known phenomenon, whereby the gold chloride produced can be reduced to metallic gold by the natural carbon in the ore.

In summary, the diagnostic testwork indicated:

- 57% gold is gravity recoverable;
- 29% gold is recoverable by Carbon in Leach ("CIL") (with slight benefit from regrinding);
- 5% of the gold is refractory gold associated with sulphides; and,
- 7% of the gold is associated with silica or silicates.

Table 23. Diagnostic leach summary results.

Diagnostic Step	Au Dist'n	Acetonitrile Leach	After Roasting	Generic Mineral Associations
Gravity / Amalgam	57%			Free gold
Intense Cyanide Leach	28%			Partially liberated gold and gold accessible by cyanide
Intense Cyanide Leach after grinding	0%	1%		Fine encapsulated gold
Aqua Regia Soln	1%		5%	Gold associated with sulfides
Aqua Regia Res	13%		7%	Gold encapsulated in fine grained silicates

13.1.3. Preg-Robbing Factor Tests

Preg-robbing factor ("PRF") tests were conducted on whole ore samples, as well as rougher flotation concentrate from the sequential leach testwork. The test involved subjecting the pulverized sample to a 40 mg/L gold solution for 1 hour. %PRF is expressed as the percentage of gold in solution that was removed by the ore.

Table 24. Preg-robbing factor test summary.

Sample	% solids	% PRF
Whole ore	23	5.0
Whole ore	15	2.2
Rougher con	33	80.1

The results of the tests confirmed that the whole ore sample exhibits mild preg-robbing characteristics, with the flotation concentrate having significantly stronger preg-robbing properties, likely due to the concentration of organic carbon into the flotation concentrate (refer to float test data where total organic carbon ("TOC") levels ranged from ~4 to 5% in the concentrates).

13.1.4. Whole Ore Leaching

A bottle roll cyanide leach test was conducted on whole ore composite sample at a grind size of 80% passing 106 µm. Figure 24 shows the recovery plateaus at 8 hours, then slowly declines to 24 hours. This indicates that a portion of the leached gold is being lost to the carbonaceous component of the ore.

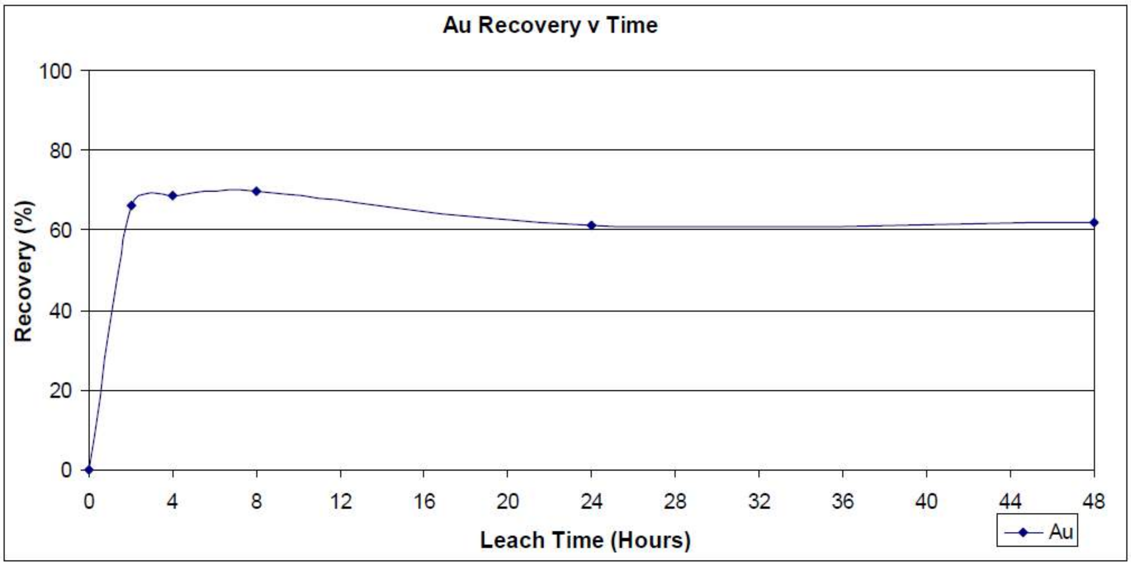

Figure 24. Results from bottle roll tests.

Whole ore CIL tests were conducted at three grind sizes to determine the relationship between recovery and grind size. The test conditions are summarized as follows:

- 33 g/L Activated Carbon;
- 750 ppm NaCN initial dose;
- 500 ppm NaCN maintained;
- pH 10-10.5 adjusted with Lime;
- 40% Solids;
- Dissolved Oxygen > 10 ppm; and,
- 48 hour total leach time.

Testwork demonstrated that gold recoveries increased with finer grind size, as illustrated in the results tabulated below. Where the use of fresh carbon was employed, higher recoveries were achieved compared with the use of “aged carbon” (test CIL1.4). It is hypothesized that the aged carbon had less ability to counter-act the natural adsorption properties of the ore and this became an important process design consideration.

Table 25. Summary of whole of ore leach tests.

Test Parameter	Leach Test	Grind Size (µm)	Gold			
			Recovered (%)	Residue (g/t)	Calc Head (g/t)	Assay Head (g/t)
Grind Size	CIL 1.1	106	93.0	0.23	3.27	3.32
Grind Size	CIL 1.2	75	94.8	0.12	2.25	
Grind Size	CIL 1.3	53	96.1	0.12	3.09	
Aged Carbon	CIL 1.4	106	87.8	0.41	3.37	

13.1.5. Flotation Optimisation

Flotation testwork was conducted on 1kg charges under the following conditions;

- 2.5L flotation cell
- 750 RPM
- 100 g/t PAX
- 30-60 g/t IF50 as required

- 14.5 minutes cumulative flotation time

A total of 7 rougher flotation tests were performed, examining the effect of grind size, copper sulfate addition and desliming on gold recovery. Table 26 summarises the results obtained.

Table 26. Summary of Flotation Test Results.

Test Number	Grind Size (µm)	$CuSO_4$ Addition	Mass Pull (%)	Gold			
				Recovery (%)	Con. Grade (g/t)	Residue Grade (g/t)	Calc Head (g/t)
1.1	106	-	6.85	97.6	50.88	0.09	3.57
1.2	75	-	7.13	98.6	40.17	0.05	2.91
1.3	53	-	8.06	98.6	32.35	0.04	2.64
1.4	106 (deslimed)[†]	-	4.80	89.1	59.51	0.07	3.59
1.5	150	50g/t	7.36	97.3	36.73	0.08	2.78
1.6	212	50g/t	7.65	97.9	35.82	0.07	2.80
1.7	106	50g/t	7.14	98.8	44.70	0.04	3.23

The flotation testwork results demonstrated that the samples were amenable to beneficiation by flotation, with greater than 97% of gold recovered into the flotation concentrate. Test 1.4 was conducted on a de-slimed flotation feed and showed significant losses of gold (approximately 9%) to the slimes fraction.

13.1.6. Gravity Grind Optimisation

Two 1kg lots were ground to different grind sizes and passed once through a Knelson concentrator to determine the optimum grind size for gravity separation. The results of the tests are summarized in Table 27. The results indicated that the samples were highly amenable to gravity recovery, with gold recoveries ranging from 65.1 to 77.9% into the gravity concentrate.

Table 27. Results of gravity testwork

Grind Size p80 (µm)	Gravity Concentrate			Gravity Tails Grade (g/t)	Head Grade (g/t)	
	Recovery		Grade		Calculated (g/t)	Assayed (g/t)
	Mass (%)	Au (%)	Au (g/t)			
150	3.24	77.9	65.3	0.62	2.72	3.32
106	2.95	67.2	61.2	0.73	2.51	
75	2.12	65.1	65.2	0.76	2.12	
53	1.20	68.7	121	1.09	2.54	

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13.1.7. Bulk Composite Testwork

Three process routes were evaluated at a selected optimum grind size of 106 µm. The process routes evaluated were;

- **Test 1:** Gravity, Rougher Flotation, CIL of concentrate, Gravity separation of flotation tails.
- **Test 2:** Gravity, Deslime, Rougher Flotation, CIL of concentrate, Gravity separation of flotation tails.
- **Test 3:** Gravity, CIL of gravity tail.

- **Test 2.1:** Repeat of Test 2; non-deslimed Kerosene addition optimization.

Results of the bulk composite testwork program indicated that Knelson gravity recovery of 106 µm feed is approximately 67% at a 1% mass pull. As was noted previously, high intensity leach tests on the gravity concentrate resulted in gold recoveries from gravity concentrate of approximately 98%.

Subsequent flotation of the gravity tails without desliming was able to further recover approximately 25% of the gold, leaving between 1.5% and 3.0% of the gold in the flotation tails.

Recovery of gold from the flotation concentrate improved with regrinding, to a recovery of 90% after a 15 minute regrind (P80 after a 15 minute regrind of 30 µm).

Kerosene addition for optimization on the CIL testwork conducted on non-deslimed flotation concentrates indicate that 3 kg/t of kerosene was sufficient to passivate the naturally occurring carbonaceous material that reported to the flotation concentrate.

Table 28 below shows the deportment of the gold into different concentrate streams in each 10 kg test, along with calculated gold head grade, and overall process recovery.

Table 28. Bulk testing summary data.

Bulk Test No.	Au Calc Head (g/t)	Gravity Con 1 (dist %)	Float Con (dist %)	Gravity Con 2 (dist %)	Process Recovery (%)
2.1	2.44	73.0	25.0	1.01	96.1
2.2	2.58	70.2	16.3	-	86.6†
2.3	2.41	71.4	25.7	-	96.0
3.1	2.95	64.2	-	-	96.2

The methods and results of the bulk composite testwork are described below in greater detail.

13.1.8. Gravity – Flotation – Gravity Process Tests

For the Gravity – Flotation – Gravity tests, a 10kg sample was ground to 80% passing 106 µm and passed through a Knelson concentrator. The concentrate was leached, and the tails floated. The flotation tails were then passed through a Knelson concentrator and leached in the same manner as the first gravity concentrate. The flotation concentrate was then wet split into four, and reground for 0, 5, 10 and 15 minutes. The milled concentrate was conditioned for 30 minutes with 33 kg/t kerosene.

The excess kerosene was removed with activated carbon. The carbon was screened out, and 20 g of fresh carbon added back to the slurry. 48 h CIL tests were conducted and the final concentrate and carbon assayed to determine recovery. Table 29 summarises the key recovery data from the test.

Table 29. Test concentrate grinding optimisation.

1st Pass Gravity Con Au Dist	Assumed Gravity High Intensity Leach Recovery	2nd Pass Gravity Con Au Dist	Assumed Gravity High Intensity Leach Recovery	Flot Con Au Dist	Test	Concentrate Grind time	CIL Recovery (%)	Overall Process Recovery (%)
						(minutes)	Au	
73.0%	98%	1.01%	90%	24.7%	CIL 2.1	5	90.9	94.9
					CIL 2.2	10	93.0	95.4
					CIL 2.3	15	95.9	96.1
					CIL 2.4	0	90.5	94.8

The gravity leach recovery was lower than would be expected in an Acacia leach process, so an assumed recovery of 98% and 90% was applied to the two gravity concentrates in calculating the overall process recovery.

Additional flotation concentrate was generated to perform kerosene addition optimization tests. In each case the flotation concentrate was ground for 15 minutes. In subsequent tests, gravity concentrate leach conditions were conducted using conditions that were more aligned with full scale processes. Test conditions were 50 °C, 2.5% NaCN, 0.25% LeachWELL, 0.25% NaOH, 10% solids. The leach was monitored at 1, 2, 4, 6, 8 and 24 hours. Recovery was found to be 98.0%, with the leach being essentially complete after 4 hours.

Table 30. Concentrate kerosene addition optimisation.

1st Pass Gravity Con Au Dist	Actual Gravity High Intensity Leach Recovery	Flot Con Au Dist	Test	Kerosene	CIL Recovery (%)	Overall Recovery (%)
				(kg/t)	Au	
73.2%	98.0%	24.1%	CIL 2.8	0	72.4	89.1
			CIL 2.9	3.5	90.1	93.4
			CIL 2.10	6.6	88.6	93.0
			CIL 2.11	9.12	83.4	91.8

Kerosene addition to the float concentrate leach improved gold recovery by ~18%. Optimum kerosene addition was 3.5kg/t of concentrate, with higher addition rates providing no benefits in gold recovery. Note, lower addition rates than 3.5 kg/t were not tested.

Laser sizing analysis of the CIL residues was carried out, indicating the P80 of the concentrate after a 15 minute regrind to be 30 microns.

13.1.9. Gravity – Deslime – Flotation – Gravity Process Tests

Ten kilograms was ground to 80% passing 106 micron, and passed through a Knelson concentrator. The concentrate was leached, and the tails deslimed before being subjected to flotation. The flotation concentrate was then wet split into three, and reground for 0, 7.5 and 15 minutes in a rod mill. The milled concentrate was conditioned for 30 minutes with 33 kg/t kerosene.

Note: this test was conducted prior to the kerosene optimization tests discussed previously. The excess kerosene was removed with activated carbon. The carbon was screened out, and 20 g of fresh carbon added back to the slurry. 48 h CIL tests were conducted and the final concentrate and carbon assayed to determine recovery.

Table 31 summarizes the key recovery data from the test.

Table 31. Test summary data.

1st Pass Gravity Con Au Dist	Assumed Gravity High Intensity Leach Recovery	2nd Pass Gravity Con Au Dist	Assumed Gravity High Intensity Leach Recovery	Flot Con Au Dist	Test	Concentrate Grind time	CIL Recovery (%)	Overall Process Recovery (%)
						(minutes)	Au	
70.2%	98.0%	0.74%	90%	19.6%	CIL 2.5	0	59.3	81.0
					CIL 2.6	7.5	76.8	84.5
					CIL 2.7	15	86.4	86.4

13.1.10. Gravity – Leach Process Tests

Ten kilograms was ground to 80% passing 106 micron and passed through a Knelson concentrator. The concentrate was leached at 50 °C, and the gravity tails split into 9 samples approximately of 1.1 kg each. CIL tests were conducted with interim and final solids sampling and the final and carbon assayed to determine recovery kinetics. Table 32 summarizes the key recovery data from the test.

CIL tests showed that recovery of gold proceeded rapidly, with maximum recoveries achieved in as little as 4 hours. Subsequently recovery appeared to decline significantly, however this may well be an artifact of interim sampling. Lead nitrate dosed at 1 kg per tonne appeared to have a deleterious effect on final gold recovery.

Table 32. Test knelson tail cil summary data.

Gravity Con Au Dist	Actual Gravity High Intensity Leach Recovery	Gravity Tail Au Dist	Test	Total Leach Time	Initial CN: Test CN	Cyanide Consumption	CIL Recovery (Au)	Overall Recovery (%)
				Hours	ppm	kg/t	%	
64.2%	98.2%	35.8%	3.1.2	24	750:500	1.14	82.67	92.6
			3.1.3	24	500:250 lead nitrate	1.02	73.39	89.3
			3.1.4	24	500:250	0.92	80.63	91.9
			3.1.5	8	1250:1000	1.23	92.72	96.2
			3.1.6	8	1000:750	0.86	91.24	95.7
			3.1.7	8	750:500	0.75	90.73	95.5
			3.1.8	6	1000:750 1110g/t Au on carbon 40 kg/t Carbon	0.49	86.95	94.2
			3.1.9	6	1000:750 1110g/t Au on carbon 60 kg/t Carbon	0.64	85.96	93.8
			3.1.10	6	1000:750 1110g/t Au on carbon 20 kg/t Carbon	0.56	88.07	94.6

Final gold recovery increased with increasing cyanide levels, however cyanide consumption rose by 0.47 kg/t between test 3.1.5 and 3.1.7, while overall gold recovery increased by 0.03 g/t.

It was found that extended leach times had a deleterious effect on recovery, as shown by Figure 25 below representing gold recovery in the first three 24h CIL tests.

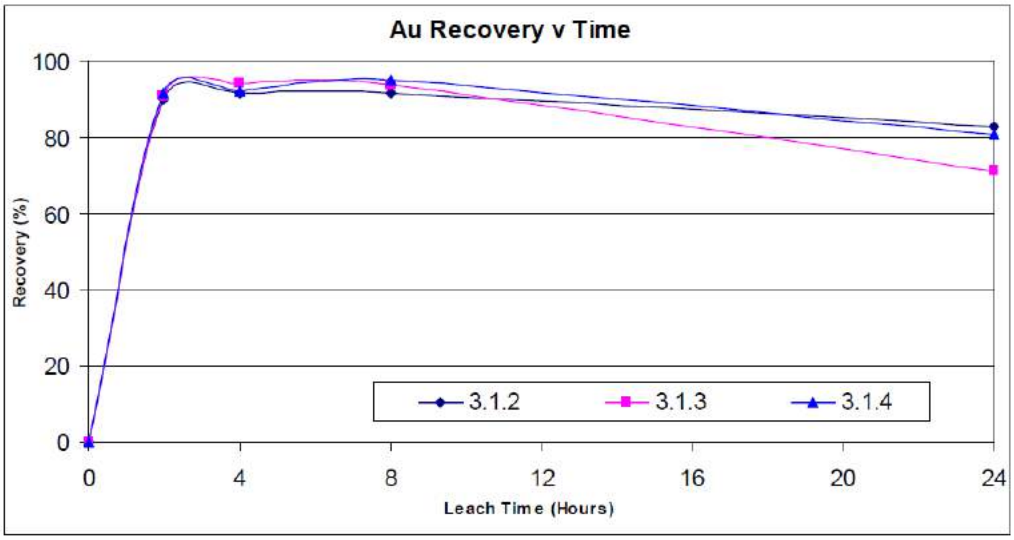


Figure 25. Comparison of 24h leach tests.

The results suggest that the addition of lead in 3.1.3 results in an increase in preg-robbing. Given the natural content of lead in the ore, this may explain the observed decrease in calculated recoveries between 8 and 24 hours.

Further tests were conducted with an 8 hour residence time, with kinetic recovery data presented below in Figure 26.

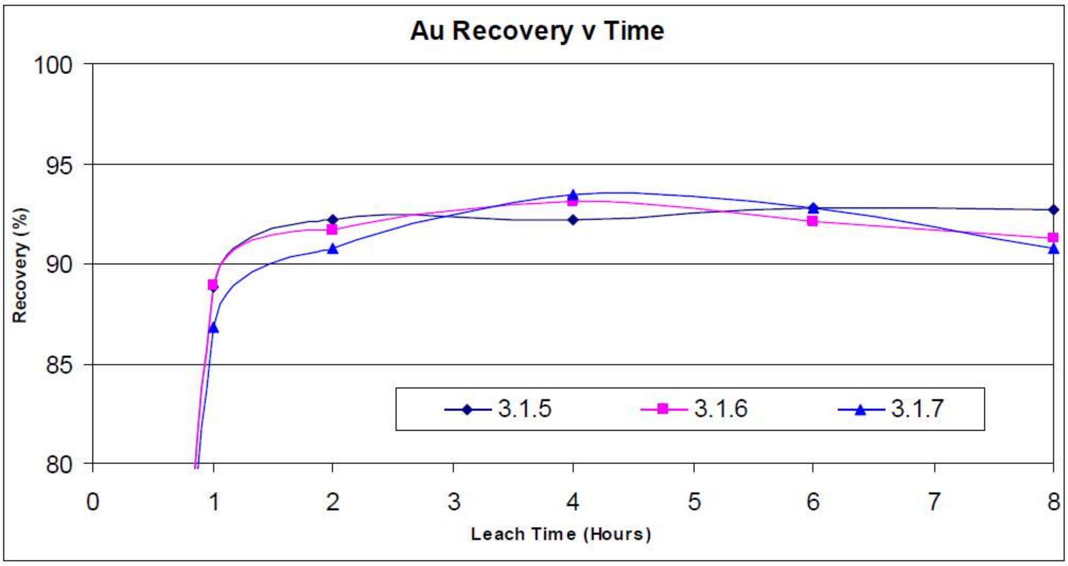


Figure 26. Comparison of 8h leach tests.

The highest cyanide addition test (3.1.5) appears to have had the lowest losses of gold, while at the lower addition rate (3.1.7), losses appear to have been significant.

The 8 hours tests provide a level of confidence in the interim data for the 24 hour tests, and show that leaching was essentially complete after only two hours using an initial cyanide dose of 1000 ppm.

A further three CIL tests were conducted at 20, 40 and 60 kg/t of carbon preloaded to 1110 g/t Au and employing a shorter residence time of 6 hours (Figure 27).

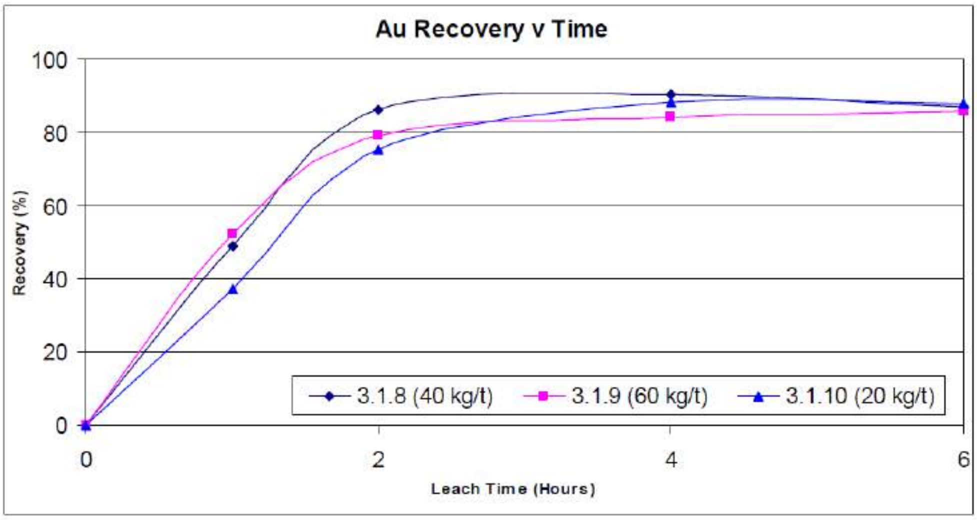


Figure 27. Comparison of 6h leach tests.

Differences in the kinetics of each test are explained by interim sampling error. By comparison to recoveries achieved using fresh carbon, the leach recovery decreased by approximately 4%.

14.0. MINERAL RESOURCE ESTIMATES

14.1. Database

GE21 received data from NX Gold in table in text file format (".CSV") referring to the results of sampling and survey works conducted at the Nova Xavantina Project. These files contained data that included X and Y coordinates, dimensions, final depth of the drill holes, geological description of the drilling intervals, thickness of the sampled interval, chemical analysis of the mineralized grades, as well as measurements of borehole deviation and density. Data collected from underground channel samples was also included in the database.

A database with available data was created in MS-Access format and was named *bd_nxgold_Ago2018_00v.mdb*. This database contained the data summarized in Table 33.

Table 33. NX Mine Database Summary

Summary	Drilling Campaign pre-October de 2017	Drilling Campaign 2017/2018	TOTAL
Number of Drill holes	462	7	469
Total Length (m)	86,340	2,393	88,733
Number of Sample Assays	12,829	129	12,958
Number of Underground Channel Sample Lines	2,217	1,303	3,520
Total Length of Channels (m)	8,944	885	9,829
Number of Channel Samples	19,085	1,303	20,388

An automatic validation was performed in the project database using the Geovia Surpac software database audit tool. This tool validates:

- Final Depth - Validates if the final depth in the Sampling, Geology and Survey tables does not exceed the value set as maximum depth in the Collar Table;
- Overlapping - Validates whether there is an overlap between sample intervals in the same drill hole;
- Collar - Validates if all key information such as coordinates and final depth are complete.

GE21 validated the database using Geovia Surpac 6 software and did not find any errors or inconsistencies in the database.

14.2. 3D Model

The 3D model for the mineralization of the NX Gold Mine (grade shell) was generated based on drilling sampling and underground channels with grades above 1.4 g/t Au. This Grade was selected because it was used as a cut-off in a short-term model created for the shallower portion of the Brás vein. Low grades inserted between samples of high grade were included in the 3D model and the internal dilution was assumed as part of the mineralization zone.

Horizontal sections were generated in channel samples at sampled mining sub-levels as well as in drill hole sample data. Figure 28 shows the drill holes, channel samples, and channel lines with interpreted horizontal sections. Figure 29 presents a detail of section A-A' with Au contents in ppb. Part of the short-term 3D model of the Brás body for the shallower portion of the mine was added to the model and the lower level data was modeled using Geovia Surpac 6.8 software. Drilling intersections were modeled on Brás, Buracão, Santo Antônio and Stock Work targets (Figure 30).

A topographic divergence in the elevation of up to 5 m among the underground data and the drilling data was identified for the deeper portion of the mineralized zone of the Brás and Buracão targets, during the modeling. It was recommended that NX Gold investigate the origin of this divergence to validate the integrated topographic base on surface and underground.

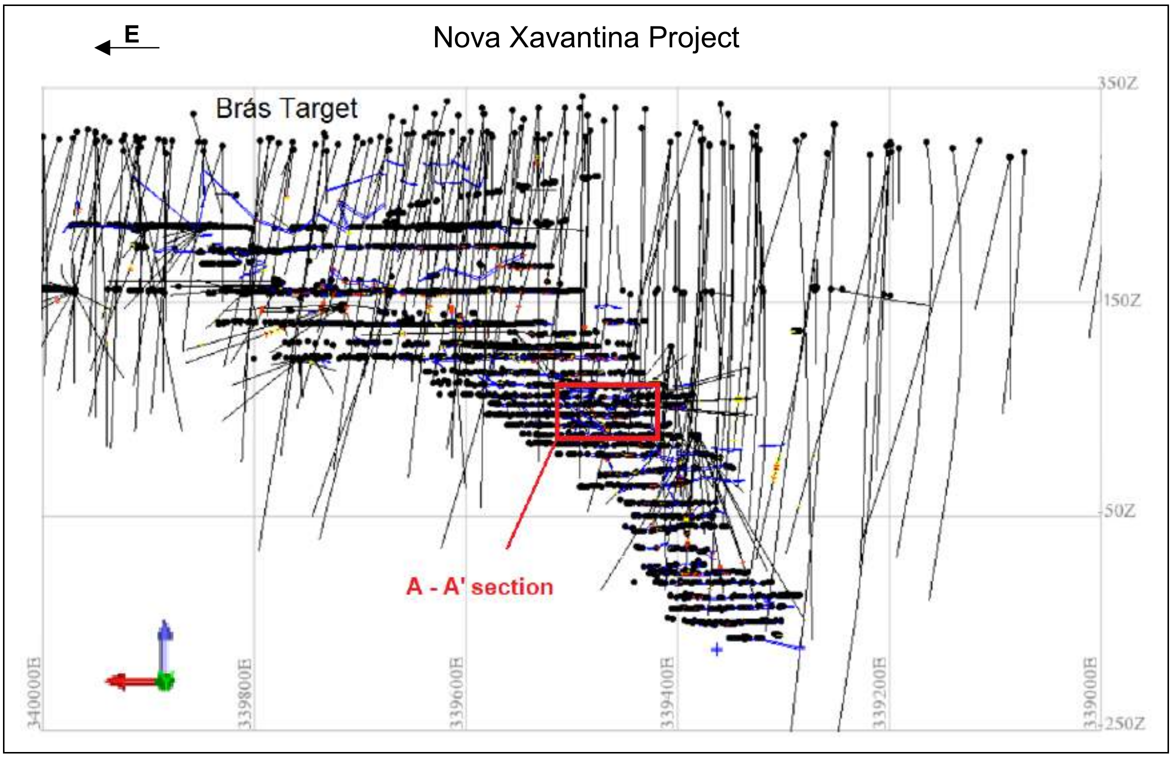


Figure 28. Frontal view of Brás vein with interpreted horizontal section as blue lines

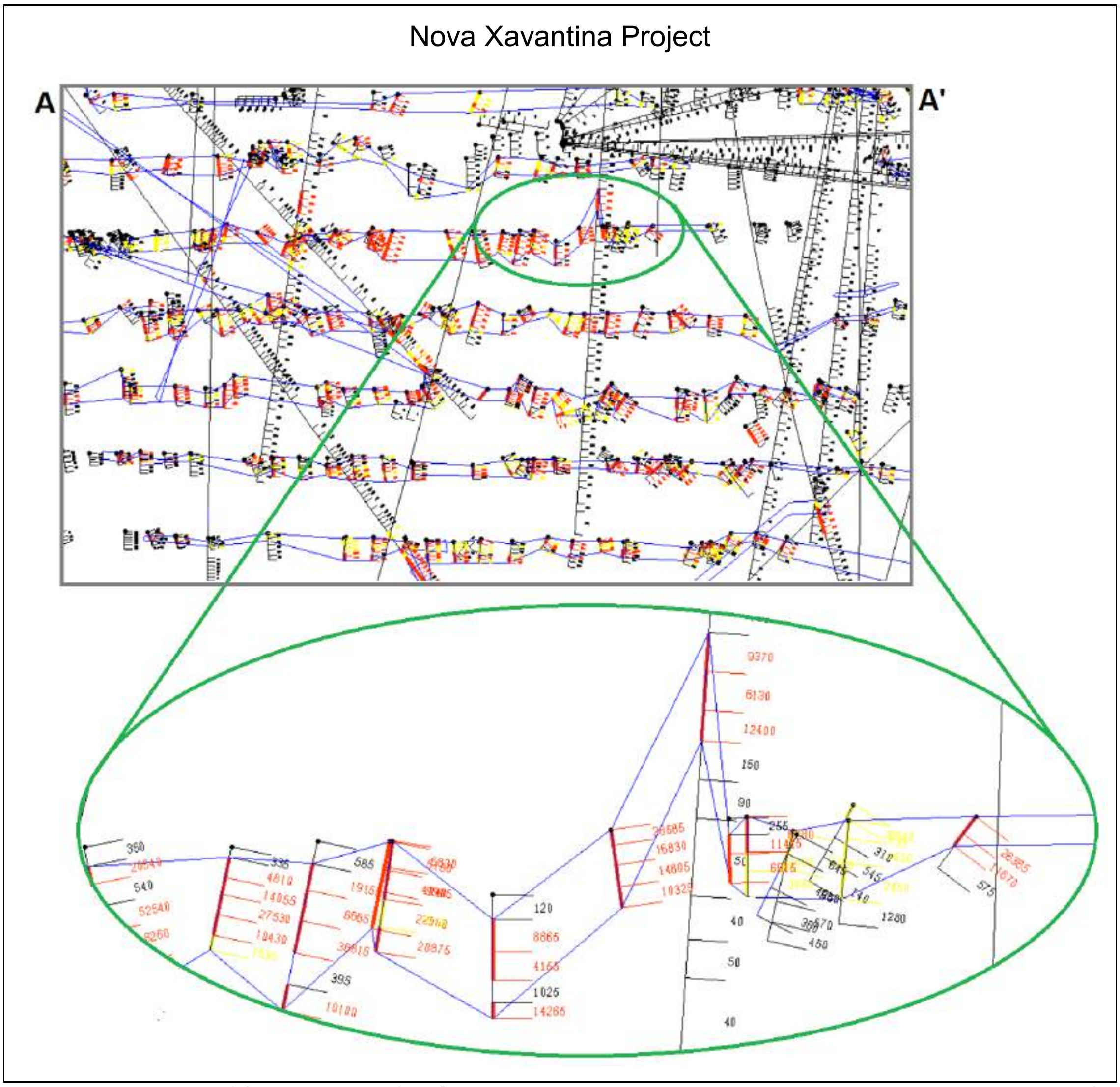


Figure 29. Detail of frontal view of Brás vein with interpreted horizontal section (detailed view of larger image shown in Figure 28).

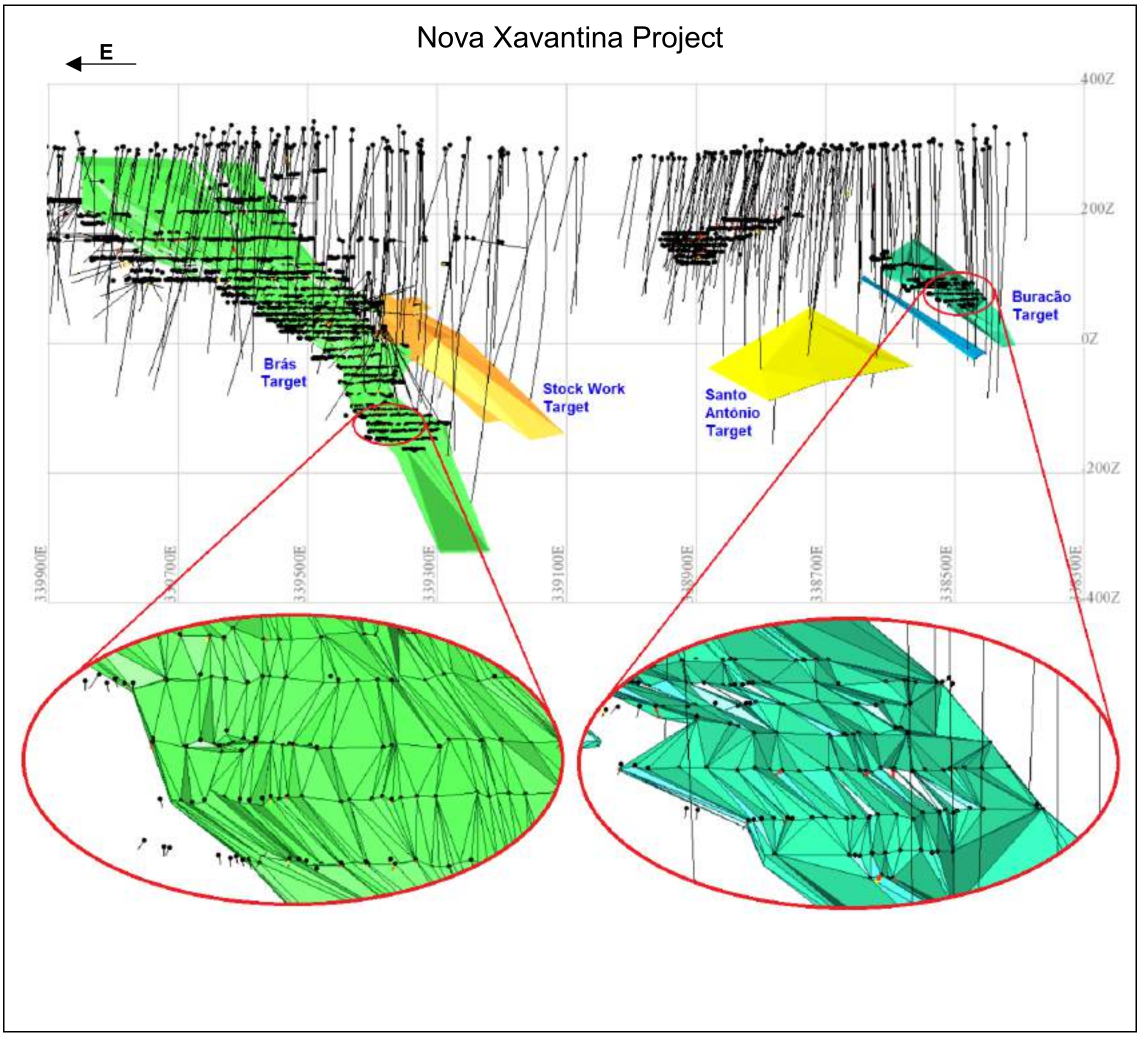


Figure 30. 3D model of mineralization zone

14.3. Block Model

A block model was created for the mineral resource estimate using the parameters set out in Table 34. The block model was created in Geovia Surpac software Version 6.8.

Table 34. Block model dimensions

	Y	X	Z
Minimum coordinates	8381250	338280	-430
Maximum coordinates	8382600	340180	350
Parent block sizes (m)	10	10	2
Sub-block sizes (m)	2.5	2.5	0.5
Rotation (°)	-	-	-

Each block of the model was characterized by a series of attributes, as described in Table 35.

Table 35. Attributes of the NX Gold block model

Attribute Name	Type	Description
au_krig	Float	Au (ppm) resource
au_pass	Integer	Au Resource Estimate pass
density	Float	Density (g/cm3)
dnpm	Integer	Tenement: 1=NX Gold Area
mining	Integer	0=mined; 1=unmined
reccls_a	Character	Resource Class
reccls_n	Integer	1= measured; 2=indicated; 3=inferred
target	Character	Target Mineralization Zone

The block model classified by target name stored in the "target" attribute is shown in Figure 31

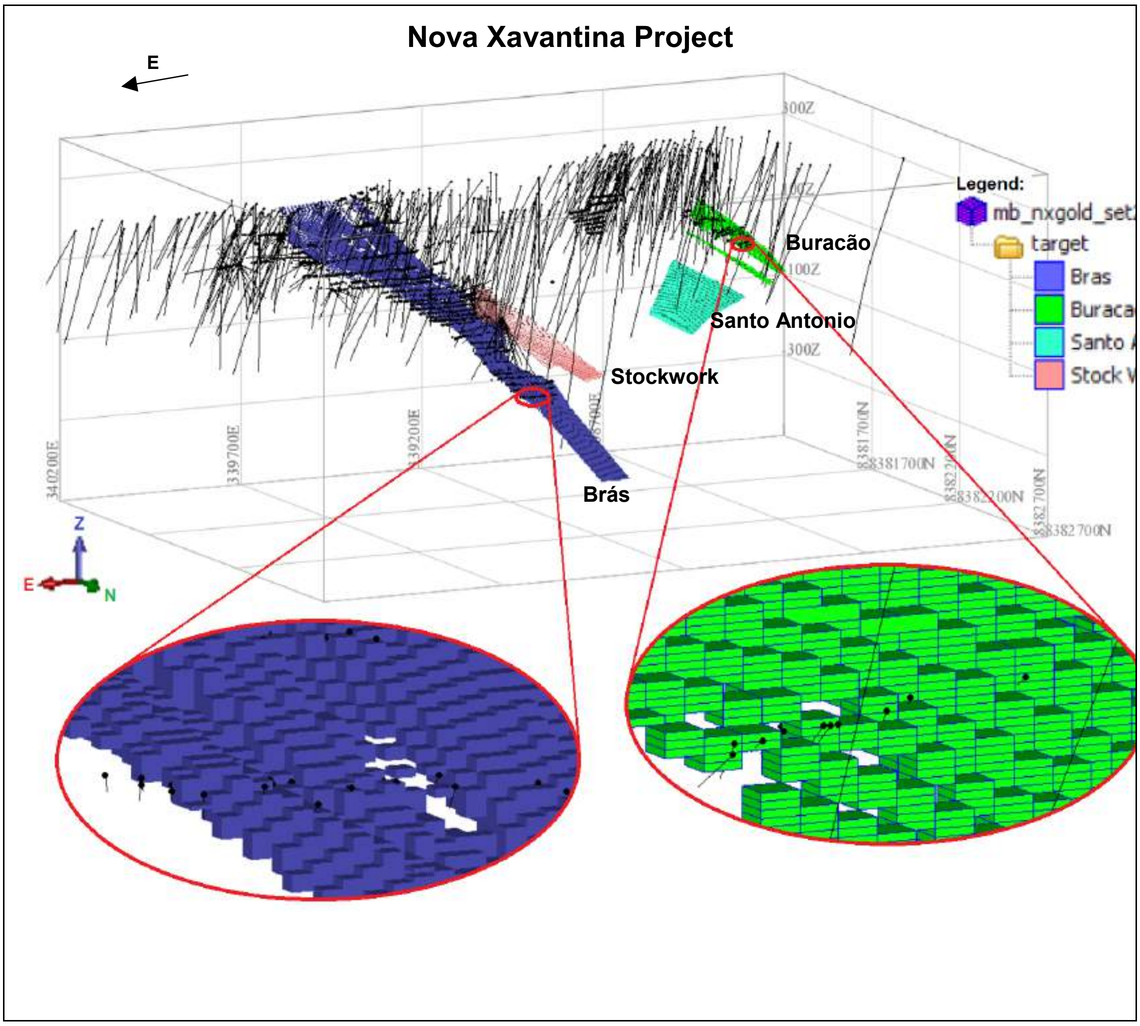


Figure 31. Block model classified by target name

14.4. Sample Compositing

The intersections between drill holes and the 3D mineralization model were stamped using Gemcom Surpac software 6.8 to ensure the best adherence. A table was created in the database with these intersections for the identification of the mineralized intervals to be composited.

Composition consists of regularizing the size of the samples. The objective is to achieve uniform sampling, reducing the impact of random variability, and minimizing the effect of different sample sizes on the sample mean. Each regularized sample will be considered a composite. After analysis of the mean length of the sampled intervals (Figure 32 and Figure 33), it was verified that the appropriate length for the drilling samples is 1.00 m and channel samples is 0.70 m, which may vary in analysis up to 30% of the nominal length for adjusting the samples at the ends of each intersection interval in the mineralized zone.

The Au grade fields in the composite files were converted from ppb to ppm (g/t).

Nova Xavantina Project

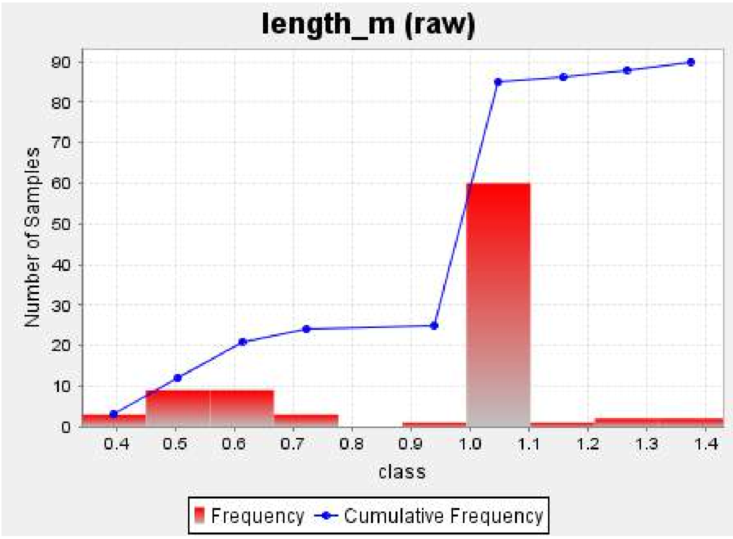


Figure 32. Length of drilling samples

Nova Xavantina Project

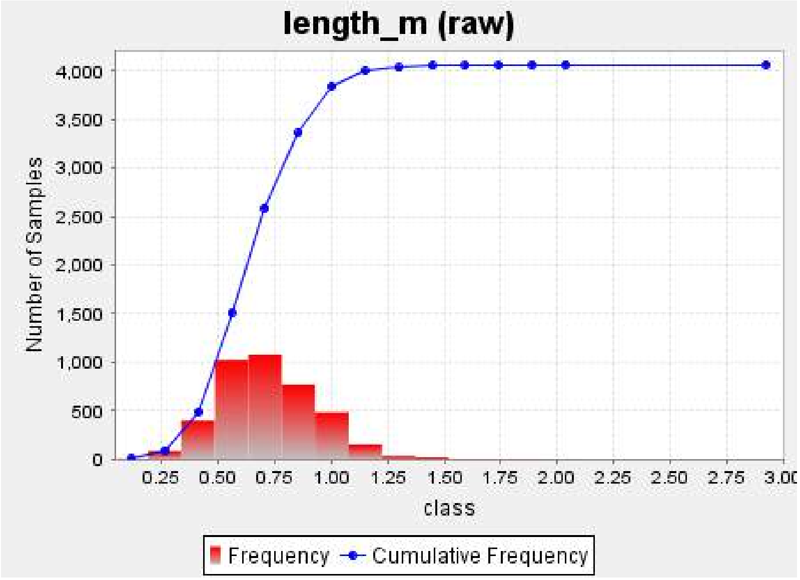


Figure 33. Length of channel samples

14.5. Exploratory Data Analysis ("EDA")

The samples were studied under the classical statistical approach, considering the generated composites.

Geovia Surpac 6.8 software was used for statistical analysis. Statistical analysis allows inference on distributions, modals and anomalous values of the studied variables, in order to assist in structural analysis (variography). Table 36 presents the summary of the statistics and Figure 34 to Figure 37 present the complete analysis.

Table 36. Statistical Analysis Summary

Target/ Type	Variable	Median	Mean	Standard Deviation	CV	N° of Samples	Maximum	Superior Limit (Cap)
Brás (Drilling)	Au_ppb	3,039	8,612	13,380	155%	293	92,930	42,000
Brás (Channel)	Au_ppb	4,241	10,974	20,415	186%	4,026	332,964	42,000
Buracão (Drilling)	Au_ppb	11,444	16,724	16,310	98%	22	59,870	100,000
Buracão (Channel)	Au_ppb	12,780	24,991	33,240	133%	553	282,408	100,000

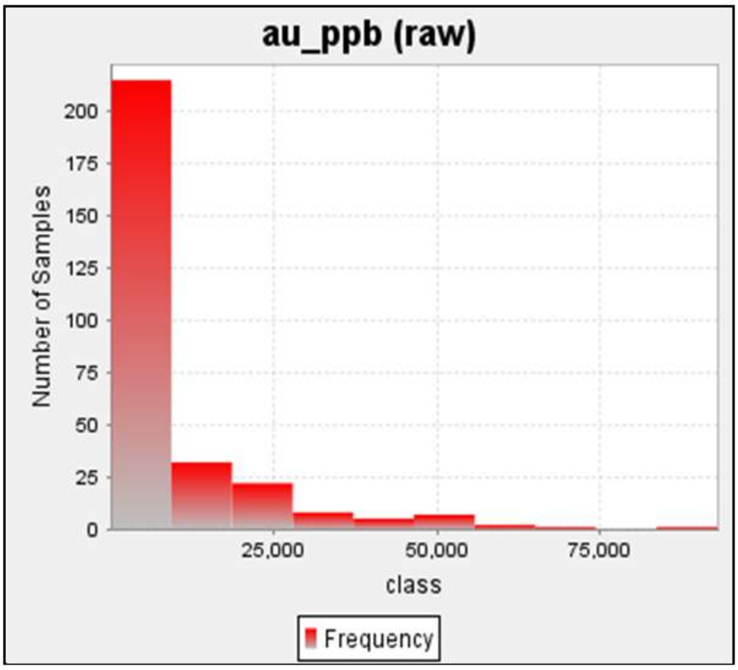
Nova Xavantina Project

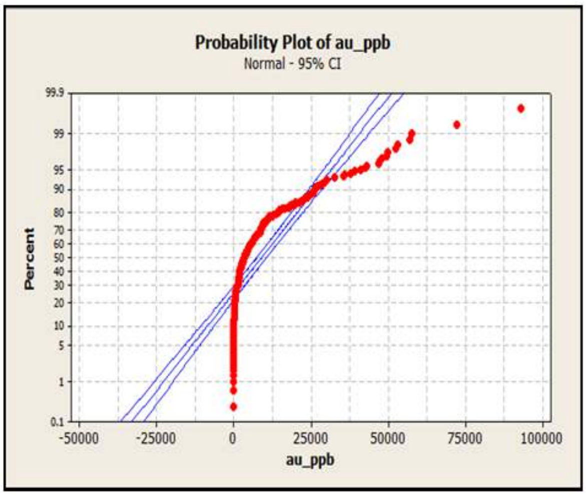
Target:	Brás
Zone:	Drillhole Samples
Variable:	Au ppb

Number of samples:	293
Minimum:	2.48E+00
Maximum:	9.29E+04
N° Classes (Sturges):	9
Interval (Sturges):	1.01E+04

Quantiles	
2.5%:	7.84E+00
5.0%:	2.00E+01
25.0%:	4.25E+02
Median:	3.04E+03
75.0%:	9.54E+03
95.0%:	3.85E+04
97.5%:	4.96E+04

Mean:	8.61E+03
Variance:	1.79E+08
Standard Dev:	1.34E+04
Coef. of variation:	155%
Range interquartil:	9.12E+03





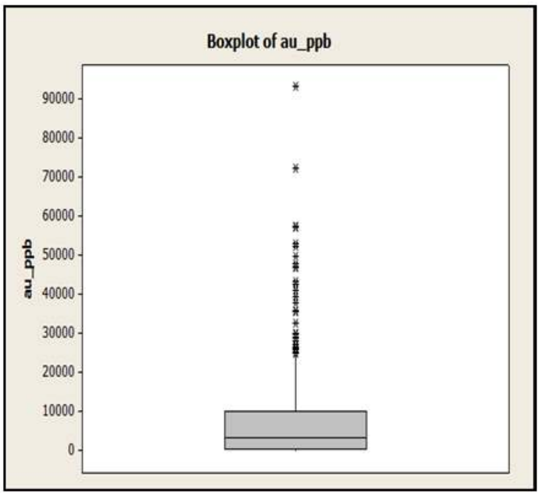


Figure 34. EDA - Au (ppb) – Brás Vein - Drill holes

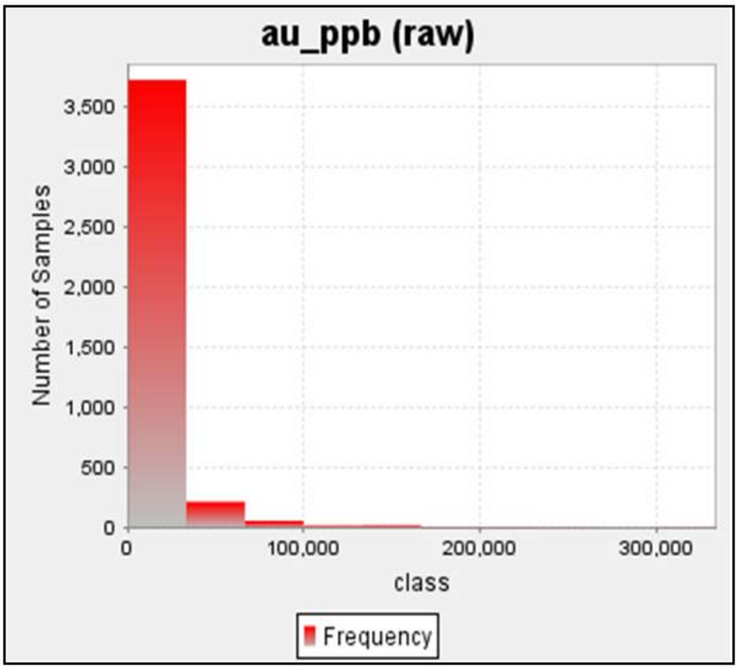
Nova Xavantina Project

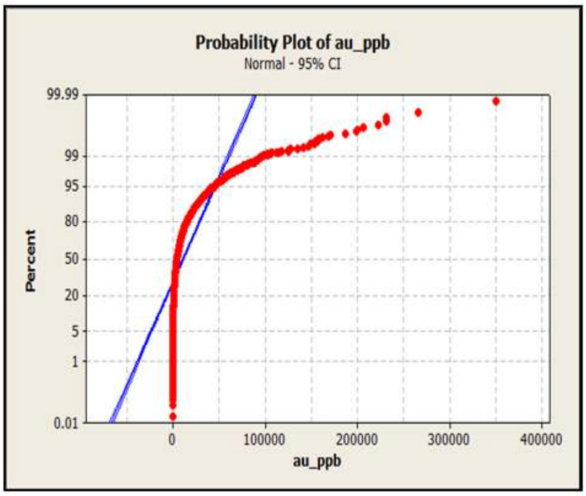
Target:	Brás
Zone:	Channel Samples
Variable:	Au ppb

Number of samples:	4 026
Minimum:	0.00
Maximum:	3.33E+05
N° Classes (Sturges):	13
Interval (Sturges):	2.56E+04

Quantiles	
2.5%:	6.00E+01
5.0%:	1.22E+02
25.0%:	1.59E+03
Median:	4.24E+03
75.0%:	1.14E+04
95.0%:	4.40E+04
97.5%:	6.16E+04

Mean:	1.10E+04
Variance:	4.17E+08
Standard Dev:	2.04E+04
Coef. of variation:	186%
Range interquartil:	9.81E+03





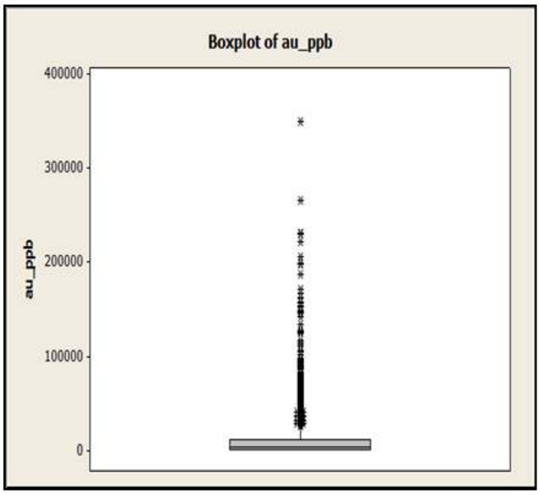


Figure 35. EDA - Au (ppb) – Brás Vein – Channel samples

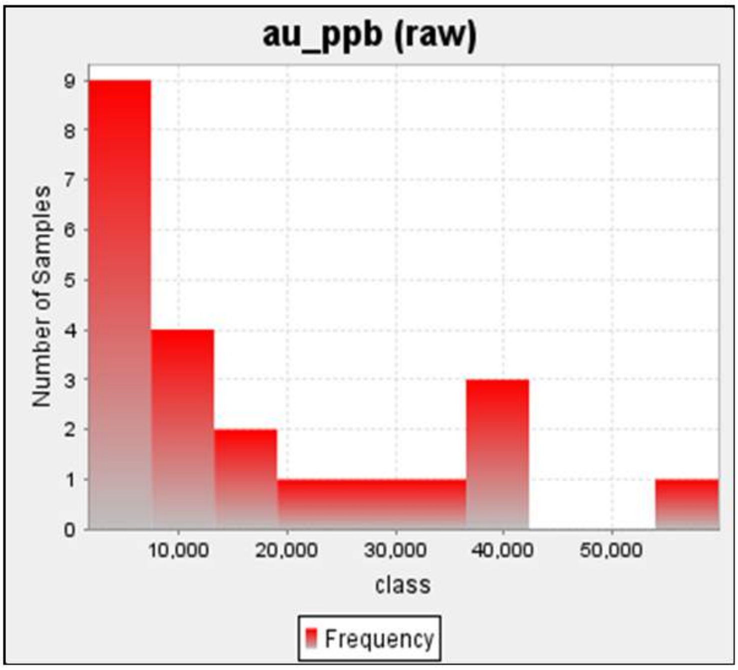
Nova Xavantina Project

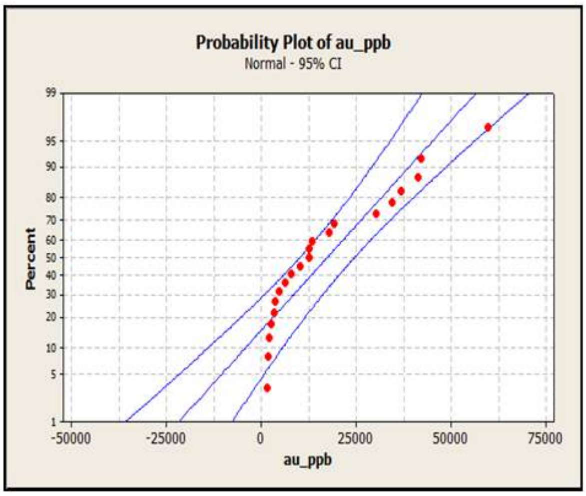
Target:	Buracão
Zone:	Drillhole samples
Variable:	Au ppb

Number of samples:	22
Minimum:	1.53E+03
Maximum:	5.99E+04
N° Classes (Sturges):	5
Interval (Sturges):	1.07E+04

Quantiles	
2.5%:	1.68E+03
5.0%:	1.68E+03
25.0%:	3.46E+03
Median:	1.14E+04
75.0%:	3.04E+04
95.0%:	5.10E+04
97.5%:	5.10E+04

Mean:	1.67E+04
Variance:	2.66E+08
Standard Dev:	1.63E+04
Coef. of variation:	98%
Range interquartil:	2.69E+04





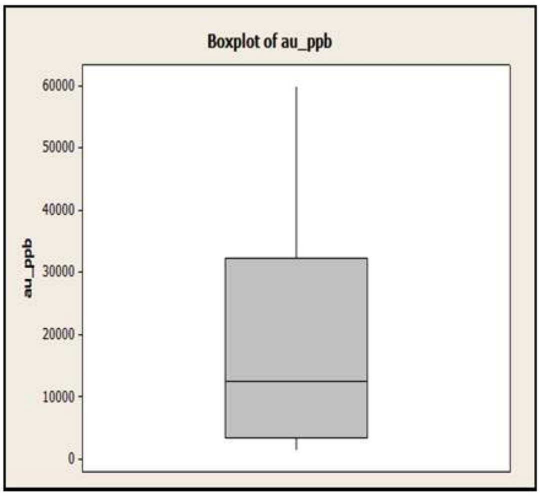


Figure 36. EDA - Au (ppb) – Buracão Vein - Drill holes

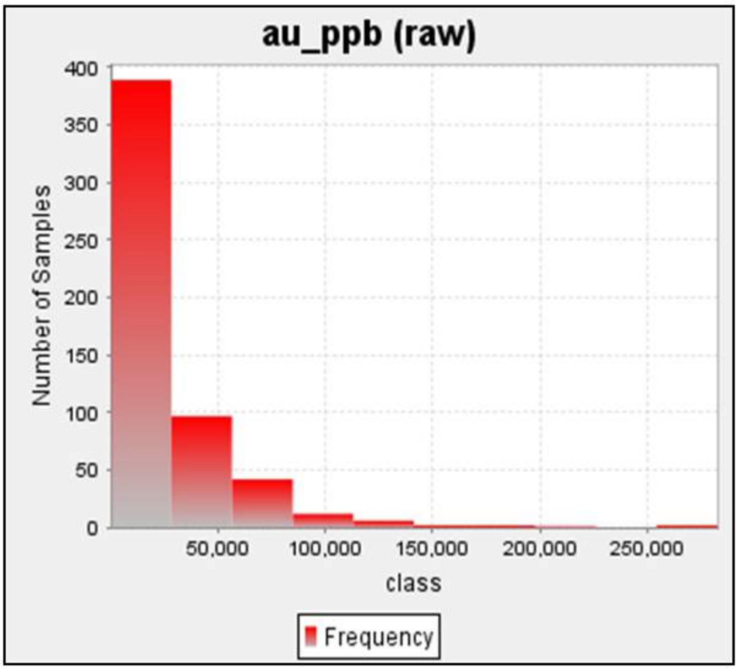
Nova Xavantina Project

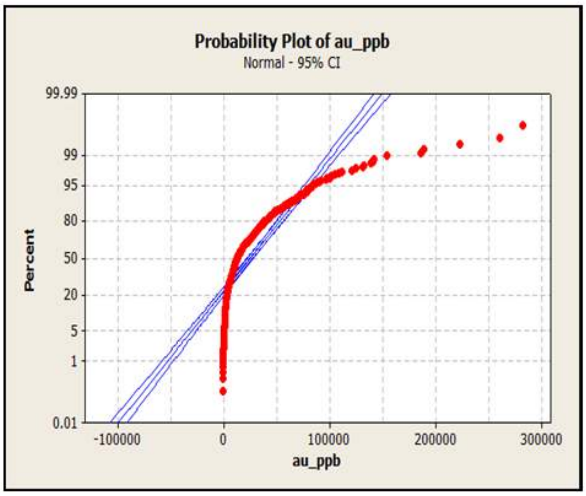
Target:	Buracão
Zone:	Channel Samples
Variable:	Au ppb

Number of samples:	553
Minimum:	3.11
Maximum:	2.82E+05
N° Classes (Sturges):	10
Interval (Sturges):	2.79E+04

Quantiles	
2.5%:	2.31E+02
5.0%:	8.60E+02
25.0%:	4.48E+03
Median:	1.28E+04
75.0%:	3.32E+04
95.0%:	8.36E+04
97.5%:	1.10E+05

Mean:	2.50E+04
Variance:	1.10E+09
Standard Dev:	3.32E+04
Coef. of variation:	133%
Range interquartil:	2.87E+04





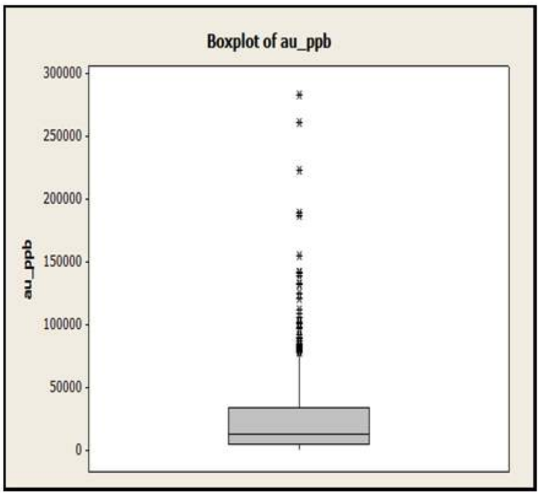


Figure 37. Au (ppb) - Buracão Vein – Channel Samples.

After the statistical analysis of the composite sample set (Figure 38) it was verified that the maximum value, commonly known as the cap, suitable for the treatment of outliers is best defined at 42.0 g/t Au for the Brás deposit and 100.0 g/t Au for the Buracão deposit. Capped values were applied to composite files.

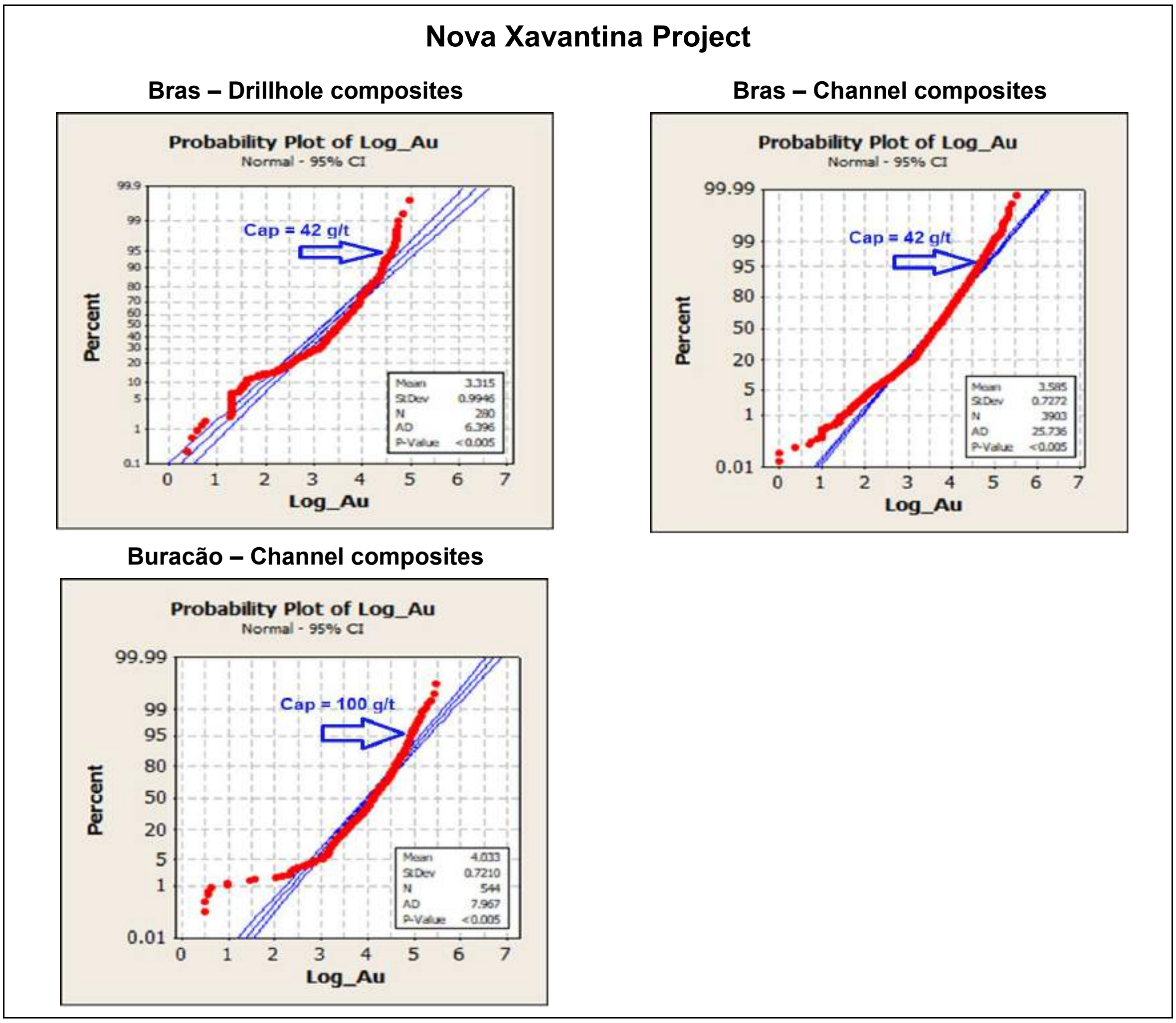


Figure 38. Probability Plots – Au grade Cap analysis

14.6. Variography

Geostatistics aims at two main objectives:

- To mathematically structure the variability relationship between pairs of points in space, that is, to measure the zone of influence, and the degree and type of variability restricted to a homogeneous field.
- To establish a model of spatial distribution of a regionalized variable with a measure of the accuracy of its estimate.

The composite samples were analyzed in ppm (g/t) with the upper limit (Cap) applied. The results are presented in Figure 39, Figure 40 and Figure 41.

A maximum range of 60 m was used for the Brás vein variogram for drill hole composites. The variograms for channel composites at the Brás and Buracão targets reached a maximum range of 40 m. Variographic analysis was not performed for drill hole composites in the Buracão, Santo Antônio and Stock Work targets because the number of samples in these zones is insufficient.

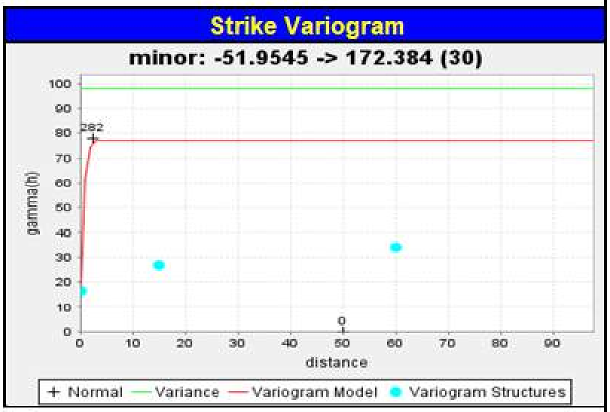
It should be noted that the maximum sill for both variograms of the Brás vein are equivalent (variance of approximately 75 g^2/t^2). This fact can be considered as an indication of the quality of the channel samples in comparison to the drilling samples, as it allows the grade estimate to be made using a composite of both types of samples.

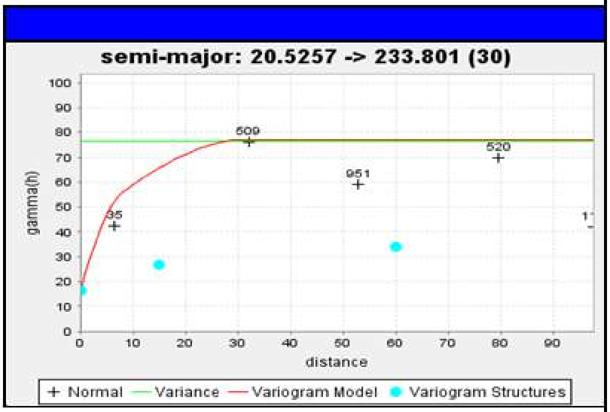
Nova Xavantina Project

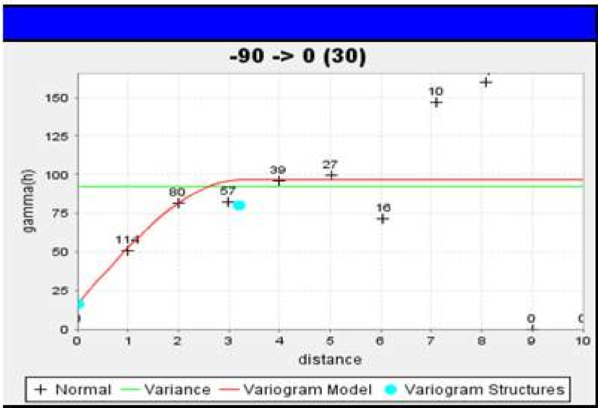
Target	Brás
Type	Drillhole Samples
Variable:	Au ppb

Variogram structures		
Model	Spherical	
Structure	Sill	Range
Nugget	1.65E+01	
1	2.67E+01	15.00
2	3.39E+01	60.00

Ellipse Orientation	
Bearing	131
Plunge	30
Dip	24
Maior/Semi-maior	1.9
Maior/Menor	22.4







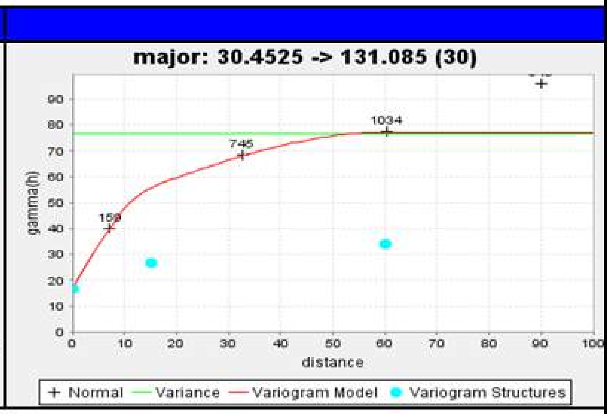


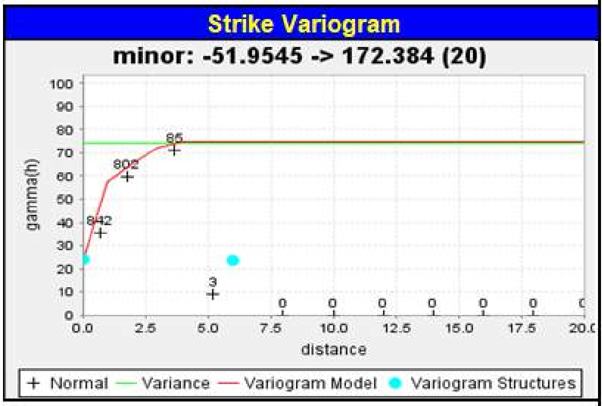
Figure 39. Variogram - Au cap (ppm) - Brás Vein - Drill holes

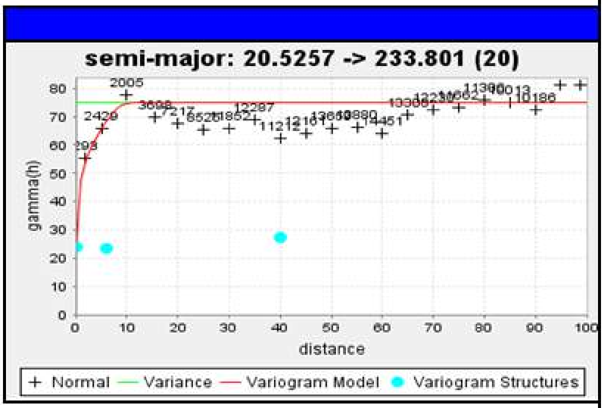
Nova Xavantina Project

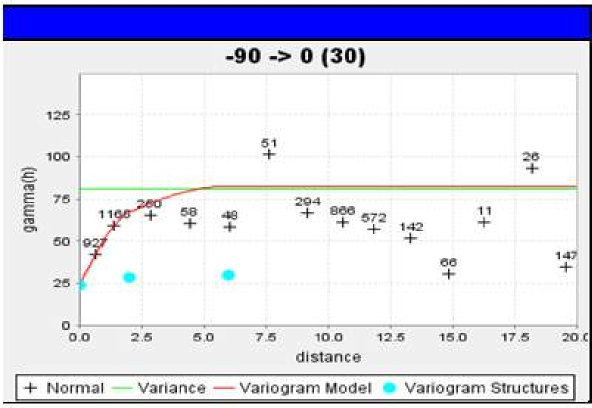
Target	Brás
Type	Channel Samples
Variable:	Au ppb

Variogram structures		
Model	Spherical	
Structure	Sill	Range
Nugget	2.40E+01	
1	2.36E+01	6.00
2	2.73E+01	40.00

Ellipse Orientation	
Bearing	131
Plunge	30
Dip	24
Maior/Semi-maior	3.8
Maior/Menor	9.7







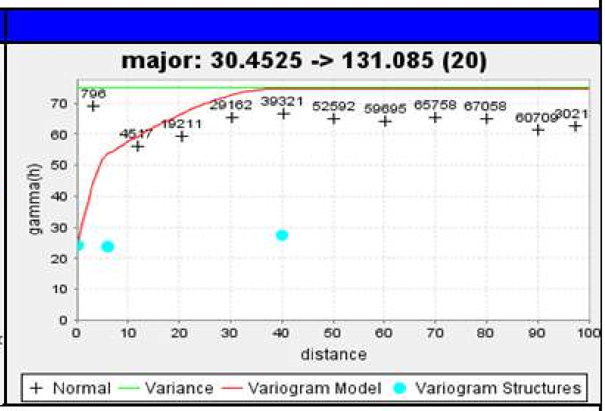


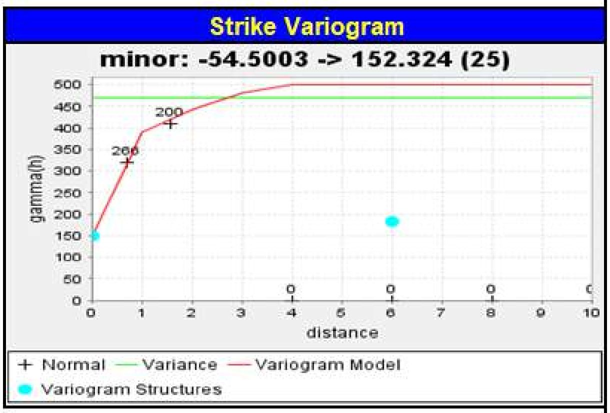
Figure 40. Variogram - Au cap (ppm) - Brás Vein – Channel Samples

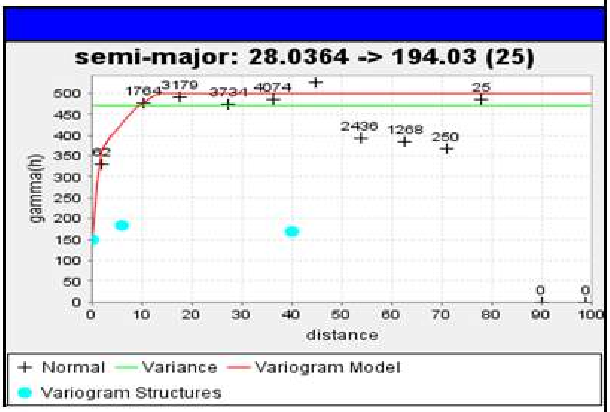
Nova Xavantina Project

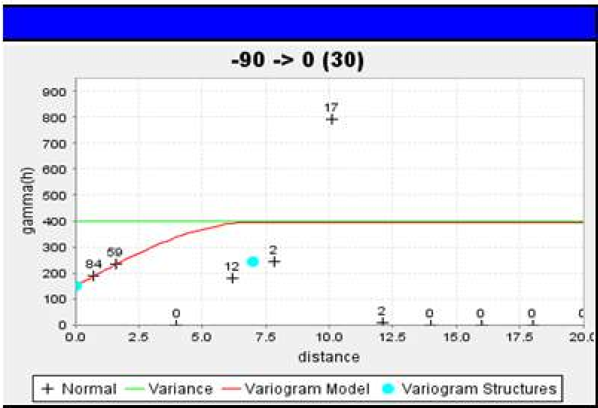
Target	Buracão
Type	Channel Samples
Variable:	Au ppb

Variogram structures		
Model	Spherical	
Structure	Sill	Range
Nugget	1.50E+02	
1	1.83E+02	6.00
2	1.68E+02	40.00

Ellipse Orientation	
Bearing	92
Plunge	19
Dip	30
Maior/Semi-maior	2.6
Maior/Menor	9.3







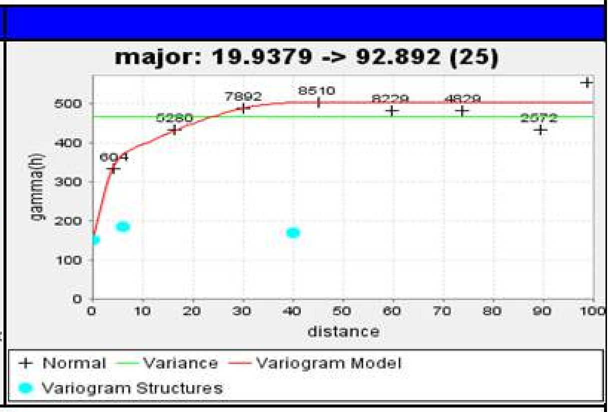


Figure 41. Variogram - Au cap (ppm) - Buracão Vein – Channel Samples

14.7. Grade Estimate

The Ordinary Kriging Method (OK) on the raw Au grade variable (with applied Cap values) was applied in the grade estimate.

14.7.1. Ordinary Kriging (OK)

Ordinary Kriging is one of the most common geostatistical methods for estimating block model grades. In this interpolation technique, the composite contributing samples are identified by a search applied from the center of each block. The weights are determined in order to minimize the error of the variance, considering the spatial location of the selected composites and the modeled variogram. Variography describes the correlation between composite samples as a function of distance and direction. The content of the weighted composite sample (in composite files) is then combined to generate the block estimate and the kriging variance.

The established kriging strategy considered up to 3 estimation passes, each relating to the degree of precision of the grade estimate pass, as presented in Table 37.

Table 37. Kriging Strategy

Variable	Pass	Search Distance (m)	Search Type	Minimum Number of Samples	Maximum Number of Samples
Au g/t	1	30	Ellipsoid	3	8
	2	60	Ellipsoid	3	8
	3	>60	Ellipsoid	3	8
Ellipsoid Orientation Brás and Stock Work: Bearing= 131; Plunge= 30; Dip= 24; Buracão and Santo Antônio: Bearing= 93; Plunge= 20; Dip= 30					
Anisotropy Axis Ratio Brás/pass 1 and Stock Work: Major/semimajor= 1.9 ;Major/Minor=22.4 Brás/pass 2 and 3: Major/semimajor= 3.8 ;Major/Minor=9.7 Buracão and Santo Antônio: Major/semimajor= 2.6 ;Major/Minor=9.3					

14.8. Mineral Resource Classification

Mineral Resource classification was based on following criteria:

- Measured Resources: Blocks estimated in the same continuity considered in step 1 of the kriging exclusively for drill hole samples at the Brás and Buracão targets. No resources were measured due to the lack of sample information to meet these conditions.
- Indicated Resources: Blocks estimated in the same continuity considered in step 2 of the kriging, with drill hole and channel samples.

- Inferred Resources: Any other block estimated within the mineralized area, but with little evidence of continuity and low sample density, using drill hole and channel samples.

The Stock Work and Santo Antônio targets were not classified as Mineral Resources due to lack of sampling data (low density of Au grade information). The deep extension of the Brás mineralization zone was classified based on an anisotropic distance in relation to the search ellipsoid. Mineral resources were classified to a maximum anisotropic distance of 180 meters. This base limit was adjusted (rounded) to the -220 topographic level.

A lens of lower volume and lower sample density in the Buracão mineralization zone was not classified as Mineral Resource due to the lack of sufficient sampling data. The mineralization zone that was not classified as Mineral Resource was considered to have Exploratory Potential.

Mined material was excluded from the model. Mined material was defined based on topographic data with effective date of August 2018. Topographic data was received from NX Gold in the format of wireframe files from the Datamine software.

Figure 42 presents the distribution of resource classification in the block model.

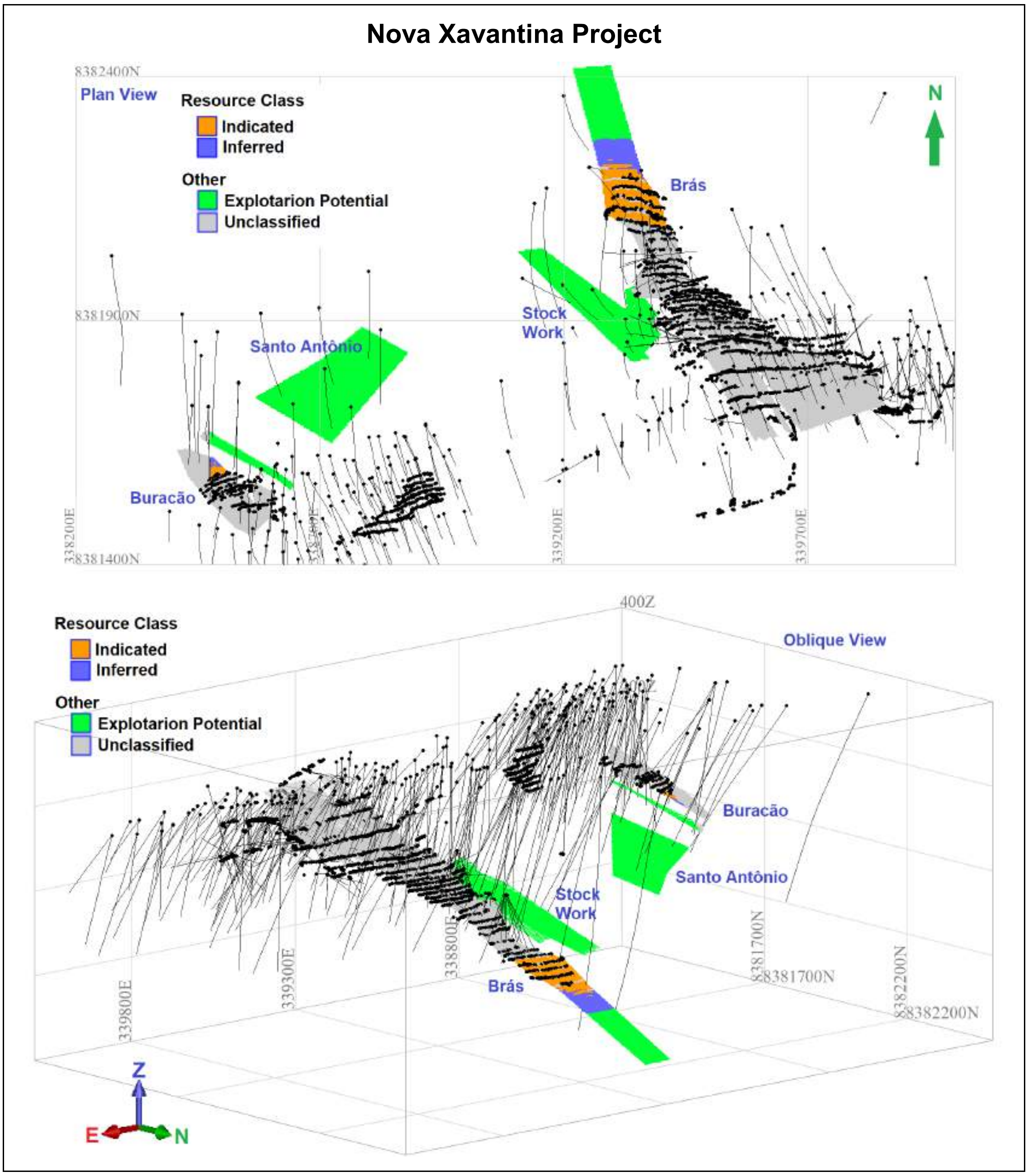


Figure 42. Block model classified by resource category

14.8.1. Cut-off Grade Analysis

A cut-off grade of 1.4 g/t was applied based on a “reasonable prospect of economic extraction”. This cut-off grade was used to support a statement of the resource based on positive economic performance using optimistic parameters, most notably the maximum achieved gold price over the last ten years and economic cost factors based on similar sized gold projects in Brazil. Calculations for the Cut-off grade are presented below. Table 39 presents the summary parameters applied on this calculation.

(i) **Cut-off Grade** = Costs/DGV
whereby:
(ii) **Costs** = Processing Costs + Mining Costs + G&A + Other Costs = **87 US$/tonne**
and:
(iii) **DGV** = Deposit Grade Value
= Maximum gold price over last 10 years / oz. mass in grams
= 1900 US$/oz. / 31.1035 = **61 US$/g**
then:
(iv) **Cut-off grade** = 87 US$/t / 61 US$/g = **1.4 g/t Au** (equivalent gold grade)

Table 38. Cut Off Analysis Parameters

Variable	Value	Unit
Gold Price	1,900	US$/oz
Processing Costs	33	US$/t
Mining Underground	50	US$/t
G&A	2	US$/t
Other Costs	2	US$/t
Cut Off Grade *	**1.4**	**g/t**
*Resource cut-off grade is based on optimistic parameters reflecting reasonable prospect of economic extraction. This is not the mineral reserve cut-off Au grade.		

14.8.2. Density (Specific Gravity):

Density results from test works stored in the drill hole database were selected inside the 3D model of the mineralized zone. The average values were applied to the mineral resource estimate block model, as presented in Table 39.

Table 39. Block model density summary

Target	Number of Test work Results	Average Density (t/m^3)
Bras	34	2.83
Buracão	9	2.83
Buracão (small zone)	3	2.81
Stock Work	3	2.86
Santo Antônio	3	2.59

14.8.3. Mineral Resource Estimate

Table 40 presents the results of the Mineral Resource Estimate for the Nova Xavantina Project.

Table 40. Mineral Resource Grade Tonnage Table

Deposit	Classification	Tonnes (kt)	Au (g/t)	Au (koz)
Brás Vein	Indicated	80.9	15.04	39.1
	Inferred	*39.6*	*18.96*	*24.1*
Buracão Vein	Indicated	4.8	30.39	4.7
	Inferred	*1.7*	*23.54*	*1.3*
Total	**Indicated**	**85.7**	**16.01**	**44.1**
	Inferred	***41.3***	***19.13***	***25.4***

5. Effective date of August 31, 2018.
6. Presented Mineral Resources inclusive of Mineral Reserves. All figures have been rounded to reflect the relative accuracy of the estimates. Summed amounts may not add due to rounding.
7. Cut-off gold grade of 1.40 g/t.
8. Mineral resource estimated by ordinary kriging inside 10m by 10m by 2m blocks (sub-blocks of 2.5m by 2.5m by 0.5m).

14.9. Grade Estimate Validation

14.9.1. Grade Estimate using Channel Samples

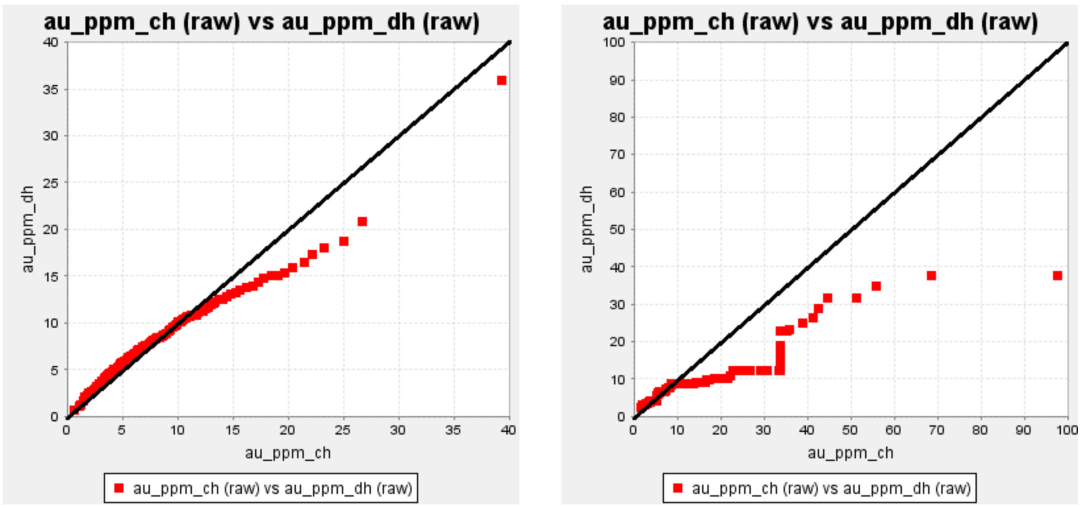
The industry standard for estimating gold grade for mineral resources in underground mining projects is based on the use of exploratory drilling samples and short-term drilling data. However, underground channel samples may be used after validation of the estimate with the use of these samples.

Validation of the estimate was completed by performing a comparative statistical analysis between the estimated gold grades using only drill hole data, and the estimated gold grades using only channel sample data. Figure 43 presents the results of this analysis.

The results of the comparative analysis demonstrate a high degree of similarity between the mean and median values at the Brás vein. The results for the Buracão target demonstrate a lower degree of similarity between the mean values and a high degree of similarity for the median values. These results are considered to be within the limits of acceptance for the quality of the estimation using channel samples. The use of channel samples, together with drilling samples, was validated for use in the Indicated and Inferred Mineral Resources estimate at the Nova Xavantina Project.

Nova Xavantina Project

Brás | **Buracão**



Brás

Drillhole Samples		Channel Samples	
N° of samples:	4546	N° of samples:	4546
Minnimum	0.01	Minnimum	0.17
Maximmum	35.93	Maximmum	39.33
Mean	8.46	Mean	8.97
Median	8.09	Median	7.69
Std. Deviation	4.69	Std. Deviation	6.16

Buracão

Drillhole Samples		Channel Samples	
N° of samples:	333	N° of samples:	333
Minnimum	1.45	Minnimum	2.23
Maximmum	97.78	Maximmum	37.79
Mean	16.71	Mean	10.13
Median	8.51	Median	8.24
Std. Deviation	15.63	Std. Deviation	7.85

Figure 43. Validation of grade estimate using channel samples

14.9.2. Nearest Neighbor ("NN") Check

The NN technique was used to validate the mineral resource grade estimate established by Ordinary Kriging ("OK").

The comparison of gold grade estimates using the two techniques was performed for the Indicated resource class.

The grade estimate validation was performed through a histographic comparison of the results obtained by kriging and "Nearest Neighbor" estimation techniques. Scatter plots and quantile-quantile plots were designed to verify the occurrence of bias and the smoothing of the grade estimate.

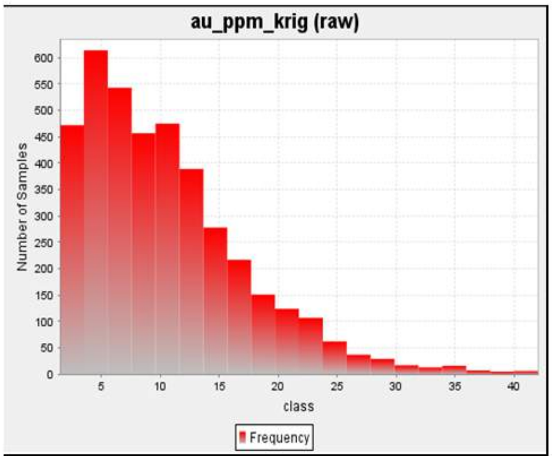
Figure 44 and Figure 45 present the comparison of estimated Au (ppm) levels for NN-Check validation.

Nova Xavantina Project

Project NX Gold

Target	Brás
Resource Class	Indicated
Variable	Au ppm

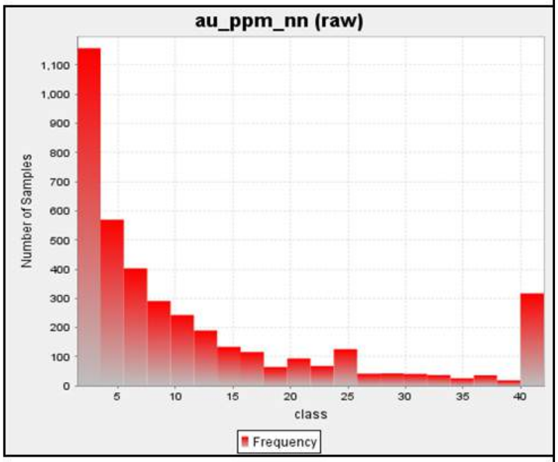
Ordinary Kriging



N° of samples:	4019
Minnimum	1.49
Maximmum	42.00
Mean	10.57
Variance	46.17
Std. Deviation	6.79

Quantiles	
2.5%:	2.1
1° Quartil:	5.3
Median	9.2
3° Quartil:	14.1
97.5%:	27.4

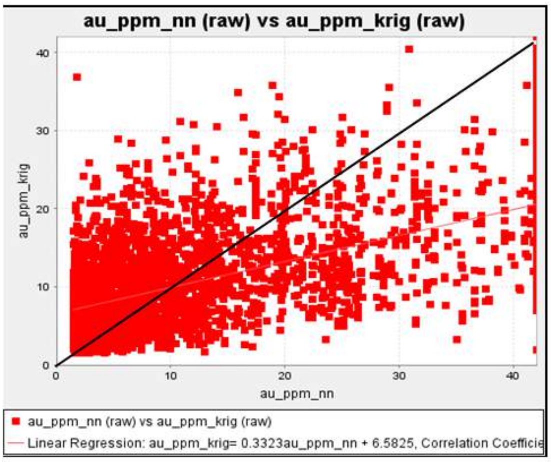
NN-Check



N° of samples:	4019
Minnimum	1.49
Maximmum	42.00
Mean	12.00
Variance	145.52
Std. Deviation	12.06

Quantiles	
2.5%:	1.6
1° Quartil:	3.2
Median	7.0
3° Quartil:	16.3
97.5%:	42.0

Correlation



Q-Q Plot

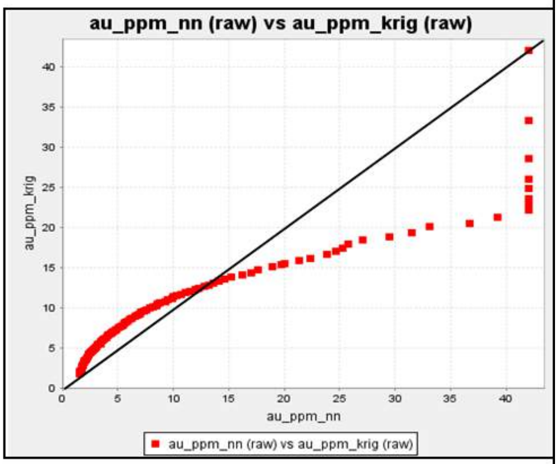


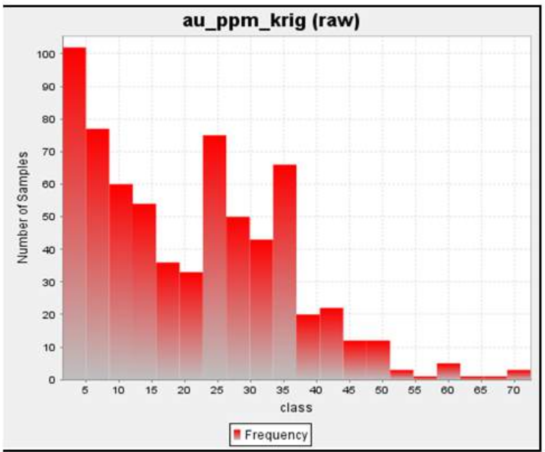
Figure 44. NN-Check – Bras – Indicated Resource

Nova Xavantina Project

Project NX Gold

Target	Buracão
Resource Class	Indicated
Variable	Au ppm

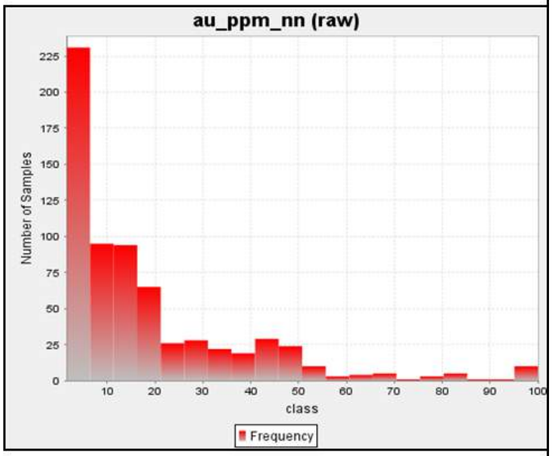
Ordinary Kriging



N° of samples:	676
Minnimum	1.51
Maximmum	72.47
Mean	21.01
Variance	198.30
Std. Deviation	14.08

Quantiles	
1° Quartil:	
Median	19.93
3° Quartil:	

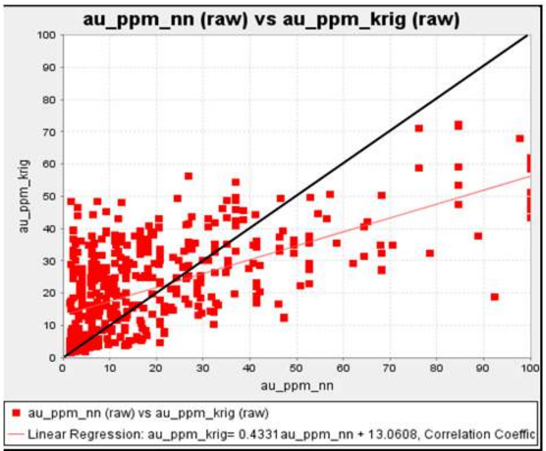
NN-Check



N° of samples:	676
Minnimum	1.51
Maximmum	100.00
Mean	18.37
Variance	393.81
Std. Deviation	19.84

Quantiles	
1° Quartil:	
Median	12.22
3° Quartil:	

Correlation



Q-Q Plot

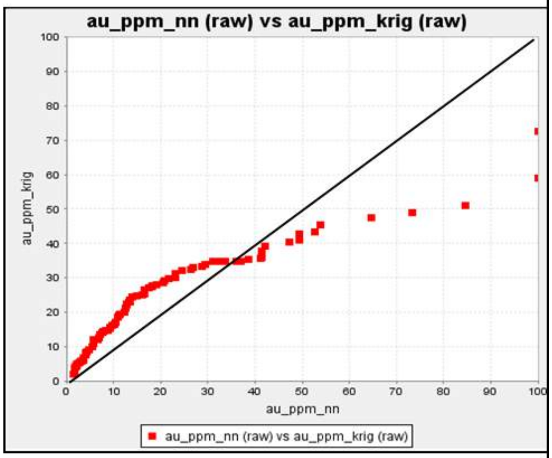


Figure 45. NN-Check – Buracão – Indicated Resource

The results of the NN-Check analysis show the smoothing of the Au grade estimate by kriging within an acceptance limit for the degree of reliability attributed to Indicated Mineral Resources. Even though the results for the Buracão vein were significantly worse, due to a lower number of analyzed blocks (676), the results were also accepted as valid for the degree of reliability attributed to Indicated Mineral Resources.

14.10. Conclusions

The grade estimate for Indicated and Inferred Mineral Resource classification was performed using the ordinary kriging method through a combination of drill hole samples and channel samples.

The Brás vein was estimated to have 80.9 thousand tons of Indicated Resource with an average grade of 15.0 g/t Au, containing 39 koz of Au. Inferred Resources for this target totaled 24 koz Au.

The Buracão target was estimated to have 30.4 thousand tons of Indicated Resource with an average grade of 30.4 g/t, containing 4.7 koz of Au. Inferred resources for this target totaled 1.3 koz Au.

There was also a portion of the area that was classified as having Exploratory Potential (not classified as mineral resource). This includes targets assumed to contain 65 koz of Au at Brás, 2 koz of Au at Buracão, 79 koz of Au at Santo Antônio and 64 koz of Au at the Stock Work target.

Based on this study, GE21 makes the following recommendations for NX Gold:

- Design a new infill drilling campaign to convert indicated mineral resource to the measured category;
- Intensify the exploration program in regions classified as Exploratory Potential to allow the definition and classification of more mineral resources in these areas of the deposit;
- Validate the integration between surface and underground topographic bases, allowing for better adherence between the survey data sets and underground channel samples.

The authors of this Report are not aware of any ancillary environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors which could materially affect the current Mineral Resource estimate.

15.0. MINERAL RESERVE ESTIMATES

The Mineral Reserve estimates for the NX Gold Mine were prepared in accordance with the guidelines of NI43-101 and the Canadian Institute of Mine Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves ("CIM Standards").

"A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Preliminary Feasibility or Feasibility level as appropriate that includes application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could be reasonably justified."

GE21 is of the opinion that the August 31, 2018 reserves relating to the underground operation have been estimated in a manner that is consistent with industry best practices and NI 43-101 guidelines.

The gold grade data (undiluted) was provided in the mineral resource block model and is the main item used for the Mineral Reserve estimates. The grades were modified to account for mining dilution and the block volumes were modified to allow for dilution and mining recovery.

There are two principal mineralized areas that make up the NX Gold Deposit: Brás and Buracão.

A cutoff grade for reserves was calculated based on the current and name plate operating costs, and an estimated long-term price of gold. The following parameters (Table 41, Table 42, Table 43) were used:

Table 41. Parameters for cut-off grade definition

Parameter	Units	Value
Plant Feed	tonnes/annum	140,000
Price	USD/oz	$1,250.00
Plant Recovery	%	91.0%

Table 42. Operating cost parameters for mineral reserve estimates

Parameter	Units	Value
G&A	US$/tonne	$10.60
Mining	US$/tonne	$55.30
Overhead	US$/tonne	$7.20
Plant	US$/tonne	$45.20
Total	**US$/tonne**	**$118.30**

Table 43. Cut-off grade calculated for mineral reserve estimates

Cut-off grade	g/t	3.2

Table 44 presents the current mineral reserve estimate for the NX Gold Mine.

Table 44. NX Gold Mineral Reserve Estimate

Deposit	Probable Reserves	Tonnage (kt)	Au Grade (g/t)	Au Total (koz)
Brás Vein	Planned Stopes	60.9	11.40	22.4
	Gallery Development	2.5	11.00	0.9
	Probable Reserves	**63.4**	**11.40**	**23.3**
Buracão Vein	Planned Stopes	1.9	13.80	0.8
	Gallery Development	0.5	6.60	1.1
	Probable Reserves	**2.4**	**12.30**	**1.9**
Total Probable Reserves		**65.8**	**11.40**	**25.2**

1. Effective date of August 31, 2018.
2. All figures have been rounded to reflect the relative accuracy of the estimates. Summed amounts may not add due to rounding.
3. Mineral Reserve cut-off gold grade of 3.2 g/t.
4. The Mineral Reserve estimates are prepared in accordance with the CIM Definition Standards, and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines, using geostatistical and/or classical methods, plus economic and mining parameters appropriate for the deposit. Mineral Reserves are based on a long-term gold price of US$1,250 per oz, and a USD:BRL foreign exchange rate of 3.20. Mineral Reserves are the economic portion of the Indicated Mineral Resources. Mineral Reserve estimates include mining dilution at 5% grading 0.5g/t Au and 7% grading 0.5g/t Au for the Brás and Buracão Veins, respectively. Practical mining shapes (wireframes) were designed using geological wireframes / mineral resource block models as a guide.
5. Assumes mining dilution of 5% grading 0.5g/t Au and 7% grading 0.5g/t Au for the Brás and Buracão Veins, respectively.
6. Mining recovery of 95%.

Other modifying factors considered in the determination of the Mineral Reserve estimate include:

- A cut-off grade of 3.2 g/t gold was applied in the determination of economic blocks within the Mineral Resource Estimate based on actual operating cost data and past operating performance of the mine.
- The mining method employed for the Brás and Buracão veins is overhand cut and fill, with backfill requirements generated from waste development.
- Maximum stope spans between sill pillars of 17m by 17m for the Buracão vein and 39m by 10m for the Brás vein based on geotechnical mapping, modeled rock quality and uniaxial compression (“UCS”) test results.

Additionally, GE21 presents the following accompanying comments to the Mineral Resource and Mineral Reserve estimate:

- NX Gold holds the surface rights and requisite permits required support the mining operation as outlined in the Mineral Reserve estimate. Future development beyond the stated Mineral Reserves may require the acquisition of additional surface rights.
- GE21 has not identified any known mining, metallurgical, infrastructure, permitting, legal, political, environmental or other relevant factors that could materially affect the development or extraction of the stated Mineral Reserves.
- GE21 has carried out the appropriate review to satisfy that the Mineral Reserve can be technically and profitably extracted. Consideration has been given to all technical areas of the operations, the associated capital and operating costs, and

relevant factors including marketing, permitting, environmental, land use and social factors. GE21 is satisfied that technical and economic feasibility has been demonstrated.

It is the opinion of the authors of this Report that there are no known mining, metallurgical, infrastructure, permitting, legal, political, environmental, title, taxation, socio-economic marketing or other relevant factors that could materially affect the potential development of the stated Mineral Reserves.

16.0. MINING METHODS

Underground mining operations at NX Gold started in 2008 by opening a portal at level +300. The current development of the underground mine reaches level -195 for the Brás vein and level +43 for the Buracão mine. This report considers as extracted, that is, already mined, all of the ore above levels -115 and 61 for the Brás and Buracão mines, respectively.

The historical production from the underground mine owned by NX Gold is 1.3 million tonnes of ore and 173 thousand ounces of gold.

The current mine depth is 450 meters and 250 meters for the Brás and Buracão mines, respectively.

16.1. Rock Mechanics

16.1.1. Rock Quality Designation

The rock structural analysis was comprised of the verification and validation of the geotechnical description of five drill holes and the geotechnical description of three other drill holes, totaling 398.80 m of core samples that were obtained from diamond drill holes that cross-cut the mineralized deposits.

Table 45 summarizes the drill holes used, as well as their total extension, dip and azimuth. Table 46 to Table 53 summarize the lithology and the respective Rock Quality Designation (RQD). It is important to note that both the validation of the RQD calculations for the drill holes that already had a description and the RQD calculation for holes that have not been described were done by means of photographs of the core samples before these samples were cut for chemical analysis. The measurement of samples greater than 10 cm was performed using the Micromine software. Figure 46 shows an example of the execution of virtual RQD by means of photography analysis.

Figure 46. Photograph used to calculate RQD

Table 45. Summary of drill holes used for RQD calculation.

ID	Site	Extension (m)	Dip (°)	Azimuth (°)
BS37	Brás	598.37	-90.00	0.00
BS38	Brás	486.79	-77.22	142.18
BP 4039	Brás	158.96	-64.08	334.00
BS39	Brás	560.80	-78.00	172.26
BUS55	Buracão	348.36	-67.43	177.70
BUS58	Buracão	400.00	-50.00	180.00
BUS53	Buracão	381.31	-78.00	178.00
BUS52	Buracão	354.32	-62.03	178.00

Table 46. Core sample BS37

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BS37	460.22	464.13	MLM	3.91	3.59	91.82
BS37	464.13	472.12	Siltstone	7.99	6.89	86.23
BS37	472.12	475.31	Diorite	3.19	2.73	85.58
BS37	475.31	477.42	Siltstone	2.11	1.47	69.67
BS37	477.42	488.65	Diorite	11.23	10.34	92.07
BS37	488.65	491.09	Phylitte	2.44	1.41	57.79
BS37	491.09	497.25	VQZ	6.16	2.68	43.51
BS37	497.25	503.2	Phylitte	5.95	2.91	48.91
BS37	503.2	509.77	Diorite	6.57	4.55	69.25
BS37	509.77	514	Siltstone	4.23	1.99	47.04
BS37	514	517.66	Phylitte	3.66	1.33	36.34
BS37	517.66	522.77	Diorite	5.11	3.78	73.97
BS37	522.77	526.15	Felsic dike	3.38	3.11	92.01
BS37	526.15	532	Siltstone	5.85	4.89	83.59
BS37	532	544.27	Diorite	12.27	10.39	84.68

Table 47. Core sample BS38

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BS38	417.13	448.37	Andesite	31.24	30.15	96.51
BS38	448.37	457.47	FLC	9.1	2.37	26.04
BS38	457.47	469.69	VQZ	12.22	4.14	33.88
BS38	469.69	477.93	Diorite	8.24	7.08	85.92
BS38	477.93	480.37	Felsic dike	2.44	1.98	81.15
BS38	480.37	486.79	Diorite	6.42	4.77	74.30

Table 48. Core sample BP 4039

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BP 4039	108.6	113.68	Diorite	5.08	3.73	73.43
BP 4039	113.68	116.57	Siltstone	2.89	1.36	47.06
BP 4039	116.57	119.66	Felsic dike	3.09	1.72	55.66
BP 4039	119.66	129.1	Diorite	9.44	6.02	63.77
BP 4039	129.1	131.2	Siltite	2.1	0.75	35.71
BP 4039	131.2	135.21	VQZ	4.01	0.8	19.95
BP 4039	135.21	138	Diorite	2.79	0.22	7.89
BP 4039	138	141	Siltstone	3	0.77	25.67
BP 4039	141	158.96	Diorite	17.96	14.68	81.74

Table 49. Core sample BS39

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BS39	525	528.8	ANDESITE	3.8	2.92	76.84
BS39	528.8	529.9	Siltstone	1.1	0.9	81.82
BS39	529.9	532.6	Diorite	2.7	2.16	80.00

BS39	532.6	540.24	Siltstone	7.64	4.29	56.15
BS39	540.24	545.8	Diorite	5.56	4.3	77.34
BS39	545.8	546.55	Siltstone	0.75	0.38	50.67
BS39	546.55	547.7	VQZ	1.15	0.82	71.30
BS39	547.7	559.51	Diorite	11.81	7.43	62.91
BS39	559.51	560.8	Phyllite	1.29	0.39	30.23

Table 50. Core sample BUS55

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BUS55	295	301.44	Siltstone	6.44	1.53	23.76
BUS55	301.44	304.4	Diorite	2.96	1.8	60.81
BUS55	304.4	308.89	Phyllite	4.49	3.02	67.26
BUS55	308.89	312.92	Siltstone	4.03	3.37	83.62
BUS55	312.92	315.6	Felsic dike	2.68	1.59	59.33
BUS55	315.6	318.4	Siltstone	2.8	1.63	58.21
BUS55	318.4	326.7	Diorite	8.3	6.84	82.41
BUS55	326.7	335	Siltstone	8.3	5.65	68.07
BUS55	335	336.78	Phyllite	1.78	0.92	51.69
BUS55	336.78	339.38	VQZ	2.6	1.54	59.23
BUS55	339.38	348.36	Diorite	8.98	7.04	78.40

Table 51. Core sample BUS58

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BUS58	344	348.71	Diorite	4.71	3.68	78.13
BUS58	348.71	358	Siltstone	9.29	4.98	53.61
BUS58	358	358.74	Phyllite	0.74	0.13	17.57
BUS58	358.74	361	VQZ	2.26	1.13	50.00
BUS58	361	369.92	Diorite	8.92	4.98	55.83

Table 52. Core sample BUS53

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BUS53	331	334.26	FLC	3.26	2.46	75.46
BUS53	334.26	338.71	Andesite	4.45	2.98	66.97
BUS53	338.71	349.25	Phyllite	10.54	3.65	34.63
BUS53	349.25	350.94	VQZ	1.69	1.08	63.91
BUS53	350.94	354.88	Siltstone	3.94	2.31	58.63
BUS53	354.88	357.13	Siltstone	2.25	1.29	57.33
BUS53	357.13	361.3	Diorite	4.17	3.67	88.01

Table 53. Core sample BUS52

ID	Start	End	Lithology	Interval (m)	> 10 cm (m)	(RQD %)
BUS52	305	308.42	Diorite	3.42	2.82	82.46
BUS52	308.42	315.1	Phyllite	6.68	2.1	31.44

BUS52	315.1	327.65	Siltstone	12.55	4.4	35.06
BUS52	327.65	330.5	VQZ	2.85	1.64	57.54
BUS52	330.5	337.67	Siltstone	7.17	6.03	84.10
BUS52	337.67	339.4	Siltstone	1.73	1.61	93.06
BUS52	339.4	341.38	Felsic dike	1.98	1.84	92.93
BUS52	341.38	347.36	Diorite	5.98	5.7	95.32
BUS52	347.36	348.78	Felsic dike	1.42	1.33	93.66
BUS52	348.78	354.32	Siltstone	5.54	4.55	82.13

Figure 47 throughFigure 49 show the location of the drill holes and their respective identification.

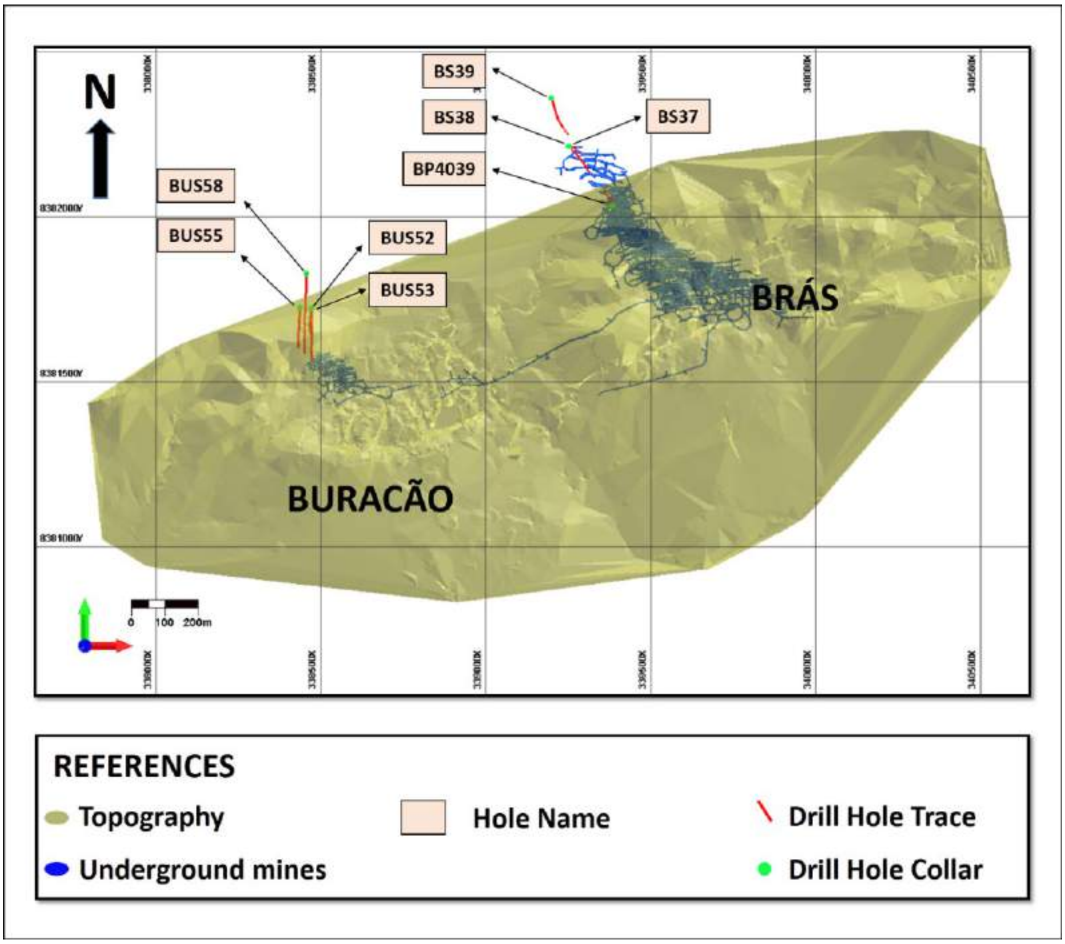


Figure 47. Location of the validated drill holes in the Buracão and Brás veins

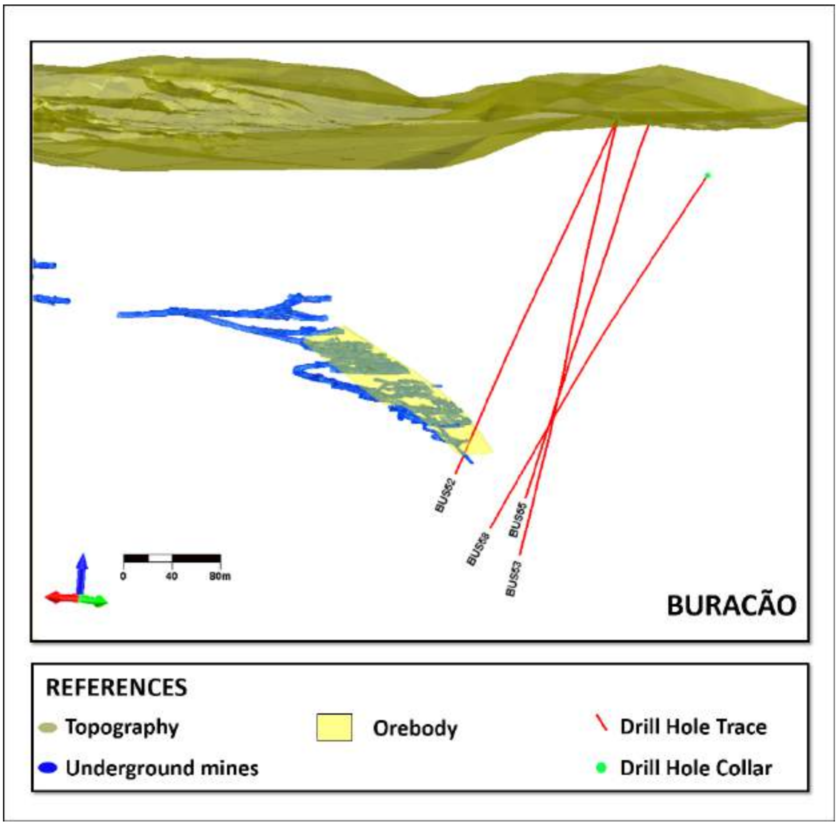


Figure 48. Drill holes in the Buracão veins

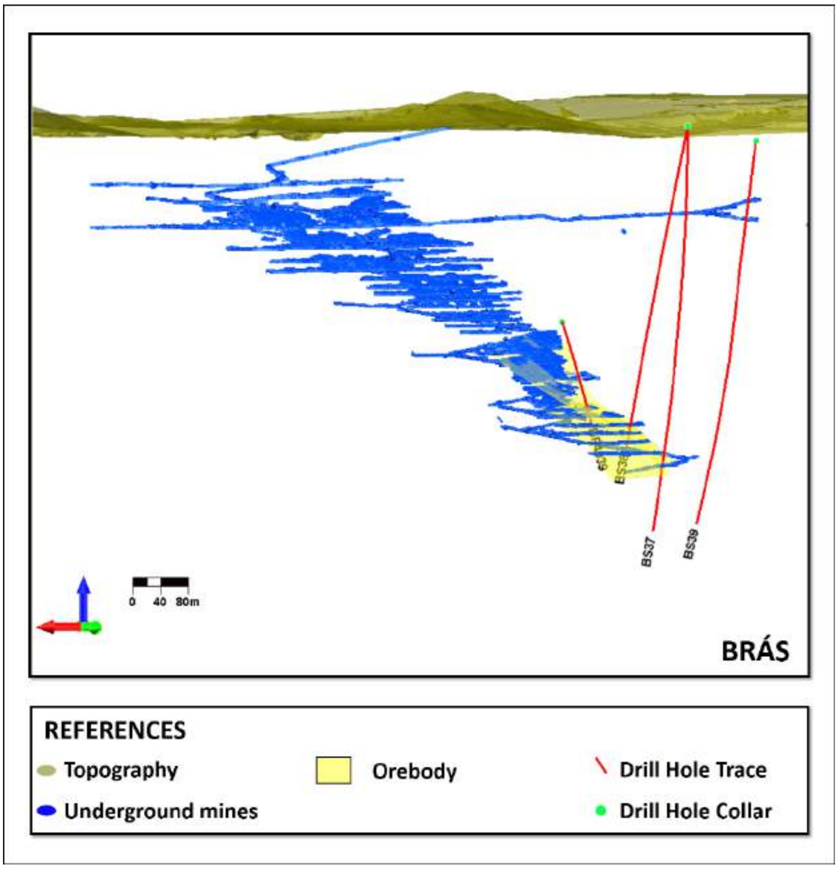


Figure 49. Drill holes in the Brás veins

16.1.2. Geotechnical characterization of the rock mass

Geotechnical characterization of the rock mass of the NX Gold Mine was performed in two steps. First, geotechnical mapping of the drifts in the Brás and Buracão veins was conducted. Subsequently, a selection of laboratory tests were performed to characterize the mechanical properties of the intact rock mass.

16.1.2.1. Geotechnical mapping of the drifts

Geotechnical mapping was performed in the exposed drifts where the contemplated production activities in support of the current mineral reserve estimate would occur. For the Buracão vein, level 53 was mapped and for the Brás vein, levels -140, -155 and -161 were mapped. In the Buracão mine, it was possible to get information from the orebody and the footwall, while in the Brás vein, at level -140, -155 and -161, information from the orebody and the hanging wall was collected.

The rock mass was then qualified by *Q-system for rock mass classification* (Barton et al., 1974). According to the mapping, the Q-system value for each sector was noted. RQD values used in the rock mass classification, were taken from core samples comprising the mineral reserve estimate.

From the dip and dip direction measurements taken during mapping, stereographic projections for the orebody and footwall of the Buracão vein and orebody and hanging wall of the Brás vein were plotted.

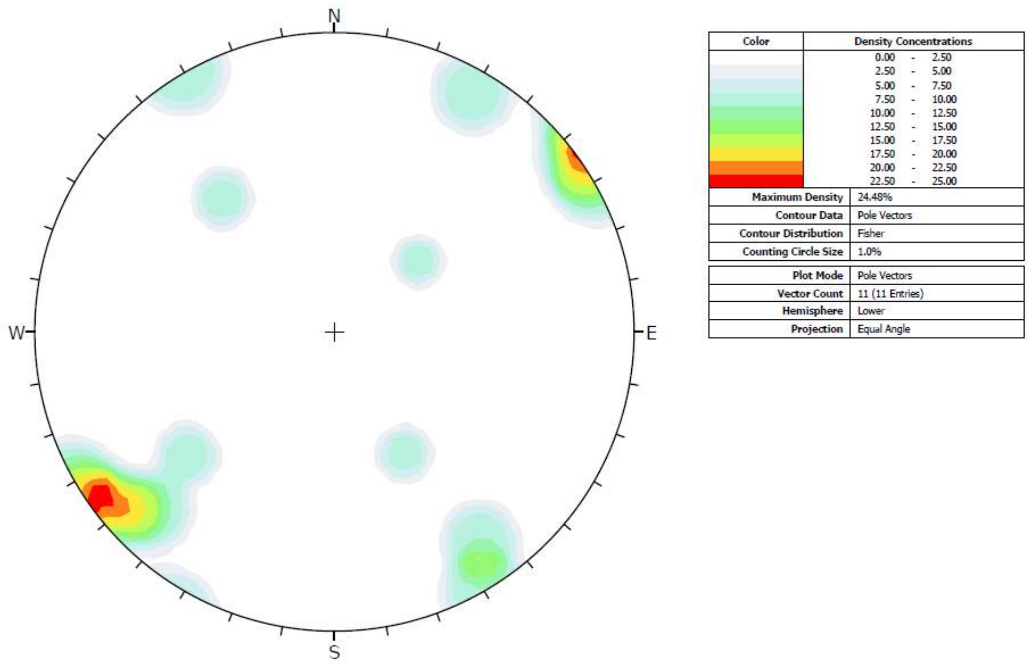


Figure 50. Stereographic projection of discontinuities - orebody, Buracão vein

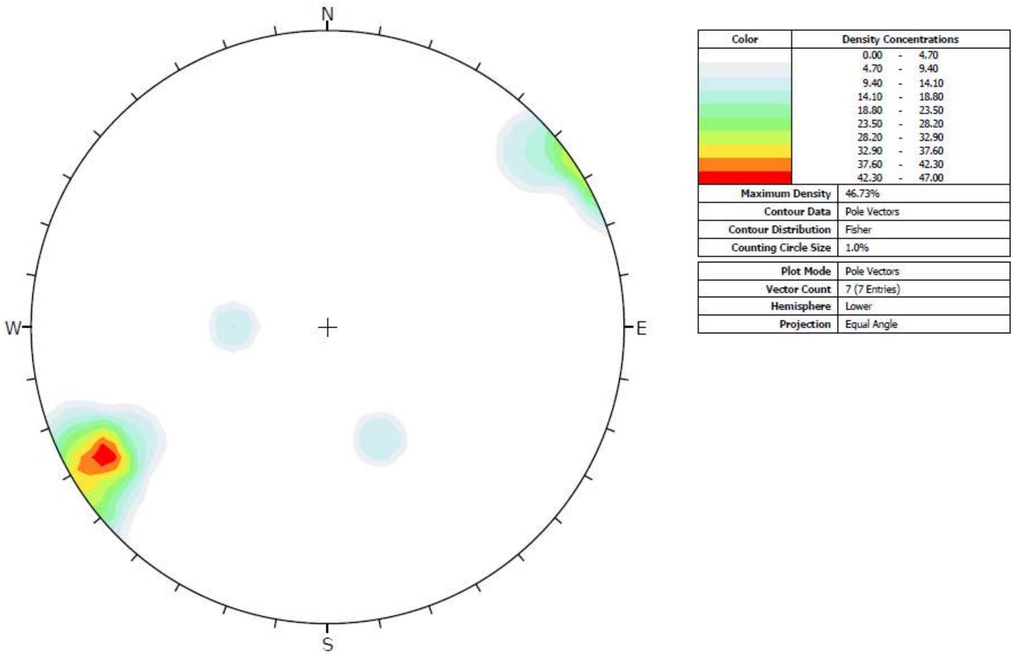


Figure 51. Stereographic projection of discontinuities - footwall, Buracão vein

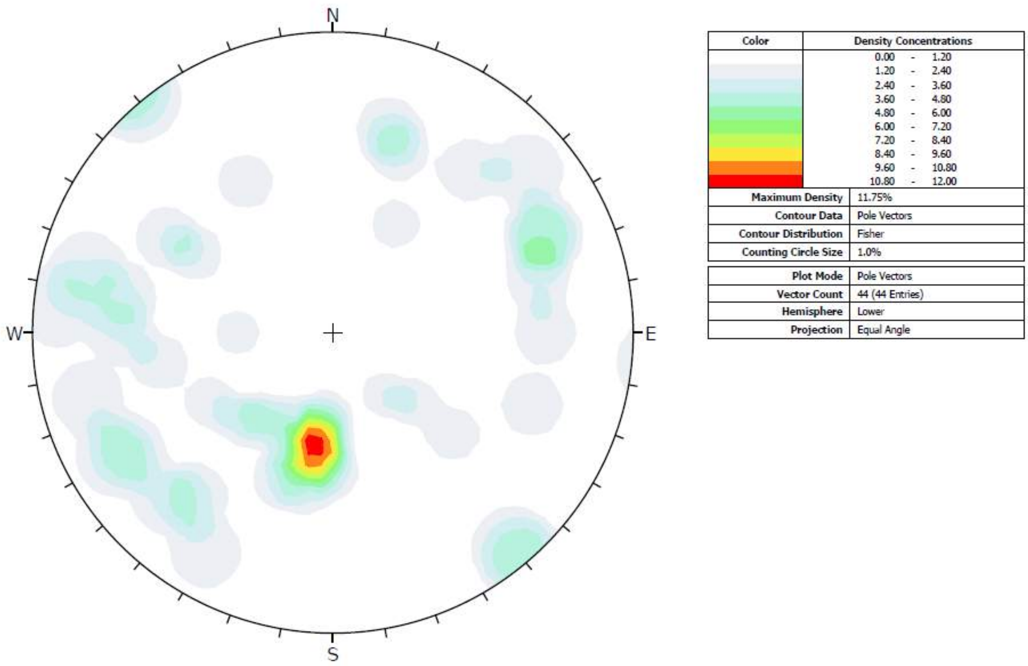


Figure 52. Stereographic projection of discontinuities - orebody, Brás vein

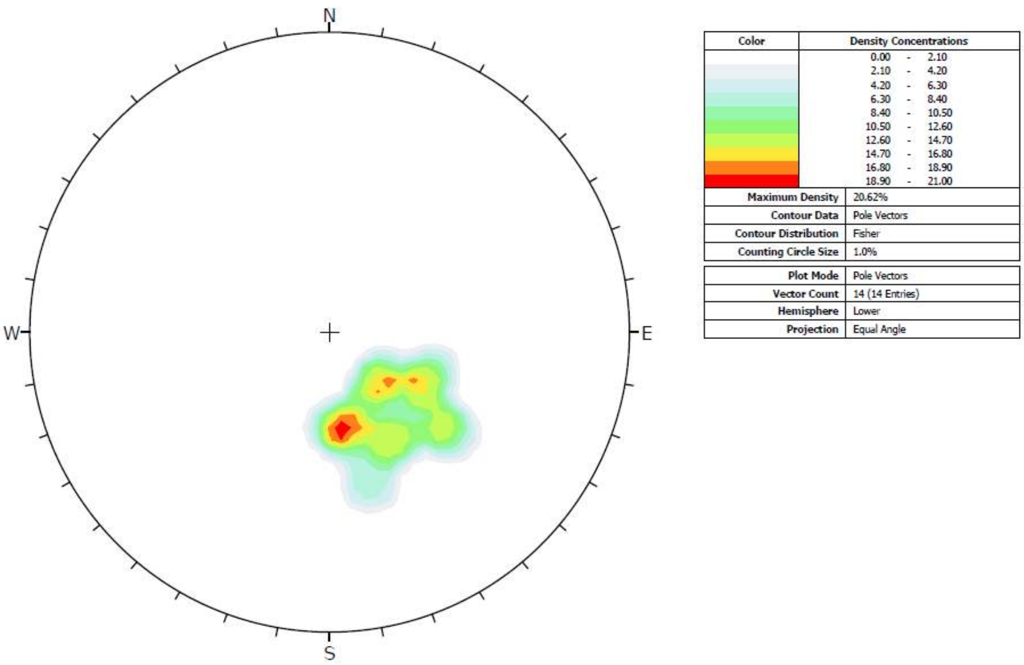


Figure 53. Stereographic projection of discontinuities - hanging wall, Brás vein

16.1.3. Mechanical properties of the rock mass

The second stage of the geomechanical characterization of the rock mass consisted of laboratory testwork to determine the mechanical properties of the intact rock. Pieces of core samples with different lithologies were selected for t uniaxial compressive strength tests (“UCS”), triaxial compressive strength tests (“TCS”) and point load tests. A total of 14 triaxial tests, 9 uniaxial tests, and 7 point load tests were carried out at the Rock Mechanics Laboratory at the Federal University of Rio Grande do Sul (“UFRGS”). The tests results are presented in Tables 63 to 65.

Table 54. UCS testwork results

Position	Lithology	Sample	Core	Diameter (mm)	Height (mm)	Ratio (h/D)	σ1 (MPa) Press	σ1 (MPa) Adjusted	σ1 (MPa) Final	Young’s Mod. (GPa)
HW	SILTSTONE	4	BUS 55	50.99	98.55	1.93	56.53	56.29	56.29	6.82
HW	SILTSTONE	6	BUS 55	50.76	92.80	1.83	72.26	71.42	71.42	5.50
HW	SILTSTONE	10	BUS 58	50.9	82.87	1.63	45.80	44.52	44.52	5.81
HW	SILTSTONE	17	BUS 58	50.48	75.02	1.49	24.96	23.92	23.92	3.80
FW	DIORITE	11	BUS 58	50.71	97.67	1.93	14.00	13.93	13.93	
FW	DIORITE	12	BUS 58	50.8	75.57	1.49	18.94	18.16	18.16	10.05
FW	DIORITE	13	BUS 58	50.67	82.26	1.62	20.26	19.68	19.68	7.90
HW	ANDESITE	20	BS 38	50.7	105.50	2.08	64.54	64.85	64.54	11.11
HW	SILTSTONE	25	BS 39	50.25	103.80	2.07	28.16	28.28	28.16	11.11

Table 55. TCS testwork results

Lithology	Sample	Core	Diameter (mm)	Height (mm)	σ1 (MPa)	σ3 (MPa)	Young's Mod. (GPa)	Position
ANDESITE	5	BUS 55	50.5	120.00	74.65	2.5	20.60	HANGING WALL
ANDESITE	7	BUS 55	50.45	106.98	68.54	5.0	16.41	HANGING WALL
SILTSTONE	15	BUS 58	50.50	116.92	71.16	7.5	11.46	HANGING WALL
SILTSTONE	16	BUS 58	50.45	117.15	62.98	5.0	8.28	HANGING WALL
DIORITE	18	BS 37	50.3	107.97	35.22	2.5	15.46	HANGING WALL
DIORITE	19	BS 37	50.1	110.55	38.12	5.0	13.26	HANGING WALL
ANDESITE	21	BS 38	50.62	118.30	106.69	7.5	20.35	HANGING WALL
SILTSTONE	22	BS 38	50.62	104.61	65.65	2.5	10.61	HANGING WALL
SILTSTONE	23	BS 39	50.57	108.40	63.51	5.0	11.22	HANGING WALL
DIORITE	14	BUS 58	50.6	120.30	30.41	2.5	19.81	FOOT WALL
SILTSTONE	26	SA-07	47.5	117.90	80.14	7.5	11.46	HANGING WALL
SILTSTONE	28	SA-07	50.62	105.93	34.93	2.5	10.73	FOOT WALL
SILTSTONE	29	SA-07	46.9	118.30	75.46	7.5	19.93	FOOT WALL
SILTSTONE	30	SA-07	46.1	120.60	52.08	5.0	21.58	FOOT WALL

Table 56. Point load test results

Sample	Lithology	Width (mm) (W)	Thickness (mm) (D)	Load section area (mm²)	De² (mm²)	Pressure (bar)	D² (mm²)	P (kgf)	Is (MPa)	Factor F of correction	Is (50) (MPa)	Uniaxial compressive strength (MPa)
24	Siltstone	50.39	50.39	2539.15	2539.15	40.00	2539.152	457.23	1.76	1.003503	1.77	42.50
27	Phyllite	31.95	54.67	2988.81	2988.81	40.00	2988.809	457.23	1.50	1.041	1.56	37.46
1	Quartz	50.36	24.70	1243.89	1583.77	88.00	610.09	1,005.92	6.22	0.902390213	5.62	134.80
2	Quartz	50.39	24.34	1226.49	1561.62	61.00	592.4356	697.28	4.38	0.899534624	3.94	94.47
3	Quartz	50.11	24.80	1242.73	1582.29	80.00	615.04	914.47	5.66	0.902200147	5.11	122.64
8	Quartz	49.80	25.20	1254.96	1597.86	40.00	635.04	457.23	2.80	0.904190622	2.54	60.86
9	Quartz	47.30	25.47	1204.73	1533.91	65.00	648.7209	743.01	4.75	0.895918582	4.25	102.07

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16.1.4. Stope design

For mining stope design, an empirical method was employed that relies on the *Stability Graph Method* (Mathews-Potvin, 1988). The method relies upon a modified stability number (N') and the hydraulic radius of the excavation (S). A modified stability number and a hydraulic radius for both the Brás and Buracão veins were obtained. Table 57 presents the input parameters of the stability chart proposed by Nickson (1992), which can be visualized in Figure 54.

Table 57. Input parameters of the stability chart

Location	Q'	A	B	C	Length	Height	S	N'	Symbol
Buracão	1.29	0.95	0.3	5	39	10	4.25	1.84	▲
Brás	3.75	1.00	0.3	4.6	17	17	3.98	5.18	■

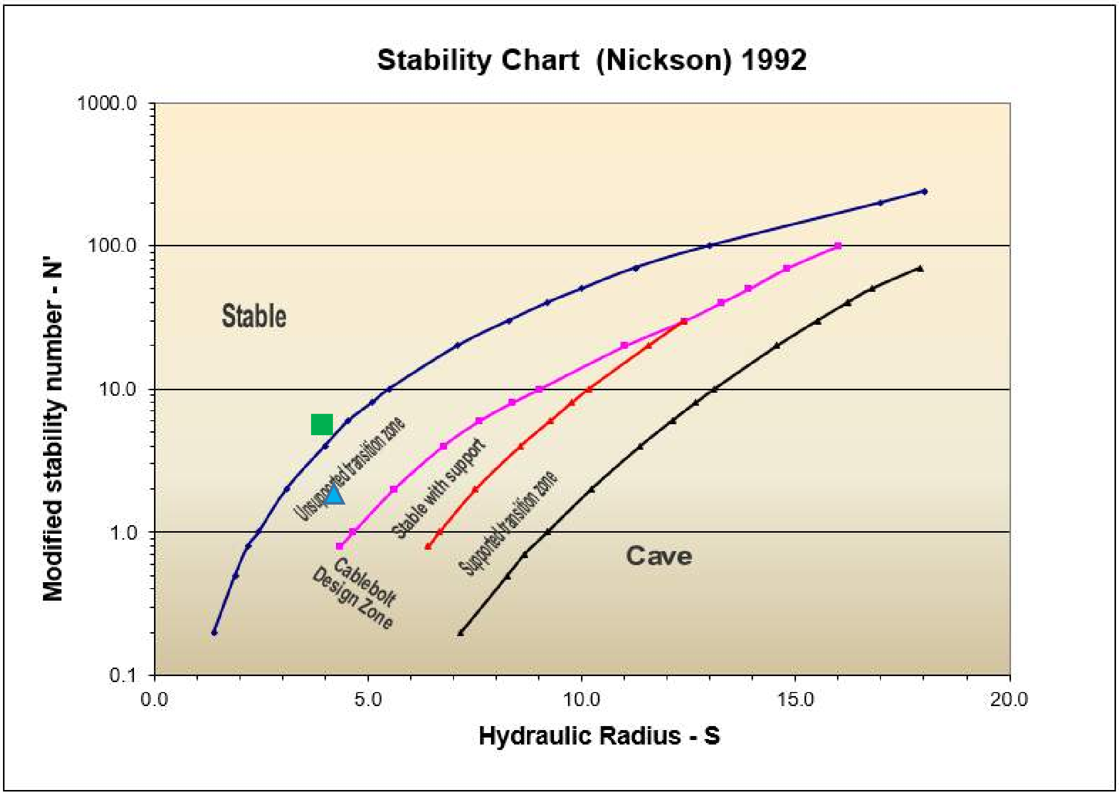

Figure 54. Stability chart for Buracão (▲) and Brás (■) mines.

From the stability chart for the Buracão vein, stopes with a length of 17 meters in the strike and 17 meters in height are located in a transition zone where the use of support may be necessary, while in the Brás vein, stopes with a length of 39 meters in the strike and 10 meters in height are stable. It is important to note that although the dimensions of the Brás vein stopes fall on a stable region on the graph, the presence of local discontinuities could combine to form a planar or wedge failure. As a result, in practice, each stope is analyzed separately for joint-set combinations that could result in failure, so that the necessary support can be put in place.

In the case of determining whether an individual stope requires support by cablebolts, the Company employs the methods developed by Hutchinson and Diederichs (1996). These charts define the spacing (mesh) between the cables and their respective sizes, in the same way the stability chart does for the modified stability number and hydraulic radius values. Figure 55 and Figure 56 show the spacing and length of the cablebolts required in each vein.

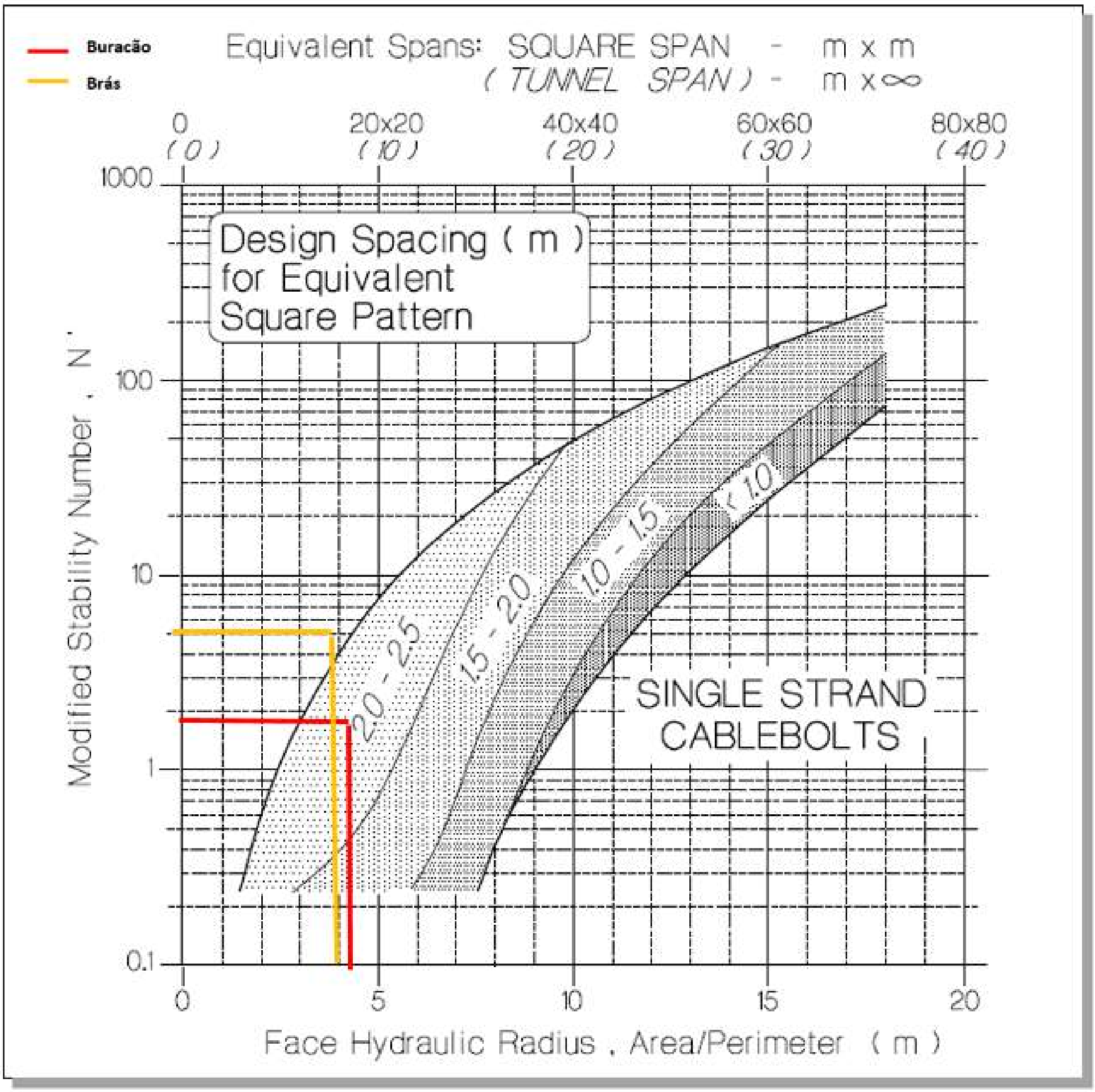

Figure 55. Cablebolt spacing for the Buracão and Brás veins.

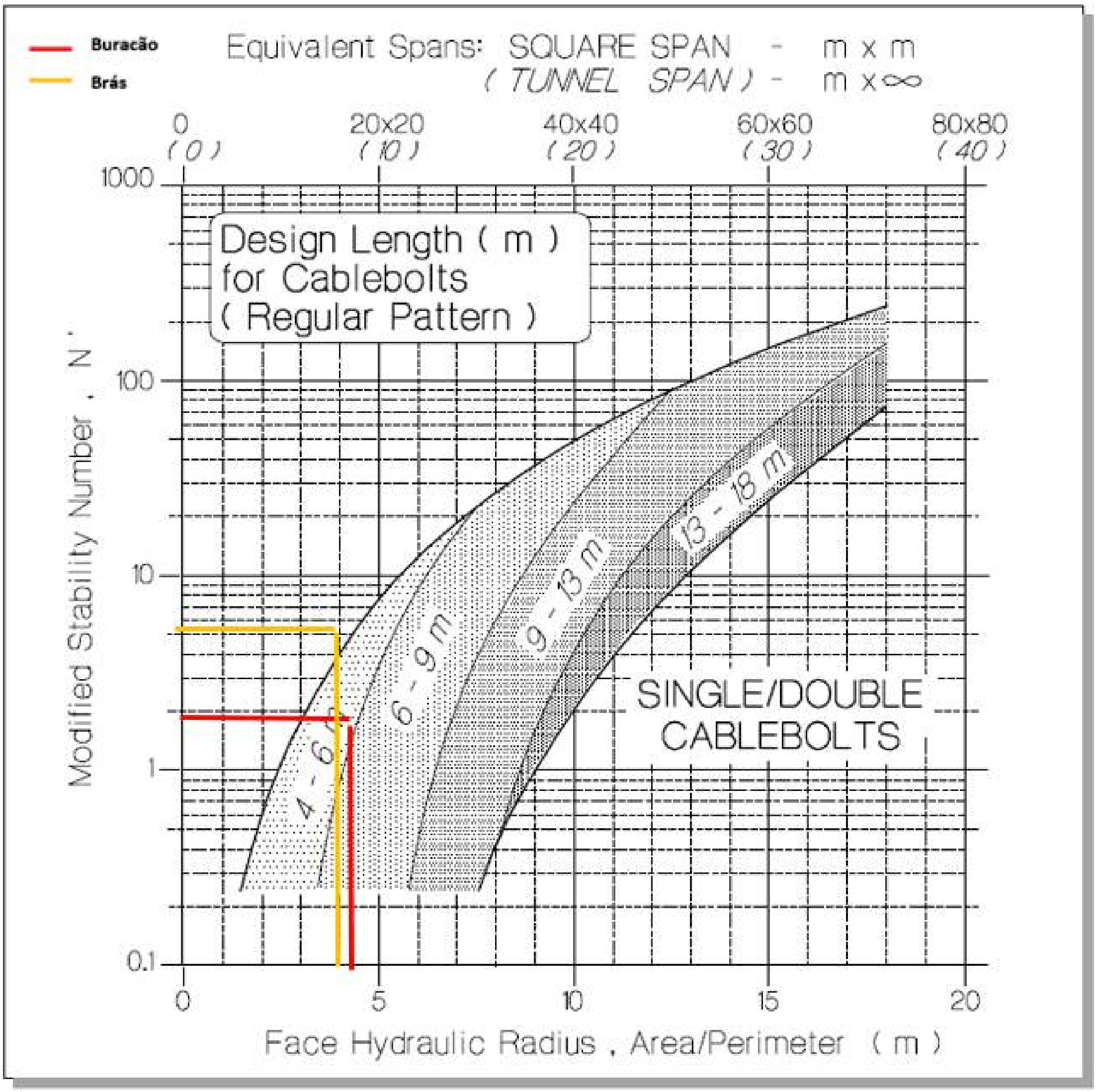

Figure 56. Cablebolt length for Buracão and Brás veins

As shown in Figure 56, cablebolts with a maximum length of 6 meters will meet the support requirements of a stope with previously mentioned dimensions.

16.1.5. Sill pillar design

For the design of the sill pillars, an empirical method called *Scaled Span* (C_S) developed by Carter (1989) is employed by the Company. While the method was originally developed for crown pillar design, the geomechanical behavior of these two types of pillars, the terms sill and crown are used interchangeably. The method characterizes the three-dimensional geometry of the pillar relative to its span. Four components are considered: span thickness, slope factor (reflecting the stope dip), a component to explain the three-dimensional geometry of the pillar (including a hydraulic radius factor), and the specific weight of the rock.

The Scaled Span (C_S) is defined as:

$$C_s = S\left(\frac{\gamma}{T(1+S_r)(1-0.4cos\theta)}\right)^{0.5}$$

Where:

S = crown pillar span (m);

γ = specific gravity (which is dimensionless but has the same numerical value as rock mass unit weight, tonnes/m³);

T = thickness of crown pillar (m);

θ = orebody/foliation dip, and;

S_r = span ratio = S/L (crown pillar span/crown pillar strike length).

With several records of stable and failed cases, Carter (1989) updated the concept to another one called *Critical Scaled Span* (S_c) where pillar failure can be estimated and is given by:

$$S_c = 4.4 \times Q^{0.32}$$

Where:

Q is the Q-system for rock mass classification (Barton et al., 1974).

To evaluate the risk of failure in its most basic form, the Scaled Span method can be applied comparing the Scaled Span (reflecting the mined geometry) to the Critical Scaled Span (reflecting the quality of the rock), thus calculating an approximate safety factor:

$$FS \approx {}^{S_c}/_{C_s}$$

Here, as defined by the presumed rock quality, if the Scaled Span (C_s) is greater than the Critical Scaled Span (S_c), resulting in a FS number smaller than 1.0, the probability of failure is high, unless the stope has been sufficiently supported or backfill has been used, effectively reducing the hydraulic radius.

The dimensions of the required sill pillars for the Buracão and Brás veins were defined using this approach. Tables 67 and 68 present the input and output components for the calculation of Scaled Span, Critical Scaled Span and Safety Factor. The result of the analysis shows that the required thickness of the sill pillars is 3 meters for the Buracão vein and 7 meters for the Brás vein. In practice, the behavior of existing sill pillars near the planned stope are evaluated for performance and to inform the required dimensions of subsequent pillars in the mine.

Table 58. Dimension parameters of sill pillars for the Buracão vein

C_s- Scaled Span (m)	**3.69**
S - Crown pillar span (m)	**3.50**
γ - Specific gravity (t/m³)	2.83
T - Thickness of crown pillar (m)	3.00
θ - Orebody/foliation dip	60
L - Crown pillar strike length	60
S_r - Span ratio = S / L	0.06
S_c - Critical Scaled Span	**5.21**
FS - Factor of Safety	**1.41**

Table 59. Dimension parameters of sill pillars for the Brás vein

C_s- Scaled Span	**5.58**
S - Crown pillar span (m)	**8.00**
γ - Specific gravity (t/m³)	2.83
T - Thickness of crown pillar (m)	7.00
θ - Orebody/foliation dip	55
L - Crown pillar strike length	100
S_r - Span ratio = S / L	0.08
S_c - Critical Scaled Span	**6.67**
FS - Factor of Safety	**1.20**

16.1.6. Numerical modeling

In order to analyze the stresses on the stope faces and sill pillars of both mines, a finite element model was developed using the RS3 software developed by Rocscience. For the construction of the model, a stratigraphic sequence was created, and for each layer values were defined for uniaxial compressive strength, cohesion and friction angle (Failure Criterion of Mohr-Coulomb), which were obtained through individual core sample tests that served to define the mechanical properties of each stratigraphic layer. Table 60 and Table 61 show the stratigraphic sequences used for the Buracão and Brás veins, respectively.

Table 60. Input parameters used in RS3 software - Buracão vein

Lithology	Layer size (m)	Peak Compressive Strength (MPa)	Peak Friction Angle (°)	Peak Cohesion (MPa)
Diorite	-	34	9.27	11.7
Siltstone	10	72	32.13	12.89
Phylite	3	38	21.82	1.17
VQZ	3	102	35.29	5.92
Siltstone	8	72	32.13	12.89
Diorite	-	34	9.27	11.7

Table 61. Input parameters used in RS3 software - Brás vein

Lithology	Layer size (m)	Peak Compressive Strength (MPa)	Peak Friction Angle (°)	Peak Cohesion (MPa)
Diorite	-	34	9.27	11.7
Siltstone	5	64	9.67	23.84
Phylite	2	38	21.82	1.17
VQZ	7	102	34.07	5.58
Diorite	-	34	9.27	11.7

Figure 57 and Figure 58 present the results for the stress distribution obtained by RS3. As expected, the edges of the sill pillars exhibit the highest stress concentration. To better analyze the stress on stope faces, where the rock mass is unconfined, a perpendicular cross section across the face was taken from the model. The induced stress varies from the hanging wall to the footwall, which can be seen in Figure 59 and Figure 60.

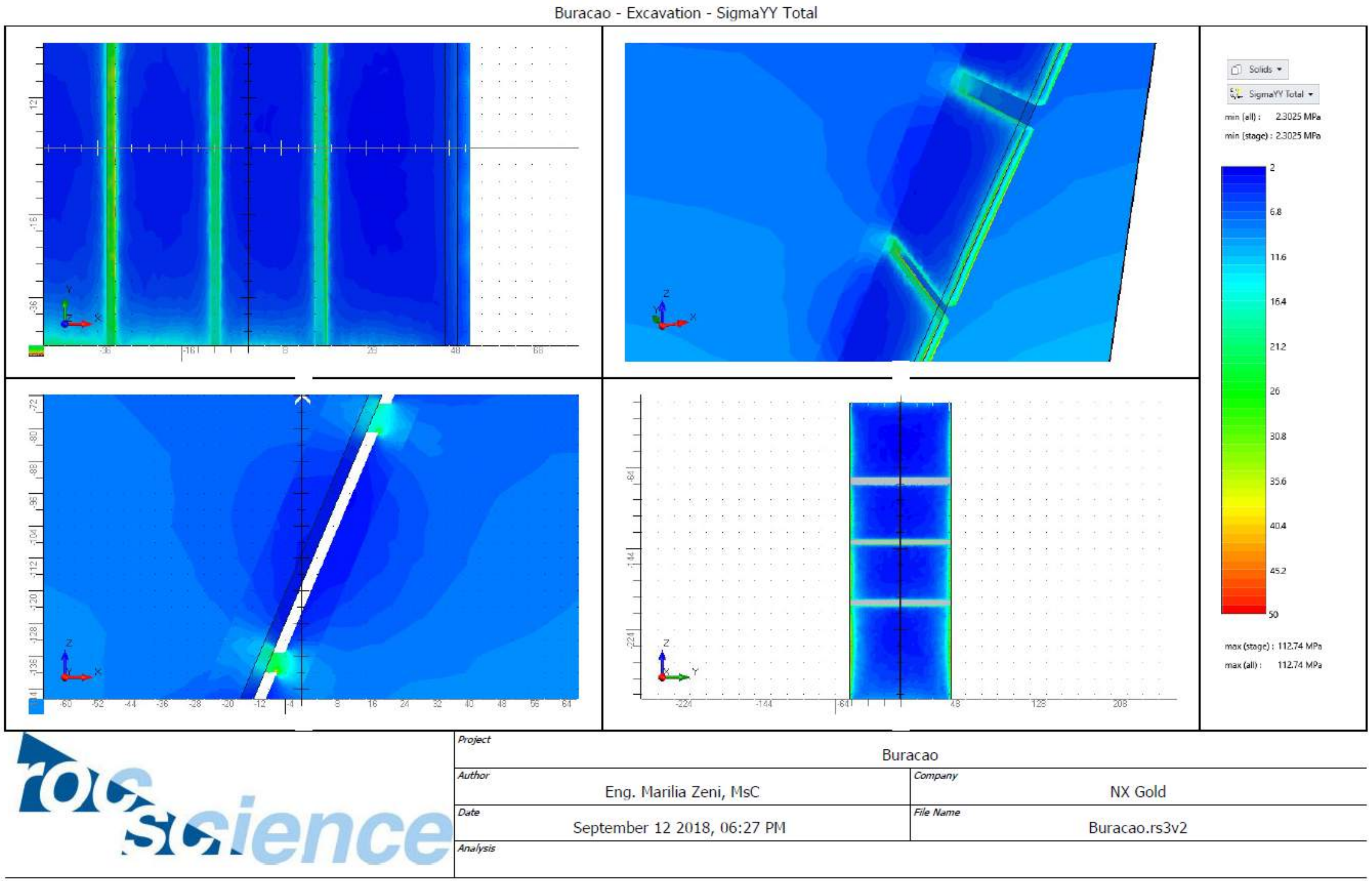

Figure 57. Stress distribution for the Buracão vein.

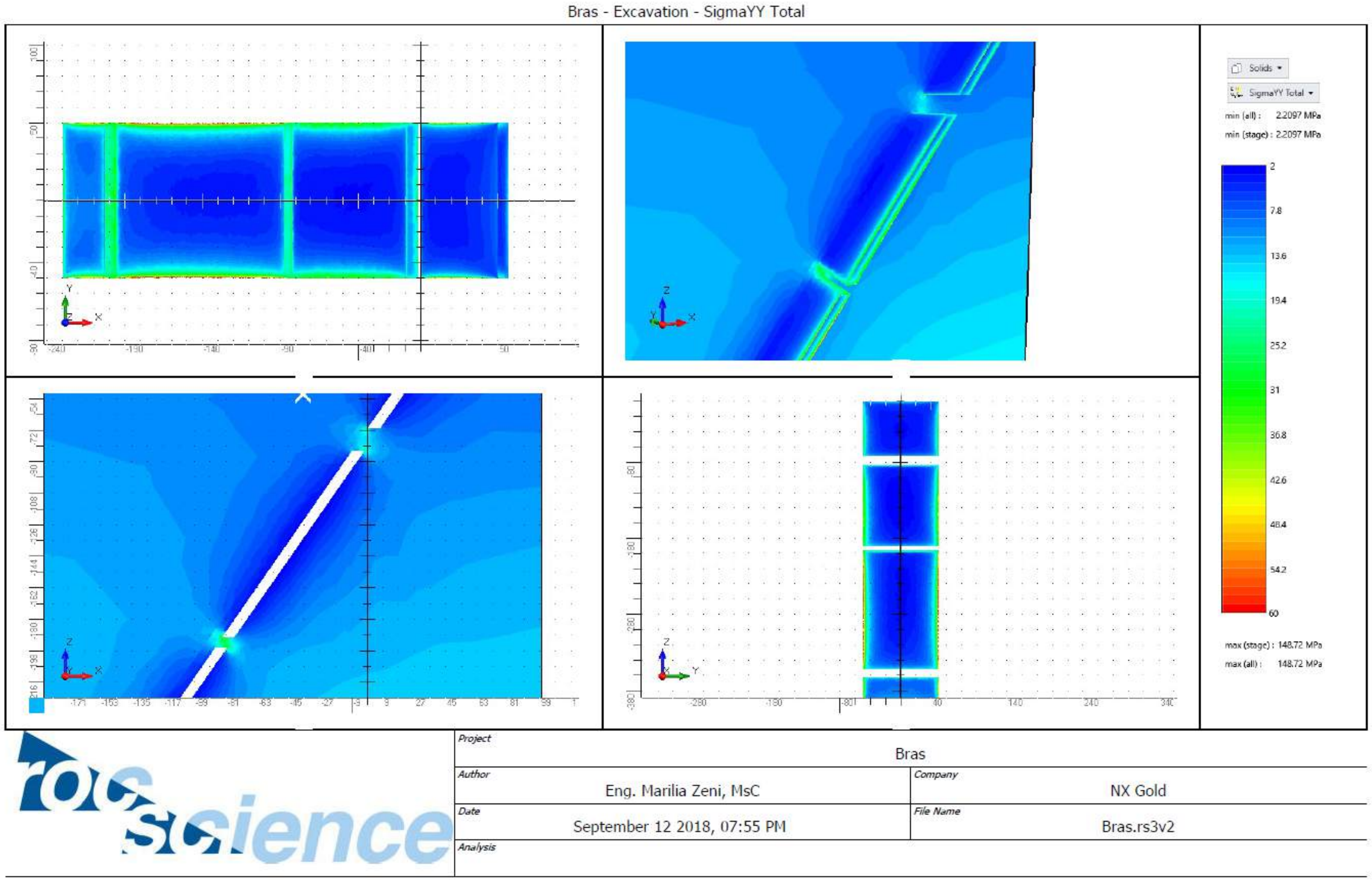

Figure 58. Stress distribution for the Brás vein

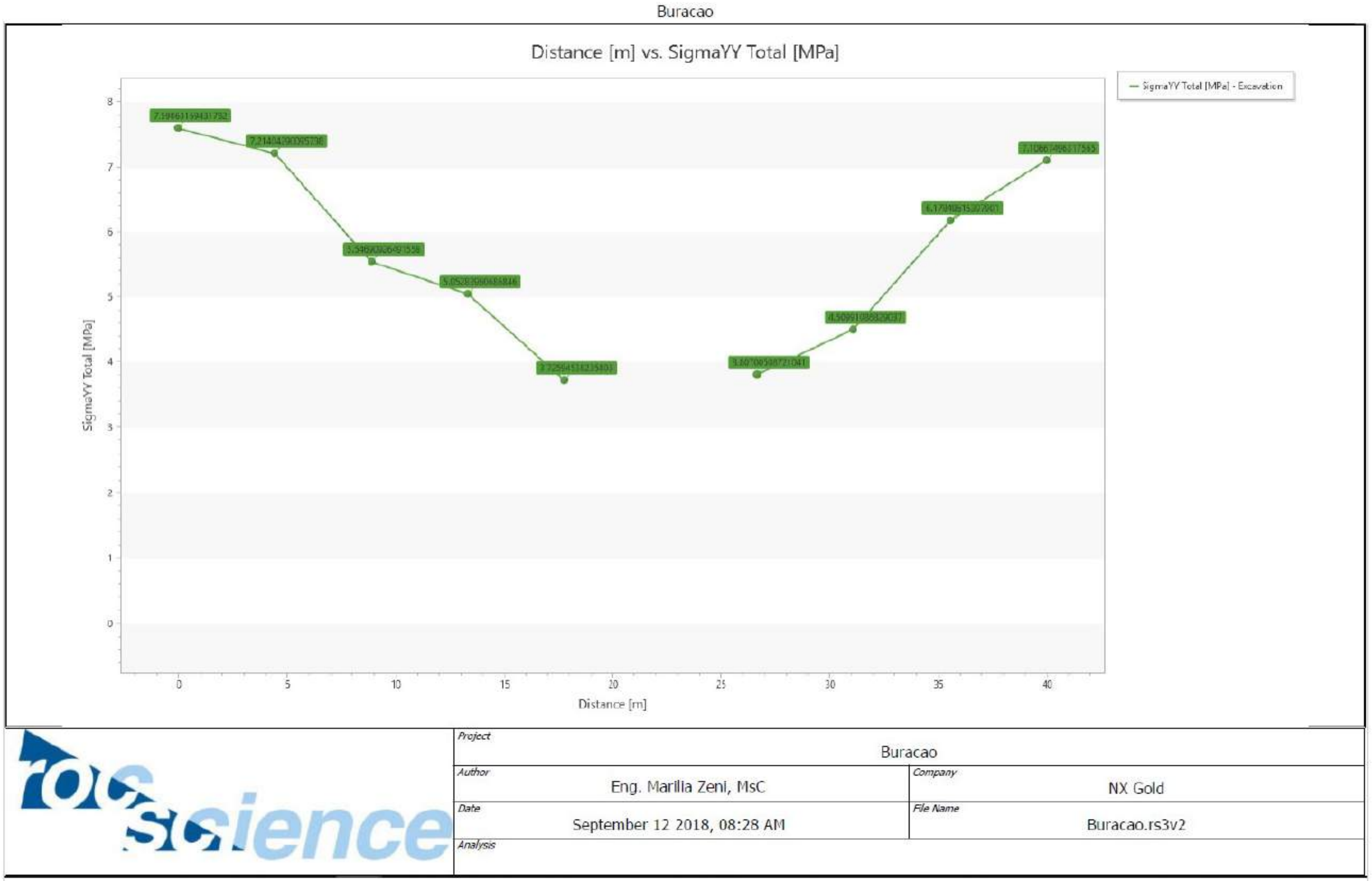

Figure 59. Stress change from the hanging wall to footwall in a stope of the Buracão vein

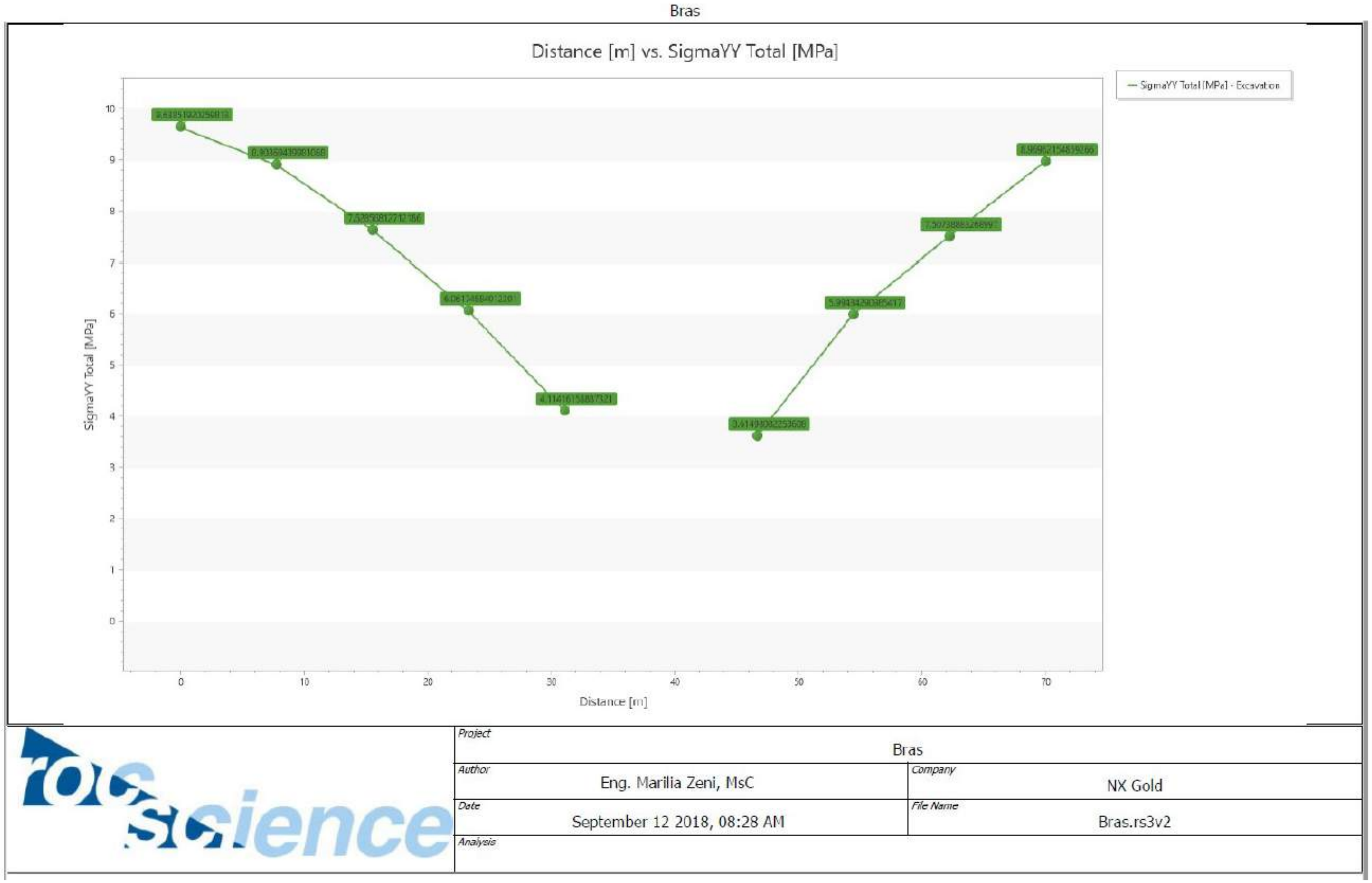

Figure 60. Stress change from the hanging wall to the footwall in a stope of the Brás vein

16.1.7. Geotechnical Conclusions and Recommendations

The uniaxial compressive strength of the rocks that compose the hanging wall and the footwall of both veins is low, with averages of 44.5 MPa for siltstone, 64.54 MPa for andesite, and 17.3 MPa for diorite (although the matrix seems to be of a competent rock, it has foliations that attenuate the results). Quartz, which composes the actual vein, has high compressive strength, 102 MPa on average. GE21 recommends carrying out further laboratory tests to define the strength of the rocks of both veins with greater information density.

The geotechnical mapping and the ranking by Q-system for rock mass classification (Barton et al., 1974) suggest that both the orebody and footwall of the Buracão vein contains a rock mass that can be considered poor, and that in the Brás vein, while the hanging wall can be considered regular, the orebody can also be considered poor. GE21 recommends performing geotechnical mapping at each new mining advance, creating an information collection routine that will be useful for developing a comprehensive geostatistical-geomechanical model of each vein.

Regarding the stope sizes, for the Buracão vein, stopes measuring 17 meters wide by 17 meters high, and for the Brás vein, stopes measuring 39 meters wide by 10 meters high, are stable and require only reinforcement for possible wedges (leaving a layer to protect the hanging wall), as was also recommended in prior studies. GE21 recommends evaluating the possibility of wedge formation individually for each stope during the execution of the geotechnical mapping. Complying the design to within the dimensions mentioned herein is mandatory.

Sill pillars for the Buracão vein must have a thickness of 3 meters while for the Brás they must have a thickness of 7 meters. These dimensions should be updated as soon as any change in the width of the orebody and/or a variation in the quality of the rock mass is detected. Further, GE21 reiterates the great importance of constantly performing geotechnical mapping within both veins.

16.2. Mining Method – Overhand Cut and Fill

The mining method applied to the ore bodies is the overhand cut and fill, with waste from development used as fill. The selection of this method is a function of the average geometries of the ore bodies (see Table 62) and the competence of the footwall and hanging wall, as described elsewhere in this chapter.

Table 62. Orebody dimensions

	DIP (°)	Extension along strike (m)	Average Thickness (m)
Brás	32 to 45	100	6.0
Buracão	32 to 40	70	2.5

The cut-and-fill method with overhand stopes has been used since the NX Gold Mine started mining operations. Waste derived from development is used to fill in the stopes. On average, waste production using this method is approximately 6,300tonnes per month, with stope filling requirements of approximately 4,000 tonnes per cut-and-fill cycle.

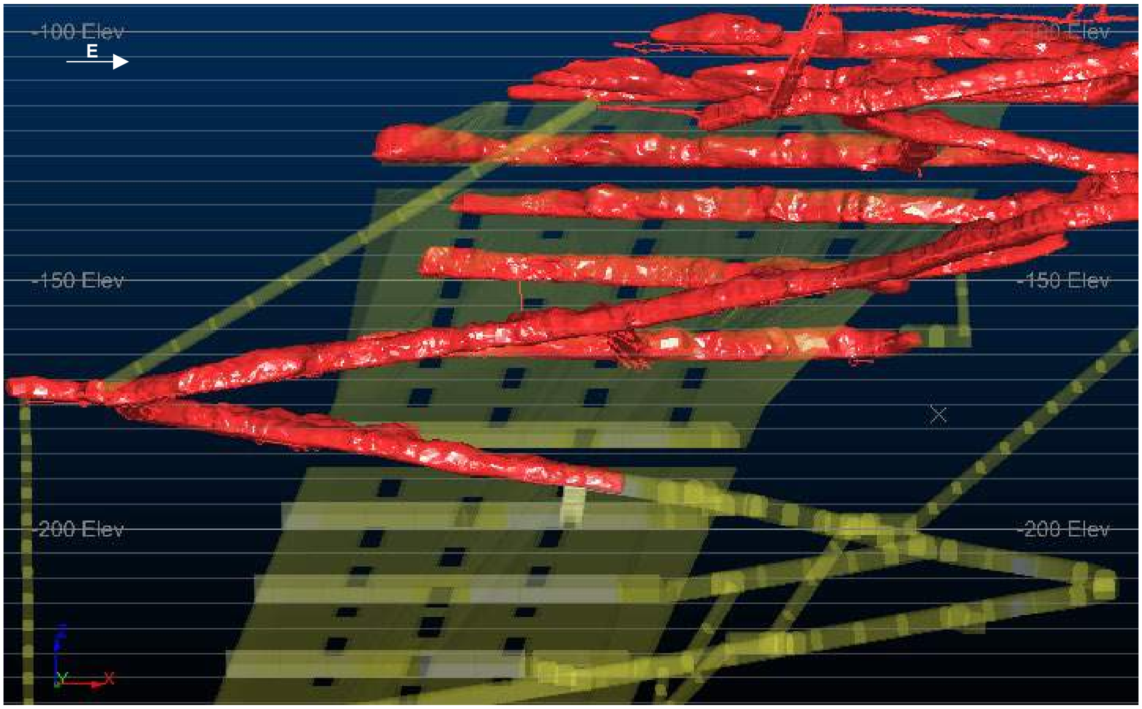

Figure 61. View looking North. Mining at the Brás vein. Excavated drifts are shown in red and planned mine development (including planned pillar locations) is shown in yellow

All development supporting the mines continued operation, including the primary ramp, occurs in the footwall of the deposits. The distance between permanent excavations and the mining area is maintained at 30 meters.

The Brás vein is divided into vertical panels of 64 meters with interlevel spacing of 15 meters, while the Buracão vein is divided into vertical panels of 35 meters with interlevel spacing of 14 meters. The maximum hydraulic radius adopted for inter-levels is 4 meters and the mining blocks are separated by pillars 5 meters long along strike and 5 meters high along the dip of the ore body.

Production from cut-and-fill inter-levels is approximately 4,000t/month and 1,250t/month at the Brás and Buracão veins, respectively.

16.2.1. Mining cycles

The mining cycle for cut-and-fill at the Brás vein can be described as follows:

1. Drilling of 51 mm diameter and 3.8 meter deep holes using S1D jumbos
2. Detonation using cartridge explosives on a charge ratio of 1.06 kg per drilled meter.
3. Loading using a JCB telescopic handler with a 4.5-tonne capacity
4. Loading and transportation of ore to the surface using 6-tonne capacity LHD loaders and 20-tonne capacity trucks
5. Scaling using S1D jumbos
6. Filling using 20-ton trucks and LHD loaders to maintain the stability of the ramp
7. Drilling for rock support using S1D Jumbos
8. Reinforcement of hanging wall with grouted splitsets and cables (as required by design)

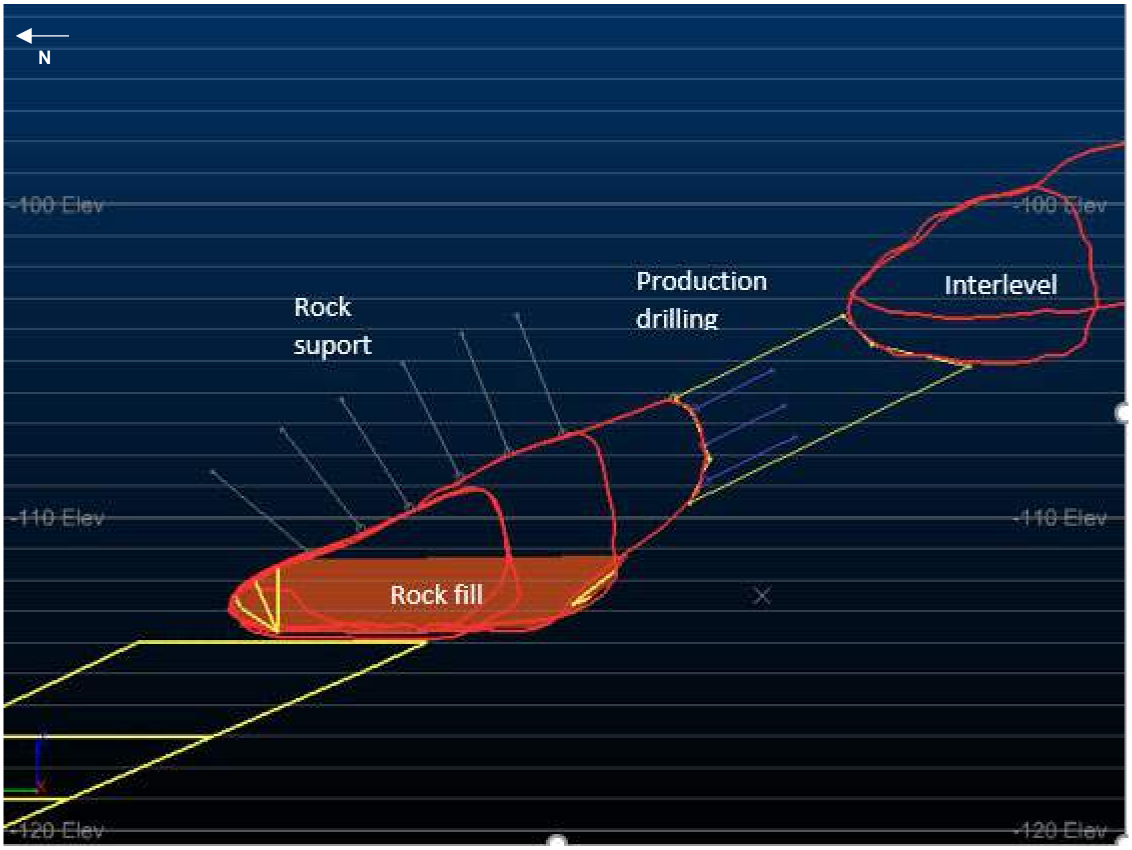

Figure 62. Cross section mining schematic looking east within the Brás vein.

The mining cycle for cut-and-fill at the Buracão vein can be described as follows:

1. Drilling of 40 mm diameter and 1.4-m deep holes using jackleg hammers.
2. Detonation using cartridge explosive on a charge ratio of 1.35 kg per blasted tonne
3. Loading and transport of material with 700kg tonne capacity Bobcat loaders to the loading site
4. Loading and transportation of ore to the surface using 6 tonne capacity LHD loaders and 20 tonne capacity trucks
5. Manual scaling
6. Drilling for rock support and installation of splitsets using jackleg hammers (as required by design)

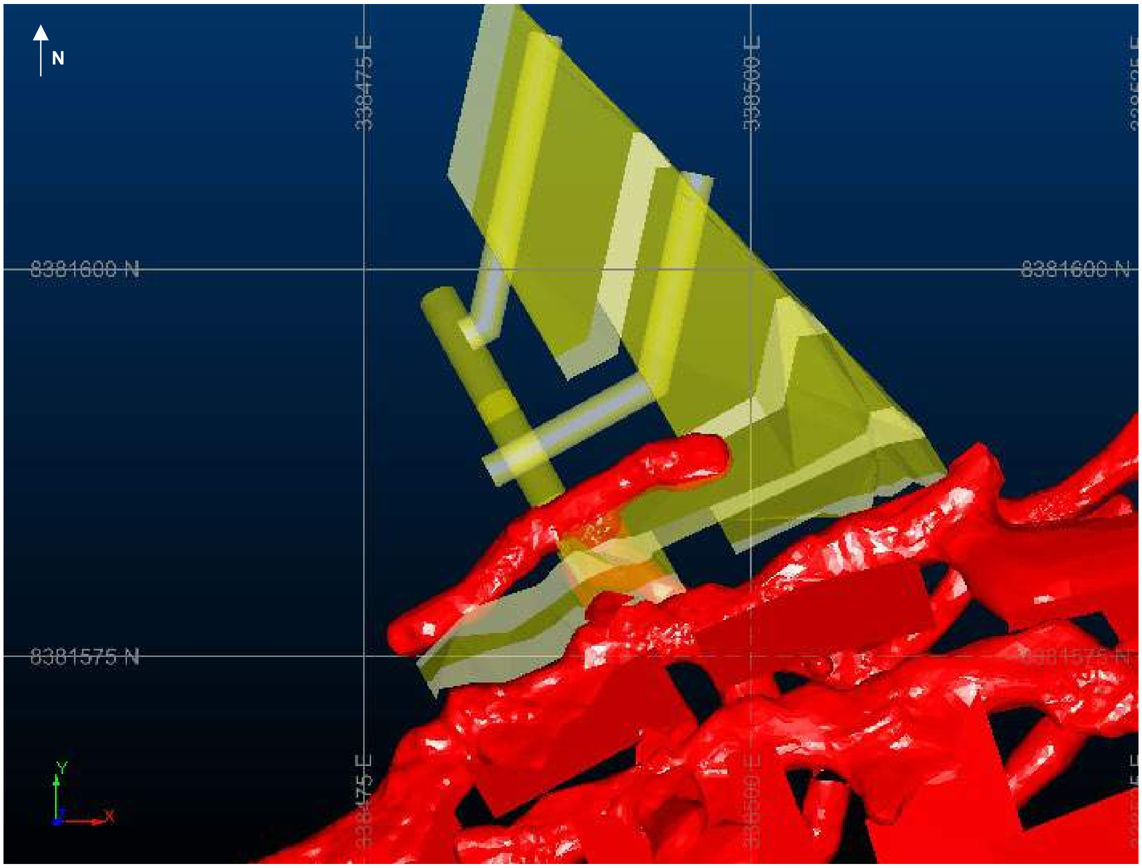

Figure 63. Plan view. Mining at the Buracão ore body

16.3. Underground Equipment Fleet, NX Gold Mine

The fleet of equipment used in the NX Gold Mine as at the effective date of this Report, including equipment rentals, is shown in Table 63. The NX Gold Mine currently has all equipment needed to support the contemplated production plan as set forth in this Technical Report.

Table 63. Underground Equipment Fleet

Category	Code/TAG	Type	Manufacturer	Model
Loading	LHD-01	Loader	Caterpillar	R1600G
	LHD-03	Loader	Caterpillar	R1600G
	LHD-05	Loader	Atlascopco	ST1030
	CG-05 (rented)	Loader	Caterpillar	950
Rock Support	BOL-01	Boltec	Atlascopco	S
	Boltec	Concrete Mixer	Fiori	DB260SL CBV
	PRJ-01	Engineered Truck	Putzmeister	SPM 4210 Wetkret
	SCA-01	Scaler	Marcotte	M20 (P/N: F900441)

Infrastructure	RE-02	Backhoe loader	Caterpillar	416E
	RE-04	Backhoe loader	Case	580N
	CG-01	Loader	Caterpillar	938H
	CG-02	Loader	Caterpillar	938H
	EHR-01	Hydraulic Wheel Loader	Doosan	DX-53
	DX-53	Motor graders	Caterpillar	120K
	PLT-05 (rented)	Platform	New Holland	LM1745
	PLT-09 (rented)	Platform	JCB	535
	PLT-08 (rented)	Platform	New Holland	LM1745
Drilling	JB-01	Jumbo Drill	Atlascopco	Boomer S1D
	JB-02	Jumbo Drill	Atlascopco	Boomer S1D
	JB-03	Jumbo Drill	Atlascopco	Boomer 282 S
	JB-06	Jumbo Drill	Atlascopco	Boomer 282 S

16.4. Dewatering

The dewatering infrastructure of the mine has been designed to collect water from a fractured-rock aquifer that exits within the underground mine. Water egress occurs primarily within the mining levels (quartz veins), as the country host rocks generally do not have properties that allow their fractures to connect. Within each level of the mine, water collection points (sumps), each using a Flygt pump with 15 or 30 horsepower, are installed. These pumps are designed to pump water into the main pumping boxes which are interconnected by 6-inch pipelines with a vertical spacing of 60 m. Each main pumping box has one or two metso HM100 pumps with a pumping capacity of 100 m^3/h each. At the final collection point, particulate matter is removed from the collected water by decantation, enabling the water to be recycled and used in other parts of the mine including the processing plant. The total output of mine dewatering at the time of the Effective Date was 60 m^3/h.

Table 64. Dewatering structure information for the Brás and Buracão veins

Level	Number of Flygt pumps	Number of Metso pumps
Brás Vein		
217	1	2
155	1	2
93	-	-
76	-	1
36	-	1
-29	-	1
-40	1	-
-85	-	1
-115	1	-
-135	1	-

-130	1	-
-140	1	-
-145	-	1
-155	3	-
-161	2	-
-185	1	-
-200	1	-
Buracão Vein		
157	1	-
132	2	-
120	-	1
111	1	-
70	2	-
60	-	2
43	3	-
Main Ramp		
n/a	1	-

16.5. Drilling and Blasting

Drilling at the Brás vein is performed using Atlas Copco S1D and 282 jumbos, both with 14-foot drills. The holes drilled are 51 mm in diameter and 3.8 m in depth with one meter spacing and separation, regardless of the section size. Holes with a diameter of 102 mm are used to drill the free face.

Jackleg drilling is used for development in the Buracão mine. Holes with a diameter of 40 mm are used for both loaded holes and free face holes. Drilling planes are spaced at 50 cm.

Production drilling and development drilling utilize the same equipment, in both the mechanized and jackleg mining processes. The pattern for production drilling consists of 51 mm holes drilled in a fan shape. Spacing and separation between the holes is 1.0 m and 0.8 m for mechanized drilling and for jackleg drilling respectively.

Rock blasting is performed with SENATEL MAGNAFRAG 38X600 1.5”X24” cartridge explosives for mechanized mining, and with SENATEL MAGNAFRAG 1”X24” cartridge explosives for jackleg mining. Ignition of explosives is done using BRINEL wires with timing delays ranging from 1 microsecond to 332 microseconds, distributed in an increasing order from the inside to the outside of the section. Other accessories used in the process include NP 5, NP 10 and NP60 detonating cord along with 2.5 meter No. 8 blasting caps. This configuration allows an average charge ratio of 1.35 kg/t to be defined.

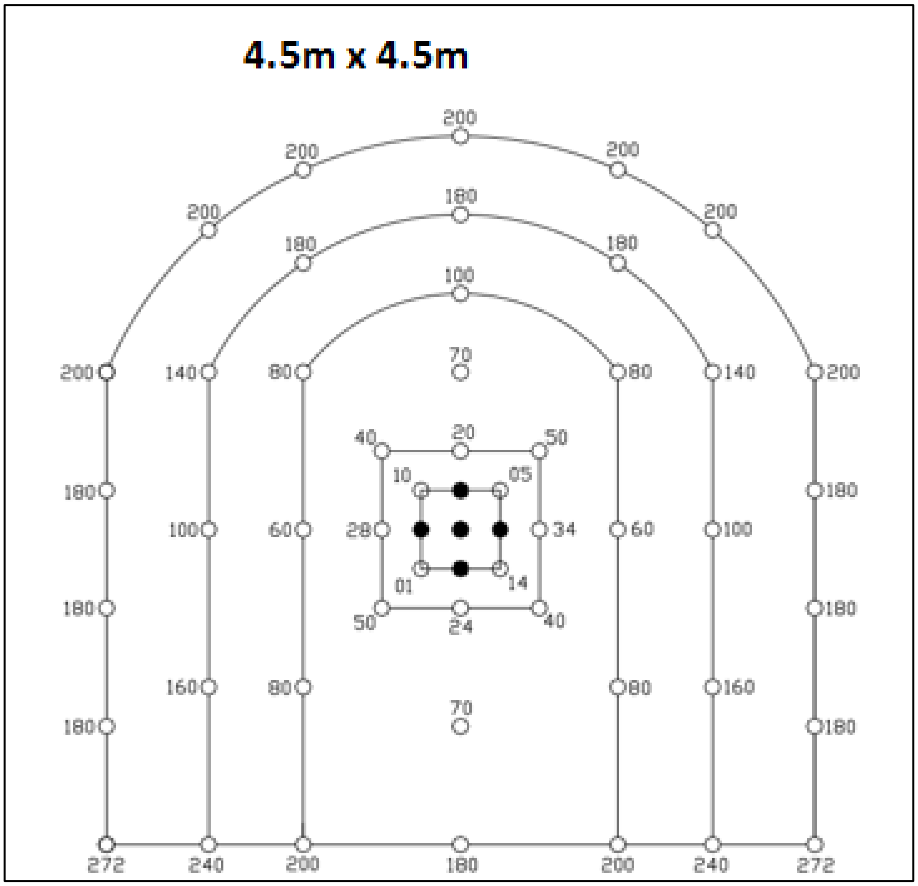

Figure 64. Drill and blast plan for mine development

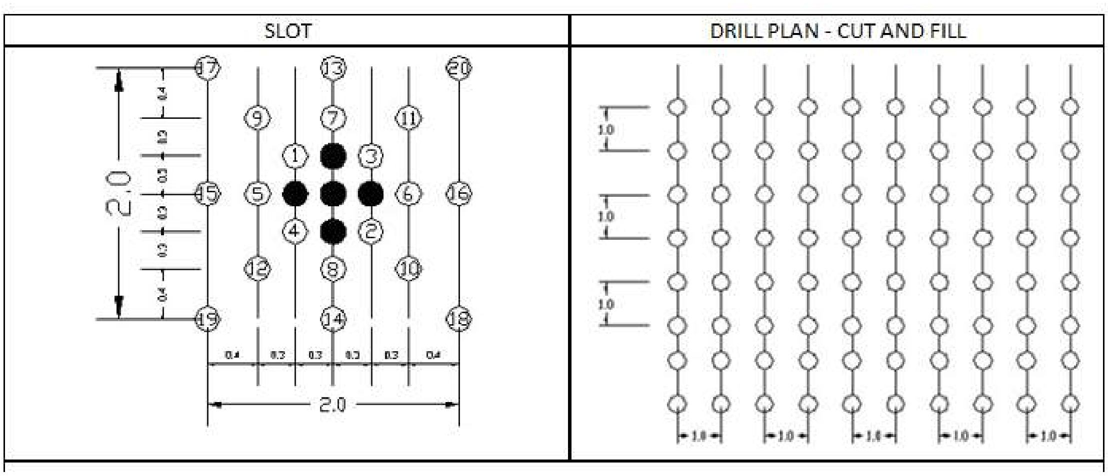

Figure 65. Drill and Blast plan for cut-and-fill mining

Table 65. Drilling equipment

Model	Amount
Atlas Copco 282 Jumbo	2
Atlas Copco S1D Jumbo	2
Pneumatic hammer	10

Table 66. Dimension and blast hole requirements

Development Face Dimension	Required blast holes
4.5m x 4.5m	61
4.0m x 4.5m	55
2.2m x 1.8m	25

16.6. Load and Dump

Loading and transportation of both ore and waste follow the same procedure. Loading is performed using LHDs with capacity of 3 m^3. Transportation is performed by 5 Mercedes 3131 trucks with a maximum capacity of 20 tonnes or 12 m^3.

NX Gold has 3 active LHDs (two Caterpillar R1600 and one Atlas Copco ST1030). At jackleg mining sites, loading and transportation are performed by two loaders: one Mustang 400 and one Case SR 200. The development of the ramp uses a gramby car, with capacity of 1.5 m^3, to move material to the stock site from where it is transported to the surface by LHDs and trucks.

Table 67. Loading equipment

Model	Qty
LHD Caterpillar R1600	2
LHD Atlas Copco ST1030	1
Mustang 400 Mini loader	1
Case SR 200 Mini loader	2
Transportation equipment	
Mercedes 3131 Trucks	5
Gramby Car 1.5m^3	1

16.7. Ventilation and Alternative Emergency Exit

Currently, the main ventilation circuit is composed of five raises connecting the underground mine to the surface. This includes two exhaust raises and three intake raises. The current intake of fresh air into the mine is 110 m^3/s.

To meet the current air demand, three exhaust fans with 150 hp motors are installed at the surface providing air flow of 45 m^3/s at a static pressure of 1500 Pa. The current operating configuration for these exhaust fans is 400 Pa. Secondary ventilation includes ten fans underground: six with 100 hp motors, two with 75 hp motors, one with a 50 hp motor, and one with a 175 hp motor. Current consumption of electric power is on the order of 750 kWh for the underground mine operations.

Emergency escapeways are located within the intake raises and are interconnected up to level -145. Both mines have rescue chambers installed at levels -85 and +129 respectively.

16.8. Staff Table

The underground mine has a total of 137 staff on its roster, including 100 permanent employees and 37 third-party employees (jackleg mining contractor).

Fleet maintenance is carried out by a third-party company that currently has 33 employees.

Table 68. Underground mine staff

Mining	**Headcount**
NX Gold S.A. Employees	100
Minere ltda. Employees	37
Permanent heavy fleet maintenance	
NX Gold S.A. Employees	3
Souza e Nunes ltda. Employees	33

16.9. Summary of Qualified Person's Opinion

After analyzing the documents and plans presented during a technical site visit to the site on September 18, 2018, the authors of this Report can make the following comments on the underground mining operations at NX Gold:

- The NX Gold underground mine is small operation (approximately 120,000 tonnes per annum as envisioned currently) with the possibility to increase production;
- There are inferred resources that should be further developed and explored in order to perpetuate mining activities;
- The selection of an overhand cut-and-fill mining method is appropriate given the nature of the deposit;
- Mine development is approximately six months ahead of mining activities, providing short-term flexibility within the mine;
- Underground mining operations are favorable due to competent rock conditions that do not require major rock reinforcement, low dewatering requirements, and adequate ventilation; and,
- While, the productivity of the mining operations and per tonne operating metrics are high when compared with similar mines in Brazil, this represents an area for potential improvement and further cost reduction.

17.0. RECOVERY METHODS

The Nova Xavantina Plant (Figure 66) includes a conventional 3-stage crush; ball milling; centrifugal gravity concentration (Falcon); intensive cyanidation - ILR (GEKKO); hydrocyclones; flotation (rougher, scavenger and cleaner); pre-lime and CIL of the flotation concentrate; desorption (atmospheric pressure Zadra stripping); acid washing (before and after desorption); and smelting. The Nova Xavantina Plant has been in operation since 2012.

Currently, all units of the plant operate in 3 shifts for 24 hours per day from Monday to Saturday. The crushing rate is 80 tph, and the grinding rate is 44.5 tph. Average utilization is currently 34.2% for crushing and 39.7% for grinding due to low mine feed. The plant has the capacity to process in excess of 300,000 tonnes of ore per year as compared to current rates of approximately 120,000 tonnes per year.

The plant's operational staff currently includes 30 direct staff plus 27 maintenance personnel for mechanical and electrical parts. Overall plant recovery currently averages between 91% and 92%, with more than 75% of the gold recovered through gravity and ILR.

Ore feed into the Nova Xavantina Plant currently averages 12.0 gpt gold and 22.0 gpt silver. The ore of the NX Gold Mine is difficult to process given the high carbonaceous content of approximately 8% carbon, which historically had resulted in significant losses of gold due to the preg-robbing effect. Due to the efforts of the processing team, recovery through CIL at NX Gold has improved significantly over the years to current levels, and is markedly higher than that of similar carbonaceous ores.

Following the plant there are two tailings ponds, one that receives the tailings from flotation, and another that receives tailings from CIL. The latter is coated with double layer of HDPE for natural degradation of residual cyanide, complemented by the addition of hydrogen peroxide in order to adjust cyanide levels as required by regulations. The tailings circuit is essentially a closed loop with water loss only occurring through evaporation and in the residual moisture content of the tailings. Process water is supplied via pumping from the underground mine.

The current capacity of the CIL tailings pond is approximately 450,000 tonnes, sufficient for more than 10 years of operation and while the flotation tailings pond has current storage capacity of about 10 months of operation, thickened inert tails are routinely removed from the pond and used to reclaim the artisanal open pit mines within the NX Gold mineral concessions. Figure 67 shows the characteristics of both tailings dams.

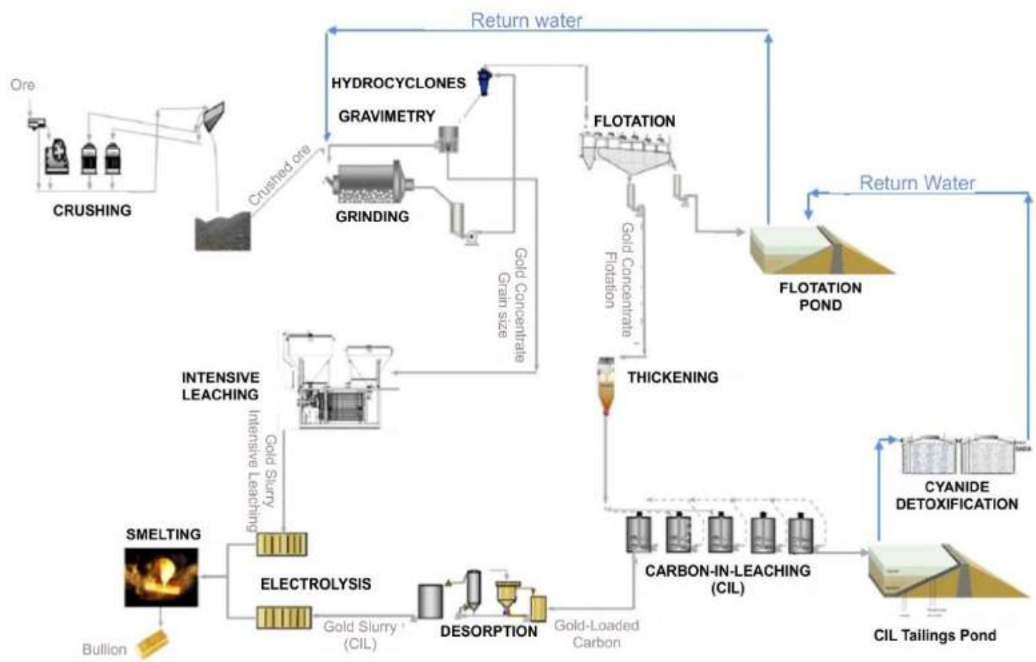

Figure 66. Plant circuit.

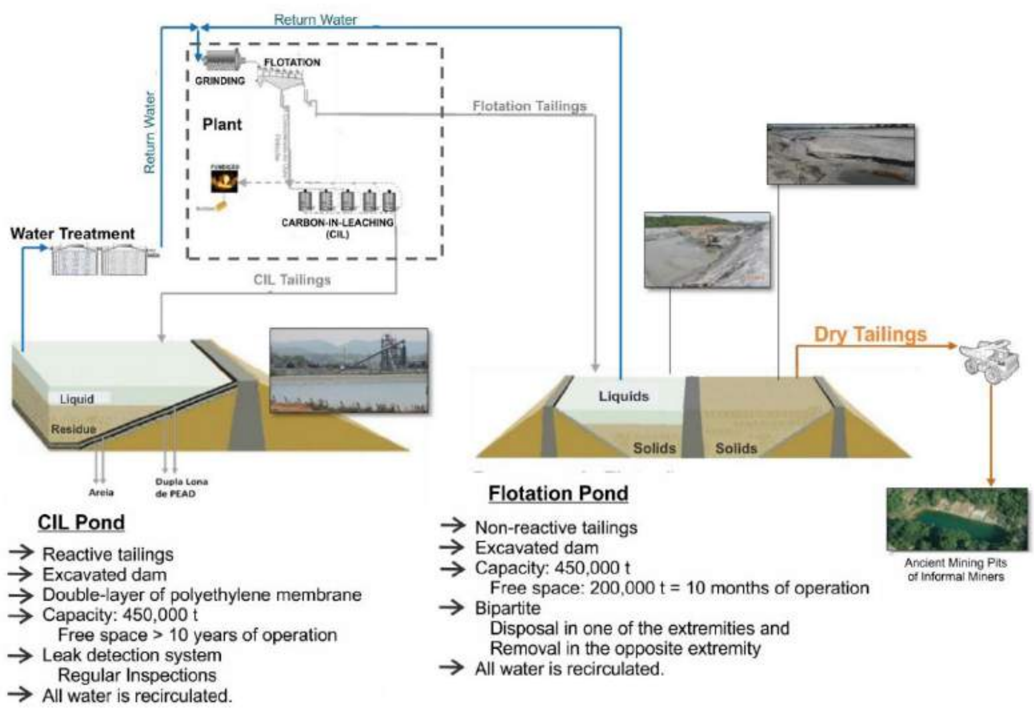

Figure 67. Dam configuration

17.1. Crushing

The nominal rate of the crushing unit is 80tph.

Run-of-mine material (ROM) is transported by trucks from the underground mine and stored in surface buffer piles, with a storage capacity of 3,000 tonnes. From there it is taken up a loader to the feed hopper.

Using an apron feeder, the 100mm to 500mm coarse material is loaded into a Simplex SXBM 9060 jaw crusher with a closed-side setting ("CSS") of 100 mm for primary crushing. Undersize material (sub 100mm) is moved to the SIMPLEX SXPL 6024/2D double-deck classification screen by a belt feeder for further separation of particle sizes of 22mm to 10mm.

Oversize fractions (greater than 20mm) and the fractions between 20mm and 10mm are transported by conveyor to the secondary and tertiary cone crushers, respectively. The secondary cone crusher is a SIMPLEX SXBC 12194 CS with a CSS of 20mm, and the tertiary cone crusher is a SIMPLEX SXBC 12194 CC with a CSS of 12mm. Ore from secondary and tertiary crushers is discharged onto the first screening belt which closes the crushing circuit.

Undersized material (sub 10mm) is placed on the second belt feeder to feed the ball mill.

Two operators per shift are required to operate the crushing unit (photo shown in Figure 68).

Figure 68. Crushing Unit overview.

17.2. Grinding

The nominal rate of the grinding unit is 44.5 tph.

Grinding consists of a 12 ft by 19 ft, 1,400 horsepower ball mill (Figure 69), loaded with a 30% charge of steel balls up to 80 mm in diameter. The ball mill operates in a closed circuit with a 15 inch diameter hydrocyclone. The circulating load within the milling circuit is approximately 400%.

Figure 69. Ball mill

In the milling circuit, hydrocyclone underflow passes through a 2mm mesh diameter screen, with the oversize returning to the mill. Approximately one-third of underflow is used as feed for the Falcon centrifugal concentrator and the balance is returned to the mill. The Falcon centrifugal concentrator (photo shown in Figure 70) operates at 60 G forces and in 19 minute-long cycles.

The daily production of gravity concentrate delivered into intensive cyanidation - IRL (GEKKO) (photo shown in Figure 71) is 1,500 kg per batch (approximately 12 hours of operation). More than 75% of the gold is recovered during centrifugal concentration/IRL.

The feed grade of the Falcon concentrator typically averages 12 g/t gold, while the concentrate has an average grade of approximately 4,000 g/t gold.

Figure 70. Falcon centrifugal concentrator overview.

Figure 71. Intensive cyanidation - IRL

Hydrocyclone overflow with a target P_{80} of 150 microns is used as flotation feed after passing through a 1m x 1.5m vibrating screen with mesh diameter of 1 mm.

17.3. Flotation

The flotation unit operation (photo shown in Figure 72) consists of 3 rougher cells, 3 scavenger cells, and 1 cleaner circuit. Each cell is a FLSmidth tank cell with a volume of $9m^3$. Flotation feed averages approximately 2.5 g/t gold while the concentrate grade averages approximately 50 g/t.

Current flotation operations target a solids ratio of 30% by weight. Reagent dosages include 65 g/t of the collector potassium amyl xanthate and 30 g/t of Flomin as a frothing reagent. Flotation mass pull is approximately 2%, and gold recovery is approximately 90%. Tailings from flotation have a gold grade of approximately 0.3 g/t and are stored in the flotation pond.

The flotation concentrate is transferred to the CIL unit operation.

Figure 72. Flotation Unit overview.

17.4. Carbon-in-Leaching (CIL)

The CIL unit operation (photo shown in Figure 73), which further processes the flotation concentrate, is comprised of a series of 6 agitating tanks, each with $12m^3$ of capacity. The first tank in the series is only used for a pre-lime step, with no carbon added, while the other five cells utilize carbon addition. Target carbon concentration in the 5 tanks is 20% by volume, and the calculated residence time in CIL is 60 hours.

Average gold feed grade is approximately 55 g/t compared to discharge grades of approximately 10 g/t, implying an average recovery of 81%, which is widely considered to be a good recovery level for the high-carbonaceous ores of the NX Gold Mine.

Loaded carbon with an average grade of 1,200 g/t is then pumped from the first CIL tank to the Desorption Unit. NaOH is used during the CIL process to control pH.

The concentration of cyanide contained in the slurry in the first tank approaches 1,200 ppm of CN, whereas the last tank has a concentration of 300 ppm. The slurry from the CIL process is then pumped to the respective tailings pond after passing through a small screen to ensure the retention of fine carbon. Typically, no additional detoxication steps are used in the procedure for cyanide degradation. Cyanide degradation occurs naturally through exposure to UV light in the tailings dam where concentrations of cyanide are within acceptable levels. When reusing water from the CIL tailings dam in the plant, a hydrogen peroxide system is used to ensure complete destruction of cyanide.

Figure 73. CIL (Carbon-in-leach) Unit overview.

17.5. Desorption, Electrolysis, Acid Washing, and Smelting

The desorption column has capacity for 2 tonnes of carbon, with three batches of desorption performed per week. The process applies Zadra stripping at atmospheric pressure. This consists of batch elution with 0.2% of NaCN and 2% of NaOH for a 30 hour period at 95 °C. Desorption is followed by acid washing at room temperature with 3% HCl followed by a final acid wash. There are two GEKKO Zadra electrowinning cells: one for processing the solution derived from intensive cyanidation unit operation, and another for processing the desorption solution.

After electrowinning, the plated cathodes are removed and sent to the NX Gold Plant smelting unit operation where 25 litre crucibles are used to produce bullion that average 40% by mass gold and 25% silver. Borax, potassium nitrate, sodium carbonate, and sand are used as smelting fluxes.

17.6. Reagent, power and water use

The NX Gold Mine is an established operating mine for which average use and consumption metrics of key process inputs are readily available.

Average fresh-water use for the NX Gold Mine during the full operating year of 2018 was 5,335 m^3 per month on average while full year power use averaged 13,000 MWh per month. Critical process reagents described in this chapter have been forecast using per tonne consumption metrics on a go-forward basis. The authors of this Report have not identified any material risks with the continued supply of water, power nor supply of reagents to support the continued operations of the mine.

17.7. Process Plant Equipment and Simplified Plant Metrics

The equipment list for the process plant has been provided in Table 69 while a simplified information table on each of the process plant's key operating metrics at an assumed 12.0 gram per tonne feed has been provided in Table 70.

Table 69. Processing Plant Equipment

Description	Manufacturer	Function
TC-06 CONVEYOR BELT	SIMPLEX	FEED TC-06
JAW PRIMARY CRUSHER	SIMPLEX	PRIMARY CRUSHING
CONE SECONDARY CRUSHER	SIMPLEX	SECONDARY CRUSHING
CONE TERTIARY CRUSHER	SIMPLEX	TERTIARY CRUSHING
DOUBLE-DECK INCLINED SCREEN	SIMPLEX	ORE CLASSIFICATION FROM 0 TO 8 MM
SPARE CYCLONE FEED PUMP	METSO	SLURRY PUMPING TO HYDROCYCLONES TRAIN
CLASSIFICATION HYDROCYCLONE	FLSMIDTH	CLASSIFICATION OF ORE FROM THE MILL
SPARE CLASSIFICATION HYDROCYCLONE	FLSMIDTH	CLASSIFICATION OF ORE FROM THE MILL
CENTRIFUGAL CONCENTRATOR	SEPRO	METAL CONCENTRATION OF UNDERFLOW SLURRY FROM HC
BALL MILL	METSO	ORE COMMINUTION
MAIN ENGINE OF BALL MILL	WEG	DRIVE BALL MILL

VIBRATORY SCREEN FOR OVERFLOW FROM HC	SIMPLEX	CLASSIFICATION OF OVERFLOW ORE FROM HC
VIBRATORY SCREEN FOR CENTRIFUGAL CONCENTRATOR	LUDOWICI	CLASSIFICATION OF UNDERFLOW ORE FROM HC
INTENSIVE LEACHING IRL	GEKKO	REACTOR FOR INTENSIVE LEACHING
ROUGHER FLOTATION CELL	FLSMIDTH	FLOTATION OF OVERFLOW MATERIAL FROM HC
ROUGHER FLOTATION CELL	FLSMIDTH	FLOTATION OF OVERFLOW MATERIAL FROM HC
ROUGHER FLOTATION CELL	FLSMIDTH	FLOTATION OF OVERFLOW MATERIAL FROM HC
ROUGHER FLOTATION CELL	FLSMIDTH	FLOTATION OF OVERFLOW MATERIAL FROM HC
ROUGHER FLOTATION CELL	FLSMIDTH	FLOTATION OF OVERFLOW MATERIAL FROM HC
ROUGHER FLOTATION CELL	FLSMIDTH	FLOTATION OF OVERFLOW MATERIAL FROM HC
ROUGHER FLOTATION CELL	FLSMIDTH	FLOTATION OF OVERFLOW MATERIAL FROM HC
SAFETY SCREEN	NX GOLD	CLASSIFICATION AND RECOVERY OF LOADED CARBON FROM CIL TAILINGS
CIL TANK 01	NX GOLD	STORAGE OF MATERIAL IN ACTIVATED CARBON LEACHING
CIL TANK 02	NX GOLD	STORAGE OF MATERIAL IN ACTIVATED CARBON LEACHING
CIL TANK 03	NX GOLD	STORAGE OF MATERIAL IN ACTIVATED CARBON LEACHING
CIL TANK 04	NX GOLD	STORAGE OF MATERIAL IN ACTIVATED CARBON LEACHING
CIL TANK 05	NX GOLD	STORAGE OF MATERIAL IN ACTIVATED CARBON LEACHING

Table 70. Simplified Key Operating Metrics

PLANT INFORMATION CHART	
Rate	**(tph)**
Crushing	80
Grinding	44
Current Utilization	**(%)**
Crushing	34.2
Grinding	39.7
Unit operation (average gold grade)	**(g/t)**
Plant Feed	12.00
Gravity concentrate	4,000
Flotation Feed	2.50
Flotation Concentrate	55.00
Flotation Tailings	0.30
CIL Tailings	10.00
Loaded carbon	1,200
Recovery	**(%)**
Gravity and IRL	>75
Flotation	~90
CIL	~82
Overall	**91 - 92**
CN Concentration	**(ppm)**
CIL Feed	1,200
Dam Discharge	300
Recycled water	<0.005
Flotation Mass (%)	**2.0**
CIL Feed Rate (tph)	**0.9**
CIL Feed Flux (m^3/h)	**1.2**
Cyanidation Residence Time (h)	**60**

18.0. PROJECT INFRASTRUCTURE

The facilities at the NX Gold Mine include the mine portal, the Nova Xavantina Plant, tailings storage, mechanical workshop, administrative offices, metallurgical laboratory, security gate and guard facilities, medical clinic, cafeteria and gravel airstrip used to fly out doré bars after production. Please refer to Figure 3 for the layout of the NX Gold Mine.

National electrical service is available on site from the town of Nova Xavantina, located approximately 18 km from the NX Gold Mine. Water in sufficient quantities to support mining and processing operations is sourced from surface run-off and a fully permitted groundwater well located on the property.

19.0. MARKET STUDIES AND CONTRACTS

19.1. Market Studies

Gold is a malleable, electrically conductive, and ductile metal that occurs naturally in its native state. Gold is mined on every continent, except Antarctica, from a wide variety of different deposits, including shear-vein hosted quartz vein deposits like NX Gold.

According to the United States Geological Society ("USGS"), global gold production in 2017 amounted to approximately 3,150 tonnes, or approximately 100 million ounces. China was the world's largest producer of gold in 2017, producing 440 tonnes, or approximately 14 million ounces. Australia, Russia, and the United States are the three largest producers after China, with Canada, Mexico, South Africa and Peru making up the next tier of major producing countries.

Demand for gold can be divided into three primary sources. The first, and greatest, demand for gold comes from the jewelry industry. According to the World Gold Council, jewelry accounts for approximately 50% of the global demand for gold, with approximately half of all jewelry demand coming from India and China. The second largest source of demand for gold lies in the financial markets. Gold is seen as a tangible, stable store of value that is largely independent of other assets. As a result, gold is widely used by both investors and central banks as a hedge against currency and market fluctuations through physical buying and storage of the metal, physically backed electronically traded funds ("ETFs") and in speculative contracts. The third major source of demand for gold comes from uses in technology. Gold has long been used as a key element of electronics manufacturing due to its high electrical conductivity and ductility. In terms of future demand growth, the properties of gold nanoparticles are being studied extensively for use in medical fields, and gold is also an important part of many renewable energy technologies.

According to Bloomberg, annual global supply for 2019 is estimated to be 4,475 tonnes of gold, while annual global demand is expected to modestly improve through 2019, a surplus of 352 tonnes is forecast at the end of 2019 noting that net central bank purchases may decline as recycling volume boosts the metal's total world supply (source: Bloomberg Intelligence).

Pricing for gold is set on a spot market, and gold is traded on all major global exchanges. This makes the market for gold relatively transparent. The spot price of gold for the last 5 years is shown below in Figure 74.

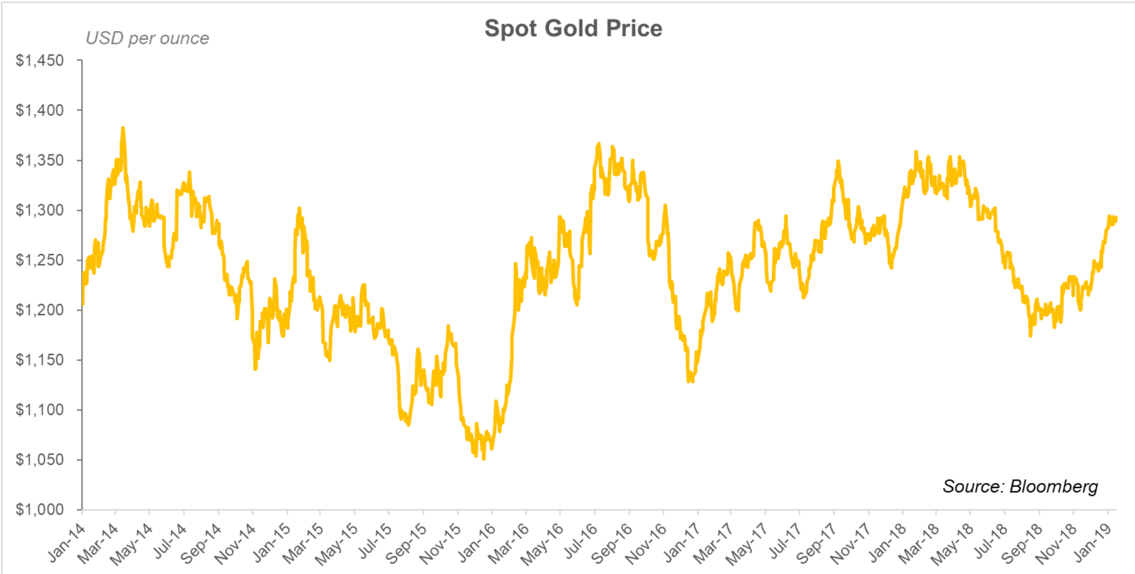

Figure 74: 5 Year Gold Price History Chart

19.2. Contracts

While the gold produced by the NX Gold Mine is currently sold to a preferred customer by the NX Gold Mine, gold (and silver) are widely produced precious metals, for which there are many refining and sales options in Brazil. The current terms of sales made by the Company have been captured in the economic analysis of the property and are summarized in greater detail in Chapter 22.

20.0. ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL IMPACT

The NX Gold Mine is a fully permitted gold mine currently in operation. An environmental action program was developed for the Company prior to the mine reaching commercial production. The Company follows the guidelines set forth in the program to reduce its impact and recover impacted areas within the vicinity of the mine. NX Gold adheres to a program of frequent environmental monitoring including water quality control, as well as re-vegetation of historic artisanal mining areas that pre-date the Company.

The mine's closure plan, adapted to the current social and environmental context within the area of the NX Gold Mine, has been designed to maximize the physical, chemical, biological, and socio-economic stability of the area after mining activities have concluded. The current estimated reclamation liabilities are approximately $20.2 million Brazilian Real ("BRL" or "R$").

NX Gold maintains an excellent relationship with the neighboring community of Nova Xavantina as well as smaller neighboring land-owners, providing among other things, community outreach, children's educational programs and sponsorship of local sporting events and teams. The Company has provided technical and financial support towards the environmental rehabilitation of areas previously impacted by historic artisanal mining activities and has remained an important economic contributor to the region through both direct and indirect jobs, royalties and tax revenue.

21.0. CAPITAL AND OPERATING COSTS

Capital and operating costs are shown for years 2018 and 2019 reflecting the period of operation from September 2018 to April 2019. For the purposes of the Technical Report, mine reclamation and closure are assumed to commence on the conclusion of mining of the Mineral Reserves; however, the Company is actively undertaking exploration activities to increase the mine's life. It is anticipated that a combination of Mineral Resource conversion, extension of the Brás and Buracão veins and delineation of target areas will serve to augment the production profile and increase mine life subject to satisfactory exploration results, technical, economic, legal and environmental conditions.

Total capital costs are estimated at R$21.2 million, of which R$20.2 million is related to mine closure in 2019. Due to the nature of the production plan as outlined by the current Mineral Reserve estimate, there are no capital requirements (development or ventilation) required to access the ore bodies nor any additional equipment needs; however, an investment of R$1.0 million over 2018 and 2019 is planned to refurbish the mine's secondary escapeway.

Table 71: Forecast Capital Expenditures

Total Capital Expenditures		2018	2019
Secondary Escapeway	R$	800,000	200,000
Mine Closure	R$	0	20,218,405
Total	**R$**	**800,000**	**20,418,405**

An operating cost forecast was prepared using the mine's operating history and current consumption coefficients. Mine and plant activities are subdivided and adjusted based on production allocation between Brás and Buracão as well as modeled plant head grade. The expected C1 Cash Cost of the NX Gold Mine averages US$594 per ounce of gold produced.

Table 72: Operating Cost Summary

		2018	2019	Total
Exchange Rate	US$/BRL	3.80	3.80	3.80
Ore Treated	tonnes	39,549	26,286	65,835
Gold Contained	**oz**	**13,150**	**8,644**	**21,794**
Operational Support	000 R$	3,488	4,070	7,558
Underground Mining	000 R$	12,786	11,810	24,596
Processing	000 R$	9,197	8,665	17,863
Sub Total	**000 R$**	**25,471**	**24,545**	**50,017**
Less Silver Credit	000 R$	(479)	(383)	(862)
Total	**000 R$**	**24,992**	**24,162**	**49,155**
C1 Cash Cost	**R$/oz**	**1,901**	**2,795**	**2,255**
C1 Cash Cost	**US$/oz**	**500**	**736**	**594**

22.0. ECONOMIC ANALYSIS

An economic analysis was prepared for the NX Gold Mine using the following primary assumptions:

- The economic analysis considers commencing on the Effective Date and does not include actual performance achieved prior to August 31, 2018
- Total ore processed of 65.8 thousand tonnes at an average head grade of 11.37 g/t gold
- Production is assumed to equal sales, with total sales of 21,794 ounces of gold and 12,965 ounces of silver
- Metal prices of US$1,250 per ounce of gold and US$17.50 per ounce of silver
- USD:BRL foreign exchange rate of 3.80
- Export sales resulting in no sales taxes payable (PIS / Confins)
- 25% income tax rate, with 75% reduction due to the SUDAM incentive, for final income tax rate of 6.25%. No taxes are assumed payable over the production forecast as a result of both accumulated PIS / Confins credits accumulated during purchase of raw materials and services, plus accumulated net operating losses (“NOLs”) being applied against the 6.25% income taxes payable
- Social contribution tax rate of 9% on net profits
- Brazilian Federal CFEM royalty based on 1% of gross revenue (payable to the DNPM). There are no other royalties applicable to the NX Gold property

The NX Gold Mine produces an undiscounted after-tax cash flow of approximately R$31 million (approximately US$8.2 million) over the remainder of the production forecast of approximately 7.5 months.

The after-tax Net Present Value (“NPV”) at a 5% discount rate is US$8.1 million. Due to the relatively short mine life and limited up-front and ongoing capital requirements to achieve the stated production plan, the after-tax cash flow is similar to the NPV. As there is no meaningful capital required to achieve the production forecast and cash flows as outlined, internal rate of return (“IRR”) and payback are not meaningful measures. The results of the economic analysis are shown below in Table 83.

In addition, an after-tax sensitivity analysis was performed considering changes in gold price, foreign exchange rates, and capital and operating costs. The analysis in Table 84 below shows that the NX Gold Mine is most sensitive to gold prices and foreign exchange rates.

Table 73: Economic Analysis of the NX Gold Mine

Assumptions		**2018 [1]**	**2019**
Exchange Rate	R$/US$	3.80	3.80
Gold Price	US$/oz	1,250	1,250
Production			
Ore Mined	tonnes	39,549	26,286
Gold Grade Mined	g/t	11.49	11.37
Ore Processed	tonnes	39,549	26,286
Gold Grade Processed	g/t	11.49	11.37
Global Recovery	%	90.0	90.0
Gold Contained	**oz**	**13,150**	**8,644**
Capex			
Total	**000 R$**	**800**	**20,418**
Operating Costs			
General & Administrative	000 R$	2,147	1,943
Operational Support	000 R$	3,488	4,070
Underground Mining	000 R$	12,786	11,810
Processing	000 R$	9,197	8,665
Sub Total	**000 R$**	**27,619**	**26,488**
Depreciation/Exhaustion	**000 R$**	**12,082**	**9,273**
Total Costs	**000 R$**	**39,701**	**35,762**
Revenue			
Gold Sales	tonnes	13,150	8,644
Gross Metal Revenue	000 R$	62,463	41,061
Total Net Metal Revenue	000 R$	62,312	41,030
Total Net Revenue	**000 R$**	**62,966**	**57,088**
Cash Flow			
Revenue	000 R$	62,966	57,088
Opex (ex-Depreciation & Exhaustion)	000 R$	(27,619)	(26,488)
Income & Social Contribution Taxes	000 R$	(6,465)	(819)
Other Taxes & Credits	000 R$	(1,273)	(1,177)
Employee Bonuses	000 R$	-	(4,000)
Operating Cash Flow	**000 R$**	**27,609**	**24,604**
CAPEX	000 R$	(800)	(20,418)
Free Cash Flow	**000 R$**	**26,809**	**4,186**
Accumulated Free Cash Flow	000 R$	26,809	30,995
Free Cash Flow	**000 US$**	**7,055**	**1,102**
Accumulated Free Cash Flow	000 US$	7,055	8,157

Results		
After-Tax NPV_5	000 US$	8,056
IRR	%pa	n/a
Simple Payback	years	n/a

(1) 2018 based on the 4 months from the Effective Date to December 31, 2018

Table 74: Sensitivity Analysis for the NX Gold Mine

Parameters	Units	-20%	-15%	-10%	-5%	Base Case	+5%	+10%	+15%	+20%
Gold Price	LT US$/oz Au [1]	1,000	1,063	1,125	1,188	1,250	1,313	1,375	1,438	1,500
	NPV - 000 US$ [2]	3,592	4,708	5,824	6,940	8,056	9,172	10,288	11,404	12,520
	IRR - %/year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Foreign Exchange	LT R$/US$ [3]	3.04	3.23	3.42	3.61	3.80	3.99	4.18	4.37	4.56
	NPV - 000 US$ [2]	4,489	5,538	6,471	7,305	8,056	8,735	9,353	9,917	10,433
	IRR - %/year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Capex	000 US$	16,975	18,036	19,097	20,157	21,218	22,279	23,340	24,401	25,462
	NPV - 000 US$ [2]	9,129	8,861	8,593	8,324	8,056	7,787	7,519	7,251	6,982
	IRR - %/year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Opex	000 US$	43,285	45,991	48,696	51,401	54,107	56,812	59,517	62,223	64,928
	NPV - 000 US$ [2]	10,384	9,802	9,220	8,638	8,056	7,474	6,892	6,310	5,728
	IRR - %/year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

(1) Gold Price Assumption US$1,250/oz
(2) After Tax NPV8
(3) Exchange Rate Assumption of US$ 3.80

23.0. ADJACENT PROPERTIES

There are no relevant adjacent properties to the NX Gold Mine.

24.0. OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data available regarding the NX Gold Mine.

25.0. INTERPRETATION AND CONCLUSIONS

The procedures and processes adopted by NX Gold personnel to produce the geological models was reviewed in detail by GE21 and in the opinion of the Qualified Persons, was executed according to industry standards. Sampling, QA/QC, security and data control were similarly in line with industry best practices and support the current Mineral Resource and Reserve estimate.

26.0. RECOMMENDATIONS

Regarding the Mineral Resources and Mineral Reserves estimation, the authors recommend a work program to include the following:

- Validate the integration between surface and underground topographic bases, allowing better adherence between the drill hole survey data sets and underground channel samples in stopes;
- Consolidate the integration of the geological model with surface and underground geological mapping, applying sample assay data as a base for horizontal projection of underground maps;
- Intensify the exploratory program in the regions classified as exploration potential to further define and classify these zones into incremental Mineral Resources (and Mineral Reserves) in these areas;

- Undertake additional infill drilling campaigns to promote the classification of Indicated Mineral Resources into Measured Resources.
- The hanging wall of the deposit, in the opinion of the authors of this Report, is competent enough for the current mining method with appropriate mining support. GE21 recommends the Company undertake a third-party geotechnical study to further evaluate the potential to reduce sill pillar thickness with the aim of increasing mine recovery.

Table 86 presents the proposed budget for recommended works. As at the time of this Report, 7 drill rigs had been mobilized to the property and were undertaking various exploration programs aimed at increasing the current mineral resource and mineral reserve.

Table 75: Budget for GE21 Recommended Work Program

Program	Budget (US$)
Integration check between surface and underground topographic bases	$10,000
Integration of geological model with surface and underground geological mapping,	$50,000
Exploratory drilling program in the regions classified as exploration potential	$1,800,000
Infill drilling campaign to promote the classification of the measured mineral resource	$1,200,000
Geomechanics study for mining stopes support dimensioning	$300,000
Total	**$3,360,000**

27.0. REFERENCES

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APPENDIX A

Technical Report QP Signature Page & Certificates

Effective Date: August 31, 2018

Signature Date: January 21, 2019

<signed & sealed in the original>

Porfirio Cabaleiro Rodriguez, MAIG

<signed & sealed in the original>

Leonardo Apparicio da Silva, MAIG

<signed & sealed in the original>

Leonardo de Moraes Soares, MAIG

I, Porfirio Cabaleiro Rodriguez, MAIG, (#3708), as an author of the technical report titled "Mineral Resource and Mineral Reserve Estimate of the NX Gold Mine, Nova Xavantina", dated January 21, 2019 with an effective date of August 31, 2018 (the "Technical Report"), prepared for Ero Copper Corp., do hereby certify that:

1) I am a Mining Engineer and Director for GE21 Consultoria Mineral Ltda., which is located on Avenida Afonso Pena, 3924, SL,207, Cruzeiro, Belo Horizonte, MG, Brazil - CEP 30130-009.

2) I am a graduate of the Federal University of Minas Gerais, located in Belo Horizonte, Brazil, and hold a Bachelor of Science Degree in Mining Engineering (1978). I have practised my profession continuously since 1979.

3) I am a Professional enrolled with the Australasian Institute of Geoscientists ("AIG") - ("MAIG") #3708.

4) I am a professional Mining Engineer, with more than 39 years' relevant experience in Mineral Resource and Mineral Reserves estimation, which includes numerous mineral properties in Brazil, including gold and copper properties.

5) I have read the definition of "qualified person" set out in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("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.

6) I supervised all resource estimation sections and I am responsible for Chapters 2, 3, 4, 5, 6, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 23, 24 and 27, am jointly responsible for Chapters 7, 12, 14 and 21. I am also responsible for the corresponding sections within Chapters 1, 25 and 26 that are related to the foregoing Chapters of this Technical Report.

7) I have no prior involvement with the property that is the subject of this Technical Report.

8) I personally inspected the property that are the subject of this Technical Report from 17th to the 18th of September, 2018.

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

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report.

11) I am independent of the Issuer, applying all the tests in section 1.5 of NI 43-101.

12) I have read NI 43-101 and Form 43-101F1 – Technical Report, and the Technical Report has been prepared in compliance with such instrument and form.

Belo Horizonte, Brazil, January 21, 2019

<signed & sealed in the original>

Porfírio Cabaleiro Rodriguez, MAIG

I, Leonardo Apparicio da Silva, MAIG (#5374), as an author of the technical report titled "Mineral Resource and Mineral Reserve Estimate of the NX Gold Mine, Nova Xavantina", dated January 21, 2019 with an effective date of August 31, 2018 (the "Technical Report"), prepared for Ero Copper Corp., do hereby certify that:

1) I am a Mining Engineer associated to GE21 Consultoria Mineral Ltda., which is located on Avenida Afonso Pena, 3924, SL,207, Cruzeiro, Belo Horizonte, MG, Brazil - CEP 30130-009.

2) I am a graduate of the Federal University of Ouro Preto, located in Ouro Preto, Brazil, and hold a Bachelor of Science Degree in Mining Engineering (1977). I have practised my profession continuously since 1978.

3) I am a Professional enrolled with the Australasian Institute of Geoscientists ("AIG") - ("MAIG") #5374.

4) I am a professional Mining Engineer, with more than 38 years' relevant experience in Mineral Resource and Mineral Reserves estimation, which includes numerous mineral properties in Brazil, including gold properties.

5) I have read the definition of "qualified person" set out in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("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.

6) I supervised metallurgy sections and I am responsible for Chapter 13 and 17, and I am jointly responsible for Chapter 21. I am also responsible for the corresponding sections within Chapters 1, 25 and 26 that are related to the foregoing Chapters of this Technical Report.

7) I have no prior involvement with the property that is the subject of this Technical Report.

8) I personally inspected the property that are the subject of this Technical Report from 17th to the 18th of September, 2018.

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

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report.

11) I am independent of the Issuer, applying all the tests in section 1.5 of NI 43-101.

12) I have read NI 43-101 and Form 43-101F1 – Technical Report, and the Technical Report has been prepared in compliance with such instrument and form.

Belo Horizonte, Brazil, January 21, 2019

<signed & sealed in the original>

Leonardo Apparicio da Silva, MAIG

I, Leonardo de Moraes Soares, MAIG (#5180), as an author of the technical report titled "Mineral Resource and Mineral Reserve Estimate of the NX Gold Mine, Nova Xavantina", dated January 21, 2019 with an effective date of August 31, 2018 (the "Technical Report"), prepared for Ero Copper Corp., do hereby certify that:

1) I am a Geologist associated to GE21 Consultoria Mineral Ltda., which is located on Avenida Afonso Pena, 3924, SL,207, Cruzeiro, Belo Horizonte, MG, Brazil - CEP 30130-009.

2) I am a graduate of the Federal University of Minas Gerais, located in Belo Horizonte, Brazil, and hold a Bachelor of Science Degree in Geology (2002). I have practised my profession continuously since 2002.

3) I am a Professional enrolled with the Australasian Institute of Geoscientists ("AIG") - ("MAIG") #5180.

4) I am a professional Geologist, with more than 16 years' relevant experience in Mineral Resource and Mineral Reserves estimation, which includes numerous mineral properties in Brazil, including gold properties.

5) I have read the definition of "qualified person" set out in National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("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.

6) I'm responsible for QAQC and resource estimation sections and I am jointly responsible for Chapters 7, 12 and 14. I am also responsible for the corresponding sections within Chapters 1, 25 and 26 that are related to the foregoing Chapters of this Technical Report.

7) I have no prior involvement with the property that is the subject of this Technical Report.

8) I personally inspected the property that are the subject of this Technical Report from the 19th to the 22nd of February, 2018, and from the 14th to the 18th of May, 2018.

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

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report.

11) I am independent of the Issuer, applying all the tests in section 1.5 of NI 43-101.

12) I have read NI 43-101 and Form 43-101F1 – Technical Report, and the Technical Report has been prepared in compliance with such instrument and form.

Belo Horizonte, Brazil, January 21, 2019

<signed & sealed in the original>

Leonardo de Moraes Soares, MAIG