TOMBADOR IRON

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Tombador Iron Limited (ASX:TI1) is an Australian company established in October 2020.

The Company owns 100% of the world-class Tombador iron ore project in Bahia State, Brazil.

Tombador commenced, production of high-grade iron ore from its open-cut mining operations in Q2CY 2021.

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Tombador Project Pre-Feasibility Study Demonstrates Strong Financial Returns from its Maiden Ore Reserves

- Pre-Feasibility Study (PFS) supports maiden Ore Reserve at Tombador of **5.59Mt** at **65.5%Fe**
- Production target of **1.2Mtpa** of Direct Shipping Ore (DSO) over 5 years
- 100% of the Life of Mine (LOM) production schedule is based on Proved and Probable Ore Reserves
- FOB equivalent C1 cash operating costs of **A$78.00per dry metric tonne** ("dmt") (life of mine average)[1]
- PFS based on 62% Fe Index price of **US$100.31/dmt** with current price of US$139.10/dmt[2]
- Average annual EBITDA of **A$53.7M**
- PFS production of DSO product based on existing installed crushing and screening plant and site infrastructure
- Proven logistics routes to export and domestic markets.

[1]The FOB equivalent C1 cash cost reported above is the C1 cash cost for tonnes sold to export, which can be used for the purpose of comparison to other projects exporting FOB. The Company actually sells some product at the mine gate and some FOB. The PFS financial modelling is on a mine gate basis. Revenue is based on a mine gate price. For the portion of product sold to export the FOB price was adjusted to a mine gate price.

[2] Current as at 28 February 2022

Tombador Iron Limited (TI1.ASX, the "Company" or "Tombador") is pleased to announce the results from a Preliminary Feasibility Study ("PFS") on its 100% owned Tombador Project ("Project"). The PFS confirms the potential for the Project to produce a high-grade product and generate strong returns over its life of mine.

The PFS shows a maiden Ore Reserve of 5.59Mt at 65.5%Fe which underpins 100% of the forecasted annual production of 1.2 million tonnes for 5 years.

Tombador Iron CEO, Gabriel Oliva, said: "*The PFS confirms we have a great project capable of delivering strong financial returns.*

The PFS was based on a production target of 1.2Mtpa and the last 5-year average iron ore index price The project is forecast to generate healthy cashflows on this basis.

Now our focus is to increase sales volumes in the domestic and export markets so that our sales volumes equal the production target."

Forward Looking Statements

This announcement contains forward-looking statements which are identified by words such as 'may', 'could', 'will', 'should', 'would', 'could', 'believes', 'estimates', 'targets', 'expects', 'intends', 'plans', or 'forecast' and other similar words that involve risks and uncertainties.

These statements are based on an assessment of present economic and operating conditions, and on the Company's estimates, projections and assumptions regarding future events and actions that, as at the date of the PFS and this announcement, are expected to take place.

Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, the Directors and the management.

The Company cannot and does not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur and investors are cautioned not to place undue reliance on these forward-looking statements.

The Company has no intention to update or revise forward-looking statements, or to publish prospective financial information in the future, regardless of

whether new information, future events or any other factors affect the information contained in this announcement, except where required by law.

These forward-looking statements are subject to various risk factors that could cause the Company's actual results to differ materially from the results expressed or anticipated in these statements. Such factors include but are not limited to changes in market conditions; fluctuations in exchanges rates; future prices of iron ore commodities; actual results of current production; variations in grade or recovery rates or lump yield; plant and/or equipment failure; accidents, labour disputes, disruption to transportation routes, sever weather conditions, shortages of skilled labour, and other mining related risks; delays in obtaining government permits required for the life of mine; uncertainties due to COVID19, general business, economic, political and social uncertainties. These risks and others should be considered carefully, and readers should not place undue reliance on such forward-looking statements in this announcement.

Production Targets

The Company has concluded that it has a reasonable basis for providing the forward looking statements and forecast financial information included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and all material risk factors, sensitivities and assumptions, including the JORC modifying factors, upon which the forecast financial information is based are disclosed in this announcement. This announcement has been prepared in accordance with JORC Code 2012 and the ASX Listing Rules.

The production targets and forecast financial information derived from the production targets referred to in this announcement is based 100% on Proved and Probable Ore Reserves. There have been no Inferred Mineral Resources used in the production schedules. All years in the life of mine plan are based 100% on Proved and Probable Ore Reserves. The Ore Reserve and Mineral Resource estimates underpinning the production target were prepared by a Competent Person in accordance with the JORC Code 2012 and all relevant details are set out in this announcement.

Tombador Project Strengths confirmed by the PFS

- A high-grade deposit with good lump yield
- Simple open pit mining with crushing and screening circuit targeting 1.2Mtpa
- Operations are established providing confidence in cost estimates, and removing other development risks
- Multiple routes to market domestically and by exporting
- Has the potential to deliver strong financial returns

Table 1 – Project Production Estimates

Production Metrics Estimate	Unit	PFS Results
Production rate	Mtpa	1.2
Average Strip Ratio	Waste (t) : Ore (t)	3.8 : 1
Total Pit Mineral Resources	Mt	6.6[1]
Total Pit Scheduled Ore Production	Mt	5.6
Mine Life	Years	5
Average LOM Mine Gate Cash Cost	A$/dmt	22.57

[1] Mineral Resources that did meet high grade product specifications or were classified as Inferred were not included in Ore Reserves and were not used in the Project economic analysis and are not included in mine production estimates. Mineral Resources that are not Ore Reserves were considered as waste in the PFS.

Table 2 – Project Economic Estimates

Project Economic Metrics Estimate	Unit	PFS Results
Life of Mine Revenue[1]	A$M	395
LOM Project Cashflow[1]	A$M	218
Average LOM Mine Gate Cash Cost	A$/dmt	22.57
Annual Average EBITDA	A$M	53.7
Payback Period (from initial investment)	Years	1.2
Pre-production Capital Costs (actual[2])	A$M	7.9
LOM Capital Costs	A$M	10.1

[1]PFS cashflow modelling has used a 62% Fe Index price of US$100.31/dmt which has been adjusted by other revenue modifying factors such as grade and lump premiums, ocean freight, road haulage and royalty adjustments to deliver an average mine gate price. Exchange rates used in the PFS are USD/BRL of 5.50 and USD/AUD of 1.35 (equ AUD/USD 0.74). These assumptions have been used for the LOM.

[2]Pre-production capital costs are actual costs already spent by the Company.

PFS Project Management

The PFS for the Project has been project managed by an external consultant GE21 Consultoria Mineral Ltda. ("GE21") and includes studies conducted by GE21 and other external consultants and with costs and data provided from the Company's current operations.

The majority of cost inputs were based on rates from existing and current contracts at the operating Tombador Project.

Project Ownership

Tombador Iron Mineração Ltda, a subsidiary of Tombador Iron Ltd., is the titleholder of Mining Permit, ANM Tenement 872.431/2003, totalling approximately 2,000 hectares. This Tenement contains the Tombador Project and was transferred to Tombador Iron Mineração Ltda from Colomi Iron Mineração Ltda in 2020.

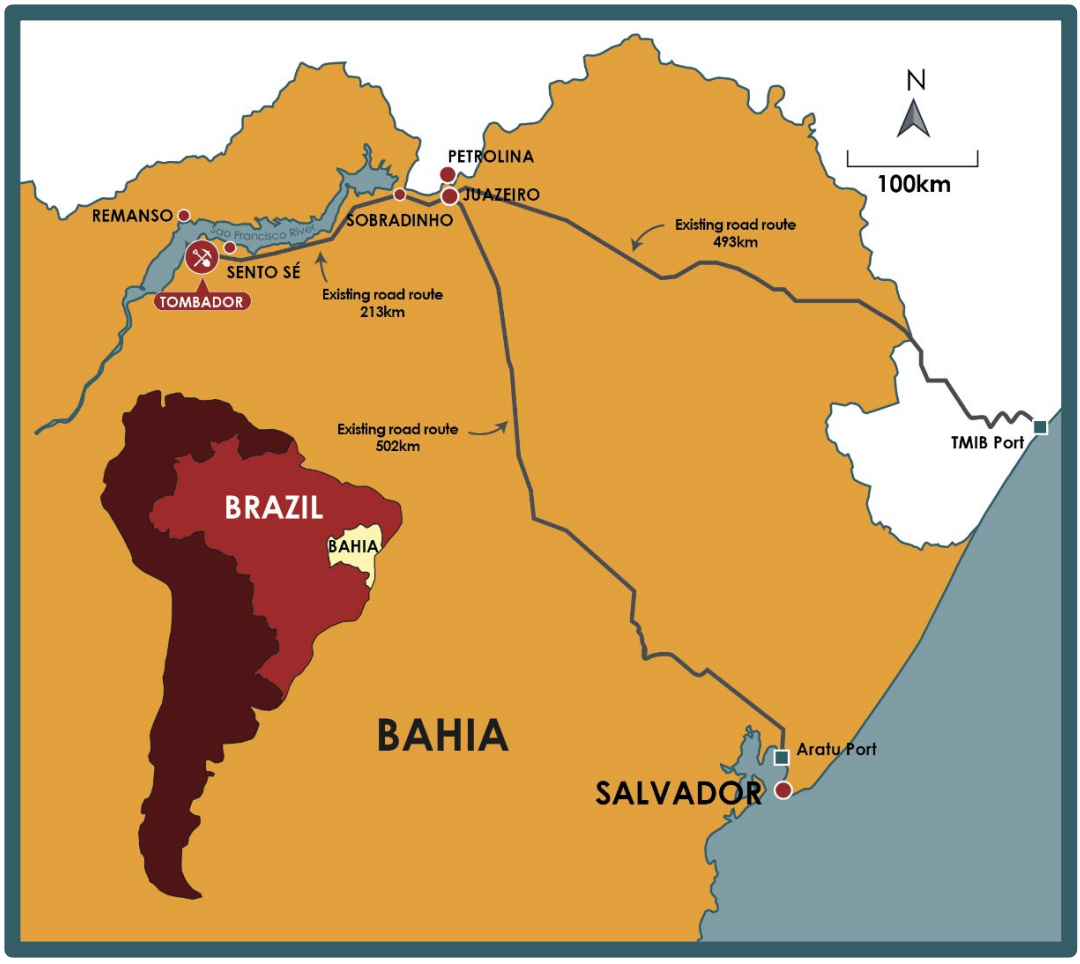


Figure 1 - Location of Tombador Project

Project Location

The Tombador Project is located in the municipality of Sento Sé in northern Bahia State – Brazil. The tenement is located 520 km northwest of Salvador, Bahia state capital.

Mineral Resource

The PFS was based on an independent JORC 2012 Mineral Resource by GE21 of only the high-grade hematite within the Tombador Tenement. 8.92Mt @ 64.4%Fe of high-grade hematite is reported using a cut-off grade of 55%Fe outlined in Table 3 and Table 4 below. This Mineral Resource was extracted from the Company's announcement "Mineral Resource Update" (announced 24 December 2021). The Company confirms that it is not aware of any new information or data that materially affects the information included in the "Mineral Resource Update" announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in that announcement continue to apply and have not materially changed.

Table 3 – Hematite Mineral Resource

Classification	Tonnes (Mt)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)
Measured	3.98	64.60	4.46	0.61	0.069
Indicated	3.02	65.77	3.76	0.63	0.078
Measured & Indicated	**7.00**	**65.11**	**4.16**	**0.62**	**0.073**
Inferred	1.62	61.92	9.33	0.64	0.086
Total	**8.62**	**64.51**	**5.13**	**0.63**	**0.075**

Table 4 – High Phosphorus Hematite Mineral Resource

Classification	Tonnes (Mt)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)
Measured	0.29	60.70	8.46	1.17	0.327
Indicated	0.02	56.41	13.38	1.27	0.308
Total	**0.30**	**60.45**	**8.74**	**1.17**	**0.326**

Assumptions for Table 1 & 2.

1. Hematite and High Phosphorus Hematite resources use a cut-off grade of 55% Fe.
2. All figures have been rounded to the relative accuracy of the estimates. Summed amounts may not add due to rounding.

Ore Reserve

GE21 used the Mineral Resource in Table 3 and Table 4 to complete pit optimisations, pit designs, mine scheduling and site layout with input from an independent geotechnical consultant. GE21 calculated a mining dilution and applied an ore loss to the Mineral Resource when estimating the Ore Reserves. All costs and prices for pit optimisations and project cashflows were conducted on a mine-gate basis and were based on current actual Project contract costs.

The Ore Reserve has been stated by GE21 based on the production rate of 1.2Mtpa of lump and fines product with a life of mine waste to ore strip ratio of 3.8:1.

Table 5 - Ore Reserve

Category	Tonnage (Mt)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)
Proved	3.14	65.19	2.27	0.59	0.079
Probable	2.45	65.94	2.56	0.56	0.077
Total Ore Reserve	**5.59**	**65.52**	**2.40**	**0.58**	**0.078**

Proved Ore Reserves are derived from Measured Mineral Resources and Probable Ore Reserves from Indicated Mineral Resources. There were no Inferred Mineral Resources used in the production schedule.

The Mineral Resource outlined above in Table 3 and Table 4 is inclusive of the Ore Reserve.

SUMMARY OF ORE RESERVE ESTIMATE AND REPORTING CRITERIA

A summary of the relevant information used in the estimation of the Ore Reserve for the Tombador Project is provided below with full details provided in JORC Table 1, included as Appendix 1 to this announcement. This announcement has been compiled in compliance with the JORC code (2012) and the ASX Listing Rules, in particular listing rule 5.9.

Material Assumptions

The material assumptions supporting the Ore Reserve are based on the PFS results which are summarised in this announcement with further detail provided in JORC Table 1, attached as Appendix 1 to this announcement.

Criteria used for the Classification of Ore Reserve

All Measured Mineral Resources within the ultimate pit design (using a revenue factor of 1.0), with grades adequate to meet Direct Shipping Ore ("DSO") products specifications, have been converted to Proved Ore Reserves. All Indicated Mineral Resources within the ultimate pit design, with grades adequate to meet DSO products specifications, have been converted to Probable Ore Reserves. Measured and Indicated Mineral Resources outside the ultimate pit design or that did not meet the market specification for the current DSO processing route were not converted to Ore Reserves. The Ore Reserve has been compiled in accordance with the guidelines defined in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code – 2012 Edition).

The open pit was optimised using Geovia Whittle 4.7 software. Costs used in pit optimisation were based on the current Tombador mining operation run by a contract miner.

Mining Method and Assumptions

The mining operation consists of a single open pit mine using conventional drill-blast, excavator-truck mining methods. The mine will use 10 metre mining benches with mining undertaken in 2.5m flitches. Ore will be transported to the Run-of-Mine ("ROM") stockpile area for processing. Waste and other material types will be transported to waste dumps and long-term stockpiles. All ex-pit materials will be transported by 42 tonne capacity haul trucks.

Drill and blast operations will be performed by down-the-hole (DTH) and top hammer drills using emulsion and ANFO based explosives.

Mining costs are largely based on the rates from the contract executed with the mining contractor, SEMEP Logística e Construção Ltda ("SEMEP"). The contract structure comprises an activity-based schedule of rates and fixed cost component with the scope inclusive of drill and blast, load and haul and crush and screen, and associated ancillary services.

Processing Method and Assumptions

Ore is processed through a 3-stage crushing and screening plant to produce a DSO lump (+6.3mm/-31.5mm) and fines (-6.3mm) product. The purpose designed and built processing plant has a nominal capacity of 1.2 Mtpa based on day shift production. The lump yield used in the Project economics is based on project-to-date plant production data which confirms a relatively high lump yield of >54%. This is more conservative then the ~70% lump yield indicated in earlier metallurgical studies which was based on drill core and out crop samples.

Lump and fines products are stockpiled and blended before loading by front end loader onto road transport to domestic customers or to the port for export sales.

Cut-off Grades

The applied cut-off grade of 55%Fe to define the hematite body in Mineral Resources, and was kept for the pit optimisation and defining Ore Reserves. For contaminants, SiO_2, Al_2O_3 and P, the thresholds were defined by product specifications consistent for marketing a high-grade direct shipping ore lump product. In-pit Resources outside current DSO product specifications were considered as waste for optimisation.

Estimation Methodology

Ordinary Kriging ("OK") was used to estimate Fe%, SiO_2%, Al_2O_3%, Mn%, P%, loss on ignition (LOI)%, MgO% and CaO% variables in the Mineral Resource domain units HEM (Hematite) and HPHOS (High Phosphorus).

The open pit was optimised using Geovia Whittle 4.7 software. Measured and Indicated Mineral Resources categories for HEM and HPHOS were used in the optimisation process. No Inferred Mineral Resources were converted to Reserves. The geotechnical parameters are coherent to current operation and similar projects, with inter-ramp slope angles varying from 34° to 53° and bench heights from 10 m to 20 m depending on sectorization. These parameters were used in pit optimisation and pit design, with angles varying by sector. The

modifying factors for ore loss and dilution were applied overall as an adjustment factor in Whittle software. 2% ore loss (98% mining recovery) and 7% mass dilution were applied.

Detailed pit and stage designs were completed based on the selected Whittle pit shell results. The mine planning for the Life-of-Mine was developed with yearly pushback designs and scheduling included stockpiling and reclaiming ROM material to achieve marketing product specifications. A minimum mining width of 20 m was applied.

In-pit Inferred Mineral Resources were not accounted for as plant feed and the PFS assumed no revenue from Inferred Mineral Resources.

Other Material Modifying Factors

The PFS has assumed a processing recovery to be 100% as is standard in DSO operations with no beneficiation in the process.

Environmental

All environmental studies and licences required to commence mining and dry processing operations have been completed. The Company holds the following approvals for its mining and processing operations:

- Preliminary Licence ("LP") granted in May 2018 (involves Social and Environmental approvals);
- Installation Licence ("LI") granted in September 2020 (vegetation clearing, construction and site works permitted);
- Operating Licence ("LO") granted on 20th May 2021 (mining and crushing operations and sale of ore permitted).

The Project's Environment Control Plan lists all relevant environmental aspects to the project based on field studies conducted and current legislations. The Project facilities and infrastructure were planned to minimize vegetation loss, environmental, visual and acoustic impacts.

Some environmental highlights of the Project are:

- All processing is **dry** so there are no wet tailings and the water used in the site comes from bores.
- There is **no disposal of tailings** as the DSO produces 100% of the infeed material.
- There is no detection of acidic material in the waste dumps.

- There is no storage for explosives as the Project is a small-scale operation and the service is outsourced.

The PFS life of mine pit design is larger in surface area than previous estimates and the Company will need to submit a request for the extension and expansion of its current licenses with both the National Mining Agency and the Environmental department, INEMA.

Infrastructure

All necessary infrastructure required for sustainable operation of the mine was constructed as part of the initial mine development. All relevant implementation and construction costs are included in the initial capital expenditure.

The key non-operational infrastructure items include administration offices, crib rooms, ablutions, sample preparation and grade control laboratory, workshop, warehouse, weighbridge, gatehouse and dispatch office, waste management and recycling facilities, fuel storage and service bay. The drill core shed is located at the nearby municipality of Sento Sé.

Permanent accommodation facilities are not required on site, as employees and contractors reside in the surrounding villages or Sento Sé.

Mobile network coverage is available across the project area with internal operational communications utilizing UHF radios.

No power transmission infrastructure is required as all site power is provided by diesel generator sets.

Access to the site is by private access road connected to a nearby public road.

Capital Costs

The Tombador Iron Project is currently in operation and the initial CAPEX was expended during calendar years 2020 and 2021. The initial CAPEX values reflect actual historic expenditures.

Operating Costs

The Tombador Iron Project is currently in operation and the OPEX values are based on current contract rates from the Project's mining contractors. GE21 applied these rates to the mine schedule and plant production. GE21 also

performed a check against similar sized projects. For mining costs, 40% of the material is considered as free digging, and does not requiring blasting.

For the Ore Reserves and cashflow modelling the operating costs were considered on a mine gate basis. Operating costs up to the mine gate include: mining, crushing and screening, site access road maintenance, loading of product haulage trucks, site general and administration (includes a Brazil corporate allocation for services directly related to Project operations). Operating costs do not include Australian based corporate costs. C1 cash costs incurred after the mine gate were deducted from the product price. This method was used as the project has multiple customers and routes to market with some customers purchasing product at the mine gate. Federal and landowner royalties amount to 5.25% of gross revenue.

Revenue Factors

The PFS assumed an iron ore price based on a 62%Fe index price of US$100.31/dmt CFR China for the life of the mine. The index price was adjusted up for grade and lump premiums and down for ocean freight, logistics and marketing fees to estimate the average mine gate product price.

Project Development

Tombador Project is already operational at the time of this announcement. To reach all Ore Reserves in the life of mine plan, an extension to the existing mining permitting and operating licence will be required. The Company will make the necessary submissions to the appropriate authorities.

Market Assessment

The PFS made use of available price forecasts and historical market data. Iron ore product prices have been defined through globally known benchmarks indexes such as Platts Iron Ore Index ('IODEX').

The iron ore price performed strongly in 2020 and 2021 reaching record levels, and continues to remain strong in early 2022. In October 2021, the World Steel Association forecasted that global steel demand will grow by 4.5% in 2021 after 0.1% growth in 2020. In 2022, they predict steel demand will see a further increase of 2.2%.

S&P Global Industry Outlook expects the decarbonization drive in China to benefit the direct-feed iron ore products — pellet and lump — and reinforce the premiums for high-grade iron ore, such as Tombador's Lump and Fines.

For the Tombador Iron Project, historical iron ore prices over the last 5 years were used as basis for the products price estimation. The average 5-year Index 62%Fe CFR China price (IODBZ00), as of November 2021, is US$100.31/dmt.

Funding

The Tombador DSO project is already operational and fully funded.

Project Economics

The PFS completed a discounted cashflow model to assess the Project's economic viability. The model was prepared using mine scheduling, mine gate pricing, and operating costs up to the mine gate. Capital and operating costs were based on actuals sourced from the current project operations. The cashflow model covers the 5-year life of mine.

GE21 completed a sensitivity analysis for price, discount rate and exchange rate which indicated the Project should remain cashflow positive through typical market fluctuations

Exchange Rate

The currency of all estimates in the announcement are in Australian dollars (A$) unless otherwise stated. Constant exchange rates have been used for converting USD to AUD and USD to BRL, and across the life of the project within the cashflow model.

USD:BRL = 5.50

USD:AUD = 1.35 (Equivalent to AUD:USD = 0.74)

PFS SUMMARY

Capital and Operating Costs

The Tombador Iron Project is currently in operation and the initial CAPEX was expended during calendar years 2020 and 2021. The initial CAPEX values reflect actual historic expenditures.

Table 6 – Capital Cost Estimate

Initial Capital Expenditure	A$M
Plant	2.0
Mine	5.1
Permitting	0.8
Sub-Total	**7.9**
Resource Definition Drilling	1.8
Sustaining CAPEX	0.3
TOTAL	**10.0**

The operating cost estimate is split into two tables as the Tombador project has multiple routes to market. Table 7 shows the costs common to all to tonnes produced, to the mine gate. The estimate includes the cost of mining, crushing and screening, site access road maintenance, loading of product haulage trucks, site general and administration (includes a Brazil corporate allocation for services directly related to Project operations). Operating costs do not include Australian based corporate costs.

Table 7 – C1 Cost Estimate up to the Mine Gate

Item	Life of Mine Cost (A$/dmt)
Mining & Processing	19.97
Brazil G&A	2.60
Total Mine Gate Costs	**22.57**

Table 8 shows the additional costs for product sold to the export market and used to report the FOB equivalent C1 cash operating cost.

Table 8 – Additional C1 cost estimate for exported product

Item	Cost (A$/dmt)
Haulage	44.44
Port	10.99
Total Logistics Cost	**55.43**

Operating costs are based on current contract rates from the Project's contractors.

Mine Production Schedule

The PFS has focused on the existing DSO operation, targeting only the higher-grade hematite component of the Mineral Resource to achieve a target product specification. Additional approvals, complexity and higher capital and operating costs would be associated with a beneficiation plant required for the lower grade Mineral Resource.

The mine production scheduling was Generated in Geovia Minesched™ 9.2.0 by GE21, where the following assumptions used were:

- Production rate: 1.2 Mtpa.
- The product specifications.
- Modifying factors: mine recovery (98%) and dilution (7%).

This study consisted of establishing annual production schedules for the Run-of-mine (ROM) and waste mining sequence for Life-of-Mine (LOM), thus generating operational plans for Years 1 to 5.

Excess ROM material above cut-off grade that was not required to meet the production target or that did not meet the product specification within the period was stockpiled to be scheduled into the blending in later years, controlling the plant feed to ensure consistent product quality.

As the mine is already operational, no pre-strip mining was planned.

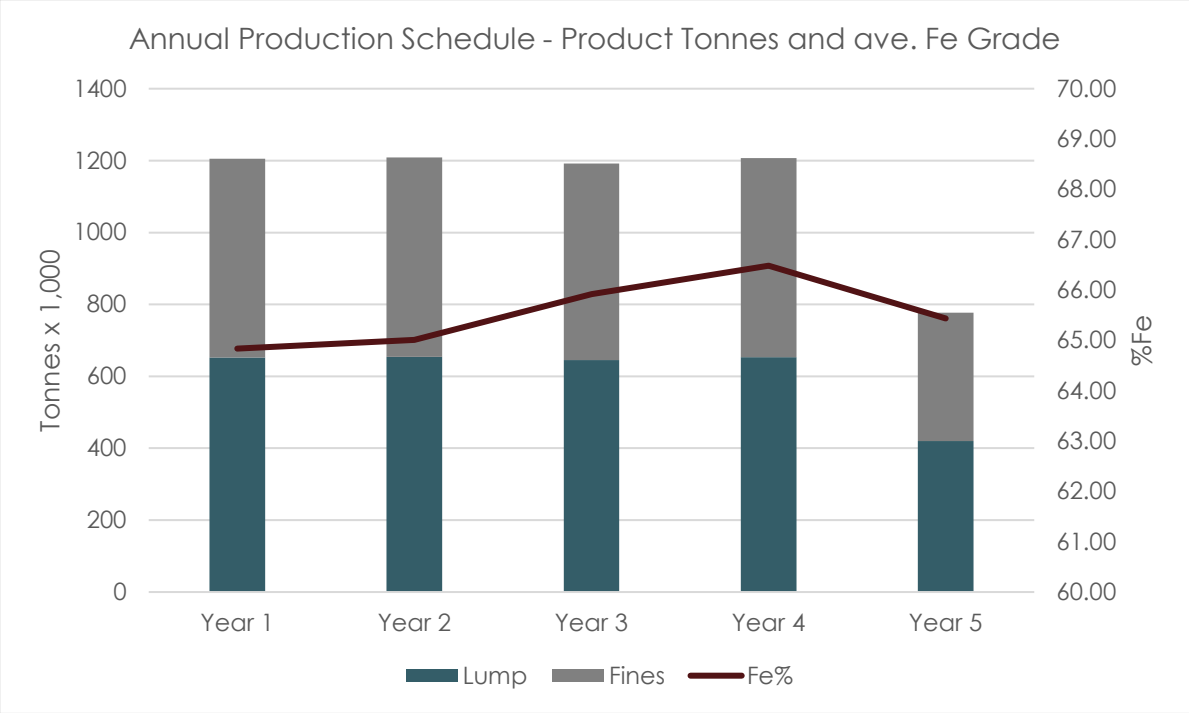


Figure 2 - Tombador PFS Production Schedule

Mineral Resources that were within the LOM pit but were not converted to Ore Reserves and were not used in PFS cashflow modelling to generate revenue and did incur a waste mining cost are listed in Table 9 and Table 10.

Table 9 – HEM Mineral Resource that was not converted to Ore Reserve - within LOM pit

Classification	Tonnage (Mt)	Fe (%)	SiO2 (%)	Al2o3 (%)	P (%)
Measured	0.79	60.10	11.17	0.84	0.06
Indicated	0.26	61.22	7.82	1.93	0.09
Inferred	0.39	58.77	13.07	0.94	0.10
Total	***1.44***	***59.94***	***11.08***	***1.06***	***0.07***

Table 10 – HPHOS Mineral Resource that was not converted to Ore Reserve - within LOM pit

Classification	Tonnage (Mt)	Fe (%)	SiO2 (%)	Al2o3 (%)	P (%)
Measured	0.18	58.72	11.26	1.25	0.32
Indicated	0.02	56.41	13.38	1.27	0.31
Total	**0.20**	**58.52**	**11.44**	**1.25**	**0.31**

Mining

The Tombador Iron Project is currently in operation and is projected to reach a maximum production rate of 1.2Mtpa. Mining is performed using conventional open pit drill/blast and load/haul methods using 35t and 45t excavators and 42t haul trucks and associated ancillary equipment. The mining, processing and ancillary services is performed by a third-party mining contractor.

The disposal of waste rock will take place on areas close to the pit. Waste deposition sites present adequate drainage. The operation is performed in accordance with the ascending method. Waste rock is disposed by truck, then uniformly distributed and levelled by track dozer. The procedure is then repeated, stacking another bank above the original one, while maintaining a ramp for the trucks to be able to access the area.

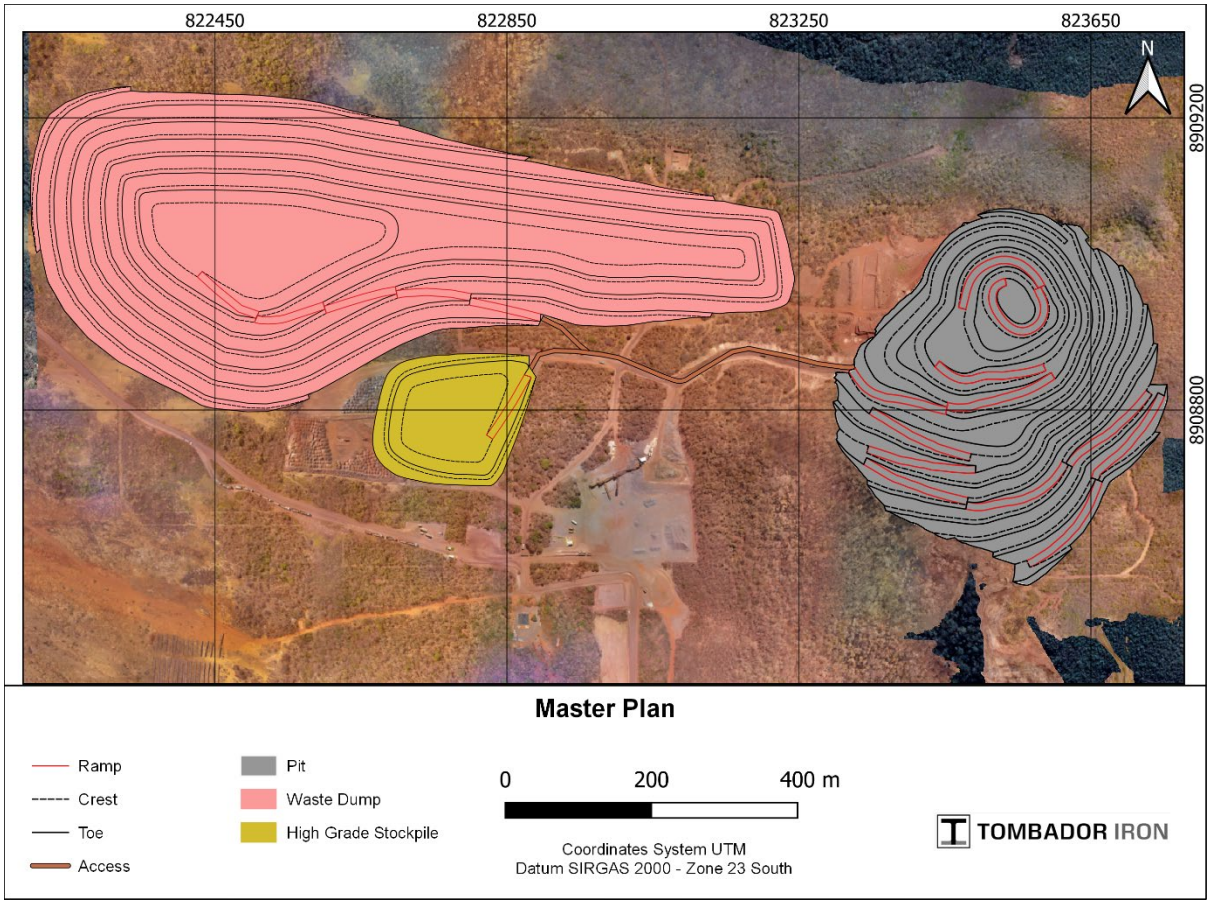


Figure 3 - Tombador Project Site Layout

Processing

The PFS describes the plant that is installed and operating at the Project (Figure 5 and Figure 5). It is a simple 3 stage crushing circuit with a final multideck screen to separate lump product from fines product. A nominal production rate of 1.2 Mtpa is envisaged for this plant. There is no beneficiation and therefore no tailings are generated from this process.

The beneficiation of lower grade material was not considered in this study.

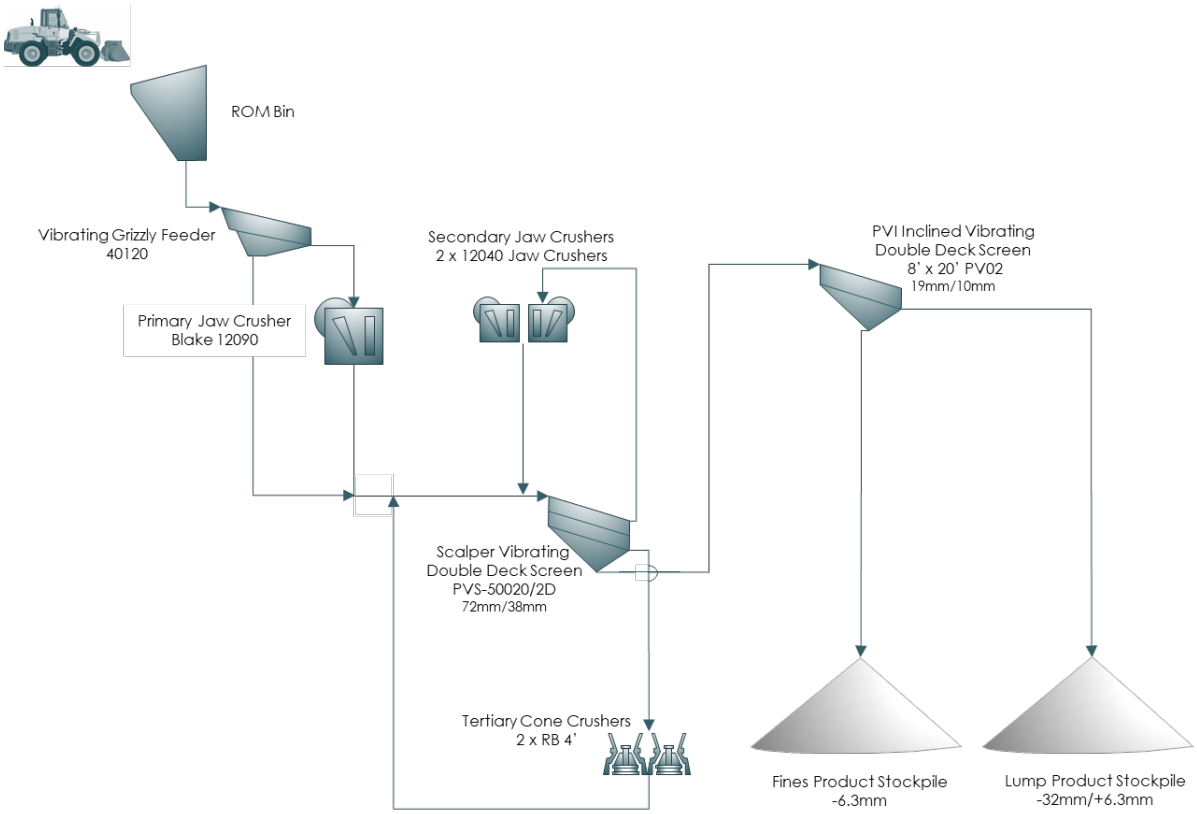


Figure 4 – Crushing & Screening Plant Process Flow Diagram

Figure 5 – Photo of Crushing & Screening Plant Installed at Tombador

Logistics - Haulage and Port

The Project has multiple customers with varying routes to market. The initial transport for all product sold must be hauled via road freight. Lump and fines product is loaded by frontend loader into road trucks and weighed on the weigh bridge before leaving site.

Product destined for the export market is hauled approximately 700km to the Terminal Marítimo Inácio Barbosa ("TMIB") by road truck (shown as TMIB Port in Figure 1). Tombador has a service agreement with POLIMODALLOG LOGISTICA E TRANSPORTES LTDA ("Polimodal") to provide these truck haulage services. Tombador has a contract with VLI MULTIMODAL S.A. ("VLI") the operator of TMIB for stockpile storage and ship loading.

Infrastructure

All infrastructure necessary for the mining operation is constructed and installed on site. Such infrastructure includes but is not limited to: Gate house, parking, weighbridge, administration office, ablutions, health safety and environment office, mess or crib room, laboratory, plant control room, waste management, warehouse, workshop, fuel storage, seedling nursery, water bores, diesel generators, roads and drainage.

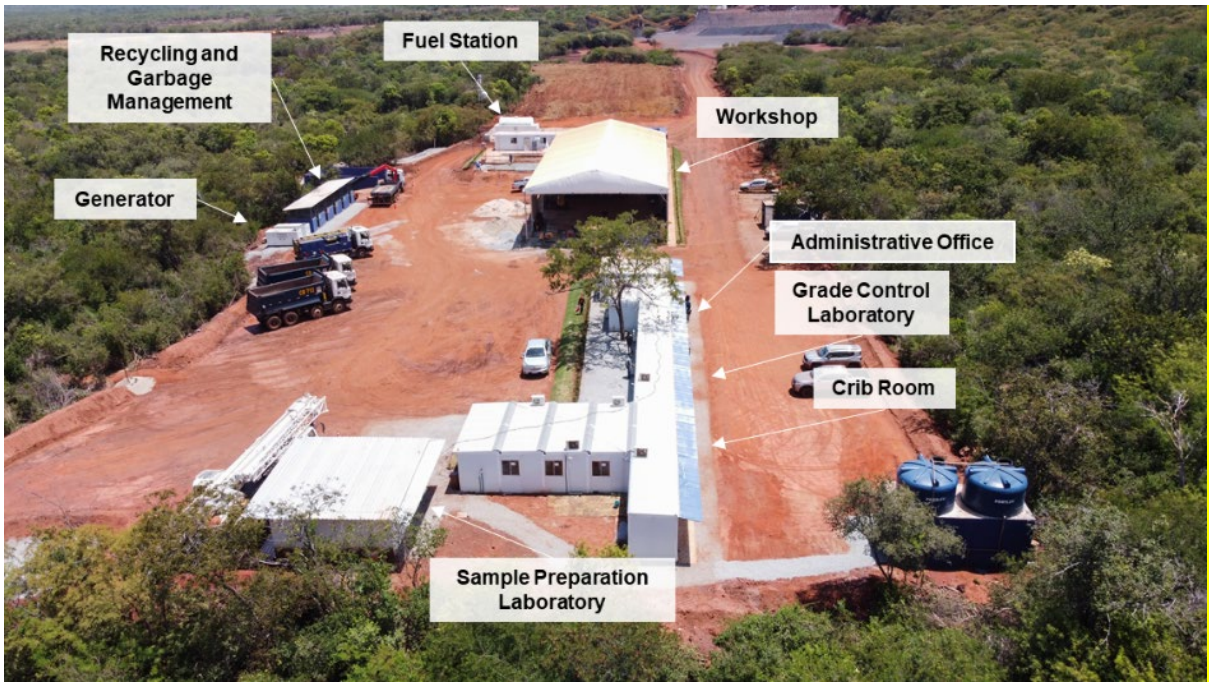


Figure 6 - Project Infrastructure

Supporting infrastructure such as accommodation is found in the nearby town of Sento Sé.

Project Economics

The PFS cashflow model has been prepared on a mine-gate basis and all post mine gate costs have reduced the revenue stream. A constant 62% Fe index price of US$100.31 CFR with a production of 1.2Mtpa generates an estimated Project LOM cashflow of A$ 218 million. This is a post tax cashflow with the assumption the project can obtain the certain tax incentives available to projects in the North East of Brazil (SUDENE).

Table 11 – PFS Project Economic Estimates

Project Economic Metrics Estimate	Unit	PFS Results
Life of Mine Revenue	A$M	395
LOM Project Cashflow[1]	A$M	218
C1 Cash Cost (LOM Ave. – Mine Gate)	A$/dmt	22.57
Annual Average EBITDA	A$M	53.7
Payback Period (post construction)	Years	1.2
Pre-production Capital Costs (Actual)	A$M	7.9
LOM Capital Costs	A$M	10.1

Tombador product is of premium quality and commands a grade and lump (for the lump portion) over the 62% Fe index price. On a CFR basis it is estimated the Tombador lump product price would be US$135.25/dmt with a 62% Fe index price of US$100.31.

Sensitivity Analysis

The project cashflow is most sensitive to the iron ore index price. Modelling indicates a US$5/dmt change in 62%Fe index causes a A$25 million change in life of mine project cashflow in the same direction.

Analysis of up to 20% change to the exchange rate and index price is shown in the Figure below.

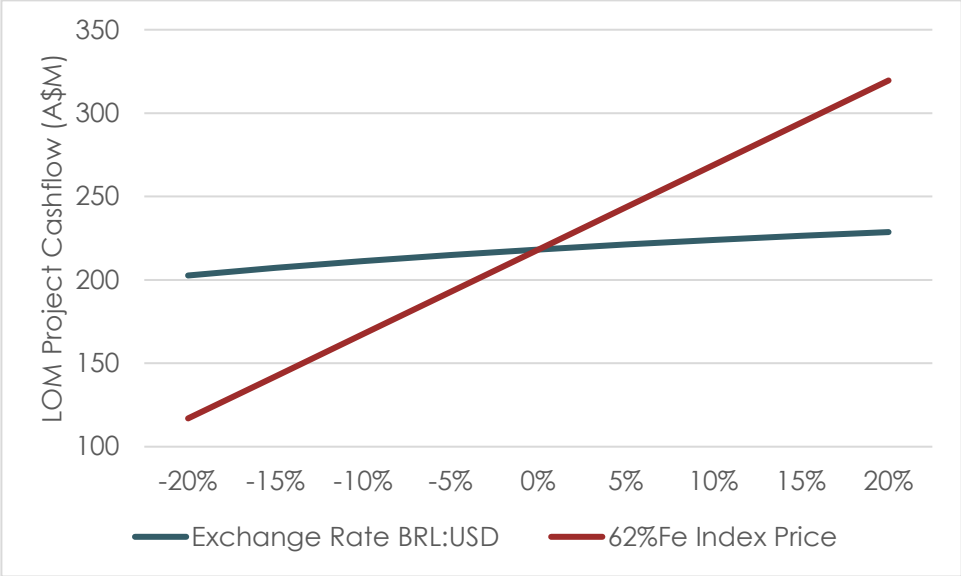


Figure 7 - Project Financial Sensitivity

Permitting

All environmental studies and licences required to commence mining and dry processing operations have been completed and details of the project permitting are provided in the Environmental section above.

The PFS life of mine pit design is larger in surface area than previous estimates and the Company will need to submit a request for the extension and expansion of its current licenses with both the National Mining Agency and the Environmental department, INEMA.

Opportunities

In Q1 2021, TIM successfully raised funds through a share placement, partly to fund the evaluation of upgrading medium iron grade rock and mineralised waste, located on Tombador Iron tenement, into a high-grade lump product. Test work of potentially beneficiable ore types commenced in 2021 using dry sensor-based technologies. The preliminary results from proof-of-concept study work have been encouraging with bulk sample testwork planned for early 2022.

Since operations began, medium iron grade rock and mineralised waste have been classified and stockpiled separately from barren waste for potential processing (beneficiation) at a later date.

If proven to be economically viable, the exploitation of the potentially beneficiable resources would further enhance the project economics.

COMPETENT PERSONS' STATEMENT

The information in this report that relates to **Mineral Resources** is based on and fairly represents information and supporting documentation compiled by or compiled under the supervision of Mr Leonardo Rocha who is a Member of the Australian Institute of Geoscientists (AIG 7623). Mr Rocha works for GE21 consultancy group, independent to Tombador Iron Limited. Mr Rocha has sufficient experience relevant to the type of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code of Reporting Exploration Results, Mineral Resources and Ore Reserves. Mr Rocha visited the Tombador Project mine site from 23rd November 2021 to 25th of November 2021. Mr Rocha consents to the disclosure of information in this announcement in the form and context in which it appears.

The information in this report that relates to **Mining Operations, Equipment Sizing, CAPEX and OPEX Estimates** is based on and fairly represents information and supporting documentation compiled by or compiled under the supervision of Mr Ricardo Reis de Paula who is a Member of the Australian Institute of Geoscientists (AIG 8094). Mr Paula is an independent mining consultant working for GE21 consultancy group, independent to Tombador Iron Limited. Mr Paula has sufficient experience relevant to the type of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code of Reporting Exploration Results, Mineral Resources and Ore Reserves. Mr Paula visited the Tombador Project mine site from 23rd November 2021 to 25th of November 2021. Mr Paula consents to the disclosure of information in this announcement in the form and context in which it appears.

The information in this report that relates to **Ore Reserves** is based on and fairly represents information and supporting documentation compiled by or compiled under the supervision of Mr Porfírio Cabaleiro Rodriguez who is a Fellow of the Australian Institute of Geoscientists (AIG 3708). Mr Rodriguez is the mining director for GE21 consultancy group, independent to Tombador Iron Limited. Mr Rodriguez has sufficient experience relevant to the type of mineralisation and type of deposit under consideration to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code of Reporting Exploration Results, Mineral Resources and Ore Reserves. Mr Rodriguez consents to the disclosure of information in this announcement in the form and context in which it appears.

ENDS.

Authorised for release by the Board.

TOMBADOR IRON

About Tombador Iron Ltd

Tombador Iron Ltd owns 100% of the fully permitted Tombador Iron Ore mine located in Bahia Sate Brazil.

Tombador commenced production of premium-grade lump and fines hematite iron ore in May 2021 from a low-capex open-pit mining operation.

Lump ore of Tombador's high quality, which is suitable for Direct Reduced Iron and/or Blast Furnace steelmakers, is in scarce supply globally. Offtake marketer Trafigura will purchase 100% of the lump and fines product which Tombador sells into the international export market. Potential customers from the Brazilian steel industry have also indicated interest in Tombador's ore.

The company's board of directors is focussed on rapidly ramping up production at the Tombador Project to achieve the potential of the operations and to return dividends to shareholders.

Appendix 1

JORC Code (2012 Edition) Table 1

JORC CODE, 2012 EDITION – TABLE 1

TOMBADOR IRON ORE PROJECT

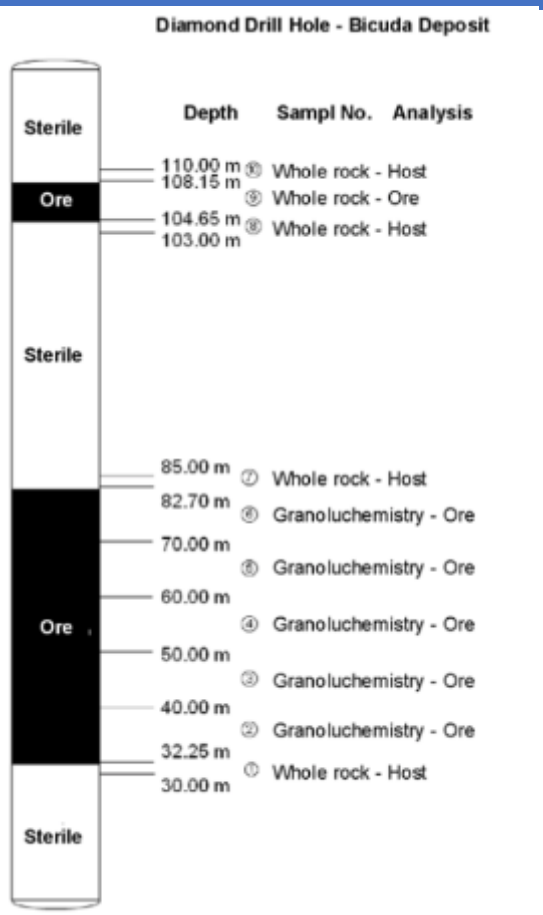
ANM TENEMENT NUMBER 872.431/2003

SECTION 1 SAMPLING TECHNIQUES AND DATA

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	• Samples were taken from diamond drillhole core. All drilled material was cored. No material was discarded. A drilling program was undertaken by Vale between 2006 to 2008. A more recent drilling program was executed by Tombador Iron Mineração ("TIM") between November 2020 and May 2021. Core logging and sampling was performed by GE21 Mineral Consultants ("GE21") in 2020 and 2021. Mineralization intervals chosen for splitting of the diamond drilling core was based on geological core description during drill core logging. • Recording and measuring drill hole depths and core recoveries were performed throughout the drilling and sampling campaign. • Diamond drilling activities followed standard industry practices. All diamond drilling was performed using HQ size diameter core. Core samples were sawn in half or quarters before selection for analysis. For the Vale drill program, half of the core was sent for chemical analysis and the remaining half was boxed in core trays. For the TIM drilling program, ¼ of the core was sent for chemical analysis and the remaining ¾ was boxed in core trays and stored in the core shed. Sampling was planned and supervised by the project geologists and care was taken to avoid any contamination between neighbouring samples.
	• Aspects of the determination of mineralization that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralization types (e.g. submarine nodules) may warrant disclosure of detailed information.	• Sample collection for chemical analysis: For the Vale drill program, samples containing mineralization from diamond drilling cores were collected targeting a 10 m interval, (with a minimum 5 m and a maximum of 15 m interval) and obeyed lithological and weathering contacts. To ensure all mineralized zones were analysed, 2m of core of the host rock above and below the mineralized intervals was collected and assayed. All drilling was diamond core drilling. Drill core was logged for lithology, structure and magnetism. Drill core samples were sawn in half using a diamond saw. Mineralized samples were prepared for granulo-chemical analysis due to the existence of hematite with potential to form lump iron ore product (as shown in the diagram below). One half of the drill core was sent for granulo-chemical analysis to the GAMIK / VALE, Physical Preparation Laboratory located in the CDM in Santa Luzia – MG for physical preparation of the sample and them to assay laboratory SGS Geosol – Vespasiano-MG for chemical analysis. The remaining half of the drill core was boxed in core trays and stored in the core shed.

Criteria	JORC Code explanation	Commentary

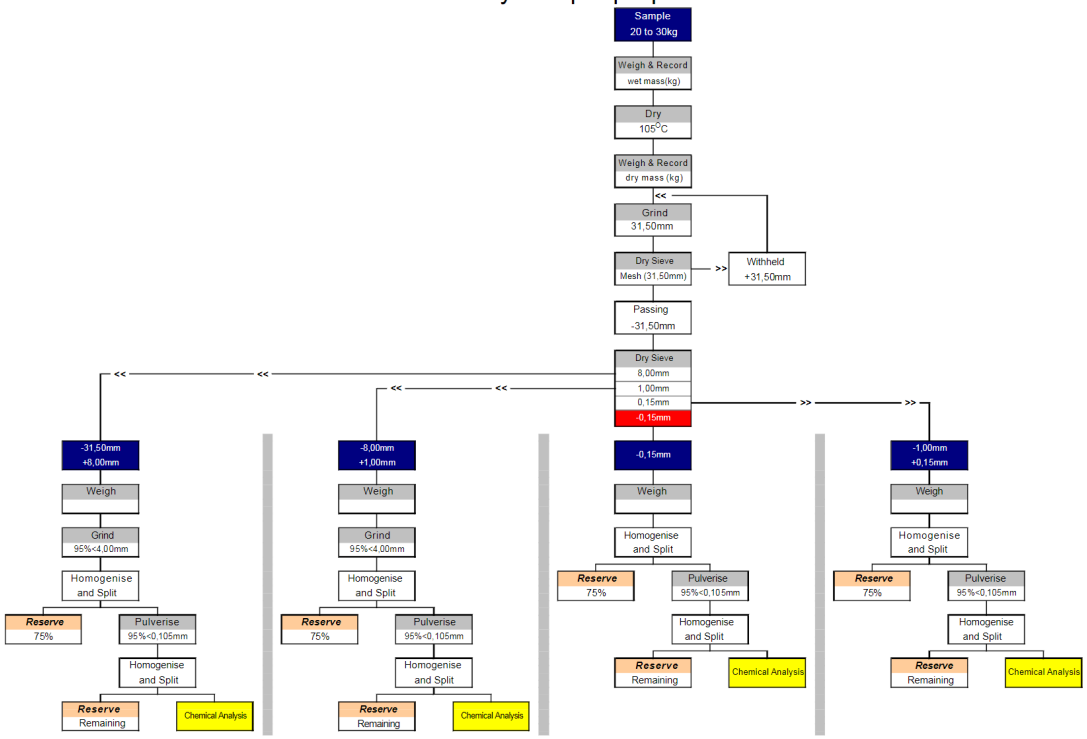


- Each 10m composite sample (approximate 20 - 30kg) was metallurgically tested using granulo-chemical analysis which employs the following method. Coarse crushing and separation into four size fractions as follow: 8mm to 31.5mm, 1mm to 8mm, 0.15mm to 1 mm, < 0.15mm. After weighing, each interval was crushed, pulverized, mixed, split and assayed by:
- X-Ray fluorescence for the following elements and oxides: Fe, SiO_2, P, Al_2O_3, Mn, TiO_2, MgO, CaO, K_2O, Na_2O_3 and Cr_2O_3;
- Volumetric analysis using potassium dichromate for FeO;
- Loss on Ignition (LOI) at 1000ºC

Criteria	JORC Code explanation	Commentary

The assays and weights of each size fraction were used to calculate a weighted average grade for the sample interval.

Granulo-chemical assay sample preparation flow chart



For samples less than 5 metres a simple whole rock analysis was used.

- All of the Tombador deposit drillholes were HQ sized diamond drill holes. The TIM drilling program comprised 41 diamond drillholes, totalling 2,662m. All were within the tenement boundary. This drilling is additional to the earlier Vale drilling program. Diamond drill holes were undertaken in HQ size (6.35cm) diameter triple tube. Mineralized samples from ¼ diamond core were collected targeting approximate 1m intervals, (with a minimum of 0.75 m and a maximum of 1.25 m interval) and obeyed lithological and weathering contacts. To

Criteria	JORC Code explanation	Commentary
		ensure all mineralized zones were analyzed, 2m of core of the host rock above and below the mineralized intervals was collected and assayed.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	• All diamond drill holes were HQ size core (6.35cm diameter). Triple tube core barrels were used to maximize core recoveries. • All but 3 of TIM drill program drillholes were vertical. Dip and azimuth readings of inclined holes were measured using a Maxibor tool every three metres downhole. • There are 78 diamond drill holes in the Tombador deposit area. Of these, 68 are within tenement 872.431/2003.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed.	• The diamond drilling recovery procedure consisted of verifying drill string advance and recoveries recorded in the drill core trays and drilling logs. Verification was undertaken by measuring the core present in the boxes with a measuring tape and comparing it with the drilled advance.
	• Measures taken to maximise sample recovery and ensure representative nature of the samples.	• Core recovery values were within acceptable limits for Vale drilling program. The first 4 drillholes in the TIM drilling program had sample recoveries of approximately 65%. Following adjustments to the drilling rig penetration rate the sample recovery improved with an overall recovery rate of 80% being achieved.
	• Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• No relation between grade and sample recovery was detected.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	• Geotechnical logging was performed on all diamond drill holes where they were classified by the following geotechnical parameters: W (degree of change weathering), R (degree of resistance), spacing of fractures and RQD with degree of detail to one metre. • The author considers that the level of detail is sufficient to support of Mineral Resource Estimation.
	• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	• Lithological logging was of a qualitative nature. The lithology was reclassified following chemical analysis results and recorded in a MS Access database. Core was photographed prior to logging. Geological logging comprised of describing weathering levels, mineralogical, lithological and structural data in all holes with a degree of detail to one metre.
	• The total length and percentage of the relevant intersections logged.	• All drillholes were fully logged.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field. • duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• For the Vale and TIM drilling programs, collected drill core samples were sawn in half with half (Vale) or ¼ (TIM) of the drill core sent for chemical analysis and the remaining drill core boxed in core trays for storage in the core shed. The sampling was planned by geologists and care was taken to avoid any contamination between neighbouring samples. • **Whole Rock Analysis** For the Vale drilling program, the physical preparation of the drilling samples was performed at the ALS Chemex Laboratory, Vespasiano – MG. For the TIM drilling program, the physical preparation of the drilling samples was performed at the SGS Geosol Laboratory, Vespasiano – MG. For Vale drilling program, the procedure included drying, primary crushing P95%<4 mm, collection of 1/8 of the sample, grinding P95 % < 0.105mm and final division with collection of one sample for whole chemical assay. For the TIM drilling program the procedure included drying, primary crushing P95%<3 mm, collection of ½ of the sample, grinding P95 % < 0.105mm and final division with collection of one sample for whole chemical assay. • Drill hole sample sizes, though different in each campaign, were considered as appropriate by GE21. • GE21 considers the sampling protocols conducted in both campaigns to be appropriate for resource estimation JORC 2012. • GE21 deems the sample sizes appropriate of the material being sampled.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	• The assaying method is considered the standard for the determination of iron mineralization chemical grades. Chemical analyses were conducted in the laboratory of SGS Geosol, Vespasiano-MG, while checking of 5% of the results were made in the laboratory of ALS Chemex. Sample pulps were assayed by X-Ray fluorescence for the following elements and oxides: Fe, SiO_2, P, Al_2O_3, Mn, TiO_2, CaO, MgO, BaO, K_2O, Na_2O and Cr_2O_3. The assay technique is considered a global sample geochemical analysis method and a standard technique within the iron ore industry
	• For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	• Handheld XRF tools were used merely as a guide in geological logging of drillhole cores. Sample preparation & assaying was completed within external laboratories. • The Loss on Ignition (LOI) determination at 1000°C was also completed by SGS Geosol and ALS Chemex.
	• Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• Quality control tools (standard samples and duplicates) were applied and monitored in chemical analysis performed on SGS Geosol and ALS Chemex laboratories. The quality control was restricted to the elements Al_2O_3, Fe, MgO, P, Mn, SiO_2 and to LOI (Loss on Ignition). The monitored parameters were evaluated in each of the following QAQC tools: Field duplicates, crushing duplicates, pulverized duplicates (internal and independent laboratory), project standard samples, stoichiometry checks, and blank samples.

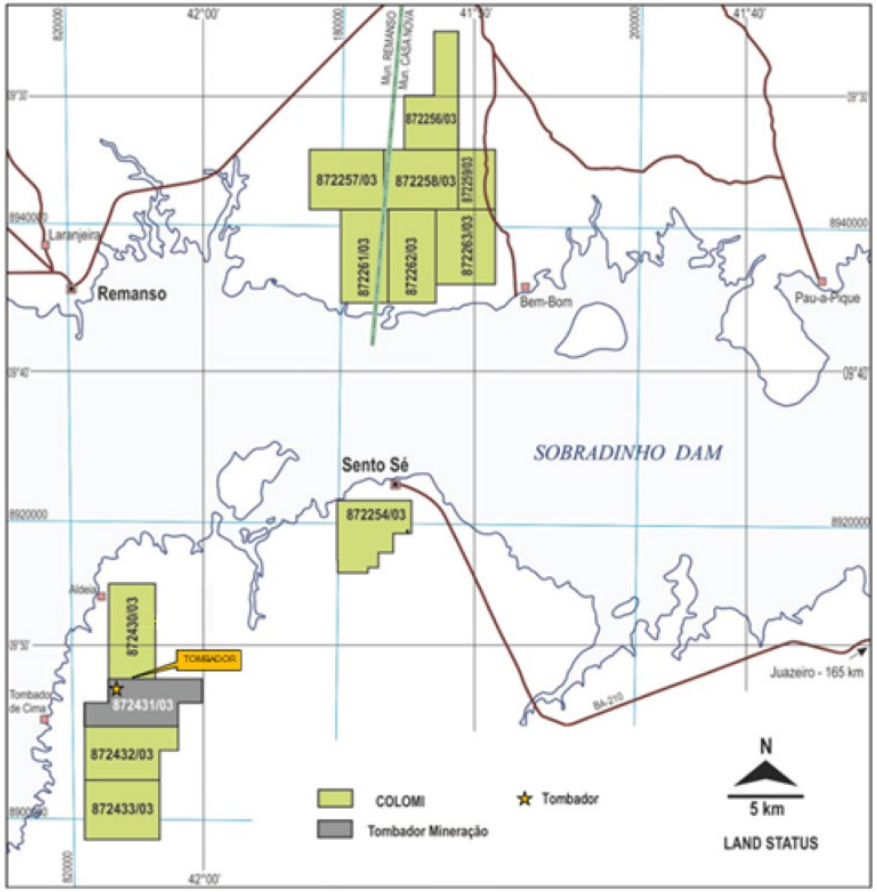
Criteria	JORC Code explanation	Commentary
		• Duplicate quality control results from the Vale drilling program were, in general terms, within acceptable limits. • QAQC control results presented by Tombador (84 preparation blank samples, 42 field duplicates, 84 preparation duplicates and 84 commercial certified reference material samples) were within acceptable limits.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel.	• GE21 approves the methodology applied in both drilling campaigns in the preparation and execution of Tombador Project QAQC Program. GE21 did not have access to the Vale drilling program QAQC data sheet and therefore was unable to make an assessment. However, GE21 has been involved with Vale QAQC programs in other projects that used the same methodology and in general agrees with the recommendations of Vale, which concludes the necessity to improve the QAQC program.
	• The use of twinned holes.	• 3 twinned holes were drilled in the TIM drilling program in order to validate the previous drilling campaign. No major discrepancies were found.
	• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	• GE21 approves the methodology applied in both drill programs in the preparation and execution of Tombador Project QAQC Program. According to GE21, results are within acceptance limits. • Data collection, verification and storage protocols are fully documented for both drilling campaigns.
	• Discuss any adjustment to assay data.	• Adjustment to assay data was neither required nor applied.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	• All drillhole collars were topographically surveyed by total station surveying campaign and drillhole landmarks have been properly identified.
	• Specification of the grid system used.	• SIRGAS2000 Datum for coordinate system.
	• Quality and adequacy of topographic control.	• No issues were identified by GE21 in the field or in drilling data physical archive.
Data spacing and distribution	• Data spacing for reporting of Exploration Results.	• The holes were planned and drilled in grid sizes varying from 20 x 20m to 200m x 200m over the Tombador deposit. • Diamond drillhole samples were produced at average length of 10 m length for the Vale drilling program and 1m length for the TIM drilling program. Compositing was produced using 2.0m lengths for all lithologies.

Criteria	JORC Code explanation	Commentary
	• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	• GE21 judges that appropriate grid spacing, applied sampling and composition lengths were provided to establish the degree of geological continuity and classification reported by GE21.
	• Whether sample compositing has been applied.	• GE21 judges as appropriate the applied sampling and composition lengths to establish the degree of geological continuity and classification.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	• The geological layers are dipping approximately 45° and the holes are vertical. Sampling was performed almost perpendicular to the layers, which is the best condition.
	• If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• No bias was introduced when using vertical drillholes.
Sample security	• The measures taken to ensure sample security.	• GE21 approves the methodology applied by TIM in the preparation and execution of the Tombador QAQC Program. GE21 didn't have access to QAQC data sheet for the Vale drilling program but has accompanied the Vale QAQC programs in other projects that used the same technique. • Core boxes were transported by the Company's personnel from the drilling site to the core storage facility in Sento Sé-BA. Drillcore boxes were labelled with hole number and depth interval. All core was photographed prior to logging.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• In 2020 GE21 prepared reports "Tombador Project, Bicuda Target – HCO Type Update" and "Tombador Project, Bicuda Target – Itabirites Resource Update" which audited the entire Colomi Project database, including the Tombador itabirite data, the results of which are included in the report.

SECTION 2 REPORTING OF EXPLORATION RESULTS

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	**Tombador Project** **Summary of Concession Status in TIM's Tombador Project** **Company:** Tombador Iron Mineração Ltda; **Municipality:** Sento Sé; **Process No.:** 872.431/03; **Area (Hectares):** 2000; **Application Date:** 16/12/2003; **Exploration Permit N°:** 1315; **Status:** Mining Permit approved on 27/04/2021 • Tombador Iron Mineração Ltda. (TIM or the "Company") is the titleholder of Mining Permit 872.431/2003, which was transferred to TIM from Colomi Iron Mineração Ltda. (CIM or "Colomi). Tenement 872.431/2003 was transferred from Colomi Iron Mineração Ltda to Tombador Iron Mineração Ltda and published at Brazilian Federal Gazette on 14th April 2020. The Mining Permit was approved and published at Brazilian Federal Gazette on April 27, 2021. • Initial exploration work was carried on by Vale a major iron ore mining company. Further exploration work was carried out by TIM in 2020 NS 2021. The historic exploration program for the Tombador project was completed as part of a larger program covering all of CIM's tenements shown in figure below with Concession Area Map. The Principal Source of information was the Final Exploration Report (FER) to DNPM/ANM (Brazilian National Department of Mineral Production/National Agency of Mining) with description and evaluation of results obtained in the exploration work carried out by Vale and TIM in the area related to the TIM Mining Permit. • TIM has agreed transfer of mineral rights with CIM. In the agreement TIM has rights to exploit mineralization with greater than 60%Fe hematite bands that are greater than 10cm. CIM has the option to exploit remaining mineralization for which CIM must pay a royalty to TIM of 1 U$$ per tonne for the iron Concentrate produced by CIM on the tenement.

Criteria	JORC Code explanation	Commentary
		Concession Area Map 
	• The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.	• GE21 have consulted the ANM' GIS system (https://sistemas.anm.gov.br) to check the status of tenement 872,431/2003 area at the time of reporting. ANM's GIS system shows the area as being approved for mining permit for Tombador Iron Mineração Ltda (TIM).

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Initial exploration works were carried on by Vale, a major iron ore mining company. Further exploration works were carried out by TIM. The principal source of information was the Final Exploration Report (FER) to DNPM/ANM (Brazilian National Department of Mineral Production/ Mining National Agency) with description and evaluation of results obtained in the exploration work carried out by Vale and TIM in the area related to TIM's Mining Permits.
Geology	• Deposit type, geological setting and style of mineralization.	• Mineralization: The geological, chemical, physical and metallurgical characteristics divide the iron mineralization into six different types: Dolomitic Itabirite, Siliceous Itabirite, Talus, Hematite, High Phosphorus Hematite (HPHOS) and Bene. • The talus deposits are represented by layers with thickness average of 3.5 m, formed mainly by re-transported itabirite blocks and, secondary blocks of quartzites, dolomites and shales, immersed in siltose mass. Hematite talus blocks are found in areas adjacent to the hematite deposit of Tombador. • The bene material comprises in situ layers and transported blocks containing iron mineralization that can potentially be upgraded using sensor based sorting or similar technologies. Criteria used for identifying beneficiable material included having at least 2x10cm bands of hematite mineralization grading >62% Fe (using a portable NITON XRF machine) within a 1m interval. • Hematites represent the high-grade granulated iron ore resources. The hematite orebody occurs in the drag fold hinge of siliceous itabirite, with an azimuth direction of 30°. This fold has been interpreted as being generated by a transfer fault, approximately N10E direction. • Itabirites: siliceous and dolomitic itabirites, lesser metamorphic grade, and influence of folds, faults and shear zones.

Criteria	JORC Code explanation	Commentary

Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
	  • easting and northing of the drill hole collar
	  • elevation or RL (Reduced Level – elevation above sea level in meters) of the drill hole collar
	  • dip and azimuth of the hole
	  • down hole length and interception depth.
	  • hole length.
	• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.
		• Drill hole collars for all holes:

HoleID	COORD. UTM SIRGAS 2000 - 23S			Depth_EoH	Dip	Tenement	Company
	X	Y	Z				
BICU-DH00001	823462.6	8908765	548.11	96.00	-90	872.431/03	Vale
BICU-DH00002	823459	8908812	534.72	118.20	-90	872.431/03	Vale
BICU-DH00003	823556	8908962	540.29	58.60	-90	872.431/03	Vale
BICU-DH00004	823405.8	8908812	527.04	79.50	-90	872.431/03	Vale
BICU-DH00005	823403.1	8908862	505.64	72.30	-90	872.431/03	Vale
BICU-DH00006	823761.2	8908361	531.82	110.90	-90	872.431/03	Vale
BICU-DH00007	823606.3	8908861	584.8	127.45	-90	872.431/03	Vale
BICU-DH00008	823702.8	8908960	556.56	160.20	-90	872.431/03	Vale
BICU-DH00009	823605.1	8908809	602.74	207.20	-90	872.431/03	Vale
BICU-DH00010	823435.3	8909156	507.29	178.40	-90	872.431/03	Vale
BICU-DH00011	823248	8909357	534.64	146.90	-90	872.431/03	Vale
BICU-DH00012	823706.4	8908862	591.56	132.30	-90	872.431/03	Vale
BICU-DH00013	823706.1	8908662	632.66	159.20	-90	872.431/03	Vale
BICU-DH00014	824205.7	8910762	487.2	93.00	-90	872.431/03	Vale
BICU-DH00015	824006.2	8910762	487.79	205.50	-90	872.431/03	Vale
BICU-DH00016	823453	8908662	606.19	156.30	-90	872.431/03	Vale
BICU-DH00017	823414.5	8908748	573.33	79.60	-90	872.431/03	Vale
BICU-DH00018	823906.3	8910762	492.55	135.40	-63.29	872.431/03	Vale
BICU-DH00019	823906	8908362	559.16	150.20	-90	872.431/03	Vale
BICU-DH00020	823957.4	8910362	594.3	117.50	-90	872.431/03	Vale
BICU-DH00021	823510.7	8908862	557.34	173.95	-90	872.431/03	Vale
BICU-DH00022	823458.7	8908862	529.39	145.50	-90	872.431/03	Vale
BICU-DH00023	823562.4	8908561	651.29	210.10	-90	872.431/03	Vale
BICU-DH00024	823556.5	8909054	491.11	250.00	-90	872.431/03	Vale
BICU-DH00025	823863.6	8909962	683.39	150.20	-90	872.431/03	Vale
BICU-DH00026	823802.1	8910362	586.9	201.35	-66.02	872.431/03	Vale
BICU-DH00029	823658.8	8909962	614.96	133.65	-90	872.431/03	Vale
BICU-DH00037	823755.5	8910561	530.09	132.30	-90	872.431/03	Vale
BICU-DH00038	824054.7	8908261	497.39	116.50	-90	872.431/03	Vale
BICU-DH00041	823310.7	8909262	536.82	111.30	-90	872.431/03	Vale
BICU-DH00043	823556	8909277	547.55	163.60	-90	872.431/03	Vale
BICU-DH00044	823454	8909462	606.15	118.10	-90	872.431/03	Vale
BICU-FD00001	824187.6	8908461	507.23	106.80	-90	872.431/03	Vale
BICU-FD00003	823613.4	8908573	646	56.65	-90	872.431/03	Vale
BICU-FD00004	823455.9	8908681	599.35	104.00	-90	872.431/03	Vale
BICU-FD00005	823482.5	8908775	547.56	119.85	-90	872.431/03	Vale
BICU-FD00006	823441.3	8908795	536.14	52.80	-90	872.431/03	Vale
TBR-DH00001	823444.7	8908792	536.85	70.00	-90	872.431/03	TIM
TBR-DH00002	823476.1	8908772	547.44	57.50	-90	872.431/03	TIM

HoleID	COORD. UTM SIRGAS 2000 - 23S			Depth_EoH	Dip	Tenement	Company
	X	Y	Z				
TBR-DH00003	823323.3	8909015	472.33	70.05	-60	872.431/03	TIM
TBR-DH00004	823379.9	8908688	587.76	40.05	-90	872.431/03	TIM
TBR-DH00005	823432.2	8908665	606.61	40.20	-90	872.431/03	TIM
TBR-DH00006	823468.7	8909012	496.97	121.30	-90	872.431/03	TIM
TBR-DH00007	823394.2	8908709	588.01	52.10	-90	872.431/03	TIM
TBR-DH00007A	823394.2	8908710	587.99	41.90	-90	872.431/03	TIM
TBR-DH00008	823418.2	8908708	589.17	58.45	-90	872.431/03	TIM
TBR-DH00009	823428.5	8908912	509.1	40.90	-90	872.431/03	TIM
TBR-DH00009A	823428.6	8908913	509.04	100.55	-90	872.431/03	TIM
TBR-DH00010	823410.1	8908750	573.26	50.10	-90	872.431/03	TIM
TBR-DH00011	823382	8908756	560.633	49.40	-90	872.431/03	TIM
TBR-DH00012	823415.2	8908833	517.21	55.90	-90	872.431/03	TIM
TBR-DH00013	823449.7	8908750	559.45	70.50	-90	872.431/03	TIM
TBR-DH00014	823418	8908722	582.36	65.90	-90	872.431/03	TIM
TBR-DH00015	823462.1	8908833	533.94	62.80	-90	872.431/03	TIM
TBR-DH00015A	823464	8908833	535.402	94.60	-90	872.431/03	TIM
TBR-DH00016	823390	8908778	547.87	50.70	-90	872.431/03	TIM
TBR-DH00017	823355.5	8908781	543.56	52.25	-90	872.431/03	TIM
TBR-DH00018	823442.6	8908707	585.37	59.05	-90	872.431/03	TIM
TBR-DH00019	823502.4	8908813	563.48	95.65	-90	872.431/03	TIM
TBR-DH00020	823360	8908754	557.127	46.00	-90	872.431/03	TIM
TBR-DH00021	823358.9	8908813	526.806	50.45	-90	872.431/03	TIM
TBR-DH00022	823367.8	8908835	516.193	35.25	-90	872.431/03	TIM
TBR-DH00023	823374.9	8908860	503.5	52.75	-90	872.431/03	TIM
TBR-DH00024	823430.8	8908646	603.13	40.00	-90	872.431/03	TIM
TBR-DH00025	823427	8908689	596.84	50.00	-90	872.431/03	TIM
TBR-DH00026	823465.8	8908728	571.566	60.25	-90	872.431/03	TIM
TBR-DH00027	823513.2	8908748	572.412	74.80	-90	872.431/03	TIM
TBR-DH00028	823552.9	8908813	592.95	125.50	-90	872.431/03	TIM
TBR-DH00029	823520.9	8908728	574.923	94.60	-90	872.431/03	TIM
TBR-DH00030	823550.2	8908750	589.588	105.65	-90	872.431/03	TIM
TBR-DH00031	823577	8908750	602.59	152.55	-90	872.431/03	TIM
TBR-DH00032	823373.1	8908725	569.922	50.15	-90	872.431/03	TIM
TBR-DH00033	823345.8	8908752	555.44	43.65	-90	872.431/03	TIM
TBR-DH00034	823341.1	8908778	542.434	42.00	-90	872.431/03	TIM
TBR-DH00035	823557.3	8908705	601.554	83.70	-90	872.431/03	TIM
TBR-DH00036	823350.7	8908856	501.298	37.40	-90	872.431/03	TIM
TBR-DH00037	823381.2	8908670	587.113	35.55	-90	872.431/03	TIM
TBR-DH00038	823489.1	8908709	580.244	82.65	-90	872.431/03	TIM

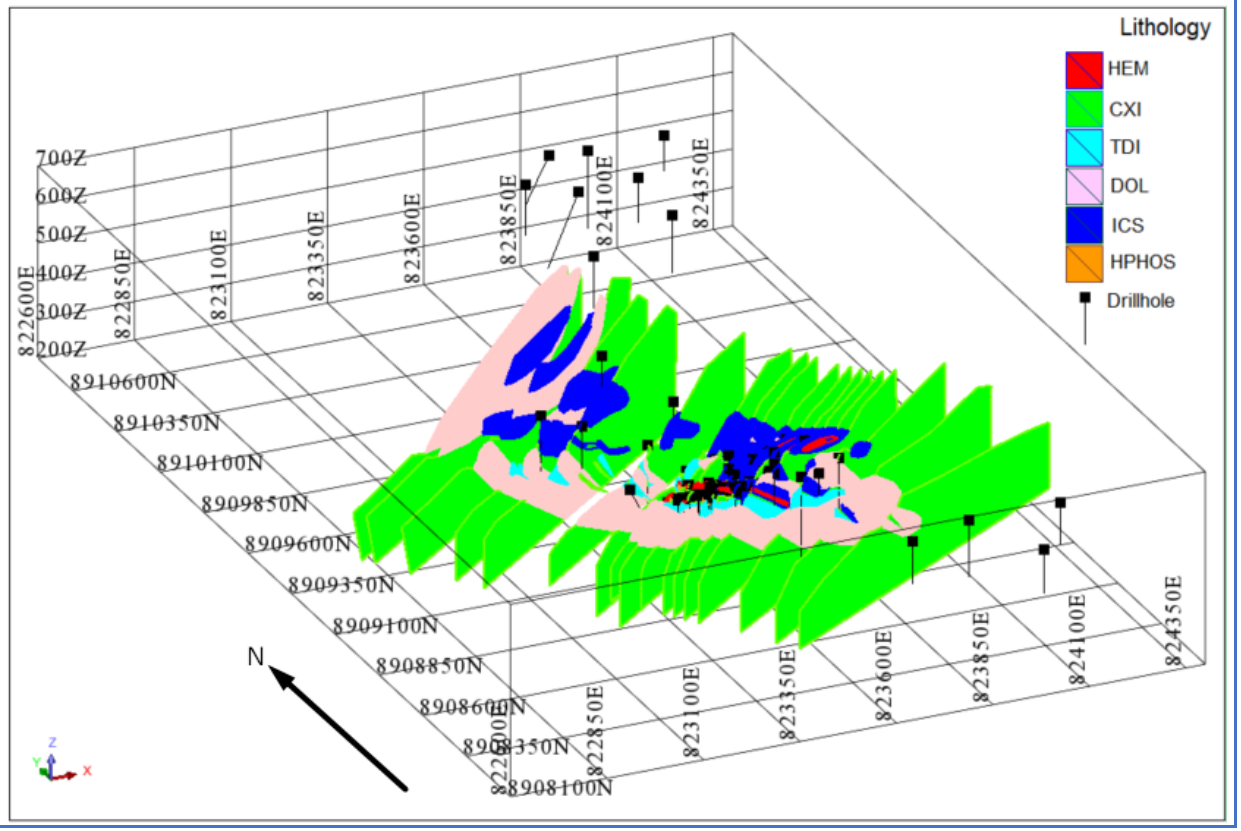
Criteria	JORC Code explanation	Commentary

- Mineralized intercepts for Tombador deposit

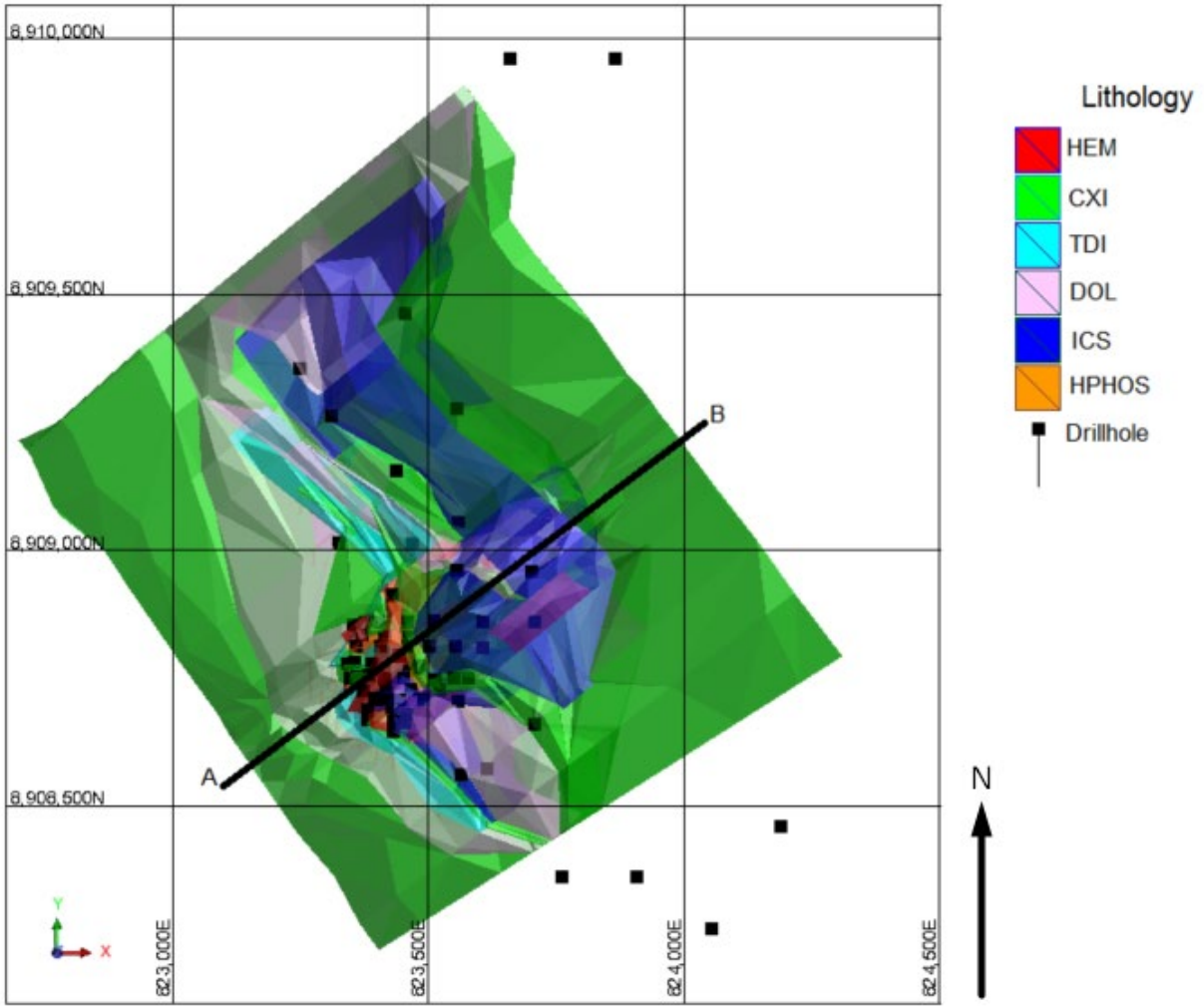
Hole ID	Type	Depth From	Depth To	Average Fe Grade	Length (m)
BICU-DH00001		2.95	54.7	68.08	51.75
BICU-DH00002		20	67.1	66.15	47.1
BICU-DH00004		0	6	57.93	6
BICU-DH00004		28	40.4	58.2	12.4
BICU-DH00005		23	36.7	63.37	13.7
BICU-DH00012		5.2	20.6	54.26	15.4
BICU-DH00017		0	40.5	67.78	40.5
BICU-DH00021		35	40	59	5
BICU-DH00021		101	117.2	68.76	16.2
BICU-DH00022		18	27	62.1	9
BICU-DH00022		34.5	52	63.07	17.5
BICU-DH00022		60	85	67.69	25
BICU-FD00004		35.2	43.15	45.97	7.95
BICU-FD00005		30	50.7	67.79	20.7
BICU-FD00006		0	52.8	63.35	52.8
TBR-DH00001		0	61	66.55	61
TBR-DH00002		12.65	12.7	65	0.05
TBR-DH00002		26	46.8	67.46	20.8
TBR-DH00004		2.55	9.8	58.13	7.25
TBR-DH00005		4.2	26.85	56.86	22.65
TBR-DH00007A		24	27.4	66.53	3.4
TBR-DH00007A		32	36.4	68.66	4.4
TBR-DH00008		11.4	38.1	66.44	26.7
TBR-DH00009		3.4	10.6	57.83	7.2
TBR-DH00010		0	37	65.33	37
TBR-DH00011		0	1.84	25.38	1.84
TBR-DH00011		21.9	25.85	58.28	3.95
TBR-DH00012	HEM	0	4.25	38.74	4.25
TBR-DH00012		16	30.95	64.35	14.95
TBR-DH00012		44	48.35	40.67	4.35
TBR-DH00013		16.7	46.6	66.02	29.9
TBR-DH00014		17.15	50.2	67.51	33.05
TBR-DH00015		47.25	62.8	65.71	15.55
TBR-DH00015A		49.03	78.7	52.62	29.67
TBR-DH00016		23.85	36.65	59.16	12.8
TBR-DH00017		12.95	21.65	64.77	8.7
TBR-DH00018		15.6	44.8	61.01	29.2
TBR-DH00019		69	84.15	68.28	15.15
TBR-DH00020		14.35	21	58.44	6.65
TBR-DH00022		0	6.8	66.21	6.8
TBR-DH00023		0	4.05	67.3	4.05
TBR-DH00023		25.6	32.6	57.44	7
TBR-DH00024		0	4.75	58.17	4.75
TBR-DH00025		0.6	34.4	58.91	33.8
TBR-DH00026		24.15	43.55	68.8	19.4
TBR-DH00027		28.45	31	53.13	2.55
TBR-DH00027		34.45	68.05	54.69	33.6
TBR-DH00029		42.7	60.6	61.53	17.9
TBR-DH00030		80	93.3	67.92	13.3
TBR-DH00031		106.95	108.3	68.02	1.35
TBR-DH00032		0	11.3	65.18	11.3
TBR-DH00033		6.25	13.7	55.37	7.45
TBR-DH00034		16.7	27.62	49.94	10.92
TBR-DH00035		61.95	69	61.03	7.05
TBR-DH00038		37.7	50	43.87	12.3
BICU-DH00002		13	20	43.24	7
BICU-DH00005		36.7	56.5	44.98	19.8
BICU-DH00009		114.2	116	27.7	1.8
BICU-DH00021		86.7	101	50.62	14.3
BICU-DH00022		27	34.5	12.74	7.5
BICU-DH00022		52	60	21.67	8
BICU-FD00005		15.75	30	65.63	14.25
TBR-DH00002		12.7	26	66.05	13.3
TBR-DH00004	HPHOS	9.8	27	40.21	17.2
TBR-DH00007A		27.4	32	62.04	4.6
TBR-DH00008		46.75	49.9	48.11	3.15
TBR-DH00009		10.6	21.85	33.29	11.25
TBR-DH00012		4.25	16	12.28	11.75
TBR-DH00015		31	47.25	52.1	16.25
TBR-DH00019		55	69	66.53	14
TBR-DH00022		6.8	18.15	19.81	11.35
TBR-DH00027		31	34.45	53.37	3.45
TBR-DH00028		120.35	121.5	28.7	1.15
BICU-DH00001		54.7	70	19.56	15.3
BICU-DH00002		67.1	80	23.73	12.9
BICU-DH00004		6	16.95	39.86	10.95
BICU-DH00009		136.85	158	32.97	21.15
BICU-DH00010		91	104.4	40.43	13.4
BICU-DH00010		133.9	135.7	26.1	1.8
BICU-DH00013		85.45	102.45	21.58	17
BICU-DH00016		40.8	50	30.95	9.2
BICU-DH00017		40.5	50	33.04	9.5
BICU-DH00021		117.2	128.65	36.72	11.45
BICU-DH00023		43.7	78.91	7.09	35.21
BICU-DH00024		113	123.7	29.69	10.7
BICU-FD00004		49.2	60	27.05	10.8
BICU-FD00005		50.7	70	29.19	19.3
TBR-DH00001		61	62	26.1	1
TBR-DH00002		46.8	57.5	33.48	10.7
TBR-DH00004		27	40.05	23.42	13.05
TBR-DH00005		35.4	40.2	33.77	4.8
TBR-DH00006		0.85	9	30.28	8.15
TBR-DH00006		80.9	103	29.91	22.1
TBR-DH00007		35.22	52.1	17.73	16.88
TBR-DH00007A		36.4	41.9	31.79	5.5
TBR-DH00008		38.1	46.75	46.4	8.65
TBR-DH00008		49.9	58.45	2.77	8.55
TBR-DH00009A		46.95	68.6	28.18	21.65
TBR-DH00010	TDI	41.01	49	30.49	7.99
TBR-DH00011		25.85	34	34.47	8.15
TBR-DH00012		30.95	37	43.32	6.05
TBR-DH00013		46.6	70.5	16.34	23.9
TBR-DH00014		50.2	65.9	28.04	15.7
TBR-DH00015A		78.7	89.35	9.09	10.65
TBR-DH00016		1	11.05	59.69	10.05
TBR-DH00017		11.09	12.95	6.95	1.86
TBR-DH00017		21.65	28.99	16.78	7.34
TBR-DH00018		49.85	59.05	17.05	9.2
TBR-DH00019		84.15	91	26.27	6.85
TBR-DH00020		21	31.2	31.52	10.2
TBR-DH00021		18.1	34.3	16	16.2
TBR-DH00023		4.05	25.6	9.29	21.55
TBR-DH00024		19	38.1	22.85	19.1
TBR-DH00025		40.35	50	16.99	9.65
TBR-DH00026		49	60.25	29.11	11.25
TBR-DH00029		67.45	79.8	25.33	12.35
TBR-DH00030		102.2	105.65	35.01	3.45
TBR-DH00031		125.55	152.55	4.72	27
TBR-DH00032		11.3	35.85	28.28	24.55
TBR-DH00033		13.7	28.95	5.56	15.25
TBR-DH00034		13.2	16.7	23.37	3.5
TBR-DH00034		27.62	34.8	2.11	7.18
TBR-DH00037		4	28.1	7.5	24.1
TBR-DH00038		52.5	74.75	6.7	22.25
BICU-DH00003		0	3	45.27	3
BICU-DH00005		0	23	29.35	23
BICU-DH00007		0	3.1	31.3	3.1
BICU-DH00008		0	5	44.43	5
BICU-DH00009		0	2	42	2
BICU-DH00010		0	5.8	37.57	5.8
BICU-DH00016		0	12	17.29	12
BICU-DH00021		0	12	42	12
BICU-DH00022	TAL	0	5	15.56	5
BICU-DH00023		0	1.8	36.02	1.8
BICU-DH00024		0	3.15	41.06	3.15
BICU-DH00026		0	8.885	16.09	8.885
BICU-DH00037		0	2	40.71	2
BICU-FD00004		0	4.6	34.5	4.6
BICU-FD00005		0	4.6	5.87	4.6
TBR-DH00019		0	3.25	3.01	3.25
TBR-DH00029		0	5.6	3.33	5.6
TBR-DH00038		0	0.6	11.8	0.6
BICU-DH00001		2	2.95	47.5	0.95
BICU-DH00003		3	8.7	39.55	5.7
BICU-DH00007		3.1	42	34.99	38.9
BICU-DH00008		5	20	39.66	15
BICU-DH00009		2	27	34.52	25
BICU-DH00009		83	114.2	23.62	31.2
BICU-DH00011		10	99	39.52	89
BICU-DH00012		0	5.2	49.75	5.2
BICU-DH00012		20.6	36.9	13.35	16.3
BICU-DH00016		12	33	35.26	21
BICU-DH00021		12	25	44.7	13
BICU-DH00023		2.1	30.2	39.77	28.1
BICU-DH00024		3.15	13	34.32	9.85
BICU-DH00041		2	16.1	41.78	14.1
BICU-DH00041		46	57.3	39.54	11.3
BICU-DH00043		40	93.2	34.69	53.2
BICU-FD00004		4.6	35.2	21.54	30.6
TBR-DH00004		0	2.55	40.31	2.55
TBR-DH00005	ICS	0	4.2	39.74	4.2
TBR-DH00005		26.85	28.4	50.13	1.55
TBR-DH00007		0	22.53	35.38	22.53
TBR-DH00007A		0	24	16.64	24
TBR-DH00008		0	11.4	38.92	11.4
TBR-DH00013		0	16.7	40.13	16.7
TBR-DH00014		0	17.15	57.45	17.15
TBR-DH00018		0	15.6	21.62	15.6
TBR-DH00019		3.25	19.8	19.15	16.55
TBR-DH00024		4.75	11.45	44.58	6.7
TBR-DH00026		2.8	24.15	20.04	21.35
TBR-DH00028		1.55	46.15	38.44	44.6
TBR-DH00029		5.6	42.7	9.22	37.1
TBR-DH00029		60.6	62.8	46.91	2.2
TBR-DH00030		48.16	80	22.62	31.84
TBR-DH00030		93.3	100	41.06	6.7
TBR-DH00031		61.55	106.95	30.11	45.4
TBR-DH00031		108.3	116.75	40.84	8.45
TBR-DH00035		0	61.95	25.69	61.95
TBR-DH00035		69	74.3	39.74	5.3
TBR-DH00038		0.6	37.7	35	37.1

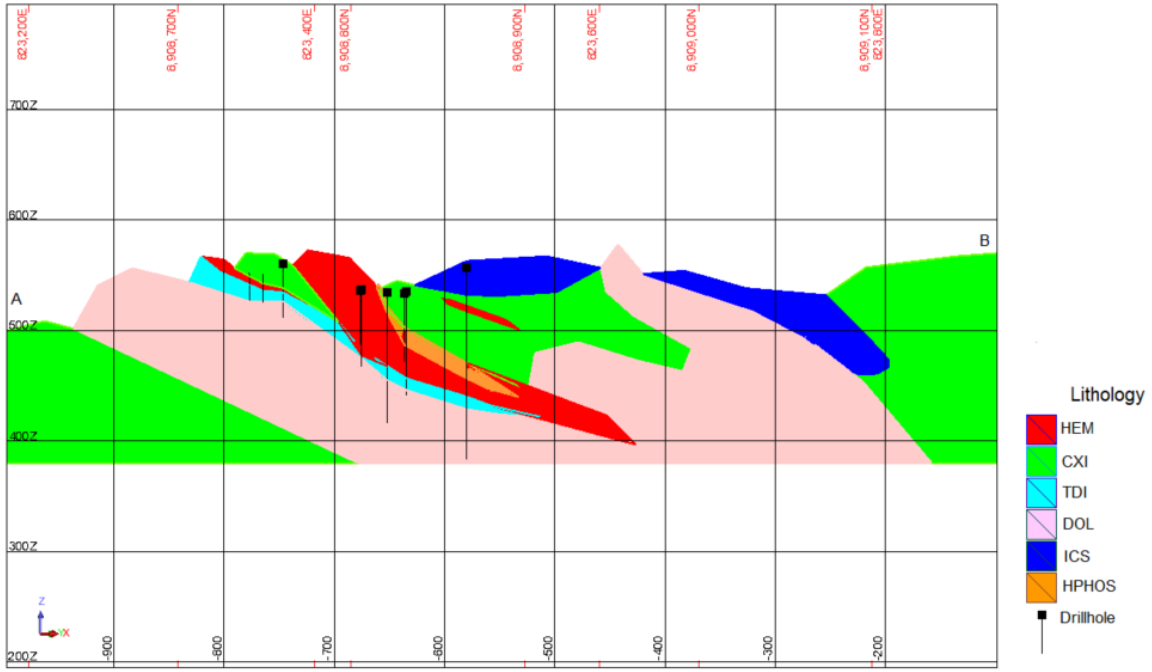
- Mineralization intervals intersected by drilling were aggregated by weighted average length.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	• Drill hole samples were composited to regular downhole lengths of 2.0m. Compositing was applied to the mineralized intervals inside the geological model. • An approximate grade of 25% Fe was used as a guide to create domains for the Itabirites and Talus domains (geological modelling). • An approximate grade of 55% Fe was used as a guide to create the Hematite and High Phosphorus domains (geological modelling). • Criteria used for creating the Bene wireframes included logged material identified as having at least 2x10cm bands of hematite mineralization grading >62%Fe (using a portable NITON XRF machine) within a 1m interval.
	• Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	• Samples were collected in intervals obeying lithological contacts. To ensure a clear definition of the boundaries of mineral zones, samples were also collected of the host rock above and below the mineralized intervals. See Sampling Techniques.
	• The assumptions used for any reporting of metal equivalent values should be clearly stated.	• No metal equivalent was reported. It's not a mining industry practice the report of metal equivalent for iron ore mineralization type.
Relationship between mineralization widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results.	• Most holes (3 exceptions) were vertical and mineralization zone dipping at 45°.
	• If the geometry of the mineralization with respect to the drill hole angle is known, its nature should be reported.	• See above.
	• If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• Further diagrams necessary to describe the Project are included in "Independent Technical Report on Exploration and Mineral Resources Estimation – Tombador Project"- prepared by GE21.
Diagrams	• Appropriate maps and sections (with	• Further diagrams necessary to describe the Project are included in "Independent Technical Report on

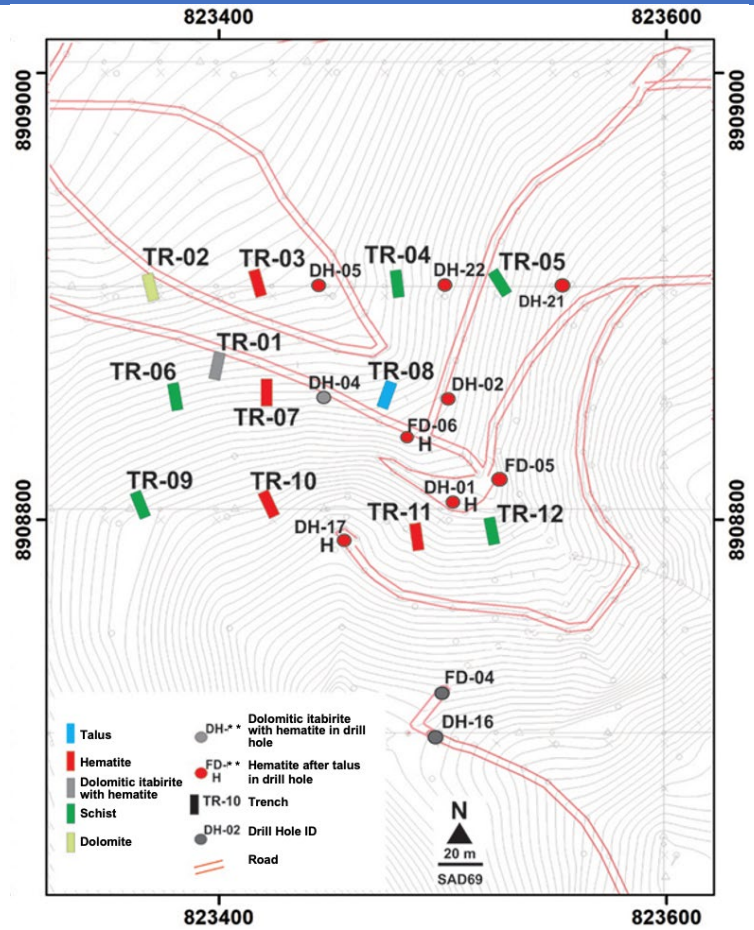
Criteria	JORC Code explanation	Commentary
	scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Exploration and Mineral Resources Estimation – Tombador Project"- prepared by GE21. 

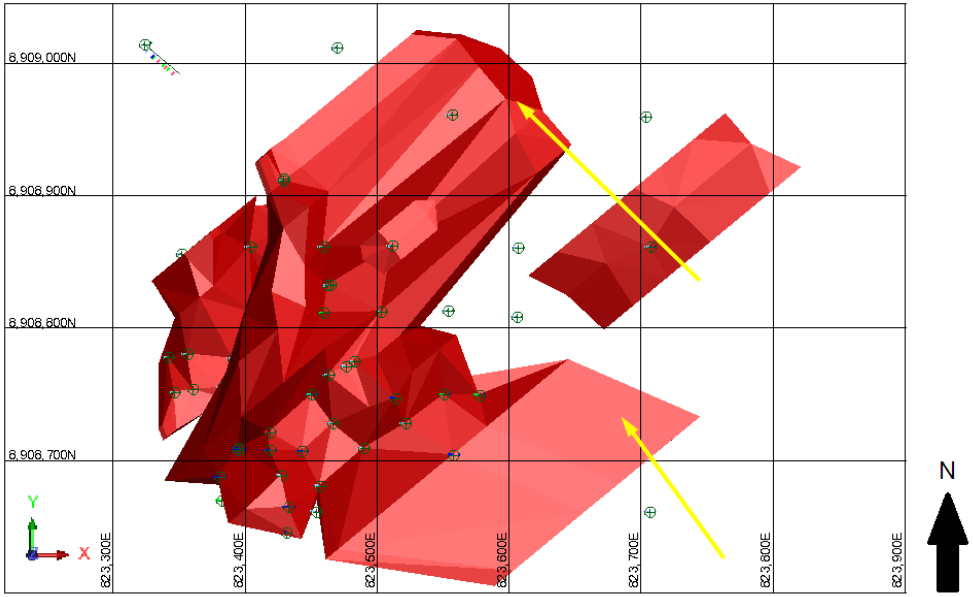
Criteria	JORC Code explanation	Commentary



Criteria	JORC Code explanation	Commentary
		
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• The drilling databases are highly organized with drilling Intercepts and grade x length reports properly stored and readily available.

Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock	• The initial Tombador exploration was part of a larger Vale exploration and drilling program as described in the report prepared by Coffey in 2011: “Colomi Project, Brazil Independent Technical Report on Exploration and Mineral Resources Estimation“. Other exploration data includes:
		  • Geological observations of additional Talus areas outside of the Tombador area;
		  • Geological surface mapping by independent Professor Miguel Tupinamba.
		  • Trench excavation to identify bedrock by TIM shown in the image below.

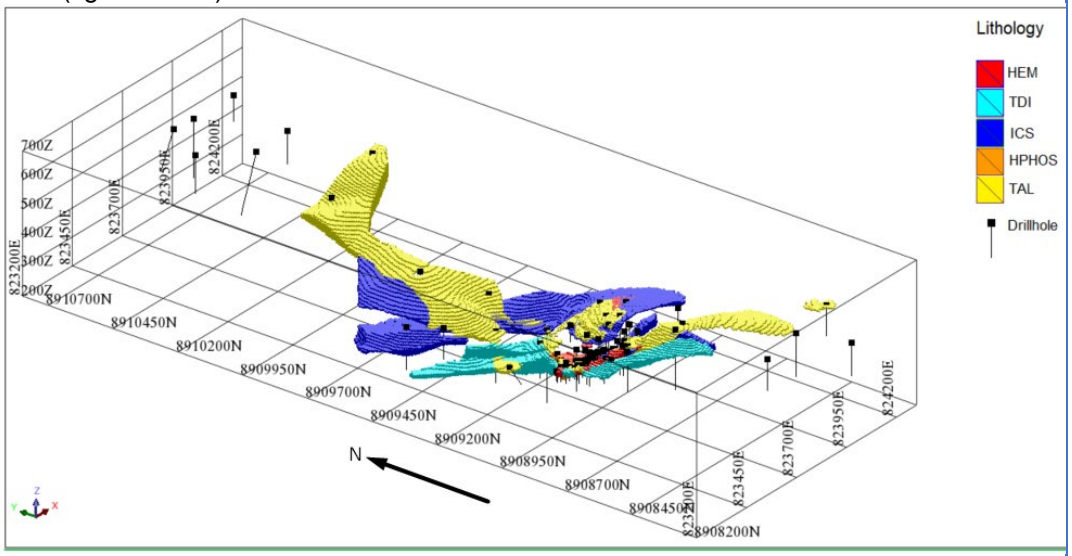
Criteria	JORC Code explanation	Commentary
	characteristics; potential deleterious or contaminating substances.	 • Modest metallurgical tests were completed in 2013 by an external group, Modelo Operacional Ltda ("MOPE") on 10 samples consisting of 3 drill core samples, 5 outcrop samples and 2 composite samples. Results confirmed the prospect of producing lump iron ore product. No deleterious or contaminating substances were encountered. Sulphur results were less than 0.01%. • Additional topographic survey. • Bulk density tests on core samples. • Sampling for additional metallurgical and processing tests.

Criteria	JORC Code explanation	Commentary
Further work	• The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Additional topographic survey. • Sampling for additional metallurgical and processing tests. • Areas in the down-dip part of the Hematite body are still open in depth (see figure below). Further drilling could expand the mineralized body locally. 

SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	• The Tombador project drilling database was exported from an SQL database and provided to GE21 in MS Access and MS Excel format. GE21 produced the MS Access datasets.
	• Data validation procedures used.	• GE21 carried out an electronic validation of the databases with Geovia Surpac software. No errors, gaps or overlapping data, or other material inconsistencies were found.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	• A site visit was undertaken by Mr Ricardo Reis and Mr Leonardo Rocha to the Tombador Project between 23th to 25th November 2021.
	• If no site visits have been undertaken indicate why this is the case.	
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	• There is high confidence in the geological interpretation as there is a semi-detail geological map to guide the modelling of the mineralization zone. The defined horizons are considered reasonably robust. The geological model was updated based on the original model presented in the previous Independent Resource Estimate, as prepared by GE21 on March 2020, and new drilling data from the 2021 TIM drilling program.
	• Nature of the data used and of any assumptions made.	• There is a total of 68 drill holes included within the Tombador tenement. The drilling database contains 2 drilling programs (Vale and TIM). 10 drillholes in the Vale drilling program crossed the tenement boundary.
	• The effect, if any, of alternative interpretations on Mineral Resource estimation.	• Consistent mineralized intersections, drilled at a reasonably close spacing, refutes alternate mineral interpretation.
	• The use of geology in guiding and controlling Mineral Resource estimation.	• Vertical geological section provided a guide to the interpreted ore wireframes.
	• The factors affecting continuity both of grade and geology.	• The continuity of grade and geology were verified in the extension of the deposit. Depth continuity was interpreted based on drilling data.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The mineralization outcrops. Within the deposit area, the hematite mineralization is 10 to 50m in thickness and occurs at a length of approximately 150m down dip and 350m down plunge. The Itabirite mineralization in the deposit area is 30 to 40m in thickness and occurs at a length of approximately 250m down dip. The mineralized layers were interpreted from 10 metres to a maximum thickness of 40m.

Criteria	JORC Code explanation	Commentary
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	• Resource modelling was performed with Geovia Surpac software. The drilling database contained 2 drilling programs (Vale and TIM) which included some drillholes outside of the tenement boundary. These drillhole data were combined to create a single geological model. (See figure in Geological Interpretation). • One 3D block model was constructed for resource estimation purposes for the orebodies. The block dimensions were defined as 10m x 10m x 10m and sub-blocks of 5m x 5m x 5m, which correlated to approximately one quarter of the drill spacing. Sub-blocking was applied to ensure a good adherence between the geological model and the lithological units (figure below).  • The downhole experimental variograms were calculated to establish the structures for composite grades.

Criteria	JORC Code explanation	Commentary

Variogram Model Summary											
Variable	Unit	C0	C1	A1	C2	A2	Azimuth	Plunge	Dip	Major/Semi-Major Ratio	Major/ Minor Ratio
Fe	HEM	0.1	0.35	65	0.55	120	186	22	20	1.5	2.6
SiO2		0.1	0.15	20	0.75	120	196	25	18	1.7	2.11
Al2O3		0.1	0.3	40	0.6	120	184	22	30	1.5	3.9
Mn		0.1	0.3	40	0.6	120	176	18	38	1.6	2.89
P		0.1	0.25	35	0.65	120	185	22	29	1.73	2.43
LOI		0.1	0.9	120	0	0	166	14	29	1.46	3.03
CaO		0.1	0.9	120	0	0	166	14	39	1.6	2.83
MgO		0.1	0.9	120	0	0	166	14	29	1.73	3.09
Fe	ICS/TDI/ HPHOS	0.1	0.35	45	0.6	120	185	22	29	1.6	2.8
SiO2		0.1	0.9	140	0	0	166	14	29	1.41	1.48
Al2O3		0.1	0.45	30	0.45	70	176	18	29	1.44	1.49
Mn		0.1	0.9	160	0	0	176	18	39	1.33	1.95
P		0.1	0.9	140	0	0	166	14	30	1.4	2.59
LOI		0.1	0.2	20	0.7	120	185	22	30	1.57	2.43
CaO		0.1	0.3	20	0.6	150	185	22	30	1.83	1.86
MgO		0.1	0.4	20	0.5	140	185	22	30	1.54	1.91

- Bene material is wholly contained within the ICS domain and has thus been estimated as part of the ICS.
- The established Kriging plan, for all attributes, considered four estimation steps or passes, as presented in the Table below:

Ordinary Kriging Strategy				
Step	Search Distance	Minimum Number of Samples	Maximum Number of Samples	Maximum Number of Samples per Drillhole
HEM Unit - Variables: Fe, SiO2, Al2O3, Mn, P, LOI, CaO, MgO				
Searching Parameters: Bearing=186; Plunge: 22; Dip:20; Major/Minor Ratio: 1.5; Major/Minor Ratio: 2.6;				
1	60	4	12	2
2	180	4	12	2
3	300	4	12	2
4	>300	1	12	2
ICS / TDI/ HPHOS Units - Variables: Fe, SiO2, Al2O3, Mn, P, LOI, CaO, MgO				
Searching Parameters: Bearing=185; Plunge: 22; Dip:29; Major/Minor Ratio: 1.6; Major/Minor Ratio: 2.8;				
1	60	4	12	2
2	180	4	12	2
3	300	4	12	2
4	>300	1	12	2

Criteria	JORC Code explanation	Commentary
	•	• The talus unit (TAL) unit was estimated by Inverse distance weighting

Inverse Weighting Strategy				
Step	**Search Distance**	**Minimum Number of Samples**	**Maximum Number of Samples**	**Maximum Number of Samples per Drillhole**
TAL Unit - Variables: Fe, SiO2, Al2O3, Mn, P, LOI, CaO, MgO				
Searching Parameters: Bearing=0; Plunge: 0; Dip: 0; Major/Minor Ratio: 1.0; Major/Minor Ratio: 1.0;				
1	50	4	12	2
2	130	4	12	2
3	300	4	12	2
4	>300	1	12	2

• The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	• Visual validation for estimated grade was carried out with vertical sections. Visual validation by GE21 confirms the smoothing effect of the grade. Visual validation shows a good correlation between the blocks estimated and the original samples. • Validation for estimated grade was carried out with a comparative Nearest Neighbouring estimation (NN). This validation consists in a comparative statistical analysis over global results for Fe%, SiO_2%, Al_2O_3%, Mn%, P% and LOI% variables to the mineralized intervals. • The comparative analysis of estimated variables with Nearest Neighbouring results show a relative smoothing in the kriging results which are compatible with the kriging technique and are within acceptance limits. • Local validation using Swath Plots was carried out to validate and verify any local spatial bias between estimated variables (Ordinary Kriging) and NN-Check. All results are within acceptable limits.
• The assumptions made regarding recovery of by-products.	• GE21 recommends a future study detailing the recovery of by-products.
• Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	• Preliminary metallurgical tests were completed in 2013 by an external group, MOPE, on 10 samples consisting of 3 drill core samples, 5 outcrop samples and 2 composite samples. No deleterious or contaminating substances were encountered. Sulphur results were less than 0.01%.
• In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	• The block dimensions were defined as 10m x 10m x 10m and sub-blocks of 5m x 5m x 5m, which correlate to approximately one quarter of the drill spacing.
• Any assumptions behind modelling of selective mining units.	• No assumptions were made regarding SMU (selective mining units).

Criteria	JORC Code explanation	Commentary
	• Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates.	• No assumptions were made by GE21 regarding the correlation between variables. • The main controls to the hematite are lithological and structural. The hematite orebody occurs in the drag fold hinge in siliceous itabirite, with an azimuth direction of 30°. This fold has been interpreted as being generated by a transfer fault, approximately N10E direction. Itabirite mineralization is contained to the Itabirite rock unit which dips parallel to the regional strata, that being 30° to southeast.
	• Discussion of basis for using or not using grade cutting or capping.	• The style of iron ore mineralization generally does not require grade cutting or capping in the estimation methodology.
	• The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• Validation for estimated grade was carried out with a comparative Nearest Neighbouring estimation (NN). This validation consists in a comparative statistical analysis over global results for Fe%, SiO_2%, Al_2O_3%, Mn%, P% and LOI% variables to the mineralized intervals. • The comparative analysis of estimation variables with Nearest Neighbouring results show a relative smoothing in the kriging results which are compatible with the kriging technique and are within acceptance limits. • Local validation using Swath Plots was carried out to validate and verify any local spatial bias between estimated variables (Ordinary Kriging) and NN-Check. All results are within acceptable limits.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• The resource was estimated on a dry basis.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• A 20% Fe COG was applied on geological modelling of Itabirites, Talus and Bene units. A 55%Fe COG was applied on geological modelling of hematite.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an	• A pit scenario study was carried out in order to guide the future mining project implying that a reasonable prospect for an eventual economical extraction was tested for mineral resource classification. GE21 generated a schematic pit using physical and economic parameters of projects according to values practiced in the market, however with a reasonable sell price. The optimization was performed using the Geovia Whittle software including Itabirites, hematite on Tombador deposit and the full extension of talus deposit. • The mineralization is known, from close spaced drilling, to be from 20 to 50m in thickness, and the external contacts are sharp and visually distinct to the lower grade peripheral transitional and waste rock. For this reason, both internal and external dilution are predicted by GE21 to be modest.

Criteria	JORC Code explanation	Commentary
	explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Preliminary metallurgical tests were completed in 2013 by an external group "MOPE" on 10 samples consisting of 3 drill core samples, 5 outcrop samples, and 2 composite samples. No deleterious or contaminating substances were encountered. Sulphur results were less than 0.01%. Production data to October 2021 has indicated a lump yield of 54%.
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• TIM has provided proof to GE21 of the environmental permit (Operational License) to operate mining activities in Bahia state. GE21 are not aware of other environmental factors or impacts that could affect the license to operate.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and	• The densities assigned in the block model were defined by the average of values determined by specific gravity tests for each lithology type. All density measurements were performed using drill core. • A total of 187 density tests were carried out. The intervals were selected respecting geological contacts and weathering zones. • The density determination was carried out by Tombador employees using Archimedes/Jolly method. The core samples were oven dried and sealed with paraffin wax. • GE21 applied the average density values to each corresponding lithology type (ore and

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>alteration zones within the deposit.

• Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td><td>waste types). GE21 didn’t perform any spatial variability study on the density data.
• The table below summarizes the density values applied on the resource block model.

<table>
<tr><th colspan="3">Density Data</th></tr>
<tr><th>Target</th><th>Unit</th><th>Density (g/cm3)</th></tr>
<tr><td rowspan="9">Tombador</td><td>ICS</td><td>3.40</td></tr>
<tr><td>TDI</td><td>3.80</td></tr>
<tr><td>TAL</td><td>1.80</td></tr>
<tr><td>HPHOS</td><td>4.66</td></tr>
<tr><td>HM</td><td>5.11</td></tr>
<tr><td>HL</td><td>4.93</td></tr>
<tr><td>HF</td><td>4.66</td></tr>
<tr><td>CXI</td><td>2.90</td></tr>
<tr><td>DOL</td><td>2.90</td></tr>
</table>

•</td></tr>
<tr><td>Classification</td><td>• The basis for the classification of the Mineral Resources into varying confidence categories.</td><td>• The Mineral Resources were classified by the Competent Person as Measured, Indicated and Inferred based on the drill grid spacing and variogram range as explained below.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary

Mineral Resource Estimate – Tombador Iron Project
Mineral Resource Estimate – November 8th 2021
Block Model: 10 m X 10 m X 10 m (5 m X 5 m X 5 m)
Cut-off Grade Applied: 55% Fe

Classification	Cut-off Grade (Fe%)	Tonnes (Mt)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	Mn (%)	P (%)	LOI (%)
HEM								
Measured	55	3.98	64.60	4.46	0.61	0.04	0.069	0.90
Indicated	55	3.02	65.77	3.76	0.63	0.05	0.078	0.39
M+I	55	7.00	65.11	4.16	0.62	0.04	0.073	0.68
Inferred	55	1.62	61.92	9.33	0.64	0.17	0.086	0.50
Total	55	8.62	64.51	5.13	0.63	0.07	0.075	0.65
HPHOS								
Measured	55	0.29	60.70	8.46	1.17	0.22	0.327	0.72
Indicated	55	0.02	56.41	13.38	1.27	0.21	0.308	0.53
M+I	55	0.30	60.45	8.74	1.18	0.22	0.326	0.71
Total	55	0.30	60.45	8.74	1.17	0.22	0.326	0.71

1. Mineral Resources effective date: November 08th 2021.
2. Mineral Resources are reported using a cut-off grade of 55% Fe. Mineral Resources have been estimated using ordinary kriging inside a parent block size of 10 m by 10 m by 10 m. All figures have been rounded to the relative accuracy of the estimates. Summed amounts may not total as shown due to rounding. Mineral Resources were prepared in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) incorporating drilling data acquired up to and including 2021.
3. Mineral Resources were estimated for the Tombador Deposit owned by Tombador Iron Mineração Ltda (tenement 872.431/2003).
4. Tonnages are reported on dry basis.
5. In order to define the Mineral Resource blocks for reasonable prospects for eventual economic extraction, an optimized pit shell was prepared using the standard technical and economic extraction assumptions listed below. Lump Selling Price: US$109.20/t concentrated; Fines selling price: US$86.00/t concentrated; Mining Recovery: 98%; Mining Dilution: 7%; Mining Cost: US$1.74/t mined (Waste); US$1.38/t mined ROM; DSO Processing Cost: US$7.67/t ROM; DSO Recovery: 100%; CONC Processing Cost: US$9.00/t ROM; CONC Recovery: 60%; Pit Slope: 40-45° (West Slope); 40-53° (East Slope); 34-53° (North Slope).
6. Note: LOI = loss on ignition, HEM = hematite, HPHOS = high phosphorus hematite, ROM = run of mine, DSO = direct shipping ore, CONC = concentrate.

Criteria	JORC Code explanation	Commentary

Mineral Resource Estimate – Tombador Iron Project
Mineral Resource Estimate Table – November 8th 2021
Block Model: 10 m X 10 m X 10 m (5 m X 5 m X 5 m)
Cut-off Grade Applied: 20% Fe

Classification	Cut-off Grade (Fe%)	Tonnes (Mt)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	Mn (%)	P (%)	LOI (%)
ICS								
Measured	20	1.68	34.93	45.78	1.03	0.18	0.044	1.28
Indicated	20	2.07	35.38	47.07	0.91	0.19	0.032	0.77
M+I	20	3.75	35.18	46.49	0.96	0.19	0.037	1.00
Inferred	20	19.20	37.41	43.86	0.90	0.16	0.026	1.00
Total	20	22.96	37.05	44.29	0.91	0.17	0.028	1.00
TDI								
Measured	20	2.70	30.84	21.04	0.82	0.15	0.036	15.99
Indicated	20	2.26	30.51	27.07	0.96	0.16	0.034	13.29
M+I	20	4.96	30.69	23.79	0.88	0.15	0.035	14.76
Inferred	20	8.46	31.92	17.35	0.79	0.17	0.044	16.91
Total	20	13.42	31.46	19.73	0.82	0.16	0.041	16.12
TALUS								
Inferred	20	2.86	37.97	38.53	1.85	0.26	0.017	2.77

1. Mineral Resources effective date: November 08th 2021.
2. Mineral Resources are reported using a cut-off grade of 20% Fe. Mineral Resources have been estimated using ordinary kriging inside a parent block size of 10 m by 10 m by 10 m. All figures have been rounded to the relative accuracy of the estimates. Summed amounts may not total as shown due to rounding. Mineral Resources were prepared in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) incorporating drilling data acquired up to and including 2021.
3. Mineral Resources were estimated for the Tombador Deposit owned by Tombador Iron Mineração (tenement 872.431/2003).
4. Tonnages are reported on dry basis.
5. In order to define the Mineral Resource blocks for reasonable prospects for eventual economic extraction, an optimized pit shell was prepared using standard technical and economic extraction assumptions listed below. Lump Selling Price: US$109.20/t concentrated; Fines selling price: US$86.00/t concentrated; Mining Recovery: 98%; Mining Dilution: 7%; Mining Cost: US$1.74/t mined (Waste); US$1.38/t mined (ROM); DSO Processing Cost: US$7.67/t ROM; DSO Recovery: 100%; CONC Processing Cost: US$9.00/t ROM; CONC Recovery: 60%; Pit Slope: 40-45° (West Slope); 40-53° (East Slope); 34-53° (North Slope).

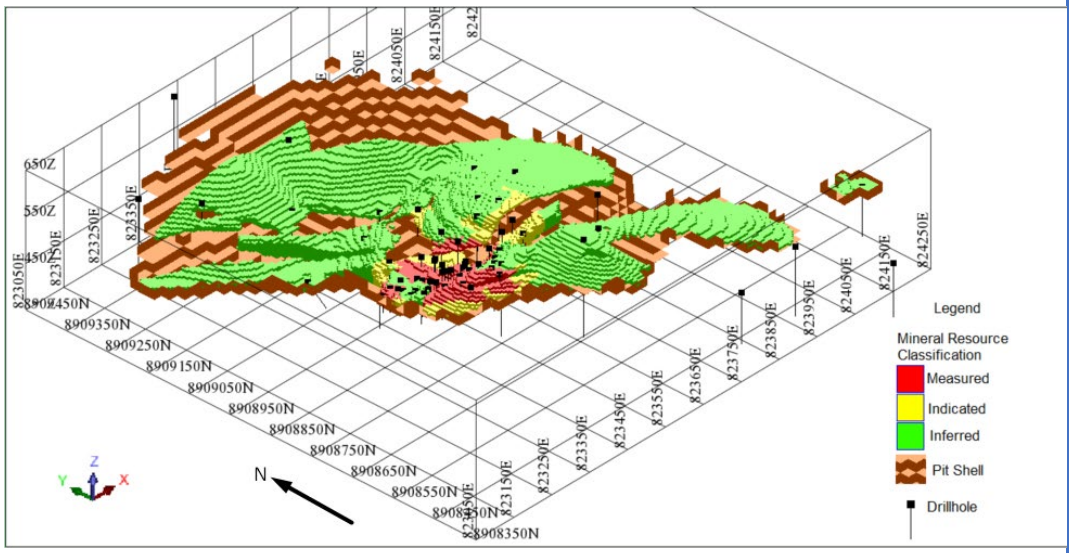
Note: LOI = loss on ignition, ICS = compact siliceous itabirite, TDI = dolomitic itabirite, TALUS = TAL = Talus material, ROM = run of mine, DSO = direct shipping ore, CONC = concentrate.

Criteria	JORC Code explanation	Commentary

Mineral Resource Estimate – Tombador Iron Project
Mineral Resource Estimate Table – November 08th 2021
Block Model: 10 m X 10 m X 10 m (5 m X 5 m X 5 m)
Cut-off Grade Applied: 20% Fe

Classification	Cut-off Grade (Fe%)	Tonnes (Mt)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	Mn (%)	P (%)	LOI (%)
***BENE**								
Measured	20	0.09	37.54	44.45	0.76	0.46	0.014	0.42
Indicated	20	0.31	37.99	43.22	0.71	0.26	0.017	0.62
M+I	20	0.40	37.88	43.51	0.72	0.31	0.016	0.57
Inferred	20	4.00	39.56	41.20	1.05	0.18	0.019	0.86
Total	20	4.40	39.41	41.41	1.02	0.19	0.019	0.84

1. Mineral Resources effective date: November 08th 2021.
2. *Bene material is included in the ICS grade and tonnage report.
3. Mineral Resources are reported using a cut-off grade of 20% Fe. Mineral Resources have been estimated using ordinary kriging inside a parent block size of 10 m by 10 m by 10 m. All figures have been rounded to the relative accuracy of the estimates. Summed amounts may not total as shown due to rounding. Mineral Resources were prepared in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) incorporating drilling data acquired up to and including 2021.
4. Mineral Resources were estimated for the Tombador Deposit owned by Tombador Iron Mineração (tenement 872.431/2003).
5. Tonnages are reported on dry basis.
6. In order to define the Mineral Resource blocks for reasonable prospects for eventual economic extraction, an optimized pit shell was prepared using standard technical and economic extraction assumptions listed below. Lump Selling Price: US$109.20/t concentrated; Fines selling price: US$86.00/t concentrated; Mining Recovery: 98%; Mining Dilution: 7%; Mining Cost: US$1.74/t mined (Waste); US$1.38/t mined (ROM); DSO Processing Cost: US$7.67/t ROM; DSO Recovery: 100%; CONC Processing Cost: US$9.00/t ROM; CONC Recovery: 60%; Pit Slope: 40-45° (West Slope); 40-53° (East Slope); 34-53° (North Slope).
   Note: LOI = loss on ignition, ROM = run of mine, DSO = direct shipping ore, CONC = concentrate.

Criteria	JORC Code explanation	Commentary
	• Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	• The average drill spacing was adopted as the criteria to distinguish Measured, Indicated and Inferred resource classes. Grade estimation passes, which were defined based on the variography modelling, were also considered in the resource classification. Blocks within a 20x20m drilling grid and/or estimated in passes 1 or 2 were classified as Measured. Blocks inside a 100x100m and/or estimated in passes 2 or 3 were classified as Indicated Resource. Remaining blocks were classified as Inferred Resource. • A pit optimization study was carried out in order to define grounds for “reasonable prospect for eventual economical extraction” and hence guide resource classification. Blocks outside of the pit shell were not given a mineral resource classification. The assumptions for the RPEEE optimization are defined in the Resource Tables above. The optimization was performed using Geovia Whittle software for both the hematite and itabirite resources within the Tombador Project (Tombador tenement – see image below). All the mineralization located inside the resultant pit shell was classified as mineral resource.
	• Whether the result appropriately reflects the Competent Person’s view of the deposit.	• The Competent Person believes the classification to be appropriate as Mineral Resource. 
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• In 2020 GE21 developed the “Independent Technical Report on Exploration and Mineral Resources Estimation – Update HCO Resources” and “Independent Technical Report on Exploration and Mineral Resources Estimation – Update Itabirite Resources” which

Criteria	JORC Code explanation	Commentary
		audited the entire Tombador Project database, including the Tombador Hematite and Itabirite data.

Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	• GE21 has estimated Measured, Indicated and Inferred Mineral Resources for the Tombador Project in accordance with the guidelines as set out in the JORC Code (2012). The in-situ resources are wholly contained within the current license boundary.
		• The Tombador Iron Ore Project contains a representative prospective tonnage of iron mineralization. The Measured plus Indicated Mineral Resources for the Hematite material inside project area has been estimated at 7.00 Mt at 65.11% Fe, 4.16% SiO_2, 0.62% Al_2O_3, 0.04% Mn, 0.073% P and 0.68% LOI, (with 55% Fe cut-off grade). The Measured plus Indicated Mineral Resources for the Itabirite material (ICS plus TDI) inside project area has been estimated at 8.71 Mt at 32.62% Fe, 33.56% SiO_2, 0.91% Al_2O_3, 0.17% Mn, 0.036% P and 8.84% LOI, (with 20% Fe cut-off grade). The cut off value applied was based on economic criteria from studies of other similar deposits.
		• The drilling grid spacing, (from 20m x 20m to 100m x 100m) was robust enough for Measured and Indicated Resource classification. However additional sampling is required for reclassification of the Talus lithology to a higher category. GE21 concludes that additional exploration of Talus is the main target to be investigated for future work.
		• Based on these positive geological indications, GE21 considers the Tombador Project to be prospective for hosting economic iron ore deposits. GE21 recommends the exploration programs to include:
		  • Additional topographic survey of the adjacent areas to improve surface information for mining studies.
		  • Conduct additional metallurgical and processing tests to determine the feasibility of economically processing the Talus and itabirite material existing within the deposit.
		  • To continue and improve the current QAQC program.

	• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	• Tombador Project's grade estimate relates to a global estimate.
	• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• Tombador Project received its Operational License on 20 May 2021 and commenced production on the same year. The production data available is not sufficient to allow reconciliation with relative accuracy and confidence.

SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The Ore Reserve is based on the HEM and HPHOS Mineral Resource Estimate disclosed in Section 3, as of November 2021. • The Mineral Resources reported are inclusive of the Ore Reserves. • All Indicated Mineral Resources within ultimate pit designs, with grades adequate to meet Direct Shipping Ore (DSO) products specifications, have been converted to Probable Ore Reserves. All Measured Mineral Resources within ultimate pit designs, with grades adequate to meet DSO products specifications, have been converted to Proved Ore Reserves. • Measured and Indicated Mineral Resources outside the ultimate pit design or that did not meet the market specification for the current DSO processing route were not converted to Ore Reserves.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• A site visit was undertaken by Competent Persons Eng. Ricardo Reis and Geo. Leonardo Rocha to the Project's mine site between 23rd to 25th November 2021. • A site visit was undertaken in November 2020 by Geol. Rene Viel, who provided geotechnical pit design parameters for the study. • GE21 Competent Person has reviewed Mr. Viel study and accepted it as adequate for current operation and mining plan. • TIM Project received its operating license on 20 May 2021 and commenced production in Q2/2021.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• The study is at Pre-Feasibility level, with open pit mining of the stated Ore Reserves. • Numerous technical studies including mining, geological, metallurgical, geotechnical, site infrastructure and marketing have been conducted by VALE and TIM on the deposit over the past years. • It is the Competent Person's view that all material Modifying Factors have been considered in the Ore Reserves estimate.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• The applied cut-off of 55%Fe to define the hematite body in Mineral Resources, was kept for the pit optimisation defining Ore Reserves. For contaminants, SiO_2, Al_2O_3 and P, the thresholds were defined by product specifications consistent for marketing a high-grade direct shipping ore lump and fines product. In-pit Resources outside current DSO product specifications were considered as waste for optimisation but stockpiled separately on the mine plan.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	**Mining Methods** • An ultimate pit and mine plan were developed to optimise plant feed for 1.2 Mtpa of DSO production. • The Tombador Iron Project will be an open pit operation utilizing a contract mining fleet of hydraulic excavators, front-end loaders, 42t haul trucks, blasthole drill rigs and ancillary equipment. 10m mining benches will be mined in 4 flitches. • The waste dump and stockpiles have been allocated an area close to the pit. **Optimisation** • The open pit was optimised using Geovia Whittle 4.7 software. • Costs used in pit optimisation were provided by TIM from their current mining operation run by a contract miner. • Measured and Indicated Mineral Resources categories were used in the optimisation process. No Inferred Mineral Resources were converted to Reserves. • The geotechnical parameters were provided by Geol. Rene Viel and are coherent to current operation and similar projects, with inter-ramp slope angles varying from 34° to 53° and bench heights from 10 m to 20 m depending on sectorization. These parameters were used in pit optimisation and pit design, with angles varying by sector. • Modifying factors of mining dilution were estimated by applying a 1m offset to the hematite body that would represent the possible operating dilution with the mining fleet currently used at TIM's mine site and then the tonnage and grades variations were calculated. The resulting factors were applied overall as an adjustment factor on Whittle software. 7% mass dilution and grades dilution of: -1% for Fe, +7.6% for SiO_2, +1.1% for Al_2O_3 and +1.3% for P were applied, considering the adjacent material grades. 2% ore loss was applied based on the current operation. **Ultimate Pit Design** • Detailed pit and stage designs were completed based on the selected Whittle pit shell results. • The mining plan for the Life-of-Mine was developed with yearly pushback designs and scheduling included stockpiling and reclaiming ROM material to achieve marketing product specifications. • A minimum mining width of 20 m was applied. • Inferred Mineral Resources were not appraised for the DSO project and were reported as waste material. In-pit Inferred Mineral Resources were not accounted for as plant feed and were assumed to have no value in optimisation and scheduling. • The following table presents the results of the ultimate pit for Ore Reserves statement.

Criteria	JORC Code explanation	Commentary

Ore Reserve - Tombador Iron Project
November 8th 2021
Mining Recovery 98% - Dilution 7%

Category	Tonnage (Mt)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	Mn (%)	P (%)	CaO (%)	MgO (%)	LOI (%)
Proved	3.14	65.19	2.27	0.59	0.03	0.079	0.74	0.74	0.99
Probable	2.45	65.94	2.56	0.56	0.04	0.077	0.30	0.50	0.30
Total Ore Reserve	***5.59***	***65.52***	***2.40***	***0.58***	***0.04***	***0.078***	***0.55***	***0.64***	***0.69***

Ore Reserves were estimated using the Geovia Whittle 4.7 software and following the economic first pass parameters:
Selling prices of products is based on a flat 62% Fe Index price of US$100.31/dmt CFR China adjusted to a mine gate basis.
Exchange rate US$ 1.00 = R$ 5.50
Mining costs: US$1.38/t ore mined, US$1.74/t ore waste, total fixed costs and processing costs: US$7.67/t ROM. Ore Reserves are the economic portion of the Measured and Indicated Mineral Resources.
Mass Dilution 7% and Mining Recovery 98%.
The interramp slopes vary from 34° to 53°.
Total Waste = 21.28 Mt.
Strip Ratio = 3.8 t/t - (Waste)/Ore (Measured + Indicated).
The Competent Person responsible by the PFS is Porfírio Cabaleiro Rodriguez, BSc. (MEng), FAIG, a director of GE21 Consultoria Mineral.

- No Inferred Mineral Resources were included in the Ore Reserves estimate.

Infrastructure requirements of the selected mining method

- The Tombador Iron Project is currently under operation, with all infrastructure requirements for the selected mining method and production rates already in place.

Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.*	• The current processing route consists of crushing and screening of typical DSO material. Lump and Sinter Fines fraction are produced and hauled by road to port for export or hauled by road for the domestic Brazil steel market. • 100% recovery for crushing and screening plant was considered.

Criteria	JORC Code explanation	Commentary
	• *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• Products yields and qualities are based on over 8 months of DSO production data from TIM operations crushing plant, representing a robust set of data with far more sample data than previous granulo-chemical analyses conducted on drill core. The production plant data also presents more conservative values. • The Tombador Project hematite analyses from 2013, performed by MOPE, presented an average lump proportion of 75% over 10 bulk samples representing the spatial variability of hematite in the orebody. Other 33 hematite samples from drill core collected by Vale were submitted to grain size distribution (granulo-chemical) analysis and averaged 70% lump proportion. Plant products are analysed between 2 and 8 hours for both Sinter Fines and Lump granulometries and present an average 54.1% proportion of lump over approximately 8 months of production. • The DSO lump and fines material meet TIM's current product specifications required to be marketable.

Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• All environmental studies and licences required to commence mining and dry processing operations have been completed. TIM holds the following approvals for its mining and processing operations:
		  • Preliminary Licence ("LP") granted in May 2018 (involves Social and Environmental approvals);
		  • Installation Licence ("LI") granted in September 2020 (vegetation clearing, construction and site works permitted);
		  • Operating Licence ("LO") granted on 20th May 2021 (mining and crushing operations and sale of Ore permitted).
		• All processing is dry so there are no wet tailings. There is no detection of acidic material in the waste dumps.
		• The PFS life of mine pit design is larger in surface area than previous estimates and the Company will need to submit a request for the extension and expansion of its current licenses with both the National Mining Agency and the Environmental department, INEMA.

Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• Current site infrastructure supports the developed mine plan to achieve the production capacity of 1.2 Mtpa.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.*	• The cost estimates are in BRL with an exchange rate of 5.5 BRL/USD. • Capital costs have been provided by TIM totalling US$7.5 million, with US$5.9 million of initial expenses.

Criteria	JORC Code explanation	Commentary
	• *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• Operating costs have been provided by TIM, according to current operation contract. • Indicative average cash costs estimated at approximately US$16.72 per tonne of ore sold. • All Ore Reserves meet production specification. • Federal benefit over income taxes of 75% was applied, with total taxes totalling 15.25%. • Federal royalty of 3.5% for iron ore was applied. A private royalty of 1.75% was applied.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• The revenue was estimated on a mine gate basis. The assumed iron ore price was based on a flat 62% Fe Index price of US$100.31/dmt CFR China for the life of the mine. The mine gate price was calculated by adjusting the price up for grade and lump premiums and down for ocean freight, logistics and marketing fees. On a CFR basis it is estimated the Tombador lump product price would be US$135.25/dmt and fines product US$117.60 with a 62% Fe index price of US$100.31. • The FOB at mine gate prices were calculated with freights and costs provided by TIM.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• Lump and Sinter Fines DSO products generated from Ore Reserves meet the specification of current TIM contracts. • High grade hematite DSO global market is considerably larger than the Project's production. Market for such product is diverse and transparent, with no competitor analysis required to enable confidence in market assessment. • Prices were forecasted based on last 5 years average prices.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the*	• Financial modelling of the operation was based on a discounted cash flow over 6 years, with positive outcomes, supporting the Ore Reserve estimate.

Criteria	JORC Code explanation	Commentary
	study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• Initial investments were already expended during 2020 and 2021. • Most key sensitivity to the project is iron ore price. Sensitivity analysis performed on exchange rate, selling prices and WACC resulted in positive NPV even at -50% variation, showing strong viability of the Project. • Competent Person Porfírio Cabaleiro is confident on the economic input of the financial modelling, as they represent the current operation and relate to similar projects.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• The company has obtained all necessary agreements from key stakeholders and as an ongoing operation there is continued engagement and development programs with the local community.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• Tombador Iron Ore Project presents elevated tonnages of mineralized material in Mineral Resources that does not meet current DSO specification but can be processed on more complex plants and circuits, potentially generating profit. Such material is stockpiled at nearby areas and are a potential upside for further development of the Project. • Tombador has already begun operations and any necessary expansion on licenses and permits can be obtained for the mine of stated Ore Reserves.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• In Competent Person Porfírio Cabaleiro opinion, the current Ore Reserves statement represents accurately the outcome of the optimization procedures from the assumptions considered and is adequate for the economic analysis and valuation of the Project. • All Proved Ore Reserves were derived from Measured Mineral Resources and all Probable Ore Reserves were derived from Indicated Mineral Resources.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• No audits have been undertaken on the Ore Reserves.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available*	• The TIM Project economics and main inputs related to mining and processing are derived from current contracts and existing costs, therefore Competent Person's confidence in the inputs is high. • The Ore Reserves estimates relate to global estimates in the conversion of Mineral Resources to Ore Reserves. • Accuracy and confidence of modifying factors are consistent with the current level of the study and do not have a material impact on the viability of the stated Ore Reserves. • It is the Competent Person's opinion that the factors used in the TIM Project are adequate and based on studies performed. Factors that may affect tonnages and grade estimates may include geotechnical assumptions, geological interpretation, mining dilution and ore loss, and products yield in processing. • No separate assessment of relative accuracy or confidence limits of the Ore Reserve were undertaken.