HORIZONTE MINERALS PLC MANAGEMENT'S DISCUSSION AND ANALYSIS

TWELVE MONTHS ENDED
31 DECEMBER 2022

Background

This Management's Discussion and Analysis of the financial position and results of operations was originally prepared as at 28 March 2023 and should be read in conjunction with the Consolidated Financial Statements of Horizonte Minerals plc as at 31 December 2022 approved and filed at the same time as this document. The Consolidated Financial Statements have been prepared in accordance with UK adopted international accounting standards and International Financial Reporting Standards as issued by the International Accounting Standards Board ("IASB") and Interpretations (collectively IFRSs).

Horizonte Minerals plc ('Horizonte' or the 'Company') is a publicly listed company, the shares of which are listed on the London Stock Exchange on the AIM market ('AIM') and the Toronto Stock Exchange (the 'TSX'), in both instances under the symbol 'HZM'.

Company Overview

Horizonte has two advanced 100% owned nickel projects located close to the Carajás mining district in northern Brazil.

Araguaia Ferro-Nickel Project (ANP)

- ANP is an advanced nickel project being developed by Horizonte as the next ferronickel (FeNi) operation in Brazil. Araguaia has the following key characteristics:
  - 100% owned by Horizonte
  - Located south of the Carajás Mining district in northern Brazil, with good access to infrastructure
- Feasibility Study ('FS') issued Q4 2018, has demonstrated:
  - Robust economics based on a 28-year life of mine ('LOM') producing ~14,000 tonnes per annum (TPA) nickel in FeNi from a single line Rotary Kiln Electric Furnace ('RKEF')
  - ANP is expected to generate over US$1.6 billion in free cash flow over LOM using a nickel price of US$14,000 per tonne ('/t')
  - Net Present Value[1] (NPV_8) of US$401M and Internal Rate of Return (IRR) of 20.1% using the base case of nickel price of US$14,000/t, increasing to US$740M and 28.1% using the consensus nickel price of US$16,800/t
  - High-grade ore with an average nickel grade of 1.89% for the first 10 years of production
  - C1 cost of US$8,193/t Ni positioning Araguaia in the lower quartile of Nickel Laterite cost curve, C1 cost of US$6,784/t Ni years 1-10
  - Proven and Probable Mineral Reserve Estimate of 27.5 Mt grading 1.69% Ni

Vermelho Nickel-Cobalt Project (VNP)

The VNP was acquired from Vale in late 2017. It is 100% owned by Horizonte and is located in the eastern part of the Carajás Mining district and approximately 200 kilometres north-west of the ANP. A Pre-Feasibility study ('PFS') was released in October 2019 which confirms VNP as a low-cost, long-life nickel sulphate project.

- The Study confirms VNP as a large, high-grade resource, with a long mine life and low-cost source of nickel sulphate for the battery industry
- The compelling economic and technical results from the study support further development of the project towards a full Feasibility Study
- A 38-year mine life estimated to generate total cash flows after taxation of US$7.3billion[2];
- An estimated Base Case post-tax NPV_8 of US$1.7 billion[2] and IRR of 26%
- At full production capacity, the Project is expected to produce an average of 25,000 tonnes of nickel and 1,250 tonnes of cobalt per annum utilising the High-Pressure Acid Leach process
- The base case PFS economics assumes a flat nickel price of US$16,400/t for the 38-year mine life
- C1 (Brook Hunt) cash cost of US$8,029/t Ni (US$3.64/lb Ni), defines Vermelho as a low-cost producer
- VNP is set to deliver significant socio-economic benefits for communities in the Pará state, including over 1,800 direct jobs in the construction phase, and over 600 jobs during operation, as well as additional economic and social development programs.

Highlights for 2022

On 25 February 2022 the Company announced after following a competitive tendering process, Hatch Ltd has been selected as the furnace supply vendor for the Araguaia project. Hatch will supply Horizonte with a circular electric arc furnace rated at 60 megawatt, a calcine transfer system to feed the furnace with 835,000 tonnes per annum of calcine and additional services to ensure successful installation and commissioning. Hatch has also been engaged to provide execution phase preparation services including:

- Basic engineering of the Furnace Process Island, which has been substantially optimised since the publication of the Project's Feasibility Study.
- Planning services to ensure that the furnace components can be supplied and delivered to align with the execution schedule.
- Commissioning, operational readiness and production ramp-up planning services for the complete ferronickel facility from initial ore preparation to final product.

On 15 March 2022 Araguaia Niquel Metais LTDA, a wholly owned subsidiary of the Group entered into legally binding documentation including a comprehensive intercreditor agreement and loan agreements with two export credit agencies in relation its senior secured project finance debt facility of US$346.2 million.

1. NPV_8 calculated using 8% discount rate
2. USD/BRL 1/3.8 exchange rate applied for life-of-mine

The Senior Debt Facility will include the following:

- Commercial senior facility of US$200,000,000 provided by the Senior Lenders;
- ECA facility of US$74,562,000 guaranteed by EKF;
- ECA facility of US$71,638,000 guaranteed by Finnvera;

On 15 March 2022 Horizonte Minerals confirmed the satisfaction of material conditions precedent in relation to the US$ 65 million Convertible Loan Note.

On 15 March 2022 Horizonte signed binding loan documentation in relation to a US$25 million Cost Overrun Facility ("COF"). Entering into the COF is a condition precedent to first drawdown under the Senior Debt Facility. The COF will be available for drawdown in the case of a cost overrun against the construction schedule and budget, subject to certain conditions including the Company having deployed 90% of the funding from the equity fundraise and convertible notes toward the construction of the Araguaia ferronickel project.

On 22 March 2022 Horizonte announced that it has awarded the Engineering, Procurement and Construction Management contract (the "EPCM Contract") for the construction of its 100% owned Araguaia ferronickel project ("Araguaia" or the "Project") to Pöyry Tecnologia Ltda ("Pöyry"), the Brazilian subsidiary of global engineering services firm AFRY. Award of the EPCM Contract to AFRY follows a comprehensive and competitive global tender process. The EPCM Contract, awarded via the Company's wholly owned subsidiary Araguaia Niquel Metais Ltda., involves the provision of a comprehensive range of services across engineering, procurement, construction management, project management and commissioning.

On 24 March 2022 Horizonte announced the appointment to the Board of Directors, Gillian Davidson as independent non-executive director and Vincent Benoit as non-executive director.

On 31 March 2022 Horizonte announced the completion of both the US$65 million Convertible Notes issuance and the sale of the Vermelho Royalty, previously announced on 23 November 2021. The Company received all subscription amounts in respect of the Convertible Notes as well as the US$25 million upfront purchase price in respect of the Vermelho Royalty.

On 4 May 2022 Horizonte announced the appointment of Philipa Varris as Head of Sustainability.

On 11 May 2022 Horizonte announced that it has awarded the earthworks contract for the construction of the Araguaia ferronickel project ("Araguaia" or the "Project") to Copa Construção S.A. ("Copa"). The scope of the contract incorporates the 'process plant and supporting infrastructure' components of the bulk earthworks for the ferro nickel plant. The contract scope is designed to ensure the site is ready for the civil construction works on completion, and will see Copa levelling the main plant area, creating a series of stepped plateaus that will support the key process equipment packages and buildings, installing initial drainage facilities, as well as the main ramp and crusher platform.

On 18 May 2022 the Company commenced construction and has broken ground at its Araguaia Nickel Project.

On 20 May 2022 the Company published its 2021 Sustainability Report. The Sustainability Report is Horizonte's third such disclosure and has been prepared in accordance with the Global Reporting Initiative Standards 'Core' option.

On 30 May 2022 the Company completed a share consolidation on the basis of 1 new share for every 20 existing shares. Shareholder approval for the share consolidation was granted at the Company's Annual General Meeting on 24 May.

On 12 July 2022 the Group awarded new share options over 9,736,250 ordinary shares of £0.20 each in the capital of the Company to executives (PDMRs) and key personnel in the UK and Brazil under unapproved, standalone option agreements (the "Awards"). Each Award is exercisable in return for one ordinary share in the Company and will vest in three tranches on the 12-month, 18-month and 28-month anniversaries of the Award Date at a ratio of 25%, 25% and 50%, with exercise prices of £1.68, £1.72 and £1.76 for each one third of the Awards.

On 13 July 2022 the Group announced that it has awarded all major and long-lead-time process plant equipment contracts for the Araguaia Ferronickel Project. Following the completion of the competitive tender processes, and detailed negotiations, the Company has now secured equipment supply and technical support services for the balance of the Araguaia process flow sheet from leading global suppliers (FLSmidth A/S, Metso Outotec Oyi, Uvan Hagfors Teknologi AB, Inteco Melting and Casting Technologies GMBH).

On 19 July 2022 the Company announced an agreement has been signed between the Araguaia Nickel Project ("Araguaia") and Brazil's leading national industrial training provider Serviço Nacional de Aprendizagem Industrial ("SENAI") for host community skills training. Under this agreement, a key component of Araguaia's Local Content Initiative, the partners will train and develop local community members in core skills required during Araguaia's construction and operational phases.

On 9 August 2022 the Company announced that it has awarded the industrial civil works contract for the construction of the Araguaia Ferronickel Project to Companhia Paranaense de Construção S.A. ("Copa").

On 26 September 2022 the Company announced that its 100% owned Araguaia Nickel Project, currently in development, has been approved as a Strategic Minerals Project by the Brazilian Federal Government. This approval will ensure that the Araguaia Nickel Project is treated on a priority basis by the various Government agencies engaged in the construction and operation of the mine, through the support of an Inter-ministerial committee.

On 4 October 2022 the Company announced Construction is progressing to schedule with overall project progress of approximately 16% as at 30 September 2022 and Engineering approximately 71%, US$375m of capital commitments on budget as of the end of August 2022, no lost time injuries recorded to date, with over 375,000 hours worked. Project remains on schedule to deliver first nickel in Q1 2024 and inflationary pressure combined with engineering improvements to de-risk the operation has resulted in a 12.6% cost increase with total project capex now forecast at U$537million.

The Company announced a placing and subscription raising (together the "Fundraise") on 4 October 2022. Gross proceeds of approximately £70.5million (approximately US$80million) was raised at a placing price of 90.5 pence per share from existing and new investors. The Company issued a total of 77,945,627 new ordinary shares, with existing shareholders La Mancha Investments S.A.R.L. and Glencore International AG participating for approximately £23.8million (approximately US$27million) and approximately £26.4million (approximately US$30million) respectively.

In connection with the Fundraise, Jeremy Martin, a director and Chief Executive Officer of the Company, and Simon Retter, Chief Financial Officer of the Company, each agreed to subscribe for 27,624 shares at the placing price. The Fundraise was completed on the 8th November 2022.

On 17 October 2022 the Company announced that Wood Plc ("Wood") was awarded the principal engineering contract to undertake the Feasibility Study ("FS") for Horizonte's 100%-owned Vermelho Nickel-Cobalt Project.

On 3 November 2022 the Company announced that MIP Engenharia & Milplan Engenharia ("MIP/Milplan") was selected to provide the Electro-Mechanical installation services at Horizonte's 100%-owned Araguaia Nickel Project.

On 8 November 2022 the Company announced the completion of the Fundraise announced on 4 October 2022 following the admission to AIM and the TSX of the Fundraise Shares.

On 21 November 2022 the Company announced that it had entered into long-term power purchase agreements (PPAs), securing renewable power at a low cost for its 100%-owned Araguaia Nickel Project. The PPAs will supply 100% of the expected power demand during the ramp-up period and the first five years of operations, in addition to over 60% of the expected power demand for the following five years.

On 1 December 2022 the Company announced that it has entered into two long-term port agreements, securing access for the import of required raw materials and the export of its final ferro nickel product, for its 100%-owned Araguaia Nickel Project in Brazil.

On 8 December 2022 the Company announced that it has satisfied all conditions precedent for the first utilisation under the senior secured project finance debt facilities of US$346.2 million (the "Senior Debt Facilities"), as previously announced in March 2022 and was in receipt of the first tranche of funds from the Senior Lenders. The Company also satisfied the conditions precedent in relation to utilisation of the COF and has fully drawn down the US$25 million of COF funding from Orion.

On 15 December 2022 the Company reported that it is continuing to make good progress on the construction of its 100%-owned Araguaia Nickel Project in Brazil which remains on-budget and on-schedule to commence production in Q1-2024. As of 30 November 2022, approximately 28% of the total Project construction programme had been completed. Earthworks were significantly advanced and due to be concluded in January 2023. The detailed engineering works were 87% complete and due to be concluded during Q1 2023. Approximately 75% of capital expenditure had been awarded to date, amounting to over US$415 million, and the key long lead items are running to schedule with the furnace shell due on site in late December and the rotary kiln due to be delivered in early Q1 2023.

Events after the Reporting Date

On 24 January 2023 the Company announced that it had advanced the permitting process for its 100%-owned Vermelho Nickel Cobalt Project, in parallel with ongoing work on the Feasibility Study which is expected to be published in H1 2024. The Company has submitted the Environmental and Social Impact Assessment ("EIA") and the associated Relatório de Impacto Ambiental ("RIMA") with the Pará State Secretariat for Environment and Sustainability ("SEMAS") and it is targeting the approval of the EIA/RIMA and subsequent granting of a Preliminary Licence ("LP") in Mid-2024.

On 9 February 2023 the Company announced that it has entered into a five-year mining services agreement, thereby securing services for mining, stock pile generation, plant feeding and slag handling activities for its 100%-owned Araguaia Nickel Project. The contract has been awarded to Fagundes Construção e Mineração ("Fagundes") a leading Brazilian company with a strong track record of providing mining services in Pará State. The five-year contract (with an option to extend for a further five years) is in line with Horizonte's operating cost assumptions stated in the feasibility study, and represents another key de-risking milestone, ensuring that the operational costs will be in the lower quartile of the nickel cost curve.

On 16 February 2023 the Company presented a pictorial update showing progress at the Araguaia Nickel Project. As of 31st January, construction of Araguaia was 40% complete and remains on-budget and on-schedule for first nickel in Q1 2024.

On 27 February 2023 the Company announced that it had drawn down US$50million from the second tranche of its senior secured project finance debt facility of US346.2million.

On 6 March 2023 the Company announced that it has awarded contracts for the Line 2 Feasibility Study ("FS") at its Araguaia Nickel Project. The second line at Araguaia is expected to increase production by 100% to 29,000 tonnes of nickel per year through the construction of a duplicate RKEF processing facility ("Line 2").

Objectives

In the short, to medium term, the Company's objectives are to:

- Progress the Araguaia project's construction and remain on-budget and on-schedule for first nickel in Q1 2024
- Advance the Vermelho project towards a Feasibility Study
- Advance the approval and granting of the Preliminary Licence

Risk Statement

The Company's operations may be affected by climate change regulations and climate change may present physical risks to the operations.

Greenhouse gases are emitted from the activities of Horizonte as a result of fuel and energy consumption. While the Company's operations are not presently subject to specific regulatory measures to address or limit GHG emissions, the Government of Brazil signed the 2015 UN Framework Convention on Climate Change also known as the Paris Agreement on 22 April 2016 and was ratified in the same year. The Paris Agreement, which requires developed countries to set targets for emissions reductions, came into force on November 4, 2016 and as a result a number of jurisdictions which have commenced implementation of measures for greenhouse emissions reduction, including carbon-based economy drivers. Horizonte Minerals has adopted the International Finance Corporation Performance Standards and Equator Principles for its Araguaia operation, presently in construction, which incorporate greenhouse gas and energy use disclosure requirements.

In addition, Horizonte's projects could be exposed to a number of physical risks from climate change, such as changes in rainfall rates or patterns, reduced water availability, higher temperatures and extreme weather events. Such events or conditions, including flooding or inadequate water supplies, could disrupt construction, mining and transport operations, mineral processing and rehabilitation efforts, create resource or energy shortages or damage the company's property or equipment and increase health and safety risks on site. Such events or conditions could have other adverse effects on the Company's workforce and on the communities around its mines, such as an increased risk of food insecurity, water scarcity and prevalence of disease, all of which could have a material adverse effect on the Company's results of operations and financial condition.

Review of Operations

Araguaia Ferro-Nickel Project (ANP)

ANP is located on the eastern margin of the State of Pará, north-eastern Brazil, to the north of the town of Conceição do Araguaia (population of 46,206), south of the main Carajás Mining District. The Project has good regional infrastructure including a network of Federal highways and roads, with access to low tariff hydroelectric power. The Carajás Mining District, situated approximately 200km northwest of the Project, is host to several major iron and copper mines operated by mining major Vale SA.

The ANP areas comprise 27 exploration licences totalling 123,611 ha and the landholdings which comprise the Araguaia Projects do not form part of any native reserves.

ANP Feasibility Study Detailed Information

The term "Feasibility Study" has the meaning ascribed by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), as the CIM Definition Standards on Mineral Resources and Mineral Reserves adopted by CIM Council, as amended. Under CIM guidelines, the Project is considered to be a "development property" – a property that is being prepared for mineral production and for which economic viability has been demonstrated by a Feasibility Study.

ANP Project Summary

ANP will comprise an open-pit nickel laterite mining operation that proposes to mine 27.5 million tonnes ('Mt') Mineral Reserve of a 119 Mt Mineral Resource to produce an average of 52,000 tonnes of FeNi (containing an average of 14,000 tonnes of nickel) per year, for the 28-year mine life. The metallurgical process comprises a single line RKEF to extract FeNi from the laterite ore. The RKEF plant and project infrastructure will be constructed over 31 months. After an initial ramp-up period, the plant will reach full capacity of approximately 900,000 tonnes of dry ore feed per year. The FeNi product will be transported by road to the port of Vila do Conde for sale to overseas customers.

The process plant, mining, infrastructure, and utilities engineering has been designed to support capital and operating cost estimates to the Association for the Advancement of Cost Engineering ('ACE') class 3 standard. This means that capital and operating costs estimates have a combined accuracy of - 10%+15%. The capital and operating costs are as of Q3 2018.

The results of the FS demonstrate that Araguaia is viable based on the assumptions used, the key economic outcomes are highlighted in Table 1, below.

Table 1 ANP FS Key Economic Outcomes

		Nickel price basis (US$/t Ni)	
Item	**Unit**	**Base (14,000)**	**CIBC (16,800)**
Net cash flow (post taxation)	US$M	1,572	2,582
NPV_8 (post taxation)	US$M	401	740
IRR	%	20.1	28.1
Breakeven (NPV_8) Ni price	US$/t	10,766	10,766
C1 Cost (Brook Hunt)	US$/t Ni	8,193	8,193
Production year payback	years	4.2	3.3
LOM Ni recovered	kt	426	426
LOM Fe recovered	kt	995	995
Average Ni production at 0.9 Mt/a ore [1]	kt/a	14.5	14.5
Average Fe production at 0.9 Mt/a ore	kt/a	32	32
Total revenue	US$M	5,970	7,164
Total costs	US$M	3,811	3,995
Operating cash flow	US$M	2,159	3,169
Capital intensity – Initial capex/t nickel	US$/t Ni	1,041	1,041

1. Average over initial 28 years of processing

The results shown in Table 1 assumes 100% equity. The base case was developed using a flat nickel price of US$14,000/t Ni. Another case was prepared using a market consensus price of US$16,800/t Ni. This additional price represents the upside scenario.

As shown in Table 1(above), for the base case the project has a 4.2-year payback period with cumulative gross revenues of US$5,970 million. The economic analysis indicates a post-tax NPV_8 of US$401 million and an IRR of 20.1% using the base case forecast of US$14,000/t Ni.

ANP Resources / Reserves and Mining

Snowden Mining Industry Consultants completed the mining engineering along with mining capital, operating cost estimates and resource estimation for the ANP. Snowden is a global mining consulting and training business with leading skills and technologies in mining engineering, mine optimisation, and resource estimation.

ANP Mineral Resources

The reporting standard adopted for the reporting of the Mineral Resource estimate uses the terminology, definitions and guidelines given in the CIM Standards on Mineral Resources and Mineral Reserves (May 2014)

ANP has two principal mining centres; Araguaia Nickel South ('ANS') and Araguaia Nickel North ('ANN'). ANS hosts seven deposits: Pequizeiro, Baiao, Pequizeiro West, Jacutinga, Vila Oito East, Vila Oito West and Vila Oito, while ANN hosts the Vale do Sonhos deposit.

Several phases of diamond drilling have been completed across the Project commencing in 2010. Drilling at ANS has been undertaken by Horizonte and Teck, with drilling at ANN by Xstrata/Glencore. The Company has been active on the ANS project since the initial discovery in 2010 when it completed the acquisition and integration of the Teck and Xstrata project areas, it has been the sole project operator since 2015. A total of 75,250 metres ('m') of diamond drilling has been completed across 2,627 holes for the Project.

Mineral Resource estimates for the ANP deposits under consideration for the FS are shown in Table 2. The Measured Mineral Resource is estimated at 18 Mt at a grade of 1.44% Ni using a cut-off grade of 0.90% Ni. The Indicated Mineral Resource is 101 Mt at a grade of 1.25% Ni. This gives a combined Mineral Resource of 119 Mt at a grade of 1.27% Ni for Measured and Indicated Mineral Resources at a cut-off grade of 0.90% Ni (inclusive of Mineral Reserves). A further 13 Mt at a grade of 1.19% Ni (at a cut-off grade of 0.90% Ni) is defined as an Inferred Mineral Resource.

Table 2 ANP Mineral Resources as of February 2017 by material type (0.90% Ni cut-off)

Araguaia	Category	Material type	Tonnage (kt)	Bulk density (t/m^3)	Contained Ni metal (kt)	Ni (%)	Co (%)	Fe (%)	MgO (%)	SiO_2 (%)	Al_2O_3 (%)	Cr_2O_3 (%)
		Limonite	1,232	1.39	15	1.20	0.15	37.43	2.00	17.15	11.07	2.98
Subtotal	Measured	Transition	6,645	1.26	116	1.75	0.07	18.89	10.20	42.06	6.59	1.29
		Saprolite	10,291	1.40	130	1.27	0.03	12.03	24.08	41.24	3.95	0.87
Total	Measured	All	18,168	1.35	261	1.44	0.05	16.26	17.51	39.91	5.40	1.17
		Limonite	19,244	1.39	216	1.12	0.12	36.22	2.40	20.46	9.61	2.65
Subtotal	Indicated	Transition	30,917	1.20	439	1.42	0.07	21.38	11.26	38.95	5.37	1.51
		Saprolite	51,008	1.31	610	1.18	0.03	11.83	25.79	40.59	3.16	0.85
Total	Indicated	All	101,169	1.30	1,264	1.25	0.06	19.39	16.90	36.26	5.06	1.39
Total	Measured + Indicated	All	119,337	1.30	1,525	1.27	0.06	18.91	16.99	36.81	5.11	1.36
		Limonite	2,751	1.37	30	1.08	0.10	34.92	3.04	22.84	9.23	2.50
Subtotal	Inferred	Transition	4,771	1.20	62	1.30	0.07	21.23	11.04	39.09	5.62	1.40
		Saprolite	5,398	1.35	62	1.15	0.03	11.80	24.36	41.81	3.69	0.82
Total	Inferred	All	12,920	1.30	154	1.19	0.06	20.21	14.90	36.77	5.58	1.39

Notes:

1. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate and have been used to derive subtotals, totals and weighted averages. Such rounding consequently introduces a small margin of error. Where these occur, Snowden does not consider them to be material.
2. Mineral Resources are reported inclusive of Mineral Reserves.
3. The reporting standard adopted for the reporting of the Mineral Resource estimate uses the terminology, definitions and guidelines given in the CIM Standards on Mineral Resources and Mineral Reserves (May 2014) as required by NI 43-101.
4. Mineral Resources are reported on 100% basis for all Project areas.
5. Snowden completed a site inspection of the deposit by Mr Andrew Ross FAusIMM, who is an "independent Qualified Person" as defined in NI 43-101.
6. kt = thousand tonnes.

ANP Mineral Reserves

Mineral Reserves, which are inclusive of the identified economic portion of the Mineral Resources described above, were prepared by Snowden for the Project as part of the ANP FS. The CIM terms "Mineral Reserve", "Probable Mineral Reserve" and "Proven Mineral Reserve" have the meanings ascribed to those terms by the Canadian Institute of Mining, Metallurgy and Petroleum, as the CIM Definition Standards on Mineral Resources and Mineral Reserves, as adopted by CIM Council, as amended 2014. As provided for under the NI 43-101 instrument, Snowden has used an acceptable foreign code as the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" as the JORC 2012 Edition for the ANS and ANN Mineral Reserve estimates.

All economic Indicated Mineral Resources within the ANP pit designs were classified as Probable Mineral Reserves and all Measured Mineral Resources at Pequizeiro (ANS) were classified as Proven Mineral Reserves (this classification was tested and supported by the trial mining program completed in this pit in 2017). Measured Mineral Resources at Vale dos Sonhos (ANN) were classified as Probable Mineral Reserves. A summary is provided in Table 3. The Mineral Reserve of 27.2 Mt gives a mine life of 28 years based on the annual ore throughput to the RKEF plant of 900,000 t/a.

Table 3 ANP Open Pit Mineral Reserves reported at October 2018

Category	Ore (Mt)	Ni (%)	Fe (%)	SiO_2:MgO	Al_2O_3 (%)
Proven	7.33	1.72	16.01	3.01	6.00
Probable	19.96	1.68	17.57	2.36	4.56
Total	**27.29**	**1.69**	**17.15**	**2.52**	**4.94**

Notes

1. Mt – million dry metric tonnes.
2. A variable cut-off strategy was used based on the economics of each block.
3. Dilution was modelled as part of re-blocking, ore losses applied are 8%.
4. The reporting standard adopted for the reporting of the Mineral Reserve estimate uses the terminology, definitions and guidelines given in the CIM Standards on Mineral Resources and Mineral Reserves (May 2014) as required by NI 43-101.
5. Snowden completed a site inspection on three occasions between March 2016 and May 2017 by Mr Frank Blanchfield, B Eng., FAusIMM, an appropriate "Independent Qualified Person" as such term is defined in NI 43-101.

ANP Mining

The deposits will be mined via conventional open-pit truck and shovel techniques using contractors. No blasting will be necessary. Reverse circulation ('RC') grade control drilling will be completed at a 10 m x 10 m spacing well ahead of mining. This combined with the use of visual control of the limonite and transition boundary, face sampling, stockpile sampling and ore feed sampling, supports a comprehensive mine-to-mill strategy that is designed to maintain consistent feed to the process plant.

Waste will be stored in external dumps near the pits. Ore will be transported to stockpile hubs near each deposit. Sheeting (using ferricrete won from the overburden) will be required to support trafficability in and around the mine during the wet season. Depending on plant demand, ore will be hauled from hub stockpiles or directly from the pits to the run of mine ('ROM') at the RKEF process facility. Stockpiles on the ROM will be sheeted and classified according to ore type and chemistry for blending.

The ANP resource model was converted to a mining model to reflect the mining method and incorporated anticipated mining dilution and loss. The model was re-blocked to 6.25 m x 6.25 m x 2 m, with a 300 mm "skin" of transition (directly beneath the limonite boundary) treated as a loss.

The ANP pits were optimised to target the highest-grade material giving a mine life of approximately 28 years. This resulted in a cut-off grade of 1.4% Ni being applied. The pits were then optimised using Whittle 4X to determine a shell to use for design.

The annual mining rate peaks at 3.5 Mt/annum between production years two and seven before dropping down to 3.0 Mt/annum for the remainder of the Project.

The mine supplies high nickel grades in the early mine life, reaching 2% in production year 2. The Ni grade is above 1.8% for the majority of the first 10 years of production and reduces to an average of approximately 1.6% Ni for the remaining mine life.

ANP Processing

The ANP process plant design, along with capital and operating cost estimates were completed by Ausenco Engineering Canada Inc ('Ausenco'). Ausenco is a global diversified engineering, construction and project management company providing consulting, project delivery and asset management solutions to the resources, energy and infrastructure sectors.

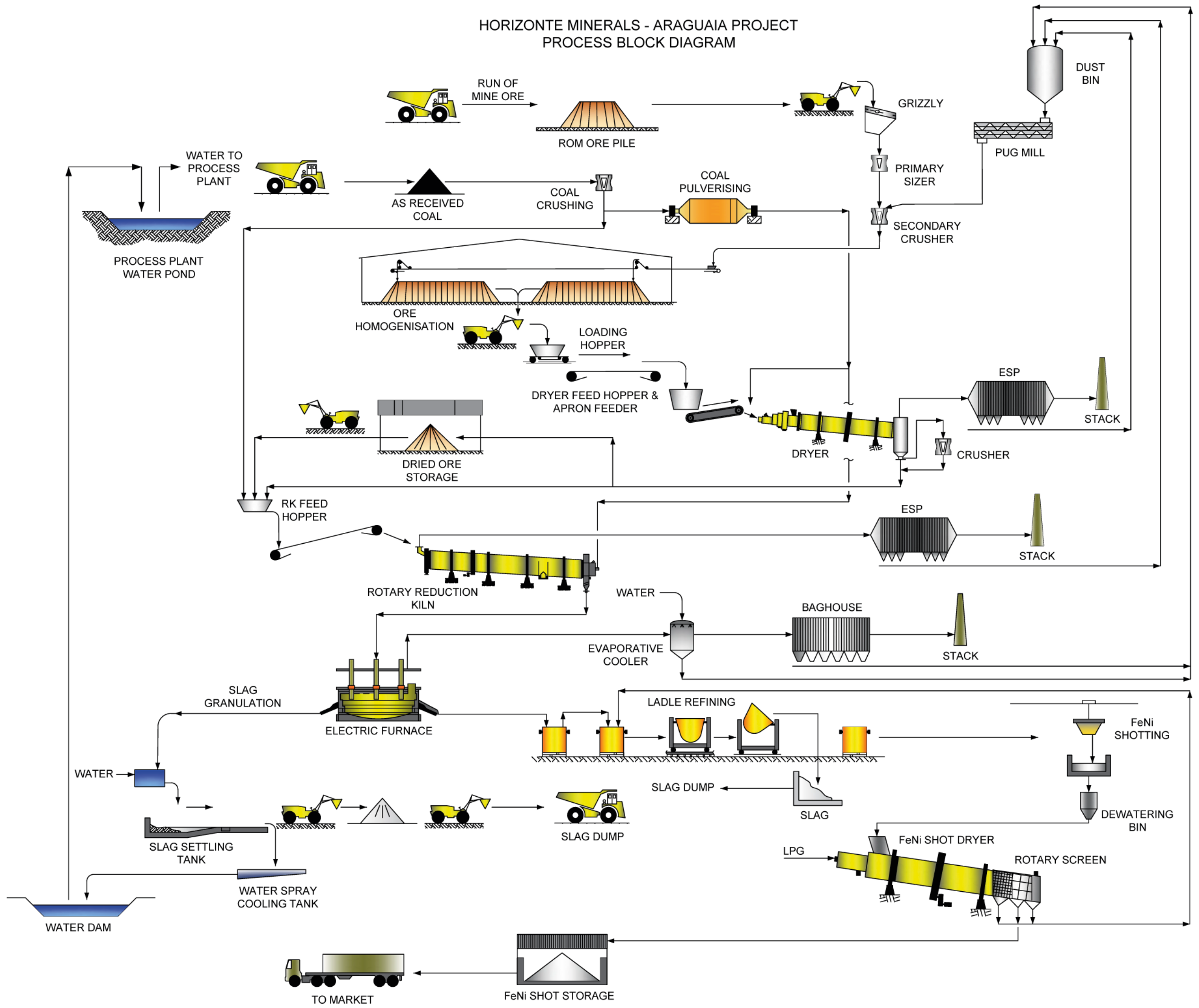
The Project will utilise a single RKEF processing line from ore receipts through to shotting of the FeNi product.

The RKEF process is proven and used successfully in over 40 nickel laterite plants around the world and was deemed appropriate for the Project based on the extensive metallurgical test work and the pilot plant campaigns completed on the ore.

The key steps in the RKEF flowsheet are (Figure 1);

- ROM ore, at an average moisture content of 34%, is first blended to meet metallurgical processing requirements, then transported to the primary crushing stage. Here the ore is sized using two stages of crushing to match the requirements of the subsequent steps. A mineral sizer with a 200 mm gap is used for primary sizing, while a mineral sizer with a 50 mm gap is used for the final stage
- The ore is then homogenised, partially dried and agglomerated to an average moisture content of 18% in a rotary dryer (4.5 m diameter x 40 m long) and fired with pulverized coal
- The dried agglomerated ore is then fed to the rotary kiln with the addition of reductant coal. In the kiln, the ore is completely dried, calcined to remove chemically combined moisture, and the iron and nickel oxides are partially pre-reduced. Kiln dust is recycled to the process at the primary crushing stage ahead of the dryer/agglomerator
- Calcine from the kiln is then transferred to the electric furnace where further reduction of the nickel and iron occurs, melting and separation of the metal and slag occurs at high temperature. Slag is tapped at a temperature of around 1,575°C, while FeNi metal is tapped at a temperature of close to 1,500°C
- After tapping, the melt is transferred by ladle to the refining stage. The final FeNi product containing 30% Ni is shotted with water, screened, dried and stockpiled before dispatch to the port on trucks where it is either bagged or loaded bulk into sea containers for shipping to customers
- The electric furnace slag is granulated and transferred to the slag repository by truck

Figure 1 ANP process flow diagram showing the RKEF steps



ANP FS Financial Evaluation

FS Capital Cost

The FS estimate is based on the AACE class 3 with an accuracy range between -10% and +15% of the final project cost (excluding contingency) with a base date of October 2018. All amounts expressed are in US dollars unless otherwise stated.

The FS capital costs estimate ('capex') includes all the direct and indirect costs, local taxes and duties and appropriate contingencies for the facilities required to bring the Project into production, including the process plant, power line, water pipelines and associated infrastructure as defined by the FS. The estimate is based on an Engineering Procurement and Construction Management ('EPCM') implementation approach and the Project contracting strategy.

The total estimated initial (pre-production) capital cost for the project is US$443.1 million (after-tax, including growth and contingency, excluding escalation). A summary of the capex is shown in Table 4

Table 4: Summary of FS capex for ANP

WBS #	**Area**	**US$'000**
1000	Mine	6,003
3000	Ore Preparation	38,731
4000	Pyrometallurgy	137,518
5000	Material Supply	21,413
6000	Utilities and Infrastructure	106,918
7000	Buildings	9,095
8000	Indirect Costs	82,409
	Contingency	40,989
Total Costs		**443,076**

The direct costs in Table 4 include supply, shipping and site installation. The total contingency carried in the capex is US$41.0 million, which combined with the US$24.3 million growth allowance included in the direct costs provides a total provision of US$65.3 million. This combined sum represents 17.2% of the total capex (excluding growth and contingency).

FS Operational costs

The FS mining and operating cost estimate ('opex') was calculated for an operation producing 14,500 t Ni per annum and is set out as an annual total and US$/t Ni in Table 5 (below), calculated as an average over the Life of Mine ('LOM'). The operating costs cover the mine, process plant, ore preparation, social and environmental, royalties and general and administrative overheads. The main contributors of the overall operating costs are power, coal, labour and mining costs, with additional consumables and other indirect costs, including G&A.

Table 5 ANP FS operating cost estimate

Description	Cost/annum (US$)	US$/t nickel
Process Plant		
Directs		
Power	32,114,355	2,410
Coal	21,591,099	1,620
Other directs	17,965,039	1,348
Labour	7,831,286	588
Subtotal – Direct costs	**79,501,779**	**5,966**
Indirect costs	**10,285,640**	**772**
Mining costs	**21,112,173**	**1,584**
Total costs	**110,899,592**	**8,322**

ANP FS Summary Economics

The FS financial model developed assumes 100% equity. The base case was developed using a flat nickel price of US$14,000/t Ni. An alternative case was prepared using a market consensus price of US$16,800/t Ni. The alternative represents the upside scenario.

As shown in Table 6, the pre-taxation model for the base case at the ANP has a 4.2-year payback period with cumulative gross revenues of US$5,970 million. The economic analysis indicates a pre-tax NPV_8 of US$456million and an IRR of 21.2% using the base case forecast of US$14,000/t Ni.

Table 6 ANP FS economic performance (pre-taxation)

		Nickel price basis (US$/t Ni)	
Item	Unit	Base (14,000)	CIBC (16,800)
Net cash flow	US$M	1,834	3,208
NPV_8	US$M	456	840
IRR	%	21.2	29.9
Breakeven (NPV_8) Ni price	US$/t	10,672	10,672
C1 Cost (Brook Hunt)	US$/t Ni	8,193	8,193
Production year payback	years	4.2	3.3
Total revenue	US$M	5,970	7,164
Total costs	US$M	4,137	4,137
Operating cash flow	US$M	2,421	3,616

ANP FS Sensitivity Analysis

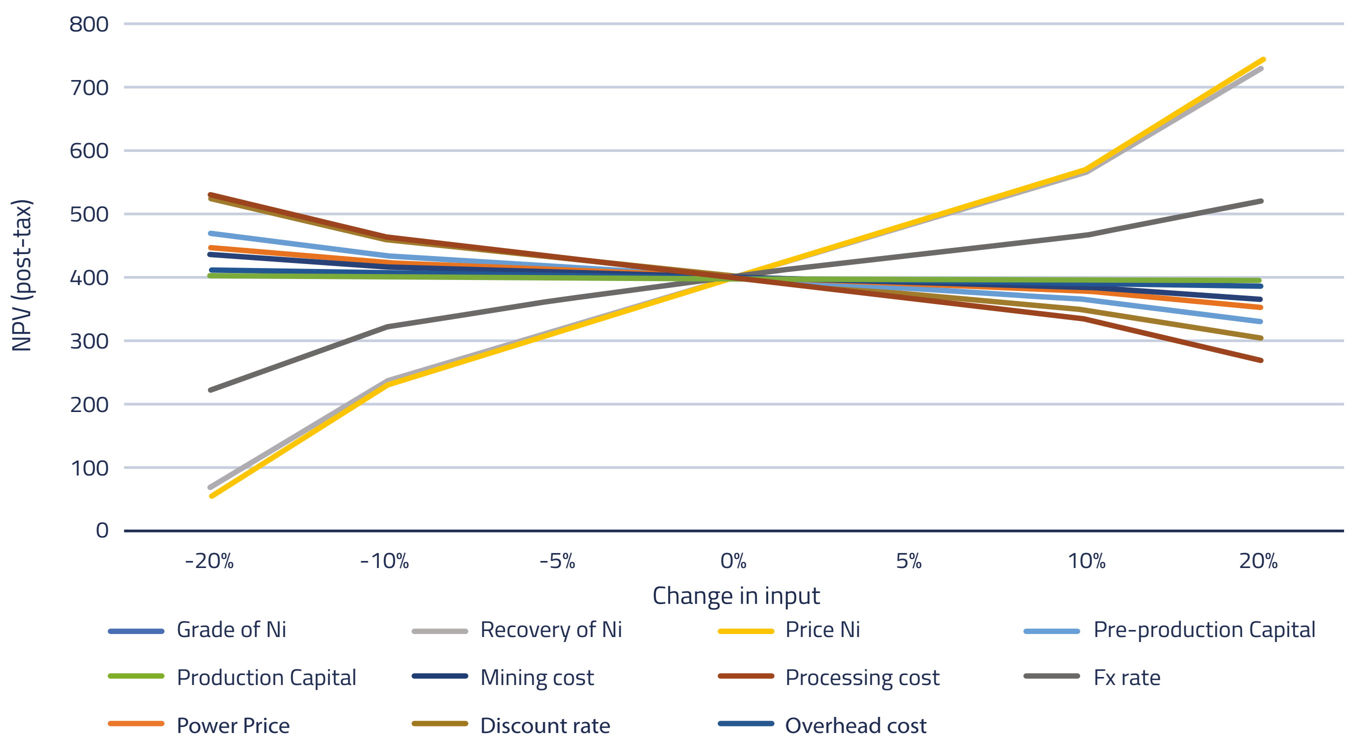
A sensitivity analysis was completed as part of the FS that demonstrates how the NPV_8 is affected by changes to one variable while holding the other variables constant. The results of the sensitivity analysis are presented in Table 7 and Figure 2. The breakeven ('B/E') indicates the change in the variable that will bring the project NPV_8 to US$0.000 if all other variables remain unchanged. For example, if the grade of Ni reduces by 23.7% the Project will break even on NPV_8.

Table 7 ANP FS sensitivity table for the base case (US$14,000/t) NPV_8, after taxation

	-20%	**-10%**	**-5%**	**0%**	**5%**	**10%**	**20%**	**B/E**[1]
Grade Ni	65	234	317	401	483	566	731	-23.7%
Recovery Ni	65	234	317	401	483	566	731	-23.7%
Price Ni	56	230	315	401	485	570	740	-23.1%
Pre-production capital	469	435	418	401	383	366	331	110.2%
Production capital	403	402	401	401	400	399	397	—
Mining cost	436	418	409	401	391	383	365	222.6%
Processing cost	531	466	433	401	367	335	269	59.8%
US$/BRL FX rate	222	321	363	401	434	465	519	-35.4%
Electricity price	447	424	412	401	389	377	353	167.2%
Discount factor	524	458	428	401	374	349	304	151.3%
Overhead cost	414	407	404	401	397	393	386	—

1. The breakeven change for the variable if all other variables remain unchanged. For example, if the grade of Ni reduces by 23.7% the Project will break even on NPV_8.

Figure 2: ANP FS sensitivity to NPV_8 for changes in various key inputs



The FS sensitivity analysis shows that the Project is more sensitive to nickel price, nickel recovery and grade than it is to either opex or capex.

ANP Market Review and Nickel Pricing

A market study was provided by Wood Mackenzie (WM), a global natural resource research and consulting company, with a speciality in the nickel industry. WM's findings are summarised below.

The world nickel demand was forecast to increase by 3.6% in 2018, to 2.26 Mt before slowing to a compound annual growth rate of 2.1% a year, reaching 2.61 Mt in 2025. Growth over the long term is slightly stronger, at 2.5% a year, to 3.35 Mt in 2035, due to increasing uptake by the battery segment (for electric vehicles). Over this period, primary nickel uptake in stainless will account for 50–70% of total demand, rising from 1.54 Mt in 2018 to 1.66 Mt in 2025, and 1.77 Mt in 2035.

Thus, with an outlook for nickel of structural shortage, deepening deficits and falling stocks, nickel prices are expected to continue to increase above their recently established range of US$12,500/t to US$15,000/t (US$5.90 to US$6.80/lb). A near term forecast for the FS is, therefore, US$14,000/t (US$6.35/lb). For comparison, WM's long-term incentive price currently stands at about US$26,450/t (US$12.00/lb).

The composition of ANP FeNi30 is comparable to the existing FeNi30 being produced. Consequently, there is no impediment (based on the elemental breakdown provided) to the proposed FeNi30 product being acceptable to the stainless steel market.

World stainless steel production increased by 12 Mt between 2012 and 2017, mostly in China and to a lesser extent across the rest of Asia. Production in 2018 was 50.7 Mt, up 4.5% from 2017. This upward trend is likely to continue over the mid-term, before slowing after 2025. As future growth in stainless production is expected to continue, the demand for FeNi (including FeNi30) should also increase. Consequently, WM forecasts long term FeNi production to be 450,000–460,000 a year, compared with 433,000 in 2018. This suggests there could be a need for the development of new FeNi projects in the future.

ANP Community and Environment

The ANP FS sets out key environmental and social risks and impacts and how the Company plans to minimise, manage and mitigate them and then monitor performance. This will be primarily achieved through a system of Environmental Control Plans, to be implemented before, during and after construction to meet Brazilian and international standards.

The Company worked with Environmental Resource Management ('ERM'), a global leader in this field, together with local Brazilian groups: Integratio Mediação Social e Sustentabilidade (social and land) and DBO Environmental Engineering (fauna) for the FS environmental and social work streams and the project permitting. All FS work was undertaken to IFC Performance Standards, 1, 2 and 5 and Brazilian CONAMA (environmental) legislation.

The groups have conducted several new studies in 2017 and 2018 together with ongoing programs, these include:

- Environmental Control Plans - elaboration and detailing of socio-environmental programs
- Inventories of fauna and flora
- Air dispersion modelling
- Hydrogeological modelling and water balance
- Visits by physical, biological and social analysts to site
- Air, noise and water monitoring – ongoing as part of baseline data build up into the construction and operational phase

ANP will generate approximately 500 direct and indirect jobs in the south-eastern rural area of Pará State, over the 28 years of operations. The majority of these workers during the operational phase will reside locally. The peak construction workforce is expected to reach over 1,000.

Social contributions are expected to total over US$700 million during the LOM, including:

- Over US$400 million in corporate taxes
- Over US$280 million in employee and contractor wages

Vermelho Nickel-Cobalt Project (VNP)

A Prefeasibility Study (PFS) was completed by Snowden in October 2019. The term "Prefeasibility Study" has the meaning ascribed by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), as the CIM Definition Standards on Mineral Resources and Mineral Reserves adopted by CIM Council, as amended. Under CIM guidelines, the Project is considered to be a "development property" – a property that is being prepared for mineral production and for which economic viability has been demonstrated by a PFS.

VNP Project Summary

The VNP is located in the north-western Brazilian state of Pará in the Carajás municipality, approximately 200 kilometres ('km') north-west of the Company's 100% owned Araguaia Project.

The VNP PFS proposes a planned 38-year operation with an open-pit nickel laterite mining operation that mines a 141.3 million tonne (Mt) Probable Mineral Reserve (at a cut-off of 0.7% Ni) to produce 924,000 tonnes of nickel contained in nickel sulphate, 36,000 tonnes of cobalt contained in cobalt sulphate and a saleable by-product, kieserite (a form of fertiliser) of which 4.48 Mt are produced. The project will utilise a hydro-metallurgical process comprised of a beneficiation plant where ore is upgraded before being fed to a High-Pressure Acid Leach (HPAL) and refining Plant which produces the sulphates. The plant is proposed to be constructed in two phases, with an initial capacity of 1 Mt per annum (Mt/a) autoclave feed (Stage 1), then after three years of production, a second process train (Stage 2 Expansion) will be constructed effectively doubling the autoclave feed rate to 2 Mt/a. The Stage 1 plant and project infrastructure will be constructed over 31 months. The nickel and cobalt sulphate products will be transported by road to the port of Vila do Conde (the same facility planned for Araguaia) for sale to overseas customers. The kieserite will be transported to consumers within Pará state.

The engineering has been developed for the process plant, mining, infrastructure and utilities to capex and opex estimates to an Association for the Advancement of Cost Engineering (AACE) class 4 standard. This means that capex and opex estimates have a combined accuracy of between -25% and +20% at a confidence level of 50%. The capex and opex are dated Q2 2019 and are exclusive of future escalation.

The results of the VNP PFS demonstrate positive economics for the project (Table 8, below).

Table 8 VNP Key PFS Economic Indicators (post taxation)

Item	Unit	Nickel price basis (US$/t Ni)** Base Case 16,400	Long Term 19,800
Net cash flow	US$ M	7,304	9,546
NPV_8	US$ M	1,722	2,373
IRR	%	26.3%	31.5%
Breakeven (NPV_8) nickel price	US$/t	7,483	7,483
C1 cost (Brook Hunt)	US$/t Ni	8,029	8,029
C1 cost (Brook Hunt) years 1–10	US$/t Ni	7,286	7,286
Production year payback	years	4.2	3.6
LOM nickel recovered	kt	924.0	924.0
LOM cobalt recovered	kt	46.61	46.61
LOM kieserite produced	kt	4,482	4,482
LOM Total revenue	US$ M	19,034	22,175
LOM Total costs	US$ M	11,729	12,629
Operating cash flow	US$ M	8,451	10,693
Capital intensity – initial capex/t Ni	US$/t Ni	635	635

Note: ** US$2,000/t premium for battery sulphate production has been added to Nickel revenue, US$34,000/t for the cobalt produced as cobalt sulphate, and net revenue of US$100/t of the by-product, kieserite.

The VNP PFS economic model assumes 100% equity, providing the opportunity for increased returns leveraging commercial or other debt. The base case was developed using a flat nickel price of US$16,400/t Ni. An alternate case using the WM long term Nickel price of US$19,800/t Ni was also developed

As shown in Table 8 (above), for the base case the project has a 4.2-year payback period with cumulative gross revenues of US$19,034 million. The economic analysis indicates a post-tax NPV_8 of US$1,722 million and an IRR of 26.3% using the base case forecast of US$16,400/t Ni, this increases to US$2,373 million and 31.5% when using the Wood Mackenzie long term price of US$19,800/t Ni.

VNP Resources / Reserves and Mining

The VNP deposits consist of two hills named V1 and V2 (after Vermelho 1 and Vermelho 2), aligned on a northeast-southwest trend, overlying ultramafic bodies. A third ultramafic body, named V3, also located in the same trend lies on flat terrain, southwest of V2. The ultramafic bodies have had an extensive history of tropical weathering, which has produced a thick profile of nickel-enriched lateritic saprolite at V1 and V2.

The Vermelho area was explored in various stages by Companhia Vale do Rio Doce ('Vale') from 1974 to 2004 involving approximately 152,000 m of combined drilling and pitting. The drilling density was substantially enhanced from 2002 to 2004, with the majority of the resource upgraded to the Measured category as defined in JORC (2004) and CIM Definition Standards (2014). Pilot plant metallurgical studies were conducted in Australia focused on the HPAL processing method. A PFS was prepared in 2003, and a Feasibility Study ('FS') was completed in August 2004 by GRD-Minproc (2005). This study confirmed the positive economics supporting the outcomes obtained in previous studies and showed a production capacity of 46,000 tonnes per annum (t/a) of metallic nickel, and 2,500 t/a of metallic cobalt. The project was given construction approval in 2005 however later that year Vale elected to place the Project on hold after Vale acquired Canadian nickel producer Inco.

VNP Mineral Resources

Snowden Mining and Industry Consultants ('Snowden') were commissioned by Horizonte to produce the Geology and Mineral Resources sections of the PFS for the Project.

Within the mining licence, at a cut-off grade of 0.7% Ni, a total of 140.8 Mt at a grade of 1.05% Ni and 0.05% Co is defined as a Measured Mineral Resource and a total of 5.0 Mt at a grade of 0.99% Ni and 0.06% Co is defined as an Indicated Mineral Resource. This gives a combined tonnage of 145.7 Mt at a grade of 1.05% Ni and 0.05% Co for Measured and Indicated Mineral Resources. A further 3.1 Mt at a grade of 0.96% Ni and 0.04% Co is defined as an Inferred Mineral Resource at a cut-off grade of 0.7% Ni.

The Mineral Resource is summarised in Table 9, below.

Table 9 VNP Mineral Resource above 0.7% Ni cut-off within the mining licence

Classification	Tonnage (Mt)	Ni %	Ni metal (kt)	Co %	Co metal (kt)	Fe_2O_3 %	MgO_2 %	SiO_2 %
Measured	140.8	1.05	1,477	0.05	74.6	31.1	11.3	41.0
Indicated	5.0	0.99	49	0.06	2.8	26.3	8.6	49.0
Measured + Indicated	145.7	1.05	1,526	0.05	77.3	30.9	11.2	41.3
Inferred	3.1	0.96	29	0.04	1.4	24.0	15.5	42.2

Notes

1. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate and have been used to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, Snowden does not consider them to be material.
2. Mineral Resources are reported inclusive of Mineral Reserves.
3. The reporting standard adopted for the reporting of the Mineral Resource estimate uses the terminology, definitions and guidelines given in the CIM Standards on Mineral Resources and Mineral Reserves (May 2014) as required by NI 43-101.
4. Mineral Resources are reported on a 100% basis for all Project areas.
5. Snowden completed a site inspection of the deposit by Mr Andy Ross FAusIMM, an appropriate "independent qualified person" as such term is defined in NI 43-101.
6. kt = thousand tonnes (metric).

VNP Mineral Reserves

Snowden Mining and Industry Consultants ('Snowden') were commissioned by Horizonte to produce the Mining and Mineral Reserves sections of the PFS for the Project.

Mineral Reserves were produced in accordance with the CIM Definition Standards (2014). These standards state that Mineral Reserves are classified as either "Probable" or "Proven" Mineral Reserves and are based on Indicated and Measured Mineral Resources only in conjunction with the estimation of Mineral Resource and Mineral Reserve best practice guidelines as provided by the CIM. No Mineral Reserves have been estimated using Inferred Mineral Resources.

All economic Measured and Indicated Resources within the pit designs were classified as Probable Reserves. A summary of the Mineral Reserves is provided in Table 10, below

Table 10 VNP Open pit Mineral Reserves reported as of October 2018

Value	Probable
Ore (Mt)	141.3
Ni (%)	0.91
Co (%)	0.052
Fe (%)	23.1
Mg (%)	3.81
Al (%)	0.79

Notes

1. *Cut-off varies by resource model block depending on individual block geochemistry, however, as a guide, the cut-off is approximately 0.5% Ni.*
2. *Snowden completed a site inspection of the deposit on four occasions between March 2017 and September 2019 by Mr Anthony Finch B Eng, B Econ, P. Eng. MAusIMM (CP Min.), an appropriate "independent qualified person" as such term is defined in NI 43-101.*

VNP Mining

Mining at VNP is planned to be undertaken with conventional open-pit truck and excavator mining methods. Blasting will be necessary for the upper parts of the deposit. Waste overburden will be stripped on 4 m benches and ore on 2 m benches for additional selectivity.

Reverse circulation ('RC') grade control drilling will be completed at 12.5 m x 12.5 m spacing to define the waste/ore/ore type boundary ahead of mining.

Waste will be stored in dumps adjacent to the pits. Ore will be transported to the run of mine ('ROM') stockpile near the processing plant or the low-grade stockpiles for later processing

Due to the wet season, mining (including stockpile rehandling) will be reduced between October and March (as is standard practice in the region). It was assumed that a fleet of Scania G500 8x4 22 m3 heavy tippers will be used as part of the fleet and coarse beneficiation rejects will be used as sheeting, to mitigate trafficability issues.

The mine production schedule targeted a processing rate of 1 Mt/a HPAL feed for the first three years and a doubling in capacity thereafter to 2 Mt/a. To facilitate this, ROM feed of approximately 2.25 Mt/a to 4.5 Mt/a is required as well as an acid production capacity of 350 kt/a to 700 kt/a.

The annual mining rate starts at 8 Mt/a and peaks at 12 Mt/a between production years 5 and 11 during which time a large ore stockpile is developed for subsequent depletion later in the project life. Strip ratios for the deposit are extremely low (0.14 Waste:Ore) consequently waste dumps are relatively small.

The mine supplies higher-grade ore in the early mine life to the HPAL circuit, reaching up to 2% Ni and 0.1% Co in the first four production years. The HPAL feed grade (after beneficiation) is above 1.5% Ni and 0.08% Co for the majority of the first 17 years of production and decreases over the remaining LOM as feed is sourced from large lower grade stockpiles that are to be developed in the early years and are processed in the later years.

VNP Processing

The process plant design, along with capital and operating cost estimates were completed by Simulus (Engineers) Pty Ltd, Perth Australia ('Simulus'). Simulus is a specialist in nickel and cobalt laterite project metallurgical test work, piloting and process design.

The process selected for the Project is the production of a nickel and cobalt sulphate product via HPAL, mixed sulphide precipitation ('MSP'), pressure oxidation leaching ('POX'), cobalt solvent extraction ('CoSX') and crystallization. Before the HPAL process, barren free silica is removed from the ore via a beneficiation process that involves crushing, scrubbing, washing and separation by screening and hydro-cyclones. To avoid the accumulation of magnesium sulphate in the recycled process water, a portion is sent to the Kieserite (magnesium sulphate monohydrate, $MgSO_4 \cdot H_2O$) crystallization area where Kieserite is recovered and crystallised for potential sale as fertiliser.

The process plant has been designed to process 4.34 Mt/a of ROM ore at 1.07% Ni. Of this total feed, 2.34 Mt/a is rejected as coarse, low-grade siliceous waste from the beneficiation plant. The 2 Mt/a beneficiated product at 1.85% Ni grade is then fed to the HPAL processing plant as upgraded feed (1 Mt/a per train). A common refining circuit treats the MSP produced from each train via POX, CoSX and crystallization.

The proposed process plant has been designed to recover 94.4% and 94.9% of nickel and cobalt from the HPAL feed at an acid consumption of 347 kg/t. The nickel and cobalt sulphate products are of high purity suitable for sale directly into the battery market. The Kieserite by-product is of appropriate quality to be sold to the local fertiliser market.

Extensive metallurgical test work and process design were undertaken on the Project by the former owner, Vale, at scoping, pre-feasibility and feasibility stages included drilling and pitting programs totalling 152,000 m, variability batch test work, full-scale pilot test work and detailed engineering studies. A five-year, exhaustive, metallurgical test work and pilot plant program demonstrated that a high degree of mined ore upgradable using a simple beneficiation process is possible. The resultant feed delivered 96% average leach extraction for nickel and cobalt via HPAL technology.

Additional test work has been completed by the current Project owner, HZM, during 2018 and 2019. This test work on selected samples from Vermelho validated the potential to produce high-grade sulphate products using the HPAL process.

The 6,000 plus samples totalling over 160t used for the Vale PFS and the Vale Final Feasibility Study (FFS) piloting were large diameter drill core and were representative (geographically, of depth, ore type and by lithology). Additionally, 10% of the samples (1 m from every 10 m) was used for variability testing so piloting and variability was related.

The processing plant consists of the following main process unit operations:

- Beneficiation
- HPAL
- Slurry neutralization and residue filtration
- MSP
- POX
- Impurity removal
- CoSX
- Nickel sulphate crystallization
- Cobalt sulphate crystallization
- Acid liquor neutralization
- Kieserite crystallization
- Sulphuric acid plant
- Reagents and utilities.

VNP PFS Financial Evaluation

VNP PFS Capital Cost

The VNP PFS Capex summary is shown in Table 11, below.

Table 11 VNP PFS Capex Summary

Capital cost component	Initial (US$ M)	Train 2 (year 3) (US$ M)	Remainder (US$ M)	LOM (US$ M)
Process plant	575.06	446.68		1,021.74
Mining pre-production	10.78	—		10.78
Tailings and sediment	24.12	—		24.12
Pumping	2.34	—		2.34
Powerline	14.16	—		14.16
Road	2.59	—		2.59
Permitting and land acquisition	23.19	—		23.19
Mining sustaining	—	—	21.58	21.58
Other sustaining (including land permitting and land)	—	—	1.33	1.33
Closure	—	—	29.37	29.37
TOTAL	**652.24**	**446.68**	**52.28**	**1,151.20**

The costs in Table 11 include all direct and indirect costs including owner costs, supply, shipping and site installation. The total contingency carried in the capex is US$97.7 million, this represents 18% of the initial capex (excluding contingency) and 25% of the plant direct costs.

VNP PFS Operational costs

The PFS opex estimate is shown in Table 12 (below) which represents the average over the LOM; actual costs for these vary from year to year depending on the fixed and variable costs as well as sustaining capital requirement for the given year. The operating costs cover the mine, process plant, ore preparation, social and environmental, royalties and general and administrative costs. The main contributors of the overall operating costs are power, sulphur, (for acid and power production) labour and mining costs, with additional consumables and other indirect costs, including G&A.

Table 12 VNP PFS opex summary (average)

Area	LOM total (US$ M)	US$/t nickel	US$/t ore	Average annual (US$ M)
Mining	981	1,062	6.94	25.81
Rejects and tails handling	414	448	2.93	10.89
Processing costs	5,785	6,261	40.93	152.23
Royalties (CFEM)	23	25	0.16	0.60
Royalty (Vale)	66	72	0.47	1.74
G&A and other costs	215	233	1.52	5.67
SHE	24	26	0.17	0.63
TOTAL	7,508	8,127	53.12	197.57

VNP PFS Summary Economics

The VNP PFS financial model is based on 100% equity. The Base Case was developed using a flat nickel price of US$16,400/t Ni for LOM. The second case was prepared; using the WM long term price of US$19,800/t Ni.

The revenue breakdown by product is shown in Table 13.

Table 13 VNP PFS LOM Revenue by product

Revenue by product	LOM Revenue (US $M)**	% of total
Ni Sulphate	17,001	89%
Co Sulphate	1,585	8%
Kieserite	448	2%
	19,034	100%

Note: ** A US$2,000/t Ni premium for battery sulphate production has been added to Nickel revenue, US$34,000/t for the cobalt produced as cobalt sulphate, and net revenue of US$100/t of the by-product, kieserite

As shown in Table 14, the post taxation model for the Base Case has a 4.2-year payback period with cumulative gross revenues of US$19,034 million. The economic analysis indicates a post-tax NPV_8 of US$1,722million and an IRR of 26.3% using the Base Case of US$16,400/t Ni. These figures increase to US$2,373 million and 31.5% when using the Wood Mackenzie long term price of US$19,800/t Ni.

Table 14 VNP Key PFS economic indicators (post taxation)

		Nickel price basis (US$/t Ni)**	
Item	**Unit**	**Base Case 16,400**	**Long Term 19,800**
Net cash flow	US$ M	7,304	9,546
NPV_8	US$ M	1,722	2,373
IRR	%	26.3%	31.53%
Breakeven (NPV_8) nickel price	US$/t	7,483	7,483
C1 cost (Brook Hunt)	US$/t Ni	8,029	8,029
C1 cost (Brook Hunt) years 1–10	US$/t Ni	7,286	7,286
Production year payback	years	4.2	3.6
LOM nickel recovered	kt	924.0	924.0
LOM cobalt recovered	kt	46.61	46.61
LOM kieserite produced	kt	4,482	4,482
LOM Total revenue	US$ M	19,034	22,175
LOM Total costs	US$ M	11,729	12,629
Operating cash flow	US$ M	8,451	10,693
Capital intensity – initial capex/t Ni	US$/t Ni	635	635

Note: ** US$2,000/t premium for battery sulphate production has been added to Nickel revenue, US$34,000/t for the cobalt produced as cobalt sulphate, and net revenue of US$100/t of the by-product, kieserite.

VNP PFS Sensitivity Analysis

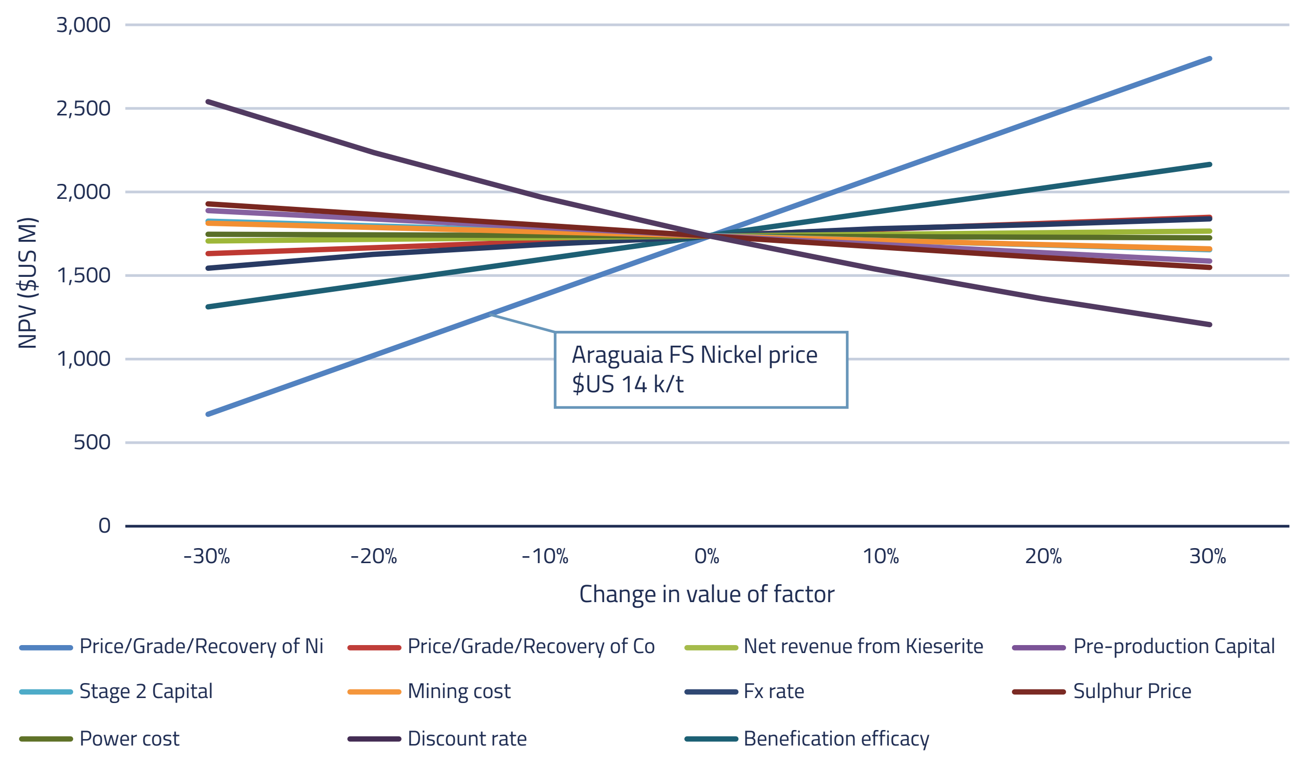
The PFS sensitivity analysis demonstrates how the NPV_8 is affected by changes to one variable while holding the other variables constant. The results of the sensitivity analysis are presented in Table 15 and Figure 3.

Table 15 VNP PFS Sensitivity table for the Base Case (US$16,400/t**) NPV_8, after taxation

Sensitivity parameter	-30%	-20%	-10%	0%	10%	20%	30%
Price/Grade/Recovery of Ni	661	1,016	1,369	1,722	2,074	2,427	2,779
Price/Grade/Recovery of Co	1,617	1,652	1,687	1,722	1,757	1,792	1,827
Net revenue from Kieserite	1,693	1,703	1,712	1,722	1,731	1,741	1,751
Pre-Production Capital	1,873	1,823	1,772	1,722	1,671	1,621	1,570
Stage 2 Capital	1,802	1,775	1,749	1,722	1,695	1,668	1,642
Mining Cost	1,799	1,773	1,748	1,722	1,696	1,670	1,645
Fx rate	1,535	1,613	1,674	1,722	1,761	1,794	1,821
Sulphur Price	1,911	1,848	1,785	1,722	1,659	1,596	1,532
Power cost	1,735	1,730	1,726	1,722	1,718	1,713	1,709
Discount rate	2,523	2,217	1,952	1,722	1,521	1,345	1,189
Beneficiation efficacy	1,298	1,439	1,581	1,722	1,863	2,004	2,146

Note: ** US$2,000/t premium for battery sulphate production has been added to Nickel revenue, US$34,000/t for the cobalt produced as cobalt sulphate, and a net revenue of US$100/t of the by-product, kieserite.

Figure 3 VNP PFS NPV_8 Sensitivity chart



Please see the image in the full version of the announcement at www.horizonteminerals.com

The sensitivity analysis shows that the Project is more sensitive to nickel price, nickel recovery and grade than it is to either opex or capex.

VNP Market Review and Nickel Pricing

In June 2019, HZM commissioned Wood Mackenzie (WM) to develop a report on the market for nickel sulphate. As a consequence of that report, the following assumptions with respect to commodity pricing were used in the PFS.

- The consensus nickel price of US$16,400/t (US$7.44/lb) was used in the Base Case for the PFS along with a US$2,000/t (US$0.91/lb) nickel sulphate product premium. The nickel sulphate premium is driven by the battery market (where nickel sulphate is valued higher than class 1 nickel) and is supported by very strong growth in the EV car market. The US$2,000/t (US$0.91/lb) sulphate premium is the average value realised in the market over the last 12 months. The Wood Mackenzie long-term price currently stands at approximately US$19,800/t (US$8.98/lb); this was used as an alternative case for the PFS. A fixed price for nickel was applied over the LOM. The Qualified Person has reviewed the above and consider that the results support the assumptions in this Technical Report.
- The cobalt price assumption of US$34,000/t (US$15.43/lb) used in this study is significantly below the long-term consensus bank/broker forecasts which stand at US$55,000/t (US$25/lb).

Kieserite Market

In July 2019, HZM commissioned a report on the market for kieserite in Brazil from Dr Fabio Vale (Director Técnico/Technical Manager) of Adubai Consultoria Agronômica (Adubai).

The study concludes that:

The fertilizer market in Brazil is large. In 2018, 35.6 Mt of fertilizer was sold, of this 77.5% was imported and 22.5% was manufactured locally. The most likely consumers of the kieserite produced at the Project are the palm oil growers in Pará state, as palm oil trees have a very high demand for both magnesium and sulphur, although it has been demonstrated that coffee and cotton would also benefit from kieserite. The location of the Vermelho plant in the centre of the Pará state gives its distribution a competitive advantage over the imported product. The Project will produce approximately 150,000 t of kieserite a year, which is 10 times the current market for imported kieserite. This means there would be oversupply which would be expected to dictate a lower realised price than the current market, and substitution of other agro-products would be required for all Project kieserite to be consumed in the local market. This suggests that it would be unlikely for current prices (approximately US$380/t FOB Barcarena) to be realised. For the study, HZM has assumed a kieserite price of US$180/t (delivered) – about half of the current price in Barcarena. The study assumes a cost of US$80/t for the delivery and marketing of kieserite.

VNP Community, Environment and Permitting

The Project is 3km from the town of Canaã dos Carajás, founded in 1994, which forms the southern limit of the Carajás Mining District (CMD) Pará state, north of Brazil. The CMD is host to several tier 1 iron, nickel and copper mines operated by Vale.

Mining and related industries in the CMD play a vital role in the socio-economic fabric of the region, with the municipality presenting considerable per capita income, the second-highest of the Pará state.

In 2004, Vale started to operate the Sossego Copper Mine after several infrastructure municipality improvements, and most recently (2017) ramped up the S11D project, one of the largest standalone iron operations in the world. As a result of the advances of mining in the region, there has been a significant influx of people and investment, which has, in turn, promoted changes and improvements in the areas of economic growth, cultural diversity and a more developed economy than nearby towns, heavily centred around mining-related activities.

Key environmental studies for the advancement of project licensing stages were completed by Vale. HZM will utilize the studies and baseline data collected by previous owners to inform and expedite new EIA RIMA studies.

The following mining and environmental permits were granted to Vale by the end of 2016:

- EIA/RIMA studies (Environmental Impact Study ('EIS') and Environmental Impact Report ('EIR')) issued
- Award of Preliminary Licence ('LP')
- Environmental Controls Plan issued
- Application for Installation Licence ('LI')
- Final Exploration Report approved
- Mine Plan (Plano de Aproveitamento Economico – PAE) approved

Whilst a new permit pathway is proposed, the previously awarded permits for Vermelho provide a solid basis from which to progress the project permitting.

HZM will utilize the Vale studies and baseline data collected to inform and expedite new EIA RIMA studies. As HZM will recommence the licensing for Vermelho, the Company will both update studies and undertake new studies to accurately characterize the current physical environment, biological environment and social settings.

VNP Next Steps

The PFS demonstrates that the Project is technically, economically viable, and is expected to obtain all the regulatory and permitting requirements. Consequently, the Project should progress to a Feasibility Stage.

Technical Disclosure

All scientific and technical information contained in this Management's Discussion and Analysis has been prepared by or under the supervision of Mr Anthony Finch BEng(Min), B Econ, P.Eng (APEGBC), MAusIMM(CP), a ''qualified person' within the meaning of NI 43-101 for the Vermelho Project and Mr Frank Blanchfield, B.Eng, FAusIMM a "qualified person" within the meaning of NI 43-101 for the Araguaia Project. For further details on the Araguaia Project, please refer to "Amended NI 43-101 Technical Report Feasibility Study for the Araguaia Nickel Project Federative Republic of Brazil Project Number AU9867", dated 30 November 2018, amended 31 March 2021, with an effective date of 30 November 2018" available on the Company's website at www.horizonteminerals.com and on SEDAR at www.sedar.com. For further details on the Vermelho project please refer to "Amended NI 43-101 Technical Report on the Vermelho Project, Pará State, Brazil" dated 31 October 2019, amended 31 March 2021 with an effective date of 31 October 2019" available on the Company's website at www.horizonteminerals.com and on SEDAR at www.sedar.com

Financial Information Disclosure for the quarter and year ended 31 December 2022

1. Change in presentation currency

Horizonte Minerals Plc has decided to change its presentation currency from Pounds Sterling to US Dollars effective 1 January 2022.

The presentation currency has been revised as the financing package concluded by the Group to construct the Araguaia project is denominated in US Dollars and future revenues will also be in US Dollars. The board therefore believes that US Dollar financial reporting provides more relevant presentation of the group's financial position, funding and treasury functions, financial performance and its cash flows.

A change in presentation currency represents a change in an accounting policy in terms of IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors requiring the restatement of comparative information. In accordance with IAS 21 The Effects of Changes in Foreign Exchange Rates, the following methodology was followed in restating historical financial information from Pounds Sterling to US Dollar:

- Assets and liabilities were translated at the relevant closing exchange rate at the end of the reporting period. Items of income and expenditure and cash flows were translated at average rates of exchange for the period;
- The foreign currency translation reserve was reset to nil as at 1 January 2006, the date on which the group adopted IFRS. Share capital and premium and other reserves, as appropriate, were translated at the historic rates prevailing at the dates of underlying transactions; and
- The effects of translating the group's financial results and financial position into US Dollar were recognised in the foreign currency translation reserve.

The exchange rates used were as follows:

GBP/USD	31 December 2021	31 December 2020
Closing rate	1.3477	1.3649
Average rate	1.3757	1.2837
USD/BRL		
Closing rate	5.5710	5.1967
Average rate	5.3810	5.0869

2. Summary of Financial and Operating Performance

	Year ended 31 December 2022 US$	Year ended 31 December 2021 US$ (Restated[1])
Loss before taxation	**(5,317,302)**	(13,370,515)
Trade and other receivables	**58,739,737**	13,796,628
Cash and cash equivalents	**154,027,967**	210,492,280
Exploration assets	**12,834,249**	8,108,343
Mine development property	**263,965,415**	59,417,577
Fair value of derivative asset (Royalty buy-back options)	**14,489,387**	4,950,000
Royalty Finance	**89,745,255**	44,496,504
Convertible loan notes	**59,447,520**	—
Senior debt facility	**4,328,241**	—
Cost overrun facility	**23,809,827**	—
Total equity	**299,429,703**	229,284,647

(1) Refer above to 1. Change in presentation currency for the restatement details

Loss for the year

The loss before taxation of the Group of US$5,317,302 for the year ended 31 December 2022 (year ended 31 December 2021: US$13,370,515 loss) was after the following principal items:

- Administrative costs of US$ 12,544,856 (year ended 31 December 2021: US$ 7,811,477)
- Charge for share options granted US$1,415,581
- Changes in fair value of derivatives of US$ 6,512,413 gain (year ended 31 December 2021: US$2,550,000 gain)
- A gain on foreign exchange movement of US$8,482,457 (year ended 31 December 2021: US$862,739 loss) driven by the Pounds Sterling which weakened during the year against the US Dollar.

Further analysis of Operating Loss is contained in the section 'Results from Operations'.

Also included in Loss before taxation are:

- Net finance cost for the year 2022 is US$6,351,735 (2021: US$5,630,179 net finance cost), due to the borrowing costs on the Vermelho Royalty Finance arrangement which is currently expensed as the Vermelho Project is not yet in development. All borrowing costs on financing arrangements related to the Araguaia Project is capitalised to the mine development asset in line with the adopted borrowing costs accounting policy.

Trade and other receivables

Included in trade and other receivables are prepaid transactions costs of US$42 million (2021: US$13 million) relating to the senior debt finance facility. The transaction costs will be offset against the debt when it is drawn down.

Cash and cash equivalents

The cash levels of the Group as at 31 December 2022 and 31 December 2021 vary due to the timing and quantum of financing obtained by the Group as well as the level of expenditures by the Group on exploration and administrative activities and Araguaia Project construction activities. In 2021 US$197 million was secured through equity fundraisers to advance the Araguaia project. The US$197million was part of the US$633million funding package concluded in December 2021 to finance the construction of the Araguaia project. In 2022, US$175 million was secured to advance the Araguaia project construction. US$95 million (US$65M convertible loan notes, US$25M cost overrun facility and US$5M first utilisation on senior debt facility) was part of the US$633million funding package concluded in December 2021 to finance the construction of the Araguaia project. US$80 million was secured through equity fundraisers as the forecast capital cost for the construction of the Araguaia Project increased due global inflationary pressures, engineering improvements to de-risk the project and to accelerate engineering studies and basic engineering for the development of line 2 at Araguaia, as well as further invest in the decarbonisation strategy for the Project. US$25million was secured from a royalty finance for the Vermelho Project which will be used to advance the project feasibility study.

Mine development and intangible assets

Exploration assets and mine development property, which comprise both the Araguaia and Vermelho projects, have increased to US$277 million as at 31 December 2022 as compared to US$67 million at 31 December 2021. The Group incurred US$184million in capital expenditure relating to the Araguaia Project construction; as well as borrowing costs capitalisation of US$13million and provision for environmental rehabilitation costs of US$634,833.

There was also a foreign exchange revaluation gain of US$6 million due the strengthening of the BRL. The exploration assets of the business are recorded in the functional currency of Brazil, the country in which they are located.

Royalty Finance liabilities

The Group has secured two royalty financing arrangements of US$25million each for each of its projects – Araguaia and Vermelho.

The Araguaia royalty finance secured in 2019 has been recognised as a liability and valued using the amortised cost basis at US$49 million at 31 December 2022 (US$45 million at 31 December 2021). This funding is not repayable until the project enters into production and following that the royalty payments are made at a royalty rate of 2.95%.

The Vermelho royalty finance secured in 2022 has been recognised as a liability and valued using the amortised cost basis at US$41 million at 31 December 2022. This funding is not repayable until the project enters into production and following that the royalty payments are made at a royalty rate of 2.1%. The royalty rate will increase to 2.25% if substantial construction of the Vermelho Project has not commenced within 5 years of the closing date, 30 March 2022.

The royalties are due on revenue less some associated costs on a quarterly basis and has been revalued based on the expectation of the future royalty payments under the agreements using the effective interest method. Included in the agreement are certain embedded derivatives which can under certain circumstances result in the Company having the ability to buy back certain levels of the royalty, the buy-back price is driven by the holder obtaining certain milestones on its return on investment. The result of these options is a derivative asset being recognised on the balance sheet at fair value (Araguaia derivative 2022 – US$5million, 2021 – US$4.95million, Vermelho derivative 2022 US$9.5million).

Convertible loan notes

The Company issued convertible loan notes to the value of US$65 million at an interest rate of 11.75% with interest accruing quarterly in arrears. The convertible loan notes were issued at a discount of 5.75%. The maturity date of the instruments is 15 October 2032.

At any time until the Maturity Date, the Noteholder may, at its option, convert the notes, partially or wholly, into a number of ordinary shares up to the total amount outstanding under the Convertible Note divided by the Conversion Price. The conversion price is £1.268/US$1.71.

The convertible loan is a hybrid financial instrument, whereby a debt host liability component and an embedded derivative liability component was determined at initial recognition. For convertible notes with embedded derivative liabilities, the fair value of the embedded derivative liability is determined first and the residual amount is assigned to the debt host liability. Thereafter the debt host liability is valued using the amortised cost basis. At 31 December 2022 the total valuation for the convertible loan notes was US$59 million.

Senior debt facility

On 7 December 2022, the Group satisfied all conditions precedent for the first utilisation under the Senior Debt Facility of US$346.2 million. The first utilisation was for US$5million.

The total Senior Debt Facility is US$346.2million (Commercial Facility US$200million and ECA Facility US$146.2million). Interest rate is calculated according to this formula : Margin + Term SOFR (Secured Overnight Financing Rate) + Baseline Credit Adjustment Spread (CAS) and interest is calculated quarterly and payable in arrears. The final maturity date on the Commercial Facility is 15 July 2030. The final maturity date on the ECA Facility is 15 July 2032.

Both the Commercial and ECA facilities are valued using the amortised cost basis. At 31 December 2022 the total valuation for the senior debt facility is US$4 million.

Cost overrun facility

On 30 November 2022, the Group satisfied all conditions precedent in relation to the Cost Overrun Facility (COF) and had received all COF funds from Orion. Access to the COF funds is restricted and will only be available in the case of a cost overrun against the Araguaia Project construction schedule and budget.

The COF is US$25million with an interest rate of 13% and a maturity date of 15 October 2032. Interest will be calculated quarterly and be payable in arrears.

The COF will be valued using the amortised cost basis. At 31 December 2022 the valuation of the COF was US$24 million.

3. Summary of Cashflows

	Year ended 31 December 2022 US$	Year ended 31 December 2021 US$ (Restated[1])
>> Net cash flows used in operating activities	**(9,901,763)**	(4,563,204)
>> Net cash used in investing activities	**(188,972,533)**	(14,176,296)
>> Net cash flow generated from financing activities	**149,461,896**	213,197,728
>> Net increase/(decrease) in cash and cash equivalents	**(49,412,400)**	194,458,228

(1) Refer above to 1. Change in presentation currency for the restatement details

The net cash flows used in operating activities for the twelve months ended 31 December 2022 and 31 December 2021 are driven by activities in the management of the Araguaia Project and to a lesser extent Vermelho. These management activities were higher during 2022 as work levels increased as a result of increasing the operational team and financing workstreams to advance the Araguaia Project construction and securing the required project finance package. See 'Results from Operations' for further analysis.

Cash used in investing activities has increased to US$189 million from US$14 million in 2021 as a result of the increased level of expenditure related to advancing the Araguaia Project construction.

Net cash flows from financing activities amounted to US$150 million, raised via the Araguaia Project funding package and equity fundraisers.

4. Analysis of Selected Financial Information

	Year ended 31 December 2022 US$	Year ended 31 December 2021 US$ (Restated[1])	Year ended 31 December 2020 US$ (Restated[1])
Gross Profit	**Nil**	Nil	Nil
Loss for the year	**(5,317,302)**	(13,370,515)	(2,923,606)
Total comprehensive income for the year attributable to equity holders in the company	**(10,907,849)**	(13,111,538)	(13,218,161)
Basic and diluted loss per share (p)	**(2.634)**	(15.698)	(0.2015)
Total Assets	**520,240,938**	308,522,965	68,275,422
Total Non-Current Liabilities	**191,108,517**	56,655,191	38,213,847
Dividends per share	**Nil**	Nil	Nil

(1) Refer above to 1. Change in presentation currency for the restatement details

Analysis of the drivers behind the change in loss for the year from US$13.4 million in 2021 to US$5.3million in 2022 are set out in the section 'Results from Operations'. The Operating Loss in each of the years principally comprises on-going general and administration costs, exploration costs expensed and foreign exchange movements on cash deposits, coupled with certain one-off items.

Total comprehensive loss attributable to equity holders in the Company for the year ended 31 December 2022 of US$10.9 million included exchange differences arising on translation of foreign operations of US$6.7 million – this is due to the Pound Sterling weakening against the US Dollar as at 31 December 2022 when compared to 31 December 2021. During the same period the Brazillian Real strengthened against the US Dollar when compared to 31 December 2021.

Total comprehensive loss attributable to equity holders in the Company for the year ended 31 December 2021 of US$13.1 million included exchange differences arising on translation of foreign operations of US$258,977.

Total comprehensive loss attributable to equity holders in the Company for the year ended 31 December 2020 of US$13.2 million included exchange differences arising on translation of foreign operations of US$10.3 million – this is due to the Brazilian Real weakening against the US Dollar as at 31 December 2020 when compared to 31 December 2019.

The intangible assets of the Company are held in Brazil and are denominated in the currency of that country.

The increase in total assets from US$308.5 million in 2021 to US$520 million in 2022 is principally due to increased level of expenditure on the Araguaia project construction (US$184million), capitalisation of borrowing costs (US$13 million). There was also a foreign exchange revaluation gain of US$6.2 million on the Mine Development and intangible assets due the strengthening of the BRL

The increase in total assets from 2020 to 2021 of US$308.5 million from US$68.3 million is principally due to additional cash received from equity fundraises completed during the year totally US$197 million and the increased level of expenditure on the Araguaia project to advance it to construction phase (US$13 million) as well as capitalisation of borrowing costs (US$7 million). This also included land and 'right of way' purchases totalling US$10 million.

Total long-term liabilities as at 31 December 2022 comprises the contingent consideration payable to Glencore and Vale of US$7 million, deferred consideration payable to Companhia Brasileira de Aluminio (CBA) of US$6million, US$90 million royalty liabilities, US$59million convertible loan notes and US$28 million in loan facilities. In 2021 it comprised the contingent consideration payable to Vale & Glencore of US$6.7 million, US$5.5million deferred consideration payable to CBA and US$45 million royalty liability. In 2020 the long-term liabilities comprised the contingent consideration payable to Vale & Glencore of US$8million as well as US30 million royalty liability.

5. Quarterly Financial Information

Quarter Ended	30 December 2022 US$	30 September 2022 US$	30 June 2022 US$	31 March 2022 US$	31 December 2021 US$ Restated [1]	30 September 2021 US$ Restated[1]	30 June 2021 US$ Restated [1]	31 March 2021 US$ Restated [1]	31 December 2020 US$ Restated [1]
Revenue	—	—	—	—	—	—	—	—	—
Profit/(Loss) from continuing operations	(2,585,201)	(6,580,040)	(670,946)	4,518,886	(6,412,225)	(3,716,774)	(1,876,677)	(1,364,839)	428,564
Total comprehensive income attributable to owners of the parent	17,219,783	(17,548,765)	(33,071,087)	22,492,220	(3,468,203)	(8,471,420)	5,624,497	(6,796,412)	2,929,882
Basic & diluted earnings/(loss) cents per share	(1.094)	(3.455)	(0.352)	0.119	(5.963)	(4.372)	(2.224)	(0.09)	0.0298

(1) Refer above to 1. Change in presentation currency for the restatement details

Profit/(loss) from continuing operations in each of the periods disclosed is driven on an ongoing basis by administrative expenses together with (loss)/gain on foreign exchange and finance income and costs that are not capitalised.

The profit from continuing operations in Q1 2022 of $4,518,886 was after administrative expenses of $2,380,986 and a gain on foreign exchange translation of $7,073,006.

The loss from continuing operations in Q2 2022 of $670,946 was after administrative expenses of $4,282,638, a gain on foreign exchange translation of $2,310,064, a gain on change in fair value of derivatives of $4,360,500 and net finance costs of US$3,058,872.

The loss from continuing operations in Q3 2022 of US$6,580,040 was after administrative expenses of US$2,841,133, a loss on foreign exchange translation of US$797,045, charged for share options US$508,529 and a net finance cost US$2,433,333.

The loss from continuing operations in Q4 2022 of US$2,585,201 was after administrative expenses of US$3,040,099, a loss on foreign exchange translation of US$103,567, charged for share options US$902,052, a gain on change in fair value of derivatives US$2,151,913 and a net finance cost US$686,396.

The loss from continuing operations in the first quarter of 2021 of US$1,364,839 was after administrative expenses of US$1,131,952, a change in fair value of special warrant liability of US$417,863 (loss) and a gain on foreign exchange translation of US$254,556.

The loss from continuing operations in the second quarter of 2021 of US$1,876,677 was after administrative expenses of US$2,539,528, a change in fair value of special warrant liability of US$1,215,924 (loss) and a gain on foreign exchange translation of US$1,950,317.

The loss from continuing operations in the third quarter 2021 of US$3,716,774 was after administrative expenses of US$1,921,621 and a loss on foreign exchange translation of US$1,721,587.

The loss from continuing operations in the fourth quarter 2021 of US$6,412,225 was after administrative expenses of US$2,218,375 a gain on change in fair value of derivative of US$2,550,000, change in estimate on the Glencore contingent consideration US$1,913,705 (gain) expensed royalty finance borrowing costs of US$7,118,493 and a loss on foreign exchange translation of US$1,346,025.

Total comprehensive income attributable to equity holders of the company is driven by results from continuing operations, combined with finance income and costs and exchange differences arising on translating foreign operations.

Exchange differences arising on translating foreign operations arise as the values of the exploration assets of the Company are denominated in the currency of the country in which they are located.

During Q1 2022 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of $17,973,334 as the Brazilian Real strengthened against the US Dollar in the quarter and the Sterling depreciated against the US Dollar.

During Q2 2022 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of (US$27,762,609) as the Brazilian Real and the Sterling depreciated against the US Dollar in the quarter and the mark to market revaluations on the non-deliverable forward contracts of (US$4,637,532).

During Q3 2022 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of (US$7,760,495) as the Brazilian Real and Sterling depreciated against the US Dollar in the quarter and the mark to market revaluations on the non-deliverable forward contracts of (US$3,208,230).

During Q4 2022 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of US$10,871,662 as the Brazilian Real and Sterling strengthened against the US in the quarter and the mark to market revaluations on the non-deliverable forward contracts of US$8,933,324.

During the first quarter of 2021 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of US$(5,431,573) as the Brazilian Real weakened against US Dollar in the quarter.

During the second quarter of 2021, the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of US$7,501,174 as the Brazilian Real strengthened against US Dollar in the quarter.

During the third quarter of 2021, the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of US$(4,754,646)as the Brazilian Real weakened against US Dollar in the quarter.

During the fourth quarter of 2021, the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of US$2,944,022.

6. Results from Operations

	12 months ended 31 December 2022	12 months ended 31 December 2021 (Restated) (1)
Cash expenditure on Exploration activities	196,089,636	14,676,930
Net Movement in PPE & Intangible Assets		
Expenditure (cash + non-cash)	205,290,439	31,836,154
Foreign exchange movement	7,000,624	(3,489,625)
Impairment	—	—
Net Movement	212,291,063	28,346,529
Analysis of Operating Loss:		
General and Administration Costs		
Compensation	(7,487,140)	(5,252,983)
Travel and Office Expenses	(1,534,921)	(584,373)
Professional Fees	(2,195,830)	(1,539,581)
Investor Relations	(1,120,430)	(384,955)
TSX fees and associated costs	(190,432)	(64,653)
Overheads/Other	(16,103)	15,068
Total General and Administration Costs	(12,544,856)	(7,811,477)
Charge for share options granted	(1,415,581)	—
Change in fair value of special warrant liability	—	(1,616,120)
Change in fair value of derivative	6,512,413	2,550,000
Gain / (Loss) on Foreign Exchange	8,482,457	(862,739)
Profit/(loss) before interest and tax	1,034,433	(7,740,336)

(1) Refer above to 1. Change in presentation currency for the restatement details

Cash expenditure on exploration activities has increased significantly from US$14.7 million in the year ended 31 December 2021 to US$196 million in the year ended 31 December 2022. The capital expenditure in 2022 relates to the Araguaia Project construction and Vermelho Project feasibility study expenditure. The majority of the 2021 capital expenditure related to land and 'right of way' acquisitions.

General and Administration costs have increased by about 61% to US$12.5 million from US$7.8 million for the 12 months ended 31 December 2022 as compared to 2021. This has been driven by an increase in headcount and activity in securing the financing for the construction of the Araguaia Project.

Within General and Administration costs:

- Compensation of US$7.5 million was higher in 2022 versus 2021 when it amounted to US$5.3 million due to an increase in headcount as a result of building out a team for the Araguaia Project construction.
- Travel and office expenses of US$1.5 million was higher in 2022 versus 2021 when it amounted to US$584,373 due to an increase in travel after Covid-19 travel restrictions were lifted
- The level of professional fees has increased to US$2.2 million for 2022 compared to US$1.5 million for 2021 as a direct result of increasing levels of activity for securing the project financing for the Araguaia project. Professional fees include legal fees and fees from technical and specialist advisors as well as corporate advisory, accounting, audit and secretarial charges.
- Investor relations charges were higher in 2022 at US$1.1million compared to US$384,955 in 2021. This is predominantly due to an overall increase in the level of investor-related activity after closing project financing for the ANP.

Additional movements:

- The gain on foreign exchange is associated with movements arising on cash deposits and intercompany loan balances held by the Company in currencies other than the functional currency of the entities in the Group (Sterling for UK and Isle of Man entities and Brazilian Reais for the Brazilian subsidiaries).
- The share-based payment expense relates to the share options granted on 12 July to executives and key personnel in the UK and Brazil
- The change in fair value of derivatives relates to the conversion option embedded derivative on the convertible loan notes and the embedded derivatives within the Royalty agreements. The embedded derivatives are measured at fair value through profit and loss.
- The change in fair value of special warrant liability relates to the placement of 88,060,100 special warrants at a price of 7.5 pence per warrant on 9 March 2021. The Special Warrants have been classified as a financial instrument under IFRS and measured at fair value through profit and loss.

7. Analysis of Intangible Assets

Group	Goodwill US$	Exploration Licenses US$	Exploration and evaluation costs US$	Software US$	Total US$
Cost					
At 1 January 2021	215,979	6,831,692	1,442,670	—	8,490,341
Additions	—	103,461	209,246	92,515	405,222
Amortisation for the year	—	—	—	(2,509)	(2,509)
Exchange rate movements	(14,844)	(480,025)	(88,701)	—	(583,570)
Net book amount at 31 December 2021	201,135	6,455,128	1,563,215	90,006	8,309,484
Additions	—	—	4,255,285	93,808	4,349,093
Amortisation for the year	—	—	—	(30,743)	(30,743)
Exchange rate movements	14,081	648,566	(87,945)	6,301	581,003
Net book amount at 31 December 2022	215,216	7,103,694	5,730,555	159,372	13,208,837

Exploration and evaluation costs comprise the costs capitalised to the Vermelho project. Exploration licences comprise the Vermelho licences which were acquired from Vale in 2017. Impairment reviews for exploration and evaluation assets are carried out either on a project by project basis or by geographical area.

The accounting policies of the Group specify that intangible assets are to be denominated in the functional currency of the country in which the asset is located. The Vermelho project is therefore denominated in Brazilian Reais.

8. Analysis of Property, plant and equipment

Group	Mine Development Property US$	Vehicles and other field equipment US$	Office equipment US$	Land acquisition US$	Building improvements US$	Total US$
Cost						
At 31 December 2020	41,909,101	105,074	78,287	119,090	—	42,211,552
Additions	13,328,811	759,475	69,980	10,199,425	—	24,357,691
Transfers	—	648	(648)	—	—	—
Interest capitalized	7,073,241	—	—	—	—	7,073,241
Disposals	—	—	(1,385)	—	—	(1,385)
Foreign exchange movements	(2,893,576)	(7,204)	(5,368)	(8,186)	—	(2,914,334)
At 31 December 2021	59,417,577	857,993	140,866	10,310,329	—	70,726,765
Additions	184,319,008	—	167,364	2,606,842	37,519	187,130,733
Interest capitalized	13,175,730	—	—	—	—	13,175,730
Transfers	781,069	(813,617)	32,334	—	214	—
Environmental rehabilitation additions	634,883	—	—	—	—	634,883
Disposals	—	—	(2,828)	—	—	(2,828)
Foreign exchange movements	5,637,148	60,068	9,862	721,831	—	6,428,909
At 31 December 2022	263,965,415	104,444	347,598	13,639,002	37,733	278,094,192
Accumulated depreciation						
At 31 December 2020	—	78,036	42,719	—	—	120,755
Charge for the year	—	7,526	12,840	—	—	20,366
Transfers	—	222	(222)	—	—	—
Disposals	—	-	(168)	—	—	(168)
Foreign exchange movements	—	(5,350)	(2,929)	—	—	(8,279)
At 31 December 2021	—	**80,434**	**52,240**	—	—	**132,674**
Charge for the year	—	6,933	42,165	—	978	50,076
Transfers	—	(744)	726	—	18	—
Disposals	—	—	(274)	—	—	(274)
Foreign exchange movements	—	5,631	3,657	—	—	9,288
At 31 December 2022	—	**92,254**	**98,514**	—	**996**	**191,764**
Net book amount as at 31 December 2022	**263,965,415**	**12,190**	**249,084**	**13,639,002**	**36,737**	**277,902,428**
Net book amount as at 31 December 2021	59,417,577	777,559	88,626	10,310,329	—	70,594,091

In December 2018, a Canadian NI 43-101 compliant Feasibility Study (FS) was published by the Company regarding the enlarged Araguaia Project which included the Vale dos Sonhos deposit acquired from Glencore. The financial results and conclusions of the FS clearly indicate the economic viability of the Araguaia Project with an NPV_8 of $401M using a nickel price of $14,000/t Ni. Nothing material had changed with the economics of the FS between the publication date and the date of this report and the Directors undertook an assessment of impairment through evaluating the results of the FS along with recent market information relating to capital markets and nickel prices and judged that there are no impairment indicators with regards to the Araguaia Project.

Impairment assessments for exploration and evaluation assets are carried out either on a project-by-project basis or by geographical area.

The adjacent Araguaia/Lontra/Vila Oito and Floresta exploration sites (the Araguaia Project), together with the Vale dos Sonhos deposit acquired from Xstrata Brasil Mineração Ltda comprise a resource of a sufficient size and scale to allow the Company to create a significant single nickel project. For this reason, at the current stage of development, these two projects are viewed and assessed for impairment by management as a single cash generating unit.

The mineral concession for the Vale dos Sonhos deposit was acquired from Xstrata Brasil Mineração Ltda, a subsidiary of Glencore Canada Corporation, in November 2015.

The NPV_8 has been determined by reference to the FS undertaken on the Araguaia Project. The key inputs and assumptions in deriving the value in use were, the discount rate of 8%, which is based upon an estimate of the risk adjusted cost of capital for the jurisdiction, capital costs of $443 million, operating costs of $8,194/t Nickel, a Nickel price of US$14,000/t and a life of mine of 28 years.

During the year further progress was made in the land acquisition process for the Araguaia project. US$1.7million of the land and 'right of way' purchases is included in trade and other payables as at 31 December 2022.

US$105million of the additions for the mine development property are prepayments to suppliers which have been paid in advance of delivery of mining equipment that is pre-fabricated offsite.

9. Trade and other receivables

	Group	
	2022 US$	2021 US$
Non-current		
VAT and other taxes receivable	**6,609,779**	—
Prepayments	**3,355,811**	—
	9,965,590	—
Current		
VAT and other taxes receivable	**3,886,402**	1,196,647
Deposits	**17,266**	10,782
Prepayments	**2,620,391**	—
Other receivables	**42,250,088**	12,589,198
	48,774,147	13,796,627
	58,739,737	13,796,627

Other receivables relates to transaction costs for the US$633million financing package concluded in for the construction of the Araguaia Ferronickel Project. These transaction costs relate to the senior debt finance agreements and the transaction costs will be offset against the debt when it is drawn down.

10. Carrying value of Contingent and Deferred Consideration

	Companhia Brasileira de Aluminio (in respect of Araguaia project)	Xstrata Brasil Mineração Ltda (in respect of Araguaia project)	Vale Metais Basicos S.A. (in respect of Vermelho project)	Total
	US$	US$	US$	US$
At 1 January 2021	—	3,946,090	4,136,002	8,082,092
Initial recognition	5,424,742	—	—	5,424,742
Unwinding of discount	19,119	276,227	289,520	584,866
Change in estimate	—	(1,913,705)	—	(1,913,705)
At 31 December 2021	5,443,861	2,308,612	4,425,522	12,177,995
Unwinding of discount	314,570	161,603	299,399	775,572
Change in estimate	—	—	(299,399)	(299,399)
At 31 December 2022	**5,758,431**	**2,470,215**	**4,425,522**	**12,654,168**

The contingent and deferred consideration comprises three transactions:

- the first relates to the acquisition of the Araguaia project and is a US$5,000,000 consideration payable to Xstrata, ('Xstrata Contingent Consideration') as at the date of first commercial production from any of the resource areas covered in the purchase agreement, i.e., Vale dos Sonhos (VDS) and Serra do Tapa (SDT).
- the second relates to Vale, in respect of the purchase of the Vermelho project. A final payment of US$6,000,000 in cash is payable by Horizonte within 30 days of first commercial sale of product from Vermelho. Management have assessed that given the finalisation and publication of a pre-feasibility study on the Vermelho project, the project is likely to have progressed to a stage where this final payment can be considered probable and have therefore recognised this contingent consideration within liabilities.
- The third relates to CBA, in respect of the purchase of the ferronickel processing equipment. The Agreement provides for an upfront cost of US$600,000 payable in cash on signing (contract signed in December 2021) with total potential consideration of up to US$7,000,000, with the balance payable upon the achievement of future milestones related to the development and operation of the Araguaia project.

11. Royalty financing arrangement

11(a) Carrying value of royalty financing liability

	Araguaia Royalty valuation	Vermelho Royalty valuation	Total
	US$	US$	US$
Net book amount at 1 January 2021	30,131,755	—	30,131,755
Unwinding of discount	4,637,057	—	4,637,057
Change in carrying value	9,727,692	—	9,727,692
Effects of foreign exchange	—	—	—
Net book amount at 31 December 2021	44,496,504	—	44,496,504
Initial recognition	—	25,000,000	25,000,000
Embedded derivative – initial valuation	—	9,848,175[1]	9,848,175
Transaction costs	—	(847,939)	(847,939)
Unwinding of discount	5,350,666	4,448,595	9,799,261
Change in carrying value	(1,063,902)	2,513,156	1,449,254
Effects of foreign exchange	—	—	—
Net book amount at 31 December 2022	**48,783,268**	**40,961,987**	**89,745,255**

1. Initial valuation of embedded derivative updated from US$4,590,000 (as disclosed in the quarter ended 30 September 2022) to US$9,848,175 following a revised derivative valuation prepared for the inception date and financial year end date.

Araguaia Royalty

On 29 August 2019 the Group entered into a royalty funding arrangement with Orion Mine Finance ("OMF") securing a gross upfront payment of US$25,000,000 before fees in exchange for a royalty, the rate being in a range from 2.25% to 3.00% and determined by the date of funding and commencement of major construction. The rate has been confirmed to be 2.95%. The royalty is paid over the first 426k tonnes of nickel produced from the Araguaia Ferronickel project. The royalty is linked to production and therefore does not become payable until the project is constructed and commences commercial production.

The Royalty liability has initially been recognised using the amortised cost basis with an effective interest rate of 14.5%. The carrying value of the royalty reflects assumptions on expected long term nickel price, update headline royalty rate as well as the timing of payments related to expected date of commencement of production and hence payment to be made under the royalty agreement.

Vermelho Royalty

On 23 November 2021 the Group entered into a royalty funding arrangement with Orion Mine Finance ("OMF") securing a gross upfront payment of US$25,000,000 before fees in exchange for a royalty, at a rate of 2.1%. The royalty rate will increase to 2.25% if substantial construction of the Vermelho Project has not commenced within 5 years of the closing date, 30 March 2022. The royalty will be paid over the life of mine of Vermelho. The Royalty agreement has certain provisions to revise the headline royalty rate should there be change in the mine schedule and production profile prior to construction or if the resource covered in the Vermelho Feasibility Study is depleted. The royalty funds were received on 30 March 2022.

The Royalty liability has initially been recognised using the amortised cost basis with an effective interest rate of 17.66%. The carrying value of the royalty reflects assumptions on expected long term nickel and cobalt prices, headline royalty rate as well as the timing of payments related to expected date of commencement of production and hence payment to be made under the royalty agreement.

11(b) Fair value of royalty derivative financial assets

	Vermelho Royalty	Araguaia Royalty	Total
	US$	**US$**	**US$**
Value as at 1 January 2021	—	2,400,000	2,400,000
Change in fair value	—	2,550,000	2,550,000
Value as at 31 December 2021	—	4,950,000	4,950,000
Initial recognition	9,848,175	—	9,848,175
Change in fair value	(366,284)	57,496	(308,788)
Value as at 31 December 2022	**9,481,891**	**5,007,496**	**14,489,387**

Both royalty agreements contain buy-back options which are embedded derivatives and in accordance with IFRS9 have been separately valued at fair value.

The initial recognition of the Buy Back Options has been recognised as an asset on the balance sheet with any changes to the fair value of the derivative recognised in the income statement. It has been fair valued using a Monte Carlo simulation which runs a high number of scenarios in order to derive an estimated valuation.

Araguaia derivative financial asset

At any time from the date of commercial production, Horizonte has the right to buy back up to 50% of the Royalty at a valuation that meets certain minimum economic returns for OMF.

Vermelho derivative financial asset

Horizonte has the right to buy back 50% of the royalty on the first four anniversaries of closing (or on any direct or indirect change of control in respect of Vermelho up until the fourth anniversary of closing). After the 4th anniversary, Horizonte has the right to buy back 50% of the royalty on any direct or indirect change of control in respect of Vermelho at a valuation that meets certain minimum economic returns for OMF.

12. Carrying value of Convertible loan notes liability

	Embedded derivative	Convertible loan notes liability	Total
	US$	US$	US$
Initial recognition	36,458,088[1]	24,804,412	61,262,500
Transaction costs	—	(950,287)	(950,287)
Unwinding of discount	—	5,956,508	5,956,508
Change in fair value	(6,821,201)	—	(6,821,201)
Value as at 31 December 2022	**29,636,887**	**29,810,633**	**59,447,520**

On 29 March 2022 the Company issued convertible loan notes to the value of $65 million at an interest rate of 11.75% with interest accruing quarterly in arrears. The convertible loan notes were issued at a discount of 5.75%. At any time until the Maturity Date, the Noteholder may, at its option, convert the notes, partially or wholly, into a number of ordinary shares up to the total amount outstanding under the Convertible Note divided by the Conversion Price.

The convertible loan is a hybrid financial instrument, whereby a debt host liability component and an embedded derivative liability component was determined at initial recognition.

For convertible notes with embedded derivative liabilities, the fair value of the embedded derivative liability is determined first and the residual amount is assigned to the debt host liability.

The initial recognition of the embedded derivative conversion feature has been recognised as a liability on the balance sheet with any changes to the fair value of the derivative recognised in the income statement. It has been fair valued using a Monte Carlo simulation which runs a high number of scenarios in order to derive an estimated valuation.

The debt host liability will be accounted for using the amortised cost basis with an effective interest rate of 34%. The effective interest rate is recalculated after adjusting for the transaction costs and the discount of 5.75%. The Group will recognise the unwinding of the discount at the effective interest rate, until the maturity date, the carrying amount at the maturity date will equal the cash payment required to be made.

The directly attributable transaction costs amounted to US$2,347,041 which was allocated proportionately to the embedded derivative (US$1,396,754) and the convertible loan notes liability (US$ 950,287). The embedded derivative transaction costs were recognised in profit and loss, whereas the convertible loan liability transaction costs were deducted from the financial liability carrying amount.

13. Carrying value of Cost overrun facility

	Total
	US$
Initial recognition	25,000,000
Transaction costs	(1,198,634)
Unwinding of discount	288,321
Interest repayments	(279,860)
Value as at 31 December 2022	**23,809,827**

On 30 November 2022, the Group satisfied all conditions precedent in relation to the Cost Overrun Facility (COF) and had received all COF funds from Orion. The COF benefits from the same security package as the Senior Debt Facility but will be subordinated to the Senior Debt Facility.

The COF is US$25million with an interest rate of 13% and a maturity date of 15 October 2032. Interest will be calculated quarterly and be payable in arrears at the end of each interest period – March 31, June 30, September 30 and December 31. The first interest period was 30 November to 31 December 2022. The initial principal repayment date is 31 March 2025. 3.23% of the outstanding principal amount will be paid at each quarter end date starting from 31 March 2025.

The COF will be accounted for using the amortised cost basis with an effective interest rate of 15%. The effective interest rate is recalculated after adjusting for the transaction costs. The Group will recognise the unwinding of the discount at the effective interest rate, until the maturity date, the carrying amount at the maturity date will equal the cash payment required to be made.

1. Initial valuation of embedded derivative updated from US$19,161,400 (as disclosed in the quarter ended 30 September 2022) to US$36,458,088 following a revised derivative valuation prepared for the inception date and financial year end date.

14. Carrying value of Senior debt facility

	ECA Facility US$	Commercial Facility US$	Total US$
Initial recognition	2,111,496	2,888,504	5,000,000
Transaction costs	(446,399)	(232,137)	(678,536)
Unwinding of discount	12,660	19,148	31,808
Interest repayments	(8,271)	(16,760)	(25,031)
Value as at 31 December 2022	1,669,486	2,658,755	4,328,241

On 15 March 2022 the Group entered into legally binding documentation including a comprehensive intercreditor agreement and loan agreements with two export credit agencies in relation to its senior secured project finance debt facility of US$346.2 million.

The Senior Debt Facility was executed between Araguaia Niquel Metais LTDA, and a syndicate of international financial institutions, being BNP Paribas, BNP Paribas Fortis, ING Capital LLC, ING Bank N.V., Natixis, New York Branch, Société Générale and SEK(Swedish Export Credit Corporation).

The Senior Debt Facility includes the following:

- Commercial senior facility of US$200,000,000 provided by the Senior Lenders;
- ECA facility of US$74,562,000 guaranteed by EKF (Denmark's Export Credit Agency);
- ECA facility of US$71,638,000 guaranteed by Finnvera plc (Finland's Export Credit Agency);

On 7 December 2022, the Group satisfied all conditions precedent for the first utilisation under the Senior Debt Facility of US$346.2million. The first utilisation was for US$5million.

The interest rate on the ECA facility is calculated according to this formula : Margin + Term SOFR (Secured Overnight Financing Rate) + Baseline Credit Adjustment Spread (CAS). The ECA Facility margin is 1.8%. The Term SOFR was the first interest period was 4.21714% and the Baseline CAS 0.11448%. The ECA facility interest rate was therefore 6.13162% at 31 December 2022.

The interest rate on the Commercial facility is calculated according to this formula : Margin + Term SOFR (Secured Overnight Financing Rate) + Baseline Credit Adjustment Spread (CAS). The Commercial Facility margin is 4.75%. The Term SOFR was the first interest period was 4.21714% and the Baseline CAS 0.11448%. The ECA facility interest rate was therefore 9.08162% at 31 December 2022.

Interest will be calculated quarterly and be payable in arrears at the end of each interest period – March 31, June 30, September 30 and December 31. The first interest period was 7 to 31 December 2022. The initial principal repayment date is 31 March 2025. The outstanding principal amount will be paid according to the repayment schedule at each quarter end date starting from 31 March 2025.

The final maturity date on the Commercial Facility is 15 July 2030. The final maturity date on the ECA Facility is 15 July 2032.

15. Other Information

Group and Company	**2022 Number**	**2022 US$**	2021 Number (after share consolidation)	2021 US$
Issued and fully paid				
Ordinary shares of 1p each				
At 1 January	190,118,279	52,215,236	72,468,864	20,666,053
Issue of ordinary shares	78,295,627	18,117,405	113,246,410	30,335,627
Conversion of special warrants into shares	—	—	4,403,005	1,213,556
At 31 December	268,413,906	70,332,641	190,118,279	52,215,236

Share capital comprises amount subscribed for shares at the nominal value. No shares were issued between 31 December 2021 and 28 March 2023.

2022

On 11 April 2022 the Group issued 6,000,000 new ordinary shares (after share consolidation 300,000 shares) at a price of 4.33 pence per share in relation to the exercise of options by an employee of the Company.

On 31 May 2022 the Group completed a share consolidation on the basis of 1 new share for every 20 existing shares. As a result of the share consolidation, the Company's issued share capital consists of 268,413,906 ordinary shares (as at 31 December 2022) of £0.20 each. The 2021 number of shares has been restated to reflect the share consolidation.

On 6 July 2022 the Group issued 50,000 new ordinary shares at a price of 60 pence per share in relation to the exercise of options by an employee of the Company.

On 8 November, 77,945,627 were placed with new and existing investors at a price of 90.50 pence per share. The gross proceeds raised in the placement was US$80,000,000, and issue costs amounted to US$2,499,105.

2021

On 19 February 2021, 162,718,353 new ordinary shares (8,135,917 shares after share consolidation) were placed with new and existing investors at a price of 7.5 pence per share. The gross proceeds raised in the placement was US$17,112,276 and issue costs amounted to US$1,037,822.

On 14 April 2021, the 88,060,100 Special Warrants were converted to 88,060,100 ordinary shares of the Company (4,403,005 shares after share consolidation).

On 23 December 2021, 2,102,209,850 new ordinary shares (105,110,492 shares after share consolidation) were placed with new and existing investors at a price of 7.0 pence per share. The gross proceeds raised in the placement was £147,230,250 and issue costs amounted to £5,164,623.

16. Stock Options in the Company

Total options outstanding as at the date of this document amount to 14,716,250 with a weighted average exercise price of £1.41, of which 5,070,000 are fully vested.

The Group awarded new share options on 12 July 2022 (the "Award Date") over 9,736,250 ordinary shares of £0.20 each in the capital of the Company to executives (PDMRs) and key personnel in the UK and Brazil. Each share option is exercisable in return for one ordinary share in the Company and will vest in three tranches on the 12-month, 18-month and 28-month anniversaries of the Award Date at a ratio of 25%, 25% and 50%, with exercise prices of £1.68, £1.72 and £1.76 for each one third of the Awards.

Movements on number of share options and their related exercise price are as follows:

	Number of options (after share consolidation)	**Weighted average exercise price (after share consolidation) US$**
Outstanding at 1 January 2022	5,715,000	1.02
Exercised	(350,000)	1.00
Issued but not vested	9,736,250	2.07
Expired	(385,000)	1.54
Outstanding at 31 December 2022	14,716,250	1.70
Exercisable at 30 September 2022	**5,070,000**	**1.003**

The Company recognises as an expense the cost of stock-based compensation based upon the estimated fair value of new stock options granted. The fair value of each stock option is estimated on the date of grant using the Black-Scholes option-pricing model and is expensed over the vesting period.

17. Liquidity, Capital Reserves and Financing Activities

The Company is not in commercial production on any of its properties and accordingly, it does not generate cash from operations and finances its activities by raising capital through equity issues and more recently the issue of royalty financing arrangement, convertible loan notes and drawdowns on loan facilities as previously noted.

As at 31 December 2022, the Company had US$154,027,967 in cash at bank and on deposit, as at 31 December 2021 cash at bank and on deposit amounted to US$210,492,280. The cash and cash equivalents balance as at 31 December 2022 includes restricted cash of US$29,247,627. These funds have been secured in the case of a cost overrun against the construction schedule and budget of the Araguaia Project.

All of the Company's cash and cash equivalents as at 31 December 2022 are held in interest bearing accounts. The Company has not invested in any short-term commercial paper, asset backed securities or other financial instruments. The cash and cash equivalents balance as at 31 December 2022 includes restricted cash of US$29,247,627. These funds have been secured in the case of a cost overrun against the construction schedule and budget of the Araguaia Project.

The Company has limited immediate debt repayment requirements as the deferred and contingent consideration and the Orion royalty only become payable upon commencement of production. Principal repayments on its loan facilities will commence in the quarter ending 31 March 2025. Interest on those loan facilities will however be paid quarterly with the first interest period ending 31 December 2022. The Group has a non-material level of current liabilities that occur in the ordinary course of business.

The Financial Statements have been prepared on a going concern basis. Although the Group's assets are not generating revenues and an operating loss has been reported, the Directors consider that the Group has sufficient funds to undertake its operating activities for a period of at least the next 12 months including any additional expenditure required in relation to its current exploration and development projects. The Group has cash reserves and access to liquidity which are considered sufficient by the Directors to fund the Group's committed expenditure both operationally and on its exploration project for the foreseeable future.

The Group concluded a comprehensive funding package of US$633 million in December 2021. The net proceeds of the fundraisings will be used towards the construction of the Araguaia project as well as for general working capital purposes. In addition the company has also concluded a US$25million royalty on the Vermelho Project, the net proceeds from the sale of this royalty will be used to advance a feasibility study and permitting work streams on the Vermelho project. The equity fundraise (US$197million of the US$633 million) was finalized and funds received in December 2021 with a further equity fund raise completed in November 2022 for a gross US$80 million. The debt elements of the funding package include Convertible Loan Notes (US$65 million), a Cost Overrun Facility (US$25 million) and a Senior Debt Facility (US$346.2 million).

Funds from the convertible loan notes and the royalty were received in March 2022. The Cost Overrun Facility funds were received in November 2022 and the first drawdown under the Senior Debt Facility was completed in December 2022 following the satisfaction of certain conditions precedent customary to a financing of this nature. Subsequent drawdowns under the Senior Debt Facility are expected to follow during the remainder of the construction period, again following the satisfaction of certain conditions precedent customary to a financing of this nature including but not limited to satisfaction of a cost to complete exercise prior to each draw down on the facility, material project documents are in full force and effect, satisfaction of minimum order values from certain suppliers, maintaining operational licences and permitting in good standing as well as the updated base case financial models showing compliance with covenants and ratios. As the senior debt is conditional, there is no guarantee that the conditions of this element of the debt package will continue to be satisfied.

The funds held at the year-end along with those to be raised post year end following the satisfaction of any condition's precedent for further drawdowns of the Senior Debt Facility (Including access to any of the funds secured as part of the Cost Overrun Facility), means the Group has cash reserves which are considered sufficient by the Directors to execute the construction of the Araguaia Project and fund its general working capital requirements for the foreseeable future. There exists a risk that the Senior Debt Facility is not able to be drawn due to unforeseen circumstances or noncompliance with any conditions precedent which may or may not be within the control of the Group. Should the Senior Debt not be drawn then the Group would require alternative sources of funding to meet its commitments.

Some of these events are outside of the Group's control, and as such, a material uncertainty exists which may cast significant doubt about the Group's continued ability to operate as a going concern and its ability to realise its assets and discharge its liabilities in the normal course of business.

If additional projects are identified and the Vermelho project advances, additional funding may be required.

The financial statements do not include any adjustments that would result if the Group were unable to continue as a going concern.

18. Contractual commitments

Capital expenditure contracted for at the end of the reporting period but not yet incurred is as follows:

	31 December 2022	31 December 2021
Group	US$	US$
Mine Development Property	399,900,00	—

Capital commitments relate to contractual commitments for the Araguaia Project construction. Once incurred these costs will be capitalised as mine development property additions.

19. Off-Balance sheet arrangements

The Company does not engage in off-balance-sheet accounting to structure any of our financial arrangements and do not have any interests in unconsolidated special-purpose or structured finance entities.

20. Related party transactions

The key management personnel of the Company at 31 December 2022, are the directors, including the Chair and Chief Executive Officer and the Chief Financial Officer. Information about the remuneration of the key management personnel and the shares and options held by each director is included in the audited financial statements for the year ended 31 December 2022.

The nature of related party transactions of the Group has not changed between 31 December 2021 and 31 December 2022.

21. Responsibilities, controls and policies

Evaluation of disclosure controls and procedures

The Chair, Chief Executive Officer and Chief Financial Officer have designed disclosure controls and procedures, or have caused them to be designed under their supervision, in order to provide reasonable assurance that:

- material information relating to the Group is made known to the Chairman, Chief Executive Officer and Chief Financial Officer by others, particularly during the period in which the interim and annual filings are being prepared; and
- information required to be disclosed by the Group in its annual filings, interim filings or other reports filed or submitted by it under securities legislation is recorded, processed, summarised and reported within the time periods specified in securities legislation.

As at 31 December 2022, an evaluation was carried out, under the supervision of the Chief Executive Officer and Chief Financial Officer, of the design and operating effectiveness of the Group's disclosure controls and procedures. Based on this evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the Group's disclosure controls and procedures were effective as at 31 December 2022.

Evaluation of internal controls over financial reporting

Our Chair, Chief Executive Officer and Chief Financial Officer have designed internal controls over financial reporting, or have caused them to be designed under their supervision, in order to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS.

As at 31 December 2022, an evaluation was carried out, under the supervision of the Chief Executive Officer and Chief Financial Officer, of the design and operating effectiveness of the Group's internal controls over financial reporting. Based on this evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the internal controls over financial reporting were effective as at 31 December 2022.

Due to their inherent limitations, internal controls over financial reporting may not prevent or detect misstatements. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. There have been no changes in our internal controls over financial reporting for the quarter and the year ended 31 December 2022.

22. Risks and uncertainties

Please refer to the information presented in the heading "Risk Factors" on pages 47 to 59 of our Annual Information Form for the year ended December 31, 2022.

23. Critical Accounting Policies and Estimates

The financial information disclosed within this document was prepared on a going concern basis using accounting policies consistent with International Financial Reporting Standards (IFRS).

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the end of each reporting period.

Significant items subject to such estimates and judgements include:

Valuation of derivative financial instruments

Valuing derivatives inherently relies on a series of estimates and assumptions to derive what is deemed to be a fair value estimate for a financial instrument. The royalty financing arrangement entered into by the Group includes a Buyback option, embedded derivatives which was valued using a Monte Carlo simulation method. This methodology of determining fair value is reliant upon estimations including the probability of certain scenarios occurring, the estimated production rate and timeline of production from the Araguaia and Vermelho projects, future nickel prices as well as discount factors. The most important estimates in determining the valuation of the Buyback option are the future nickel and cobalt prices and their price volatility.

The conversion option on convertible loan notes issued by the Group is an embedded derivatives which was valued using a Monte Carlo simulation method. This methodology of determining fair value is reliant upon estimations including the Company's future share price volatility and GBP:USD exchange rate volatility on the conversion price.

Impairment of exploration and evaluation costs and mine development property

Exploration and evaluation costs which relate solely to Vermelho have a carrying value at 31 December 2022 of US$12,834,249 (2021: US$8,018,343). Each exploration project is subject to an annual review by either a consultant or senior company geologist to determine if the exploration results returned to date warrant further exploration expenditure and have the potential to result in an economic discovery. This review takes into consideration long-term metal prices, anticipated resource volumes and grades, permitting and infrastructure. In the event that a project does not represent an economic exploration target and results indicate there is no additional upside, a decision will be made to discontinue exploration. The judgement exercised by management relates to whether there is perceived to be an indicator of impairment and that management have concluded that there is not, due to the recovery in the Nickel prices, favourable economics of the Pre-Feasibility Study as well as the fundamentals of the nickel market and expected supply gap in the mid-term.

Mine development property which relates solely to Araguaia has a carrying value at 31 December 2022 of US$263,965,415 (2021: US$59,417,577) and is subject to an annual review by the management together with a consultant or a senior company geologist for impairment. The review takes into consideration long-term metal prices, anticipated resource volumes and grades, permitting, infrastructure and project financing available to continue with the project construction. In the event that the project prospects are unfavourable or additional funding needs to be secured to complete the project construction a decision may be made to impair the project. The judgement exercised by management relates to whether there is perceived to be an indicator of impairment and that management have concluded that there is not, due to the recovery in the Nickel prices, favourable economics of the Feasibility Study, the fundamentals of the nickel market and expected supply gap in the mid-term and the financing secured for the project construction.

Contingent and deferred consideration

Contingent consideration has a carrying value of US$6,895,737 (2021: US$6,734,134) and deferred consideration has a carrying value of US$5,758,431 (2021: US$5,443,861) at 31 December 2022. There are two contingent consideration arrangements in place as at 31 December 2022:

- Payable to Glencore in respect of the Araguaia acquisition - $5m
- Payable to Vale in respect of the Vale acquisition - $6m

The deferred contingent consideration arrangement in place as at 31 December 2022 is payable to Companhia Brasileira de Alumino (CBA) in respect of plant equipment.

In prior years Management judged that the projects had advanced to a stage that it was probable that the consideration would be paid and so should be recognised in full. This remains the position. In addition, a key estimate in determining the estimated value of the contingent and deferred consideration for Glencore Vale and CBA is the timing of the assumed date of first commercial production.

Current and deferred taxation

The Group is subject to income taxes in numerous jurisdictions. Judgment is required in determining the worldwide provision for such taxes. The Group recognises liabilities for anticipated tax issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will affect the current and deferred income tax assets and liabilities in the period in which such determination is made.

Deferred tax liabilities are recognised in respect of fair value adjustments to the carrying value of intangible assets as a result of the acquisition of such assets. Deferred tax assets are recognised on tax losses carried forward to the extent that the realisation of the related tax benefit through future taxable profits is probable. In determining whether a deferred tax asset should be recognised management must make an assessment of the probability that the tax losses will be utilized and a deferred tax asset is only recognised if it is considered probable that the tax losses will be utilized, this will only be once the operations have achieved nameplate capacity consistently over an extended period of time.

Other estimates include but are not limited to future cash flows associated with assets, useful lives for depreciation and fair value of financial instruments.

Accounting for the royalty finance arrangements

The Group has a $25m royalty funding arrangement which was secured in order to advance the Araguaia project towards construction. The royalty pays a fixed percentage of revenue to the holder for production from the first 426k tonnes of nickel produced from the Araguaia project.

The Group also a $25m royalty funding arrangement which was secured in order to advance the Vermelho project towards feasibility. The royalty pays a fixed percentage of revenue to the holder for production over the life of the mine based on the tonnes of nickel and cobalt produced from the Vermelho project.

The treatment of these financing arrangements as financial liabilities, calculated using the effective interest rate methodology is a key judgement that was made by the Company in prior years and which was taken following obtaining independent expert advice. The carrying value of the financing liability is driven by the expected future cashflows payable to the holder on the basis of the production profile of the mine property. It is also sensitive to assumptions regarding the royalty rate, which can vary based upon the start date for construction of the project and future nickel and cobalt prices. The contract includes certain embedded derivatives, including Buy Back Options which has been separated and carried at fair value through profit and loss.

The future prices of nickel and cobalt and date of commencement of commercial production are key estimates that are critical in the determination of the carrying value of the royalty liability.

The future expected nickel and cobalt prices and, volatility of the nickel and cobalt prices are key estimates that are critical in the fair value of the Buy-Back Options associated with the Royalty financing. The Buy-Back Options gives rise to a derivative financial asset.

Further information relating to the accounting for this liability and the sensitivity of the carrying value to these estimates is presented in the analysis of the carrying value earlier in this document.

Accounting for the convertible loan note liability

The Group has issued US$65 million of convertible loan notes which was secured in order to advance the Araguaia project towards construction. The convertible loans notes issued by the Group are hybrid financial instruments.

A derivative financial instrument that grants the holder of the instrument an option to convert it into a variable number of ordinary shares of the entity is a hybrid financial instrument. A hybrid financial instrument will have a debt host liability component and an embedded derivative component. The debt host liability and embedded derivative option are required to recognised and measured separately with derivative component being required to be measured first and the residual allocated to the debt host liability.

The future expected market share price of the Company and the volatility of the share price are the key estimates that are critical in the determination of the fair value of the embedded derivative and subsequently the debt host liability of the Convertible Loan Notes.

Determination of commencement of capitalisation of borrowing costs

The date at which the Group commenced capitalisation of borrowing costs was determined to be the point at which the Araguaia Project moved forwards with undertaking an exercise of value engineering to get the project construction ready. This was deemed by management to be at the start of 2020.

24. Additional Information

Additional information relating to the Company, including its annual financial statements for its most recently completed fiscal year as well as its annual information form are available on the Company's website at www.horizonteminerals.com and are also available on SEDAR at www.sedar.com.

Forward Looking Statements

Except for statements of historical fact relating to the Company, certain information contained in this management's discussion and analysis constitutes 'forward-looking information' under Canadian securities legislation. Forward-looking information includes, but is not limited to, statements with respect to the potential of the Company's properties; the future price of minerals; grant of key permits; success of exploration activities; cost and timing of future exploration and development; the estimation of mineral resources; requirements for additional capital and other statements relating to the financial and business prospects of the Company. Generally, forward-looking information can be identified by the use of forward-looking terminology such as 'plans', 'expects' or 'does not expect', 'is expected', 'budget', 'scheduled', 'estimates', 'forecasts', 'intends', 'anticipates' or 'does not anticipate', or 'believes', or variations of such words and phrases or statements that certain actions, events or results 'may', 'could', 'would', 'might' or 'will be taken', 'occur' or 'be achieved'. Forward-looking information is inherently subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward-looking information, including but not limited to risks related to:

The Company's goal of creating shareholder value by concentrating on the acquisition and development of properties that have the potential to contain economic mineral deposits;

- *future plans for the Araguaia Project and other property interests held by the Company or which may be acquired on a going forward basis, if at all;*
- *management's outlook regarding future trends;*
- *the Company's ability to meet its working capital needs at the current level in the short term; and*
- *governmental regulation and environmental liability.*

Forward-looking information is based on the reasonable assumptions, estimates, analysis and opinions of management made in light of its experience and its perception of trends, current conditions and expected developments, as well as other factors that management believes to be relevant and reasonable in the circumstances at the date that such statements are made, and are inherently subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward-looking information, including but not limited to risks related to: unexpected events and delays during permitting; the possibility that future exploration results will not be consistent with the Company's expectations; timing and availability of external financing on acceptable terms and in light of the current decline in global liquidity and credit availability; uncertainty of mineral resources; future prices of minerals; currency exchange rates; government regulation of mining operations; failure of equipment or processes to operate as anticipated; risks inherent in mineral exploration and development including environmental hazards, industrial accidents, unusual or unexpected geological formations; and uncertain political and economic environments. Although management of the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking information, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information. The Company does not undertake to update any forward-looking information, except in accordance with applicable securities laws.