

# HORIZONTE MINERALS PLC MANAGEMENT'S DISCUSSION AND ANALYSIS

## TWELVE MONTHS ENDED 31 DECEMBER 2021

### BACKGROUND

This Management's Discussion and Analysis of the financial position and results of operations was originally prepared as at 25 March 2022 and should be read in conjunction with the Consolidated Financial Statements of Horizonte Minerals plc as at 31 December 2021 approved and filed at the same time as this document. The Consolidated Financial Statements have been prepared in accordance with International Financial Reporting Standards and International Accounting Standards.

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<sup>1</sup> (NPV<sub>8</sub>) 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\$6,794/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<sup>2</sup>;
- ☞ An estimated Base Case post-tax NPV of US\$1.7 billion 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.

<sup>1</sup> NPV calculated using 8% discount rate

<sup>2</sup> USD/BRL 1/3.8 exchange rate applied for life-of-mine

## HIGHLIGHTS FOR 2021

- ☞ On 19 February 2021 the Group undertook a fund raise raising gross proceeds of approximately £12.2m from a placing to institutions in the USA and UK and £6.6m by way of an underwritten bought deal private placement in Canada.
- ☞ As a result of the placing issued 162,718,353 new ordinary shares at a price of 7.5 pence per share and 88,060,100 special warrants convertible into ordinary shares upon the filing of a prospectus.
- ☞ Filed and obtained a receipt (the "Receipt") for a final short form prospectus dated April 9, 2021, in connection with its previously completed private placement of 88,060,100 special warrants for gross proceeds of C\$11,711,993.30. The Prospectus qualifies the distribution of the 88,060,100 ordinary shares in the capital of the Company and as a result of obtaining the Receipt, the Special Warrants shall be deemed to be exercised and 88,060,100 Ordinary Shares were issued. This completed the fund raise that was undertaken in February 2021.
- ☞ Awarded the construction licence package for the development of the power line for Araguaia, the approved package includes the preliminary licence (Licença Prévia), the construction licence (Licença de Instalação), and the related fauna and flora licences. This licence package permits the implementation of a 120km, 230KV power line, and respective substation and is an important step in the derisking of Araguaia.
- ☞ Appointment of Michael Drake as Head of Projects, responsible for overseeing the development of Araguaia and Vermelho. Michael's experience as a Mechanical Engineer with extensive international leadership experience in the construction, operation and optimisation of medium to large capex projects, with extensive expertise in both ferro-nickel, and nickel acid-leach operations places him well to add to the expending team and skill base at Horizonte. Prior to joining Horizonte, Michael worked for BHP, Newcrest Mining, and WMC Resources.
- ☞ Awarded the contract for the Environmental & Social Impact Assessment (ESIA) for the Company's 100% owned nickel cobalt Vermelho project ('Vermelho' or the 'Project') to Ramboll. The ESIA is an essential part of the permitting process for Vermelho and expected to lead to the award of the Preliminary Licence.
- ☞ On 13 September 2021, the Company received formal credit and board approval from two export credit agencies (the "ECAs") for US\$146.2 million of the senior secured project finance facility to part-fund construction and development of the ANP. The ECAs are EKF, Denmark's Export Credit Agency ("EKF") and Finnvera plc, Finland's Export Credit Agency ("Finnvera")
- ☞ On 30 September 2021, the Company received credit approvals from a syndicate of five international financial institutions (the "Senior Lenders") in addition to the previously announced approval by the two export credit agencies (the "ECAs") for a senior secured project finance facility (the "Senior Debt Facility") of up to US\$346.2 million to fund the ANP. The Senior Lenders are BNP Paribas Securities Corp ("BNPP"), ING Capital LLC ("ING"), Natixis, New York Branch ("Natixis"), Société Générale ("SocGen"), and Swedish Export Credit Corporation ("SEK").
- ☞ The Company filed and obtained a final receipt for a final base shelf prospectus dated 29 October 2021 in each of the provinces and territories of Canada, other than Quebec. The prospectus enables the Company to qualify for a distribution of up to C\$125 million of any combination of ordinary shares, warrants, subscription receipts, debt securities, and units during the 25 months that the Prospectus remains effective. The specific terms of any future offerings of securities, including the use of proceeds from any offering, will be established in a prospectus supplement filed with the applicable Canadian regulatory authorities. The Prospectus provides flexibility to the Company to pursue its business objectives.
- ☞ On 23 November 2021, the Company announced that it had entered into into certain investment and subscription agreements as part of a comprehensive funding package of US\$633 million which is expected to complete the funding required for the construction of Araguaia. The Proposed Funding Package comprises:
  - ☞ US\$197 million equity fundraise which included the UK Placing, Canadian Offering, Orion Strategic Investment and La Mancha Strategic Investment, the Glencore Subscription and the Open Offer
  - ☞ US\$65 million convertible loan notes
  - ☞ US\$ 25 million cost overrun debt facility
  - ☞ US\$346.2 million proposed senior debt facility (credit approvals and signed commitment letter received in September 2021 as mentioned above)
- ☞ Araguaia Niquel Metais Ltda ("Araguaia Ltda"), a member of the Company's group entered into a conditional ten year offtake agreement with Glencore (with the obligations of Araguaia Ltda being guaranteed by the Company), where Glencore has committed to acquire 100% of the production of ferronickel from Araguaia for that period ("Offtake Agreement"). The entry into the Offtake Agreement is a key requirement of the Lenders and significantly de-risks future cash flows from the Project.
- ☞ On 22 December 2021, the Company completed its Equity Fundraise as announced on 23 November 2021. The Company issued a total of 2,102,209,850 Ordinary Shares raising gross proceeds of approximately £147.2 million. The Company intends to use the net proceeds for the construction of the Araguaia Project, as well as for general working capital purposes.
- ☞ Araguaia Niquel Metais Ltda ("ANM") has entered into an asset purchase agreement ("Agreement") to purchase certain new and unused ferronickel processing equipment (the "Processing Equipment") from Companhia Brasileira de Alumínio ("CBA"), a company listed on the B3 (Brazilian Stock Exchange), controlled by Votorantim SA ("Votorantim"), one of the largest industrial and financial investment holding companies in Latin America. The Processing Equipment comprises the key components of a conventional rotary kiln electric furnace plant ("RKEF"), excluding the furnace, and is expected to provide meaningful synergies in relation to the development of the Araguaia ferronickel project. The Agreement provides for a low upfront cost of US\$600,000 payable in cash on signing 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 Araguaia.
- ☞ On 29 December 2021, the Company announced that it had signed loan documentation in relation to its senior secured project finance debt facility of US\$346.2 million (the "Senior Debt Facility") between Araguaia Niquel Metais LTDA as the Borrower and a syndicate of international financial institutions, the Lenders (BNP Paribas, BNP Paribas Fortis, ING Capital LLC, ING Bank N.V., Natixis, New York Branch, Société Générale and Swedish Export Credit Corporation).

## Events after the Reporting Date

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.

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;

First drawdown under the Senior Debt Facility is expected to occur in the fourth quarter of 2022 following satisfaction of certain conditions precedent customary for transactions of this nature.

On 15 March 2022 Horizonte Minerals confirmed the satisfaction of material conditions precedent in relation to the US\$ 65 million Convertible Loan Note with full draw down on this expected to follow shortly afterwards.

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.

## Ongoing Covid-19 Pandemic

During the period of these financial statements there has been an ongoing significant global pandemic which has had significant knock on effects for the majority of the world's population, by way of the measures governments are taking to tackle the issue. This represents a risk to the Group's operations by restricting travel, the potential to detriment the health and wellbeing of its employees, as well as the effects that this might have on the ability of the Group to finance and advance its operations in the timeframes envisaged. The Group has taken steps to ensure the safety of its employees and operate under the current circumstances and feels the outlook for its operations remains positive, however risk remain should the pandemic worsen or changes its impact on the Group. The assessment of the possible impact on the going concern position of the Group is set out in the going concern note in the financial statements for the year ended 31 December 2021. In addition, because of the long term nature of the Group's nickel projects and their strong project economics management do not consider that COVID has given rise to any impairment indicators. The Group has not received any government assistance.

## OBJECTIVES

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

- ☞ Progress the ANP project through to development by securing project financing
- ☞ Advance the newly acquired Vermelho project towards a Feasibility Study
- ☞ Advance the permitting for Vermelho

# 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

Item	Unit	Nickel price basis (US\$/t Ni)	
		Base (14,000)	CIBC (16,800)
Net cash flow	US\$M	1,572	2,582
NPV <sub>8</sub>	US\$M	401	740
IRR	%	20.1	28.1
Breakeven (NPV <sub>8</sub> ) 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 <sup>3</sup>	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

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 of US\$401 million and an IRR of 20.1% using the base case forecast of US\$14,000/t Ni.

3 Average over initial 28 years of processing

## 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 <sup>3</sup> )	Contained Ni metal (kt)	Ni (%)	Co (%)	Fe (%)	MgO (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	Cr <sub>2</sub> O <sub>3</sub> (%)
		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
<b>Total</b>	<b>Measured</b>	<b>All</b>	<b>18,168</b>	<b>1.35</b>	<b>261</b>	<b>1.44</b>	<b>0.05</b>	<b>16.26</b>	<b>17.51</b>	<b>39.91</b>	<b>5.40</b>	<b>1.17</b>
		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
<b>Total</b>	<b>Indicated</b>	<b>All</b>	<b>101,169</b>	<b>1.30</b>	<b>1,264</b>	<b>1.25</b>	<b>0.06</b>	<b>19.39</b>	<b>16.90</b>	<b>36.26</b>	<b>5.06</b>	<b>1.39</b>
<b>Total</b>	<b>Measured + Indicated</b>	<b>All</b>	<b>119,337</b>	<b>1.30</b>	<b>1,525</b>	<b>1.27</b>	<b>0.06</b>	<b>18.91</b>	<b>16.99</b>	<b>36.81</b>	<b>5.11</b>	<b>1.36</b>
		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
<b>Total</b>	<b>Inferred</b>	<b>All</b>	<b>12,920</b>	<b>1.30</b>	<b>154</b>	<b>1.19</b>	<b>0.06</b>	<b>20.21</b>	<b>14.90</b>	<b>36.77</b>	<b>5.58</b>	<b>1.39</b>

#### 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. 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.
5. kt = thousand tonnes (metric).

## 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 <sub>2</sub> :MgO	Al <sub>2</sub> O <sub>3</sub> (%)
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%.
3. 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.
4. 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 25 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.

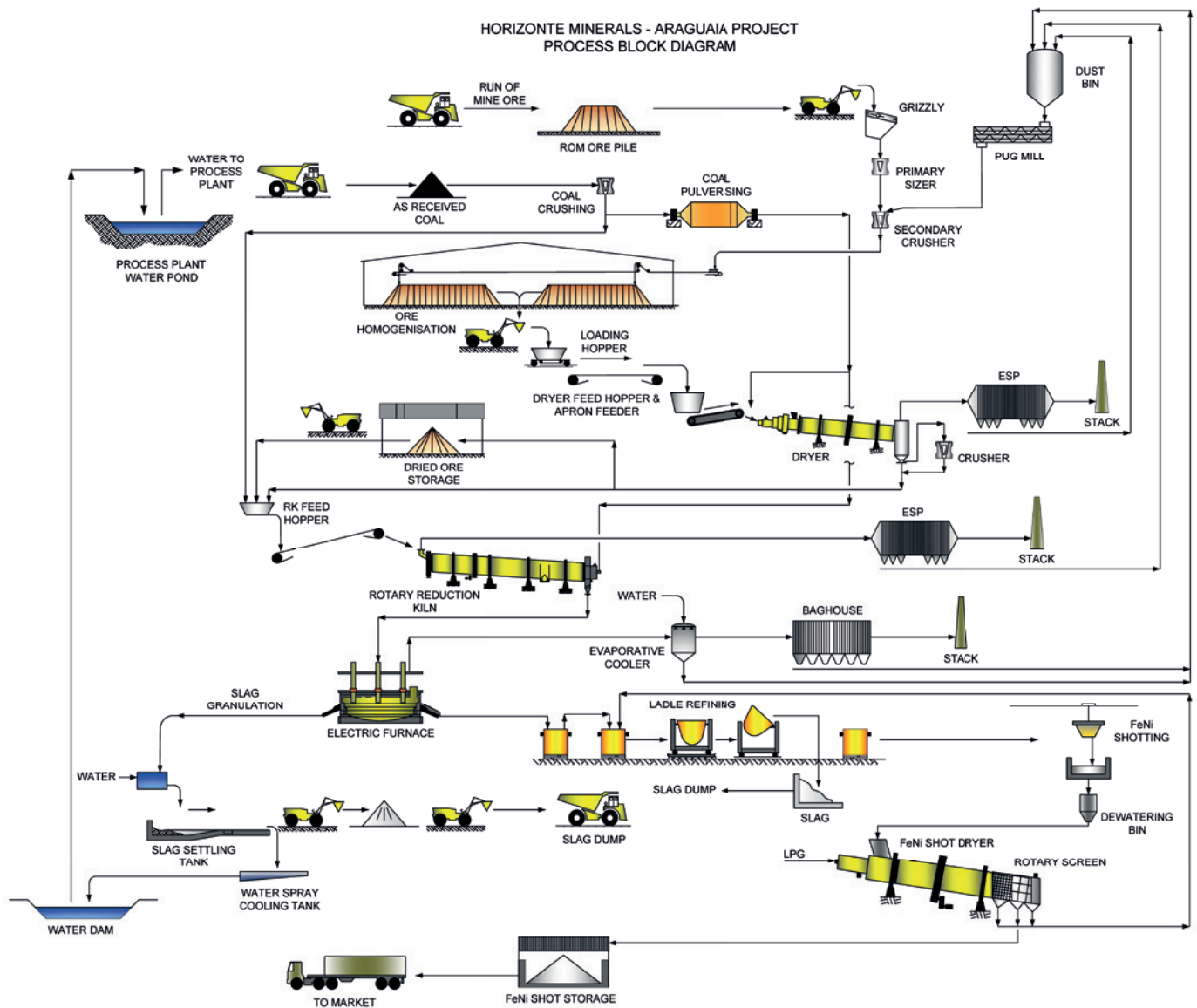
The RKEF process is proven and used successfully in over 40 nickel laterite plants around the world and was deemed appropriate for the Project based on the extensive metallurgical test work and the pilot plant campaigns completed on the ore.

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 shotting 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 the 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
<b>Process Plant</b>		
<b>Directs</b>		
Power	32,114,355	2,410
Coal	21,591,099	1,620
Other directs	17,965,039	1,348
Labour	7,831,286	588
<b>Subtotal – Direct costs</b>	<b>79,501,779</b>	<b>5,966</b>
<b>Indirect costs</b>	<b>10,285,640</b>	<b>772</b>
<b>Mining costs</b>	<b>21,112,173</b>	<b>1,584</b>
<b>Total costs</b>	<b>110,899,592</b>	<b>8,322</b>

### 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 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)

Item	Unit	Nickel price basis (US\$/t Ni)	
		Base (14,000)	CIBC (16,800)
Net cash flow	US\$M	1,834	3,208
NPV <sub>8</sub>	US\$M	456	840
IRR	%	21.2	29.9
Breakeven (NPV <sub>8</sub> ) 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 costs	US\$M	4,137	4,137
Operating cash flow	US\$M	2,421	3,616

### ANP FS Sensitivity Analysis

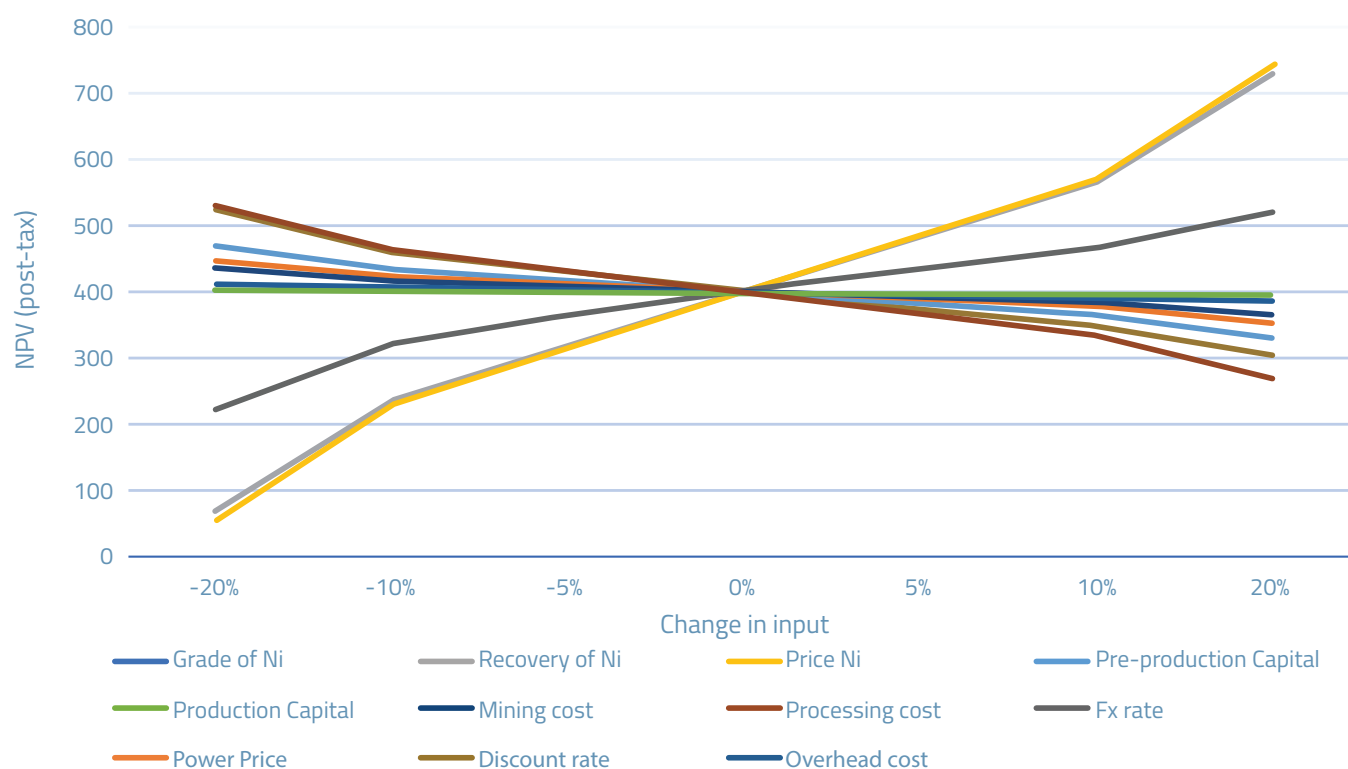
A sensitivity analysis was completed as part of the FS that demonstrates how the NPV<sub>8</sub> is affected by changes to one variable while holding the other variables constant. The results of the sensitivity analysis are presented in Table 7 and Figure 2. The breakeven ('B/E') indicates the change in the variable that will bring the project NPV<sub>8</sub> to US\$0.000 if all other variables remain unchanged. For example, if the grade of Ni reduces by 23.3% the Project will break even on NPV<sub>8</sub>.

Table 7 ANP FS sensitivity table for the base case (US\$ 14,000/t) NPV<sub>8</sub>, after taxation

	-20%	-10%	-5%	0%	5%	10%	20%	B/E <sup>4</sup>
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	—

<sup>4</sup> The breakeven change for the variable if all other variables remain unchanged. For example, if the grade of Ni reduces by 23.3% the Project will break even on NPV<sub>8</sub>.

Figure 2: ANP FS sensitivity to NPV<sub>g</sub> 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\$13,000/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: Integração 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 <sub>8</sub>	US\$ M	1,722	2,373
IRR	%	26.3%	31.5%
Breakeven (NPV <sub>8</sub> ) nickel price	US\$/t	7,480	7,480
C1 cost (Brook Hunt)	US\$/t Ni	8,029	8,029
C1 cost (Brook Hunt) years 1–10	US\$/t Ni	7,483	7,483
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<sub>g</sub> 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 <sub>2</sub> O <sub>3</sub> %	MgO <sub>2</sub> %	SiO <sub>2</sub> %
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
<b>Measured + Indicated</b>	<b>145.7</b>	<b>1.05</b>	<b>1,526</b>	<b>0.05</b>	<b>77.3</b>	<b>30.9</b>	<b>11.2</b>	<b>41.3</b>
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 m<sup>3</sup> 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<sub>4</sub>•H<sub>2</sub>O) 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	—	1,022
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
<b>TOTAL</b>	<b>652.24</b>	<b>446.68</b>	<b>52.28</b>	<b>1,151</b>

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	8,126	53.13	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 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)

Item	Unit	Nickel price basis (US\$/t Ni)**	
		Base Case (consensus) 16,400	WM Long Term 19,800
Net cash flow	US\$ million	7,304	9,546
NPV <sub>8</sub>	US\$ million	1,722	2,373
IRR	%	26.3%	31.5%
Breakeven (NPV <sub>8</sub> ) Ni price	US\$/t	7,480	7,480
C1 Cost (Brooke Hunt)	US\$/t Ni	8,029	8,029
C1 Cost (Brooke Hunt) years 1-10	US\$/t Ni	7,483	7,483
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\$ million	19,034	22,175
LOM Total costs	US\$ million	11,729	12,629
Operating cash flow	US\$ million	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

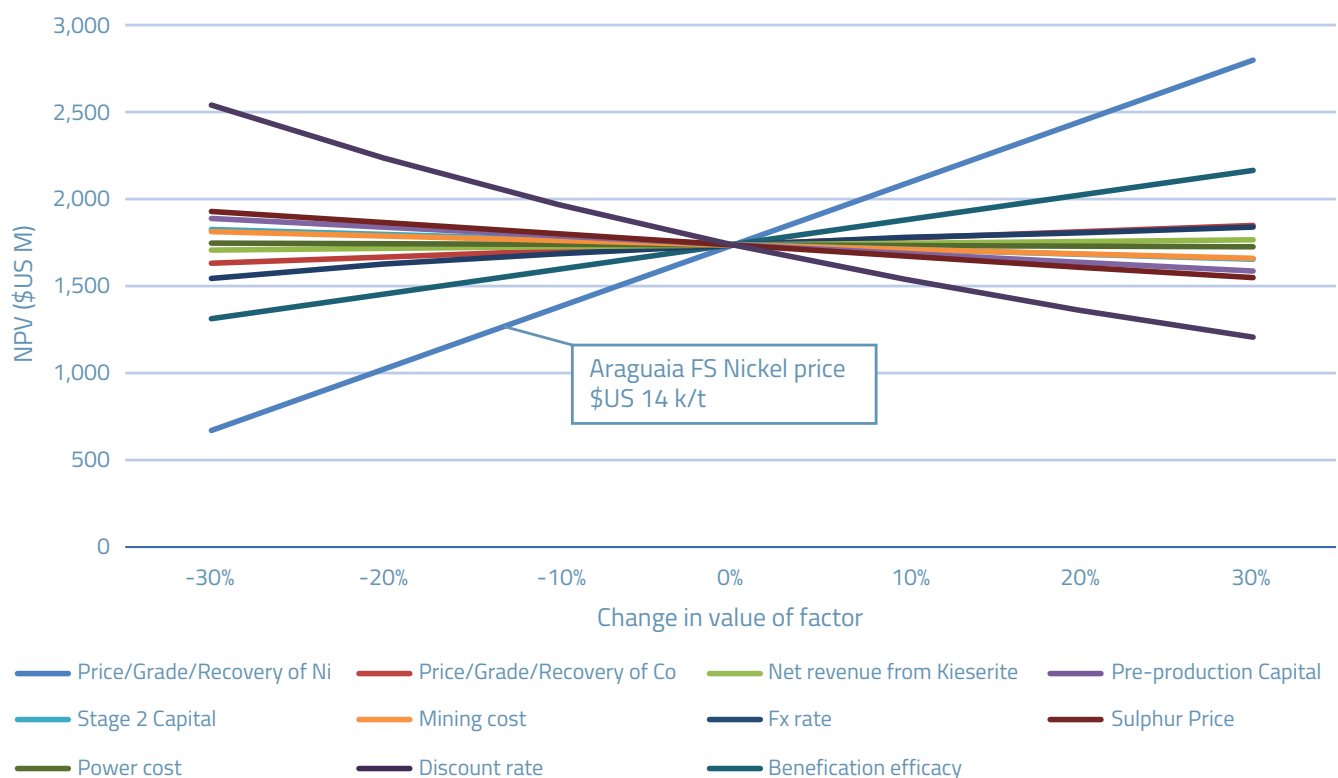
The PFS sensitivity analysis demonstrates how the NPV<sub>8</sub> is affected by changes to one variable while holding the other variables constant. The results of the sensitivity analysis are presented in Table 15 and Figure 3.

Table 15 VNP PFS Sensitivity table for the Base Case (US\$16,400/t\*\*) NPV<sub>8</sub>, 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 Sensitivity chart



Please see the image in the full version of the announcement at [www.horizonteminerals.com](http://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 Agrônômica (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](http://www.horizonteminerals.com) and on SEDAR at [www.sedar.com](http://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](http://www.horizonteminerals.com) and on SEDAR at [www.sedar.com](http://www.sedar.com)*

## Summary of Financial and Operating Performance

The Company reports in Pounds Sterling.

	Year ended 31 December 2021 £	Year ended 31 December 2020 £
Loss before taxation	(9,670,803)	(2,277,411)
Cash and cash equivalents	156,186,302	10,935,563
Exploration assets	5,949,649	6,062,624
Mine development property	44,088,134	30,706,819
Royalty liability	(33,016,624)	(22,053,341)
Fair value of derivative asset	3,672,924	1,756,553
Net assets	170,106,827	21,410,702

The loss before taxation of the Group of £9,670,803 for the year ended 31 December 2021 (year ended 31 December 2020: £2,277,411 ) was after the following principal items:

- ☞ Administrative costs of £5,678,350 (year ended 31 December 2020: £2,949,736)
- ☞ Changes in fair value of derivative of £1,853,282, gain (year ended 31 December 2020: £424,500 loss)
- ☞ Changes in fair value of special warrant liability of £1,174,796 loss (year ended 31 December 2020: £nil)
- ☞ A loss on foreign exchange movement of £627,145 (year ended 31 December 2020: £751,313 gain) driven by volatility in the Brazilian Real, which weakened during the year.

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 2021 is £4,043,794 compared to a net finance income of £236,986 in 2020, due to the borrowing costs on the Royalty Finance arrangement exceeded the capitalisation rate and thus were expensed and the change in estimate on the Xstrata Brasil Mineração Ltda contingent consideration. During the year the royalty finance interest was £10,451,115 (2020: £2,100,521) of which £5,248,379 (2020: £2,100,521) was capitalised to the mine development asset. Interest earned on cash deposits was capitalised to the Mine Development Property during the year in line with the adopted accounting policy for borrowing costs.

The cash levels of the Group as at 31 December 2021 and 31 December 2020 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. The Group secured a royalty investment of \$25 million from Orion Mine Finance during 2019 which positioned the Group well to advance the Araguaia project towards construction. During 2020 the Group was undertaking value engineering work on the Araguaia project which resulted in significant expenditure on the Mine Development asset as well and increased overheads as a result of the work towards closing project financing. In 2021 £167 million (£20million in Q1 and £147million in Q4) was secured through equity fundraisers to advance the Araguaia project. The £147million (approximately US\$197million) raised in Q4 was part of the US\$633million funding package concluded in December 2021 to finance the construction of the Araguaia project.

Exploration assets and mine development property, which comprise both the Araguaia and Vermelho projects, have increased to £50,037,783 as at 31 December 2021 as compared to £36,769,424 at 31 December 2020. The Group incurred additional expenditure in the year, which included £10 million mainly in relation to work undertaken in Araguaia as part of the advances of the project towards commencement of construction; as well as the capitalization of unwinding of the royalty liability totalling £5.2 million.

There was also a foreign exchange revaluation loss of £2.4 million due the depreciation of the BRL. The exploration assets of the business are recorded in the functional currency of Brazil, the country in which they are located.

The \$25 million upfront payment for a royalty secured in 2019 has been valued using the amortised cost basis and is valued as a liability of £33,016,624 at 31 December 2021 (£22,053,341 at 31 December 2020). This funding is not repayable until the project enters into production and following that payments are made at a variable rate of 2.25% potentially increasing to 3.0% based upon the date that project finance is secured and certain level of construction expenditure is committed. The current assumed royalty rate is 2.95% compared to 2.65% at the end of 2020. The royalty is due on revenue less some associated costs on a quarterly basis and has been revalued based on the expectation of the future payments under the agreement 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 purchase price is driven by the holder obtaining certain milestones on its return on investment. The result of these derivatives are a fair value of derivative asset being recognised on the balance sheet of £3.7 million (2020: £1.8 million).



## Summary of Cashflows

	Year ended 31 December 2021 £	Year ended 31 December 2020 £
Net cash flows from/(used in) operating activities	(3,715,383)	(3,188,146)
Net cash used in investing activities	(10,526,432)	(4,001,739)
Net cash flow generated from financing activities	160,785,022	93,000
Net increase/(decrease) in cash and cash equivalents	146,543,207	(7,096,885)

The net cash flows used in operating activities for the twelve months ended 31 December 2021 and 31 December 2020 are driven by activities in the management of the Araguaia Project and to a lesser extent Vermelho. These management activities were higher during 2021 as work levels increased as a result of increasing the operational team and financing workstreams to advance Araguaia towards being construction-ready and securing the required project finance package. See 'Results from Operations' for further analysis.

Cash used in investing activities has increased to £10,526,432 from £4,001,739 in 2020 as a result of the increased level of expenditure related to advancing the Araguaia Project towards being construction ready. A significant portion of the expenditure in 2021 relates to the land right of way acquisitions for the Araguaia Project. These acquisitions amounted to £7.6 million of which £3.5million of the land and 'right of way' purchases is included in trade and other payables as at 31 December 2021.

Net cash flows from financing activities amounted to £161million, raised via equity fundraisers to advance the Araguaia project.

## Analysis of Selected Financial Information

	Year ended 31 December 2021 £	Year ended 31 December 2020 £	Year ended 31 December 2019 £
Gross Profit	Nil	Nil	Nil
Loss for the year	(9,670,803)	(2,277,411)	(3,171,214)
Total comprehensive income for the year attributable to equity holders in the Company	(12,088,897)	(10,429,355)	(5,798,153)
Basic and diluted loss per share (p)	(0.568)	(0.157)	(0.219)
Total Assets	228,925,551	50,023,475	59,459,854
Total Non-Current Liabilities	(42,062,594)	(27,980,366)	(27,028,864)
Dividend per share	Nil	Nil	Nil

Analysis of the drivers behind the change in loss for the year from £2,277,411 in 2020 to £9,670,803 in 2021 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 2021 of £12,088,897 included exchange differences arising on translation of foreign operations of £2,418,094 – this is due to the Brazilian Real weakening against Sterling as at 31 December 2021 when compared to 31 December 2020.

Total comprehensive loss attributable to equity holders in the Company for the year ended 31 December 2020 of £10,429,355 included exchange differences arising on translation of foreign operations of £8,151,944 – this is due to the Brazilian Real weakening against Sterling as at 31 December 2020 when compared to 31 December 2019.

Total comprehensive loss attributable to equity holders in the Company for the year ended 31 December 2019 of £5,798,153 included exchange differences arising on translation of foreign operations of £2,626,939 – this is due to the Brazilian Real weakening against Sterling as at 31 December 2019 when compared to 31 December 2018.

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 £50,023,475 in 2020 to £228,925,551 in 2021 is principally due to additional cash received from equity fundraises completed during the year totalling £167 million and the increased level of expenditure on the Araguaia project to advance it to construction phase (£10 million) as well as capitalisation of borrowing costs (£5 million). This also included land and 'right of way' purchases totalling £7.6million.

The decrease in total assets from 2019 to 2020 of £9,436,379 from £59,459,854 as at 31 December 2019 to £50,023,475 as at 31 December 2020 is principally due to the retranslation of assets denominated in Brazilian Real during the year in addition to the loss and exploration expenditure during the year.

The increase in total assets from 2018 to 2019 of £17,169,408 from £59,459,854 as at 31 December 2018 to £42,290,446 as at 31 December 2019 is principally due to the additional cash received from the Orion Royalty Investment of \$25m obtained during the year, offset by the loss and exploration expenditure during the year.

The remainder of the movement in total assets in each of 2020, 2019 & 2018 is due to foreign exchange movements on other assets and liabilities.

Total long-term liabilities as at 31 December 2021 comprises the contingent consideration payable to Glencore and Vale of £5 million and deferred consideration payable to Companhia Brasileira de Alumínio (CBA) of £4 million as well as the £33 million royalty liability. In 2020 it comprised the contingent consideration payable to Vale & Glencore of £5.9 million as well as £22 million royalty liability. In 2019 the long term liabilities comprised the contingent consideration payable to Vale & Glencore of £6.3 million as well as £20.5 million royalty liability.

The contingent consideration comprises two parts, the first in relation to the Glencore Transaction and payable to Xstrata, ('Xstrata Contingent Consideration'). It comprises two elements: US\$1,000,000 due after the date of issuance of a joint feasibility study for the combined Enlarged Project areas (this was settled during 2019), together with US\$5,000,000 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 is in relation 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 deferred consideration is in relation 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.

The key assumptions underlying the treatment of the contingent and deferred consideration of the US\$5,000,000 Xstrata, US\$6,000,000 Vale and US\$7,000,000 CBA are the same (see 'Contingent and deferred consideration' in 'Critical Accounting Policies and Estimates').

The contingent consideration at the end of 2021 is carried at £4,996,761 and comprises £1,713,002 regarding the amounts payable to Xstrata under the contingent consideration arrangement, £3,283,758 payable to Vale under a contingent consideration arrangement. The deferred consideration at the end of 2021 is carried at £4,062,876 payable to CBA under a deferred consideration arrangement.

The contingent consideration at the end of 2020 is carried at £5,927,025 and comprises £2,893,877 regarding the amounts payable to Xstrata under the contingent consideration arrangement and £3,033,148 payable to Vale under a contingent consideration arrangement.

The contingent consideration at the end of 2019 is carried at £6,246,069 and comprises £2,975,935 regarding Xstrata Contingent Consideration and £3,270,134 in relation to Vale.

Deferred tax liabilities had a value of £nil during the current year as the company to which they related was shut down during the year. The deferred tax liability balances were £212,382 as at 31 December 2019 and £228,691 as at 31 December 2018.

## Quarterly Financial Information

Quarter Ended	31 December 2021 £	30 September 2021 £	30 June 2021 £	31 March 2021 £	31 December 2020 £	30 September 2020 £	30 June 2020 £	31 March 2020 £	31 December 2019 £
Revenue	—	—	—	—	—	—	—	—	—
Profit/(Loss) from continuing operations	(4,617,372)	(2,762,095)	(1,336,860)	(954,476)	359,228	(1,882,583)	(718,098)	(41,522)	(3,526,208)
Total comprehensive income attributable to owners of the parent	(5,808,204)	(5,297,793)	4,076,191	(5,059,091)	1,440,259	(3,047,881)	(2,175,902)	(6,651,394)	(6,153,147)
Basic & diluted earnings/(loss) pence per share	(0.214)	(0.162)	(0.079)	(0.063)	0.001	(0.13)	(0.050)	(0.003)	(0.032)

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 loss from continuing operations in the first quarter of 2021 of £954,476 was after administrative expenses of £820,802, a change in fair value of special warrant liability of £303,001(loss) and a gain on foreign exchange translation of £184,584.

The loss from continuing operations in the second quarter of 2021 of £1,336,860 was after administrative expenses of £1,819,225, a change in fair value of special warrant liability of £871,795 (loss) and a gain on foreign exchange translation of £1,400,858.

The loss from continuing operations in the third quarter 2021 of £2,762,095 was after administrative expenses of £1,393,747 and a loss on foreign exchange translation of £1,236,894.

The loss from continuing operations in the fourth quarter of £4,617,372 was after administrative expenses of £1,877,080 a change in fair value of derivative of £1,853,282 (gain), change in estimate on the Glencore contingent consideration 1,419,978 (gain), expensed royalty finance borrowing costs of £5,202,736 and a loss on foreign exchange translation of £975,693.

The loss from continuing operations in the first quarter of 2020 of £41,522 was after administrative expenses of £674,458 and a loss on fair value of contingent consideration of £308,510 due to a weakening of Sterling against the United States Dollar, in which the contingent consideration is denominated and a gain on foreign exchange translation of £941,446.

The loss from continuing operations in the second quarter of 2020 of £718,098 was after administrative expenses of £890,648 and a gain on foreign exchange translation of £185,376.

The loss from continuing operations in the third quarter of 2020 of £1,882,583 was after administrative expenses of £777,847, derivative fair value movement loss of £433,522 and a loss on foreign exchange translation of £716,018.

The profit from continuing operations in the fourth quarter of 2020 of £359,228 was after administrative expenses of £606,783, a gain on fair value of contingent consideration of £456,848 due to a strengthening of Sterling against the United States Dollar, in which the contingent consideration is denominated and a gain on foreign exchange translation of £340,509.

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 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 £(4,104,615) as the Brazilian Real weakened against Sterling 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 £5,413,051 as the Brazilian Real strengthened against Sterling 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 £(2,535,698) as the Brazilian Real weakened against Sterling 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 £(1,190,832) as the Brazilian Real weakened against Sterling in the quarter.

During the first quarter of 2020 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of (£6,609,872) as the Brazilian Real weakened against Sterling in the quarter.

During the second quarter of 2020 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of (£1,457,804) as the Brazilian Real continued to weakened against Sterling in the quarter.

During the third quarter of 2020 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of (£1,165,299) as the Brazilian Real continued to weakened against Sterling in the quarter.

During the fourth quarter of 2020 the total comprehensive income attributable to equity holders of the company was after exchange differences arising on translating foreign operations of £1,081,031 as the Brazilian Real strengthened against Sterling in the quarter.

	12 months ended 31 December 2021 £	12 months ended 31 December 2020 £
<b>Cash expenditure on Exploration activities</b>	<b>10,890,354</b>	<b>4,153,198</b>
<b>Net Movement in PPE &amp; Intangible Assets</b>		
Expenditure (cash + non-cash)	23,604,706	6,253,719
Foreign exchange movement	(2,118,688)	(8,537,270)
Impairment	—	—
<b>Net Movement</b>	<b>21,486,018</b>	<b>(2,283,551)</b>
<b>Analysis of Operating Loss:</b>		
<b>General and Administration Costs</b>		
Compensation	(3,818,517)	(1,067,047)
Travel and Office Expenses	(424,795)	(199,352)
Exploration Costs Expensed	—	(557,283)
Professional Fees	(1,119,158)	(888,137)
Investor Relations	(279,833)	(181,942)
TSX fees and associated costs	(46,998)	(17,587)
Overheads/Other	10,951	(38,388)
<b>Total General and Administration Costs</b>	<b>(5,678,350)</b>	<b>(2,949,736)</b>
Change in fair value of special warrant liability	(1,174,796)	—
Change in fair value of derivative	1,853,282	(424,500)
Gain / (Loss) on Foreign Exchange	(627,145)	751,313
<b>Loss before interest and tax</b>	<b>(5,627,009)</b>	<b>(2,622,923)</b>

## Results from Operations

Cash expenditure on exploration activities has increased significantly from £4,153,198 in the year ended 31 December 2020 to £10,890,354 in the year ended 31 December 2021. The expenditure in both years comprises spend on the Araguaia Project whilst advancing the project through to being construction ready and minimal expenditure on the Vermelho project. 2021 included land and 'right of way' acquisitions.

General and Administration costs have increased by about 93% to £5,678,350 from £2,949,736 for the 12 months ended 31 December 2021 as compared to 2020. 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 £3,818,517 was higher in 2021 versus 2020 when it amounted to £1,067,047 due to an increase in headcount as a result of building out a team to move the Araguaia project towards construction.
- ☞ Exploration costs incurred in 2021 have been capitalized to the Araguaia project mine development asset and Vermelho exploration and evaluation intangible asset.
- ☞ Travel and office expenses of £424,795 was higher in 2021 versus 2020 when it amounted to £199,352 due to an increase in travel after Covid-19 travel restrictions were lifted.
- ☞ The level of professional fees has increased to £1,119,158 for 2021 compared to £888,137 for 2020 as a direct result of increasing levels of activity around seeking to obtain 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 2021 at £279,833 compared to £181,942 in 2020. This is predominantly due to an overall increase in the level of investor-related activity in anticipated of closing project financing for the ANP.

Additional movements:

- ☞ The loss on foreign exchange is associated with movements arising on cash deposits and intercompany loan balances held by the Company in currencies other than Sterling.
- ☞ 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.
- ☞ The embedded derivative within the Royalty agreement is fair valued through the P&L and during the year ended 2021 there was a gain on fair value of £1,853,282 compared to a loss £424,500 in 2020, as a result of the change in some macro economic factors and other drivers of the expected value of such derivatives.

## Analysis of Intangible Assets

Cost	Goodwill £	Exploration licenses £	Exploration and evaluation costs £	Software £	Total £
At 1 January 2020	210,585	5,157,366	1,689,495	—	7,057,446
Additions	—	—	—	—	—
Exchange rate movements	(52,337)	(151,785)	(632,451)	—	(836,573)
<b>Net book amount at 31 December 2020</b>	<b>158,248</b>	<b>5,005,581</b>	<b>1,057,044</b>	<b>—</b>	<b>6,220,873</b>
At 1 January 2021	158,248	5,005,581	1,057,044	—	6,220,873
Additions	—	76,768	155,261	68,646	300,675
Amortisation for the year	—	—	—	(1,861)	(1,861)
Exchange rate movements	(9,005)	(292,612)	(52,393)	—	(354,010)
<b>Net book amount at 31 December 2021</b>	<b>149,243</b>	<b>4,789,737</b>	<b>1,159,912</b>	<b>66,785</b>	<b>6,165,677</b>

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.

## Analysis of Property, plant and equipment

Group	Mine Development Property £	Vehicles and other field equipment £	Office equipment £	Land acquisition £	Total £
<b>Cost</b>					
<b>At 31 December 2019</b>	<b>32,260,061</b>	<b>106,722</b>	<b>14,424</b>	<b>—</b>	<b>32,381,207</b>
Additions	4,008,719	1,234	55,989	87,257	4,153,199
Interest capitalized	2,100,521	—	—	—	2,100,521
Disposals	—	(5,806)	—	—	(5,806)
Foreign exchange movements	(7,662,482)	(25,162)	(13,052)	—	(7,700,717)
<b>At 31 December 2020</b>	<b>30,706,819</b>	<b>76,988</b>	<b>57,361</b>	<b>87,257</b>	<b>30,928,425</b>
Additions	9,890,044	563,534	51,925	7,568,023	18,073,526
Interest capitalized	5,248,379	—	—	—	5,248,379
Transfers	—	481	(481)	—	—
Disposals	—	—	(1,028)	—	(1,028)
Foreign exchange movements	(1,757,108)	(4,369)	(3,255)	(4,965)	(1,769,697)
<b>At 31 December 2021</b>	<b>48,088,134</b>	<b>636,635</b>	<b>104,523</b>	<b>7,650,315</b>	<b>52,479,605</b>
<b>Accumulated depreciation</b>					
At 31 December 2019	—	106,239	14,424	—	120,663
Charge for the year	—	6,121	25,275	—	31,396
Disposals	—	(38,224)	—	—	(38,224)
Foreign exchange movements	—	(16,959)	(8,399)	—	(25,358)
At 31 December 2020	—	57,177	31,300	—	88,477
Charge for the year	—	5,584	9,527	—	15,111
Transfers	—	164	(164)	—	—
Disposals	—	—	(125)	—	(125)
Foreign exchange movements	—	(3,243)	(1,776)	—	(5,019)
<b>At 31 December 2021</b>	<b>—</b>	<b>59,682</b>	<b>38,762</b>	<b>—</b>	<b>98,444</b>
<b>Net book amount as at 31 December 2021</b>	<b>44,088,134</b>	<b>576,953</b>	<b>65,761</b>	<b>7,650,315</b>	<b>52,381,161</b>
Net book amount as at 31 December 2020	30,706,819	19,811	26,061	87,257	30,839,948

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 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.

During the year progress was made in the land acquisition process for the Araguaia project. The deposits were paid to secure the 'right of way', these acquisitions amounted to £7.6million. £3.5million of the land and 'right of way' purchases is included in trade and other payables as at 31 December 2021.

## Carrying value of Royalty financing arrangement

	£
Net book amount at 1 January 2020	20,570,411
Unwinding of discount	3,244,873
Change in carrying value	(910,834)
Effects of foreign exchange	(851,109)
Net book amount at 31 December 2020	22,053,341
Unwinding of discount	3,316,259
Change in carrying value	7,134,856
Effects of foreign exchange	512,168
<b>Value as at 31 December 2021</b>	<b>33,016,624</b>

During 2019 the Group entered into a royalty funding arrangement with Orion Mine Finance ("OMF") securing a gross upfront payment of \$25,000,000 before fees in exchange for a royalty to be 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; it is however accounted for as a long-term liability in accordance with the accounting treatment set out in the audited 2020 annual financial statements.

During the twelve months ended 31 December 2021, there was an unwinding of the discount of £3,316,259 and a change in carrying value of £7,134,856 and as the liability is denominated in US\$ which strengthened against GBP during the period the carrying value of the liability increased by £512,168 as a result of this movement in the foreign exchange rates.

## Carrying value of Contingent Consideration

	Companhia Brasileira de Aluminio £	Xstrata Brasil Mineração Ltda £	Vale Metais Basicos S.A. £	Total £
At 1 January 2020	—	2,975,935	3,270,134	6,246,069
Unwinding of discount	—	213,285	231,780	445,065
Change in carrying value and foreign exchange	—	(295,343)	(468,766)	(764,109)
At 31 December 2020	—	2,893,877	3,033,148	5,927,025
Initial recognition	4,043,991	—	—	4,043,991
Unwinding of discount	14,288	201,899	211,616	427,803
Change in estimate	—	(1,419,978)	—	(1,419,978)
Change in carrying value and foreign exchange	4,597	37,204	38,994	80,795
<b>At 31 December 2021</b>	<b>4,062,876</b>	<b>1,713,002</b>	<b>3,283,758</b>	<b>9,059,636</b>

The contingent 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 a low 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.



## Other Information

Group and Company	2021 Number	2021 £	2020 Number	2020 £
<b>Issued and fully paid</b>				
Ordinary shares of 1p each				
At 1 January	1,449,377,287	14,493,773	1,446,377,287	14,463,773
Issue of ordinary shares	2,264,928,203	22,649,282	3,000,000	30,000
Conversion of special warrants into shares	88,060,100	880,601	—	—
<b>At 31 December and 25 March 2022</b>	<b>3,802,365,590</b>	<b>38,023,656</b>	<b>1,449,377,287</b>	<b>14,493,773</b>

Share capital comprises amount subscribed for shares at the nominal value.

No shares were issued between 31 December 2021 and 25 March 2022.

## 2021

On 19 February 2021, 162,718,353 new ordinary shares were placed with new and existing investors at a price of 7.5 pence per share. The gross proceeds raised in the placement was £12,203,876 and issue costs amounted to £740,401.

On 14 April 2021, the 88,060,100 Special Warrants were converted to 88,060,100 ordinary shares of the Company, refer to note 11 for more details on the Special Warrants.

On 23 December 2021, 2,102,209,850 new ordinary shares were placed with new and existing investors at a price of 7.00 pence per share. The gross proceeds raised in the placement was £147,230,250 and issue costs amounted to £5,126,242.

## 2020

On 3 September 2020 the Group issued 3,000,000 new ordinary shares at a price of 3.1 pence per share in relation to the exercise of options by an employee of the Company.

### Stock Options in the Company

Total options outstanding as at the date of this document amount to 114,300,000 with a weighted average exercise price of £0.0425, which are currently fully vested.

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.

### 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 a royalty financing arrangement as previously noted.

As at 31 December 2021, the Company had £156,186,302 in cash at bank and on deposit, as at 31 December 2020 cash at bank and on deposit amounted to £10,935,563.

All of the Company's cash and cash equivalents as at 31 December 2021 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 Company has no immediate debt repayment requirements as the deferred and contingent consideration and the Orion royalty only become payable upon commencement of production. 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 concluded a comprehensive funding package of US\$633 million in December 2021. The net proceeds of the fundraising 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\$25 million royalty agreement 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\$197 million of the US\$633 million) was finalized and funds received in December 2021. 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).

Based on current commitments entered into by the Group, and following the satisfaction of all material conditions precedent, the funds from the convertible loan notes and the royalty are expected to be drawn down in March 2022. The first drawdown under the Senior Debt Facility is expected to occur in the fourth quarter of 2022 following satisfaction of certain conditions precedent customary to a financing of this nature. As the senior debt is conditional, there is no guarantee that the conditions of this element of the debt package will be satisfied.

The funds held at the year-end along with those to be raised post year end 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. The drawdown of the Senior Debt Facility is conditional upon the expenditure of a certain level of equity amongst other conditions precedent, by which time the company is expected to have made significant financial commitments. 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.

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

These factors indicate the existence of a material uncertainty which may cast significant doubt over the Group and the Company's ability to continue as a going concern and therefore they may be unable to realise its assets and discharge their liabilities in the normal course of business. The financial statements do not include any adjustments that would result if the Group or the Company were unable to continue as a going concern.

The uncertainty as to the future impact of the Covid-19 pandemic has been considered as part of the Group's adoption of the going concern basis. In response to the easing of Covid-19 restrictions, employees are working from the Group's offices in London and Brazil and are adhering to government guidelines. International travel has resumed and site work for the two projects has been resumed.

To date, the Group has not been materially adversely affected by the COVID-19 pandemic. However, the ongoing nature and uncertainty of the pandemic in many countries including the measures and restrictions put in place (travel bans and quarantining in particular) continue to have the ability to impact the Group's business continuity, workforce, supply-chain, business development and, consequently, future revenues.

In addition, any infections occurring on the Group's premises could result in the Group's operations being suspended, which may have an adverse impact on the Group's operations as well as adverse implications on the Group's future cash flows, profitability and financial condition. Supply chain disruptions resulting from the COVID-19 pandemic and measures implemented by governmental authorities around the world to limit the transmission of the virus (such as travel bans and quarantining) may, in addition to the general level of economic uncertainty caused by the COVID-19 pandemic, also adversely impact the Group's operations, financial position and prospects.

As a result of considerations noted above, the Directors consider the impact of COVID-19 could delay the drawdown of the senior debt facility.

#### Contractual commitments

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

	31 December 2021	31 December 2020
	£	£
Group		
Mine Development Property	—	7,314,000

Capital commitments relate to contractual commitments for metallurgical, economic and environmental evaluations by third parties. Once incurred these costs will be capitalised as intangible exploration asset additions. The contract relating to items of plant and equipment, which was the disclosed capital commitment at 31 December 2020, was completed in December 2021. Refer to the section 'Carrying value of Contingent Consideration' for the details of the agreement concluded with Companhia Brasileira de Alumínio.

#### 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.

#### Related party transactions

The key management personnel of the Company at 31 December 2021, are the directors, including the Chairman 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 2021.

The nature of related party transactions of the Group has not changed between 31 December 2020 and 31 December 2021.

## Responsibilities, controls and policies

### Evaluation of disclosure controls and procedures

The Chairman, 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 2021, 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 2021.

### Evaluation of internal controls over financial reporting

Our Chairman, 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 2021, 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 2021.

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 year ended 31 December 2021.

### Risks and uncertainties

Please refer to the information presented in the heading "Risk Factors" on pages 44 to 53 of our Annual Information Form for the year ended December 31, 2021.

### 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 assets

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, an 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 project, future nickel prices as well as discount factors. The most important estimates in determining the valuation of the Buyback option are the future nickel price and its price volatility.

### Impairment of exploration and evaluation costs

Exploration and evaluation costs which relate solely to Vermelho have a carrying value at 31 December 2021 of £5,949,649 (2020:£6,062,624). 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.

### Contingent and deferred consideration

Contingent consideration has a carrying value of £4,996,761 and deferred consideration has a carrying value of £4,062,876 at 31 December 2021 (2020: £5,927,026). There are two contingent consideration arrangements in place as at 31 December 2021:

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

The deferred consideration arrangement in place as at 31 December 2021 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. Refer below for an analysis of the contingent and deferred consideration.

### Contingent Consideration payable to Xstrata Brasil Mineração Ltda

The first relates to a contingent consideration arrangement that requires the Group to pay Xstrata Brasil Mineração Ltda consideration after the date of issuance of a Feasibility Study ('FS') comprising the Araguaia project and the Vale dos Sonhos ('VdS') (US\$330,000) and Serra do Tapa ('SdT') (US\$670,000) project areas ('GAP') (together the 'Enlarged Project'), to be satisfied in shares in the Company (at the 5 day volume weighted average price taken on the tenth business day after the date of such issuance) or cash, at the election of the Company. The VdS project area was included in the FS published in October 2018 and this contingent consideration was satisfied by the issue of shares in the Company in January 2019, the SdT deposit is not currently included in the Araguaia project development plan as so no contingent consideration has been recognised in respect of the US\$670,000 that might become payable; and

Remaining contingent consideration of US\$5,000,000 to be paid in cash, as at the date of first commercial production from any of the resource areas covered in the purchase agreement. Given the publication of the Feasibility Study which includes an area purchased from Glencore and the securing of the finance package for the construction of the Araguaia project, this continues to be recognised as contingent consideration as it will become payable when the project enters commercial production. It is carried at £1,713,002, reflecting that it is discounted to reflect its current value. The carrying value has been adjusted to reflect that the date of commercial production has been reassessed in the year.

A key judgement in determining the estimated value of the contingent consideration for Glencore is the timing of the assumed date of first commercial production.

### Contingent consideration payable to Vale S.A

The second contingent consideration arrangement relates to the acquisition of Vermelho.

On 19 December 2017 the Company announced that it had reached agreement with Vale S.A ("Vale") to indirectly acquire through wholly owned subsidiaries in Brazil, 100% of the advanced Vermelho nickel-cobalt project in Brazil ("Vermelho").

The terms of the Acquisition required Horizonte to pay an initial cash payment of US\$150,000 with a further US\$1,850,000 in cash payable on the second anniversary of the signing of the asset purchase agreement. This was paid by the Group in December 2019 and is no longer included in deferred consideration.

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 with the publication of the Pre-Feasibility Study during 2019 for the Vermelho project, there is a reasonable probability that the project will advance through to production and therefore have recognised this contingent consideration within liabilities for the first time during the year. It is carried at £3,283,758, reflecting that it is discounted to reflect its current value.

### Deferred consideration payable to Companhia Brasileira de Alumínio

On 9 December 2021 the Company announced it had entered into an asset purchase agreement ("Agreement") to purchase certain new and unused ferronickel processing equipment (the "Processing Equipment") from Companhia Brasileira de Alumínio ("CBA").

The Agreement provides for a low upfront cost of US\$600,000 payable in cash on signing 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 Araguaia.

The total consideration of up to US\$7 million payable by ANM will be paid according to the following schedule:

- US\$600,000 payable on execution of the Agreement;
- US\$950,000 upon the removal of 80% of the Processing Equipment from CBA's Niquelândia operations;
- US\$950,000 upon reaching 50% completion of Araguaia plant construction;
- US\$1,150,000 upon production at Araguaia reaching 90% of nameplate capacity for a period of 60 days, on average, and with up to 50% of such amount payable in Horizonte shares, at Horizonte's election; and
- US\$3,350,000 payable by Horizonte in three equal annual instalments with the first instalment due within 45 days of the first sale of ferronickel to a third party. Horizonte may choose to pay the outstanding balance of this amount at any time of its choosing with up to 50% of the total able to be paid in Horizonte's shares, at Horizonte's election.

Management have assessed that there is a reasonable probability that the Araguaia project will advance through to production and therefore have recognised this contingent consideration within liabilities for the first time during the year. It is carried at £4,062,876, reflecting that it is discounted to reflect its current value.

#### **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.

#### **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 treatment of this financing arrangement as a financial liability, calculated using the effective interest rate methodology is a key judgement that was made by the Company in the prior year 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 prices. The contract includes certain embedded derivatives, including the Buy Back Option which has been separated and carried at fair value through profit and loss.

The future price of nickel 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 price and, volatility of the nickel prices are key estimates that are critical in the fair value of the Buy-Back Option associated with the Royalty financing. The Buy-Back Option 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.

#### **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.

#### **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](http://www.horizonteminerals.com) and are also available on SEDAR at [www.sedar.com](http://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.

