HORIZONTE MINERALS PLC

AMENDED MANAGEMENT'S DISCUSSION AND ANALYSIS

THREE MONTHS ENDED 30 SEPTEMBER 2020

Background

This Managements Discussion and Analysis of the financial position and results of operations was originally prepared as at 10 November 2020 and this document comprises the revised and resissued version that was subsequently prepared and issued on 12 March 2021 and should be read in conjunction with the Amended Condensed Consolidated Financial Statements of Horizonte Minerals plc as at 30 September 2020 approved and filed at the same time as this document. The Amended Condensed 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 on 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 ("Araguaia" or the "Project")

- Araguaia is an advanced nickel project being developed by Horizonte as the next ferronickel 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
    - Transaction with Glencore completed in 2016 to acquire the adjacent Vale dos Sonhos deposit places the enlarged project among the largest high-grade undeveloped nickel saprolite projects globally

- Feasibility Study ('FS') issued Q4 2018, has demonstrated:
    - Robust economics based on a 28-year life of mine ('LOM') producing ~14,500 tonnes per annum (tpa) nickel in ferro-nickel from a single line Rotary Kiln Electric Furnace ('RKEF')
    - The Project is expected to generate over US$1.6 billion in free cash flow over LOM using a nickel price of US$14,000/t
    - NPV_8 of US$401M and IRR of 20.1% using the base case of US$14,000, increasing to US$740M and 28.1% using the consensus price of US$16,800

- High grade ore with average nickel grade of 1.89% for the first 10 years of production
- C1 cost of US$8,193/t Ni positioning Araguaia in the lower quartile of Nickel Laterite cost curve, C1 cost of US$6,784/t Ni years 1-10
- 43-101 Proven and Probable Mineral Reserve Estimate of 27.5 Mt grading 1.69% Ni

- Stage 2 expansion included as an opportunity in the FS demonstrates the following:
  - Stage 2 expansion option, assumed in year 3, supports a 26-year mine life generating cash flows after taxation of US$2.6 billion
  - No increase in upfront capital cost which remains at the same level at the FS Stage 1 of US$443 million, the Stage 2 expansion is financed through operational cash flow

  Estimated post-tax Net Present Value1 ('NPV') of US$741 million2 and Internal Rate of Return ('IRR') of 23.8% using the base case nickel price forecast of US$14,000/t3

Vermelho Nickel-Cobalt Project ("Vermelho")

The Vermelho nickel-cobalt project 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 80 kilometres north west of the Company's Araguaia North ferronickel project. A Pre-Feasibility study ('PFS') was released in October 2019 which confirms Vermelho as a low cost, long life nickel sulphate project.

- The Study confirms Vermelho 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[4];
- An estimated Base Case post-tax Net Present Value1 ('NPV') of US$1.7 billion[5] and Internal Rate of Return ('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 assume a flat nickel price of US$16,400 per tonne ('/t') for the 38-year mine life
- C1 (Brook Hunt) cash cost of US$8,020/t Ni (US$3.64/lb Ni), defines Vermelho as a low-cost producer

[1] NPV calculated using 8% discount rate

[2] USD/BRL 1/3.5 exchange rate applied for life-of-mine

[3] Wood Mackenzie Short term forecast – see market section of NI 43 -101

[4] USD/BRL 1/3.8 exchange rate applied for life-of-mine

[5] NPV calculated using 8% discount rate

- Initial Capital Cost estimate is US$652 million (AACE class 4), including US$97.7 million of contingencies (equating to approximately 18% of capital)
- Vermelho is set to deliver significant socio-economic benefits for communities in the Pará state, including over 1,800 direct jobs in the construction phase, and over 600 jobs during operation, as well as additional economic and social development programs.

Highlights for Q3 2020

- Executed a mandate to arrange a senior secured project finance facility of up to US$325 million to fund the construction and development of Araguaia
- Continued to advance the project financing process for Araguaia
- Published the inaugural Sustainability Report covering an overview of the Company's sustainability performance over the 2019 financial year
- Focussed on the safety of all Group stakeholders by implementing strict health and safety policies specifically tailored to Covid-19.

Events after the Reporting Date

- N/A

Objectives

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

- Progress the Araguaia 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

Introduction

Horizonte recently published the results of a FS on its 100% owned Araguaia Project which it is developing as a tier-one ferronickel operation in Brazil.

Having completed a PFS in 2016 on the combined Araguaia project, the Company completed a FS for Araguaia which was published in October 2018, with a view to developing Araguaia through to production (subject to funding).

The Company has a strong institutional shareholder structure, which includes Teck Resources Limited, Lombard Odier Asset Management, Canaccord Genuity Group, and Glencore.

Araguaia Ferro-Nickel Project

Araguaia 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 hydro-electric power. The Carajás Mining District, situated approximately 200km northwest of the Project, is host to a number of major iron and copper mines operated by mining major Vale SA.

The Araguaia Project 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.

Araguaia Feasibility Study Detailed Information

Section 1 - Project Summary

The Project 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 ferronickel ('FeNi') (containing and average of 14,500 tonnes of nickel) per year, for the 28-year mine life. The metallurgical process comprises a single line Rotary Kiln Electric Furnace (RKEF) to extract FeNi from the laterite ore. The RKEF plant and project infrastructure will be constructed over a 31-month period. 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 for the assumptions used, they key findings are highlighted in Table 1, below.

Table 1 Araguaia FS Key Outcomes

Item	Unit	Nickel price basis (US$/t Ni)		
		Base (14,000)	CIBC (16,800)	Wood Mackenzie (26,450)
Net cash flow	US$M	1,572	2,582	6,060
NPV_8	US$M	401	740	1,906
IRR	%	20.1	28.1	50.4
Breakeven (NPV_8) Ni price	US$/t	10,766	10,766	10,766
C1 Cost (Brook Hunt)	US$/t Ni	8,193	8,193	8,193
Production year payback	years	4.2	3.3	1.8
LOM Ni recovered	kt	426	426	426
LOM Fe recovered	kt	995	995	995
Average Ni production at 0.9 Mt/a ore[6]	kt/a	14.5	14.5	14.5
Average Fe production at 0.9 Mt/a ore	kt/a	32	32	32
Total revenue	US$M	5,970	7,164	11,449
Total costs	US$M	3,811	3,995	4,657
Operating cash flow	US$M	2,159	3,169	6,792
Capital intensity – Initial capex/t nickel	US$/t Ni	1,041	1,041	1,041

The results in Table 1 assumes 100% equity, providing scope for increased returns with the ability to leverage using commercial or other debt. The base case was developed using a flat nickel price of US$14,000/t Ni in line with Wood Mackenzie's ('WM') short term forecast. Two other cases were prepared; one using a market consensus price of US$16,800/t Ni and the other used WM's long term forecast of US$26,450/t Ni. These two additional price forecasts represent upside scenarios.

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. This increases to US$1,906 million and 50.4% when using the long-term price forecast by WM of US$26,450/t Ni.

Section 2 – Resources / Reserves and Mining

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

Mineral Resources

[6] Average over initial 28 years of processing

The Project 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.

A number of phases of diamond drilling has 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 successfully 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 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: Mineral Resources for ANS and ANN as of February 2017 by material type (0.90% Ni cut-off)

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

Notes:
1. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate and have been used to derive subtotals, totals and weighted averages. Such rounding consequently introduces a small margin of error. Where these occur, Snowden does not consider them to be material.
2. Mineral Resources are reported inclusive of Mineral Reserves.
3. The reporting standard adopted for the reporting of the Mineral Resource estimate uses the terminology, definitions and guidelines given in the CIM Standards on Mineral Resources and Mineral Reserves (May 2014) as required by NI 43-101.
4. 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).

Mineral Reserves

The Mineral Reserves were estimated by Snowden Using the JORC Code (2012 Edition) and quoted in accordance with CIM (2010) requirements.

All economic Indicated Mineral Resources within the 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*3. The Mineral

Reserve of 27.2 Mt gives mine life of 28 years based on the annual ore throughput to the RKEF plant of 900,000 t/a.

Table 3: Open Pit Mineral Reserves reported at October 2018

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

Notes
1.Mt – million dry metric tonnes.
2. Cut-off used was 1.4% Ni.
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 FAusIMM, an appropriate "Independent Qualified Person" as such term is defined in NI 43-101.

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 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 loss.

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

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

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

Section 3 – Processing

The 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.

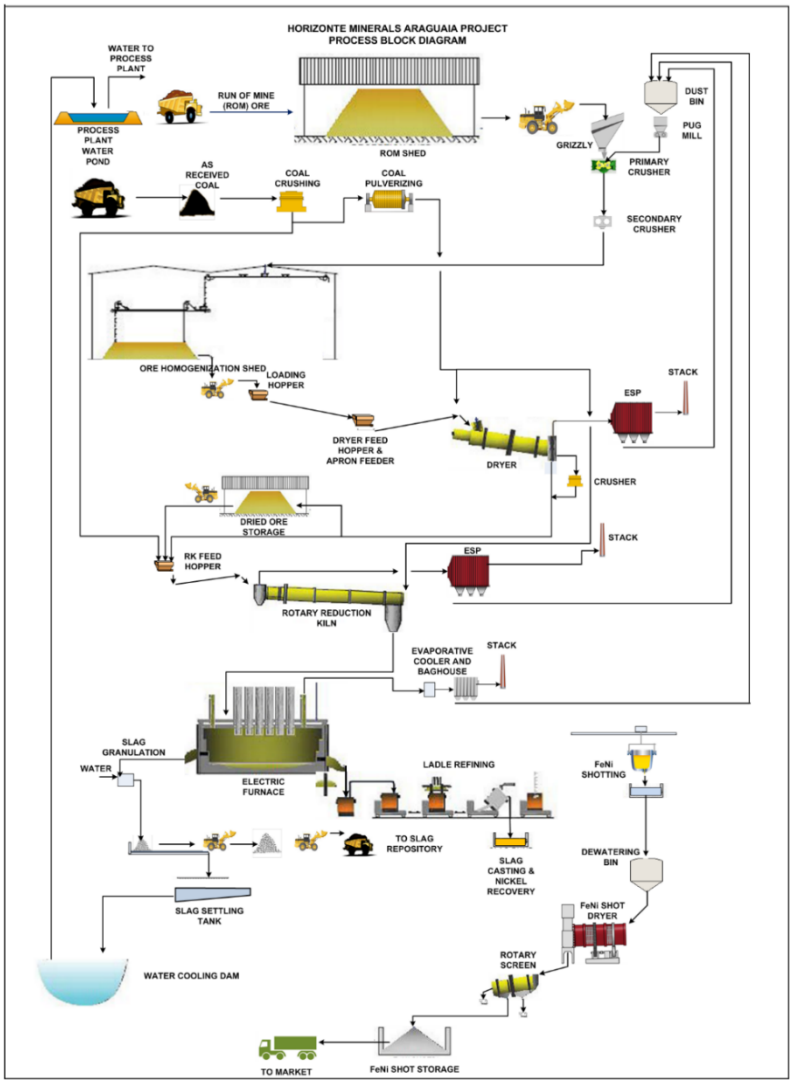
The Project will utilise a single RKEF processing line from ore receipts through to shotting ? of the FeNi product, Figure 2.

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 testwork and the pilot plant campaigns completed on the ore.

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

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



Section 4 – Financial Evaluation

Capital Cost

The 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 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 **Error! Reference source not found.**4.

Table 4: Summary of capex

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 **Error! Reference source not found.**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).

Operational costs

The 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 (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 Operating cost estimate

Description	Cost/annum (US$)	US$/t nickel
Process Plant		
Directs		
Power	32,114,355	2,410
Coal	21,591,099	1,620
Other directs	17,965,039	1,348
Labour	7,831,286	588
Subtotal – Direct costs	**79,501,779**	**5,966**
Indirect costs	**10,285,640**	**772**
Mining costs	**21,112,173**	**1,584**
Total costs	**110,889,592**	**8,322**

Summary Economics

The financial model developed assumes 100% equity. The base case was developed using a flat nickel price of US$14,000/t Ni. Two other cases were prepared; one using a market consensus price of US$16,800/t Ni and the other used the WM long term forecast of US$26,450/t Ni. These two additional price forecasts represent upside scenarios.

As shown in **Error! Reference source not found.**, the post 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 post-tax NPV of US$401million and an IRR of 20.1% using the base case forecast of US$14,000/t Ni which increases to US$1,906 million and 50.4% when using the long-term price forecast by WM of US$26,450/t Ni.

Table 6: Project economic performance (pre-taxation)

Item	Unit	Nickel price basis (US$/t Ni)		
		Base (14,000)	CIBC (16,800)	Wood Mackenzie (26,450)
Net cash flow	US$M	1,834	3,208	7,313
NPV_8	US$M	456	840	2,219
IRR	%	21.2	29.9	55.3
Breakeven (NPV_8) Ni price	US$/t	10,672	10,672	10,672
C1 Cost (Brook Hunt)	US$/t Ni	8,193	8,193	8,193
Production year payback	years	4.0	3.0	0.75
Total costs	US$M	4,137	4,137	4,137
Operating cash flow	US$M	2,421	3,616	7,901

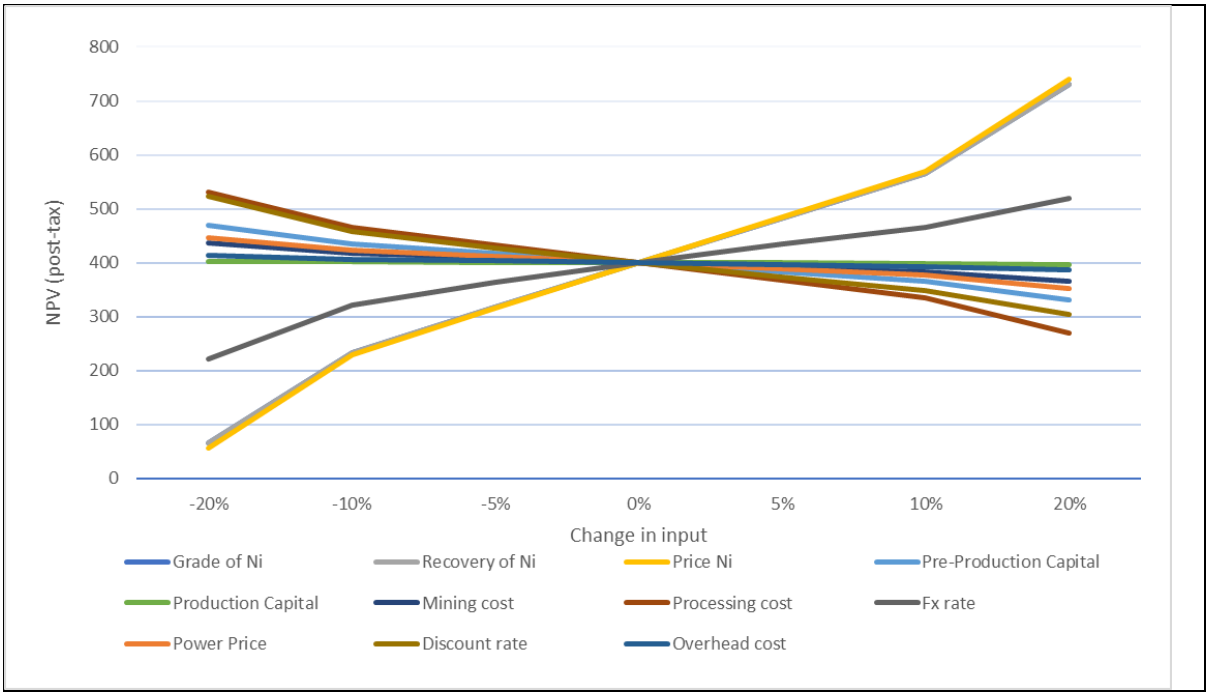
Sensitivity Analysis

The sensitivity analysis that was completed as part of the FS demonstrates how the NPV_8 is affected by changes to one variable while holding the other variables constant. The results of the sensitivity analysis are presented in **Error! Reference source not found.**7 and Figure 2. The breakeven ('B/E') indicates the change in the variable that will bring the project NPV_8 to US$0.000 if all other variables remain unchanged. For example, if the grade of Ni reduces by 23.7% the Project will break even on NPV_8.

Table 7: Sensitivity table for the Base Case (US$14,000/t) NPV8, after taxation

	-20%	-10%	-5%	0%	5%	10%	20%	B/E7
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	-

Figure 2: Sensitivity to NPV8 for changes in various key inputs



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.

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

Section 5 – Market Review and Nickel Pricing

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

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

Thus, with an outlook for nickel of structural shortage, deepening deficits and falling stocks, nickel prices are expected to continue to increase above their recently established range of US$12,500/t to US$15,000/t (US$5.90 to US$6.80/lb). A near term forecast for the purposes of 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 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. Forecast production in 2018 is 50.8 Mt, up 4.5% on 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.

Section 6 – Community and Environment

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

The groups have conducted a number of new studies in 2017 and 2018 together with ongoing programs, these included:

- 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 base line 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

Stage 2 - Second Line Expansion Highlights:[8]

A key part of the FS Stage 1 Project design was that the RKEF plant and associated infrastructure was designed to accommodate the addition of a second RKEF process line (Stage 2 expansion), with potential to double Araguaia's production capacity from and average of 14,500 t/a nickel up to 29,000 t/a nickel. The Project Mineral Resource inventory has the grade and scale to support the increase in plant throughput from 900 kt/pa (Stage 1) to the Stage 2 rate of 1.8 Mt/a supporting the twin line RKEF flow sheet. The Stage 2 expansion assumes operating at Stage 1 production rate of 900 kt/pa for three years, after which free cash flows would be reinvested to expand the plant to 1.8 Mt/pa by the addition of a second line. All figures below represent this combined production of stage 1 for 3 years followed by the enlarged production for the remainder of the Life of Mine.

- The Stage 2 expansion, assumed in year 3, supports a 26-year mine life generating cash flows after taxation of US$2.6 billion;
- No increase in upfront capital cost which remains at the same level at the FS Stage 1 of US$443 million, the Stage 2 expansion is financed through operational cash flow;
- Estimated post-tax Net Present Value[9] ('NPV') of US$741 million[10] and Internal Rate of Return ('IRR') of 23.8% using the base case nickel price forecast of US$14,000/t[11];
- Using a nickel price of US$11,000/t generates cash flows after taxation and payback of capital of US$1.0 billion;
- Nickel grade of 1.82% for the first 10 years of the Stage 2 operation;
- Annual nickel production of 29,000 t/a;
- C1 (Brook Hunt) cash cost year 1 to Year 10 of US$3.00 per pound ('/lb') of nickel (US$6,613/t), making Araguaia a low-cost producer. Life of mine C1 cash cost of US$3.51 per pound ('/lb') of nickel (US$7,737/t); and
- Using the consensus mid-term nickel price of US$16,800/t, the post-tax NPV_8 for the Stage 2 option increases to US$1,264 million with an IRR of 31.8%.

Stage 2 Second Line Expansion Details[8]:

The FS plant ore feed rate of 900kt/a is based on a single line RKEF plant (Stage 1). This size plant represents the optimal capacity for an achievable capital cost for project financing for a single

[8] The stage 2 expansion study was not completed to an FS level of accuracy, it was completed at scoping level and therefore should be considered speculative.

[9] NPV calculated using 8% discount rate

[10] USD/BRL 1/3.5 exchange rate applied for life-of-mine

[11] Wood Mackenzie Short term forecast - see market section of NI 43 -101

project junior development company. However, the Stage 1 plant capacity underutilises the significant Mineral Resource that HZM has within the project area (~119Mt Measured and Indicated Mineral Resources at 1.27% Ni). In the FS, the cut-off grade is 1.4% Ni and represents a "high-grade" option. The marginal cut-off grade for the Project is closer to 1.0% Ni. This means that there is a significant quantity of potentially economic material that is not mined or processed in the current Stage 1 FS schedule. Accordingly, the opportunity contemplated here is that the Stage 1 production scenario (the FS Base Case) is built and produces at an initial production level 14,500 t/a of Nickel, and that the Stage 2, expansion in year 3 is implemented as the project starts generating cash flows, thereby increasing total production to 29,000 t/a Nickel.

To explore the potential value of increasing the production rate at Araguaia, a Stage 2 expansion to 1,800kt/a plant feed in Year 3 was contemplated at a scoping level. In this Stage 2 scenario, Snowden completed pit optimisations based on the FS costs and modifying factors. The pit optimisations targeted any material determined to be economic, rather than the elevated Ni cut-off grade applied in the FS. Only Measured and Indicated Mineral Resources were considered in this scenario. Overall, the target was to achieve a similar mine life to the FS schedule (~28 years). This was achieved by selecting a revenue factor pit shell equivalent to a nickel price of US$11,200/t Ni which yields 44.0Mt of ore feed.
The Stage 1 FS plant layout was designed to allow for the future construction of a second RKEF line. A significant portion of the Stage 1 RKEF plant and associated infrastructure has sufficient capacity to support the Stage 2 expansion, resulting in substantially lower capital costs to implement the second RKEF line. The Stage 1 equipment and infrastructure that does not require upgrading for Stage 2 includes;

- The main power line to the plant;
- The principle road and bridge infrastructure in-bound and outbound to the mine site;
- Overall plant site layout, plant road / offices / stores / workshops;
- Refinery facility;
- The slag storage facility; and
- Water abstraction pipeline.

As part of the preparation of the Stage 2 expansion study, HZM has completed a scoping level estimate of the costs associated with implementing a second RKEF line after Year 3 of the mine life using the FS capex as a basis and locating the additional equipment in the areas shown in Figure 3 within the existing FS plant layout. A summary of the estimated direct equipment costs

along with associated civil works and installation costs for the Stage 2 expansion are shown in Table 8.

Figure 3 FS Plant layout with Stage 2 - Second line items shown in blue

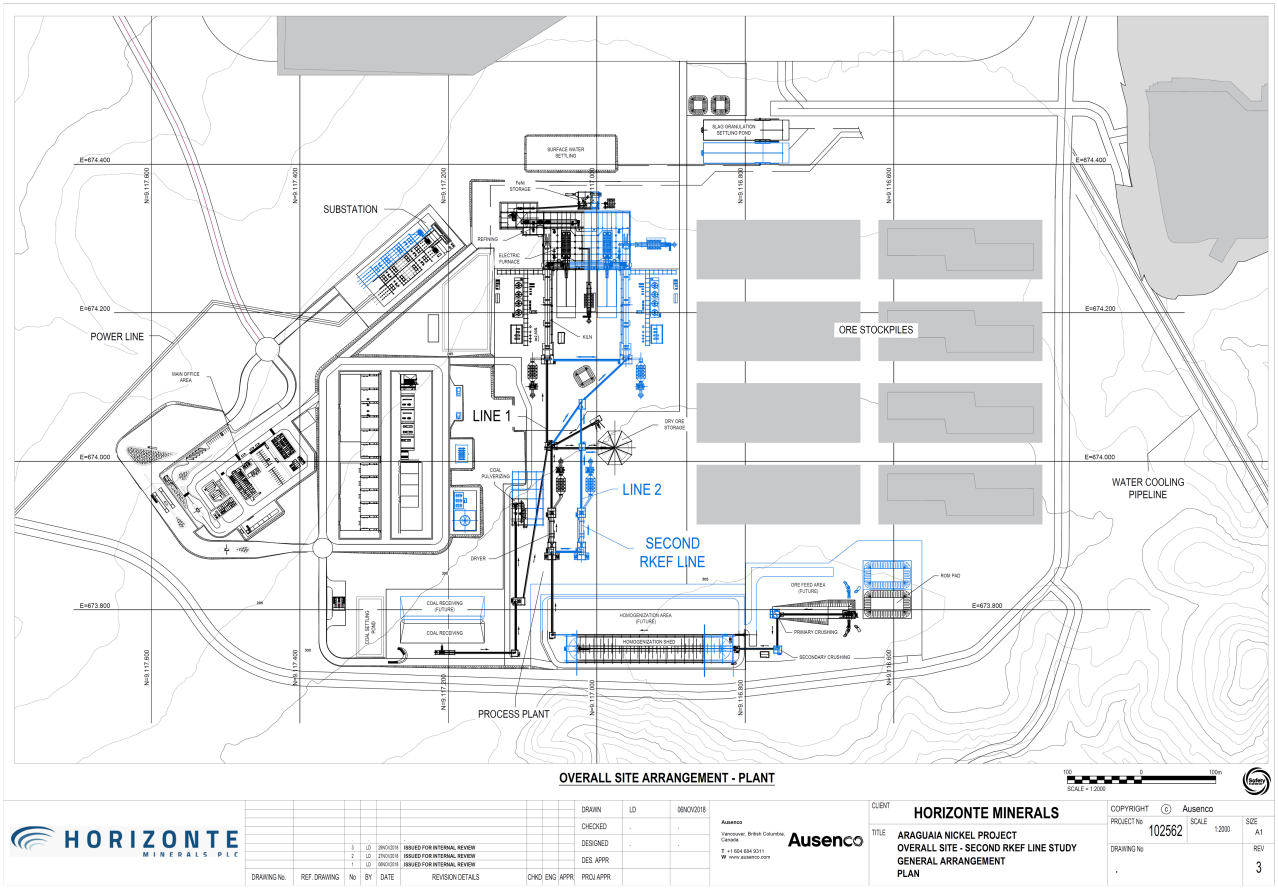


Table 8 Stage 1 and Stage 2 capex

WBS	Area	Stage 1 FS Pre-production Capex (US$ million)	Stage 2 – Second RKEF line Pre-production Capex12 (US$ million)	Equipment Additions for Stage 2
1000	Mine	6.0	-	NA
3000	Ore Preparation	39.0	25.2	Dryer
4000	Pyrometallurgy	137.5	109.2	Kiln, Furnace
5000	Material Supply	21.4	8.6	Coal pulverisation
6000	Utilities and Infrastructure	106.9	18.5	Substation, water pumping, cooling dam lift, water cooling pipe
7000	Buildings	9.1	0.6	Admin, change house, canteen
8000	Indirect Costs	82.4	22.0	EPCM, Owners, Construction Camp, engineering
	Contingency	41.0	15.6	Contingency
	Total capex	**443.1**	**199.7**	

The additional costs for the Stage 2 – Second RKEF line shown in Table 8 above, represent sustaining capital expenditure which would be financed once the Stage 1 operation is cash flow positive. Therefore, the pre-production capital costs would remain the same as the FS at US$443.1 million.

Key additional items required within the plant area for Phase 2 included in Table 8are ore preparation dryer, kiln and furnace. Items outside of the plant area include additional pumping capacity for the water abstraction pipeline, a second plant cooling water pipeline and an increase in the cooling water dam capacity.

The operating costs after the Stage 2 RKEF line becomes fully operational were estimated based on the FS operating cost estimate. A comparison of the physicals and the economics of the FS and the expansion opportunity are shown Table 19 below.

[12] These costs were estimated based on the FS work for stage 1, however they should be considered scoping level estimates of capital

Table 1 Comparison of physicals and financial KPI's for the FS case and the Stage 2 Expansion[13]

Item	Unit	FS Stage 1		Stage 2 – Second Line RKEF Expansion[14]	
		Base Case (US$14,00/t Ni)	Consensus case (US$16,800/t Ni)	Base Case (US$ 14,000/t Ni)	Consensus case (US$16,800/t Ni)
Physicals					
LOM plant feed[15]	Mt	27.3	27.3	44.1	44.1
Process rate	kt/a	900	900	1,800[16]	1,800[16]
Year 1- 10 Ni grade	%	1.91	1.91	1.82	1.82
LOM Ni grade	%	1.69	1.69	1.53	1.53
LOM Nickel production	kt	426	426	624	624
Strip ratio	w:o	2.1	2.1	1.9	1.9
Mine life	years	28[17]	28[17]	26[18]	26[18]
Economics					
Pre-production Capital	US$ M	443	443	443	443
LOM Sustaining Capital cost	US$ M	143	143	396	396
Capital Intensity – Initial capex/t Nickel	US$/t Ni	1,041	1,041	710	710
C1 Cost (Brook Hunt)	US$/t Ni	8,193	8,193	7,737	7,737
C1 Cost (Brook Hunt) Years 1- 10	US$/t Ni	6,794	6,794	6,613	6,613
Breakeven (NPV_8) Ni price	US$/t	10,766	10,766	10,105	10,105
Total Revenue	US$ M	5,970	7,164	8,742	10,490
Total cost	US$ M	3,811	3,995	5,351	5,617
Operating cash flow	US$ M	2,159	3,169	3,391	4,876
Net cash flow	US$ M	1,572	2,582	2,552	4,033
NPV_8	US$ M	401	740	741	1,264
IRR	%	20.1	28.1	23.8	31.8

[13] The physicals and cashflow assessment presented as Stage 2 in the table are preliminary in nature and are based on a mine schedule and an estimate of the additional plant and equipment needed to achieve the additional capacity. The capital costs for the additional plant and equipment are based on the FS costs, and the cost of installation and civil engineering are factored from the FS costs. Operating costs at the increased capacity are factored based on the FS operating cost estimate.

[14] These are based on scoping level estimates of capital and operating costs
[15] Includes low grade stockpiles processed at the end of the schedule
[16] Increased process rate commences after year 3
[17] 28 years mining following by 3 years of low grade stockpile processing
[18] 26 years mining followed by 2 years of low grade stockpile processing

Vermelho Nickel-Cobalt Project

Project Summary

The Project is located in the north-western Brazilian state of Pará in the Carajás municipality, approximately 85 kilometres ('km') north-west of the Company's 100% owned Araguaia North Project.

The Project comprises 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 prior to being fed to a High-Pressure Acid Leach (HPAL) and refining Plant which produces the sulphates. The plant will 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 a 31-month period. 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 support capital ('capex') and operating expenditure ('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 PFS demonstrate that Vermelho shows positive economics (Table 1, below).

Table 1: Key Feasibility Study Project Economic Indicators (post taxation)

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

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

The 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 Wood Mackenzie long term Nickel price of US$19,800/t Ni was also developed

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$19,034 million. The economic analysis indicates a post-tax NPV_8 of US$1,722 million and an IRR of 26.3% using the base case forecast of US$16,400/t Ni, this increases to US$2,373 million and 31.5% when using the Wood Mackenzie long term price of US$19,800/t Ni.

Resources / Reserves and Mining

The Vermelho nickel 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 in 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 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.

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 2.
Table 2 V1 + V2 – combined classified Mineral Resource report for Vermelho above 0.7% Ni cut-off within the mining licence

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

Notes

1. *Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate and have been used to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, Snowden does not consider them to be material.*
2. *Mineral Resources are reported inclusive of Mineral Reserves.*
3. *The reporting standard adopted for the reporting of the Mineral Resource estimate uses the terminology, definitions and guidelines given in the CIM Standards on Mineral Resources and Mineral Reserves (May 2014) as required by NI 43-101.*
4. *Mineral Resources are reported on 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).*

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 "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 3

Table 3 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 four occasions between March 2017 and September 2019 by Mr Anthony Finch P. Eng. MAusIMM (CP Min.), an appropriate "independent qualified person" as such term is defined in NI 43-101.*

Mining

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

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

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

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

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

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

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

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 testwork, 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. Prior to the HPAL process, barren free silica is removed from the ore via a beneficiation process which involves crushing, scrubbing, washing and separation by screening and hydrocyclones. To avoid accumulation of magnesium sulphate in the recycled process water, a portion is sent to the Kieserite (magnesium sulphate monohydrate, $MgSO4•H2O$) 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 the 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 testwork and process design was undertaken on the Project by the former owner, Vale, at scoping, prefeasibility and feasibility stages, included drilling and pitting programs totalling 152,000 m, variability batch testwork, full-scale pilot testwork and detailed engineering studies. A five-year, exhaustive, metallurgical testwork and pilot plant program demonstrated that a high degree of mined ore upgradable using a simple beneficiation processes was possible. The resultant feed delivered 96% average leach extraction for nickel and cobalt via HPAL technology.

Additional testwork has been completed by the current Project owner, HZM, during 2018 and 2019. This testwork 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 PFS and 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 were 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.

Financial Evaluation

Capital Cost

The estimate is based on the AACE class 4 standard, with an estimated accuracy range between -25% and +20% of the final project cost (excluding contingency).

The largest capital item is the HPAL plant. In order to manage initial capital, this is constructed in two phases. The first phase (Stage 1) has a capacity of 1 Mt/a autoclave feed. Stage 2 is brought online in year 3 of production and effectively doubles the HPAL feed rate to 2 Mt/a.

The capex estimate 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 PFS. The estimate is based on an Engineering Procurement and Construction Management ('EPCM') implementation approach and the is the contracting strategy expected to be utilised for the Project.

The total estimated initial (pre-production) capex for the project is US$652.2 million (after tax, including contingency, excluding growth and escalation). A summary of the capex is shown in Table 4.

Table 4: Summary of capex

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
TOTAL	**652.24**	**446.68**	52.28	1,151

The costs in Table 4 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.

Operational costs

The operating costs shown in Table 5 (below) represent 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 5: Summary of opex

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

Summary Economics

The financial model 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 Wood Mackenzie long term price of US$19,800/t Ni.

The revenue breakdown by product is shown in Table 2.

Table 2 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 a net revenue of US$100/t of the by-product, kieserite

As shown in Table 1, the post taxation model for the Base Case has a 4.6-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 7 shows the pre-taxation results.

Table 7: Project economic performance (pre-taxation)

Item	Unit	Nickel price basis (US$/t Ni)**	
		Base Case (consensus) 16,400	WM Long Term 19,800
Net cash flow	US$ million	10,379	13,509
NPV_8	US$ million	2,342	3,185
IRR	%	28.8%	34.5%
Breakeven (NPV_8) Ni price	US$/t	6,946	6,946
C1 Cost (Brooke Hunt)	US$/t	8,029	8,029
Production year payback	Years	4.0	3.5
Cash costs	US$ million	7,508	7,520
Operating cash flow	US$ million	11,526	14,655

*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.

Sensitivity Analysis

The sensitivity analysis demonstrates how the NPV_8 is affected by changes to one variable while holding the other variables constant. The results of the sensitivity analysis are presented in Table 8 and Figure 1.

*Table 8: Sensitivity table for the Base Case (US$16,400/t**) NPV_8, after taxation*

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

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

Figure 1: Sensitivity chart

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

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

Section 5 – Market Review and Nickel Pricing

In June 2019, HZM commissioned Wood Mackenzie to develop a report on the market for nickel sulphate. As 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

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

The study concludes that:

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

Community, Environment and Permitting

The Project is located 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 a number of 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.

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 further details on the Araguaia Project, please refer to ''Feasibility Study ('FS') for the Araguaia Nickel Project Federative Republic of Brazil NI 43-101 Technical Report', dated November 2018 available on the Company's website at www.horizonteminerals.com and on SEDAR at www.sedar.com. For further details on the Vermelho project please refer to ''Pre-Feasibility Study ('FS') for the Vermelho Nickel Project Federative Republic of Brazil NI 43-101 Technical Report', dated November 2019 available on the Company's website at www.horizonteminerals.com and on SEDAR at www.sedar.com

Summary of Financial and Operating Performance

Summary of Cashflows

>> 9 months ended	**30 September 2020**	30 September 2019
	£	£
>> Net cash flows used in operating activities	**(2,336,020)**	(1,487,902)
>> Net cash used in investing activities	**(2,314,059)**	(1,894,303)
>> Net cash flow generated from financing activities	**93,000**	-
>> Net increase/(decrease) in cash and cash equivalents	**(4,587,079)**	(3,382,205)

The net cash flows used in operating activities for the three months ended 30 September 2020 and 30 September 2019 are driven by activities in the management of the Araguaia Project and to a lesser extent Vermelho. These management activities were higher during 2020 as work levels increased as a result of increasing the operational team and financing work streams 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 slightly to £2,314,059 from £1,894,303 in 2019 as a result of the increased level of expenditure related to the advancing the Araguaia Project towards being construction ready.

There were cash flows from financing activities during Q3 2020 as £93,000.

Quarterly Financial Information

The quarterly information for the period ended 30 September 2020 has been amended to reflect certain adjustments to the figures as set out in note 2 in the Amended Condensed Consolidated Interim Financial Statements for the 9 months to 30 September 20. The comparative figures for 30 June 2020 and 31 March 2020 in the table below have been restated to reflect the capitalisation of finance costs relating to the development of the Araguaia project.

Quarter Ended	30 September 2020 Amended **£**	30 June 2020 Restated **£**	31 March 2020 Restated **£**	31 December 2019 **£**	30 September 2019 **£**	30 June 2019 **£**	31 March 2019 **£**	31 December 2018 **£**
Revenue	—	—	—	—	—	—	—	—

Profit/(Loss) from continuing operations	(1,882,583)	(724,173)	(29,883)	(3,526,208)	(1,119,612)	(677,512)	(453,470)	(389,412)
Total comprehensive income attributable to owners of the parent	(3,047,883)	(2,181,977)	(6,639,755)	(6,153,147)	(2,678,997)	1,560,085	(1,548,032)	1,517,988
Basic & diluted earnings/(loss) pence per share	(0.13)	(0.050)	(0.002)	(0.032)	(0.047)	(0.047)	(0.032)	(0.027)

Profit/(loss) from continuing operations in each of the periods disclosed is driven on an on-going basis by administrative expenses, including exploration costs expensed, together with stock option charges, (loss)/gain on foreign exchange and finance income and costs that are not capitalised.

The loss from continuing operations in the third quarter of 2020 of £(1,882,583) was after administrative expenses of £777,847 and a gain on fair value of contingent consideration of £163,209 due to a strengthening of Sterling against the United States Dollar, in which the contingent consideration is denominated. There was no share-based payment charge and a loss on foreign exchange translation of £716,018.

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 third quarter of 2020 the total comprehensive income attributable to equity holders of the company was £(3,047,883) after exchange differences arising on translating foreign operations of £(1,165,298) as the Brazilian Real weakened against Sterling in the quarter. The significantly reduced loss from operations during Q1 was driven by a significant foreign exchange gain on cash held by the group. This was offset by a significant devaluation of the BRL leading to a large charge to total comprehensive income for the same quarter.

Amended Results from Operations

	9 months ended 30 September 2020 Amended £	9 months ended 30 September 2019 £	3 months ended 30 September 2020 Amended £	3 months ended 30 September 2019 £
>>				
>> **Analysis of Operating Loss:**				
>> **General and Administration Costs**				
>> Compensation	**(671,577)**	(290,415)	**(261,029)**	(105,025)
>> Travel/Expenses	**(179,350)**	(159,485)	**(39,374)**	(34,770)
>> Exploration Costs Expensed	**(487,479)**	(477,731)	**(158,942)**	(147,920)
>> Professional Fees	**(805,093)**	(789,655)	**(234,912)**	(586,037)
>> Investor Relations	**(169,452)**	(121,207)	**(71,980)**	(61,222)
>> TSX fees and associated costs	**(5,420)**	(62,477)	**(6,927)**	(5,935)
>> Overheads/Other	**(24,620)**	(9,943)	**(4,683)**	(1,087)
>> **Total General and Administration Costs**	**(2,342,987)**	**(1,910,913)**	**(777,847)**	**(941,996)**
>> Charge for share options granted (non-cash)	**-**	(290,833)	**-**	(53,662)
>> Changes in fair value of contingent consideration	**(41,583)**	145,561	**163,209**	(46,640)
>> Change in fair value of derivative	**(433,522)**	-	**(433,522)**	-
>> Gain / (Loss) on Foreign Exchange	**410,804**	(21,706)	**(716,018)**	(17,657)
>> **Operating Loss**	**(2,407,288)**	(2,077,891)	**(1,764,175)**	(1,059,955)

General and Administration costs have increased during the nine month period to 30 September /2020 compared to the same period in the prior year. This has been driven by an increase in corporate activity as a result of advancing the Araguaia project towards being construction ready and the origination of a project finance package.

Within General and Administration costs:

> Compensation of £671,577 was higher in 2020 versus 2019, when it amounted to £290,415 due to an increase in headcount as a result of building out a team to move the Araguaia project towards construction.

> Exploration costs expensed amounted to £487,479 in 2020 as compared to £477,731 in 2019. The slight increase is a result of increase in levels of activity on the Araguia project offset by lower costs due to favourbale FX rates.

> The level of professional fees has increased to £805,093 for 2020 compared to £789,655 for 2019 as direct result of increasing levels of activity around seeking to obtain project financing for the Araguaia project. In the prior period it included the costs associated with the royalty financing arrangement secured during 2019 and the newly established

subsidiary in the Netherlands. 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 2020 at £169,452 compared to £121,207 in 2019. This is predominantly due to an overall increase in level of investor related activity in anticipated of closing project financing for the ANP.

> The charge for stock options was nil during 2020, as compared to £290,833 during 2019 as all existing options had fully vested. These are non-cash charges.

There have also been a number of non-cash cost items which impacted Profit / (Loss) from operations and which arose in H1 2020 and 2019, as follows:

> The change in fair value of contingent consideration in the first nine months of 2020 resulted in a loss of £41,583 primarily as a result of the movement in the USD foreign exchange rate during the period. Both of the contingent considerations in place are USD denominated and so have increased in value when converted into GBP. In the prior year the gain of £145,561, was also due to exchange rate changes in the functional currency in which the Xstrara Contingent Consideration liability is denominated. See 'Contingent consideration' in 'Critical Accounting Policies and Estimates' for further analysis and explanation.

> The change in fair value of the derivative asset represent the updating of the assumptions that drive the inputs, being headline royalty rate, long term nickel price and date of commencement of production.

Additional movements:

> The (loss)/gain on foreign exchange is associated with movements arising on cash deposits held by the Company in currencies other than Sterling.

Analysis of Intangible Assets

	Goodwill	Exploration licences	Exploration and evaluation costs	Total
	£	£	£	£
Cost				
At 1 January 2019	226,757	6,130,295	29,380,849	35,757,901
Additions	-	-	1,868,149	1,868,149
Exchange rate movements	(7,405)	(78,501)	(1,015,392)	(1,101,298)
Net book amount at 30 September 2019	**219,352**	**6,051,794**	**30,233,606**	**36,504,752**

At 1 January 2020	210,585	5,157,366	1,689,495	7,057,444
Additions	-	-	-	-
Exchange rate movements	(56,209)	(527,535)	(126,043)	(709,785)
Net book amount at 30 September 2020	**154,376**	**4,629,831**	**1,563,452**	**6,347,659**

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.

Following determination of the technical feasibility and commercial viability of the Araguaia Ferronickel Project, the relevant expenditure was transferred from exploration and evaluation assets to evaluated mineral property in the fourth quarter of 2019.

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

	Mine Development Property £
Cost	
At 1 January 2019	-
Transfers to from exploration and evaluation assets	33,291,486
Additions	238,701
Exchange rate movements	(1,269,643)
Net book amount at 31 December 2019	32,260,544
Additions	2,436,966
Capitalised interest	2,442,614
Exchange rate movements	(8,245,404)
Net book amount at 30 September 2020 Amended	**28,984,718**

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.

Carrying value of Royalty financing arrangement

	9 months ended 30 September 2020 £	9 months ended 30 September 2019 £
Brought forward carrying value	20,570,411	-
Unwinding of discount	2,449,542	-
Change in fair value	73,737	-
Effects of foreign exchange	395,717	-
Value as at end of period Amended	**23,489,407**	**-**

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 2019 annual financial statements.

During the first 9 months of 2020 there was an unwinding of the discount of £2,449,542 which was capitalised to the mine development property during the period and as the liability is denominated in US$ which strengthened against GBP during the period the carrying value of the liability increased by £395,717 as a result of this movement in the foreign exchange rates.

Other Information

Outstanding Share Data

>> Group and Company	**2020 Number**	**2020 £**	2019 Number	2019 £
>> **Issued and fully paid**				
>> Ordinary shares of 1p each				
>> At 1 January	**1,446,377,287**	**14,463,773**	1,432,521,800	14,325,218
>> Issue of ordinary shares	**3,000,000**	**30,000**	13,855,487	138,555
>> At 30 September	**1,449,377,287**	**14,493,773**	1,446,377,287	14,463,773

As at the date of this document the group had 1,612,095,640 ordinary shares in issue following the placing of 162,718,353 new ordinary shares as part of a placing completed in February 2021.

Stock Options in the Company

Total options outstanding as at the date of this document amount to 133,300,000 with exercise prices ranging from 3.00 pence to 15.5 pence, which are currently fully vested.

During the period 3,000,000 options were exercised.

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 30 September 2020 the Company had £13,584,055 in cash at bank and on deposit, as at 31 December 2020 cash at bank and on deposit amounted to £17,760,330.

The Company has no immediate debt repayment requirements as the deferred contingent consideration and the Orion royalty only become payable upon commencement of production. The Group has a non material level of current liabilities which occur in the ordinary course of business.

All of the Company's cash and cash equivalents as at 30 September 2020 is held in interest bearing accounts. The Company has not invested in any short-term commercial paper, asset backed securities or other financial instruments.

The audited financial statements prepared as at 31 December 2019 include certain disclosures in note 2.2 regarding the potential effect of Covid-19 on the Groups ability to continue as a going concern. These disclosures remain pertinent as at the date of this report as the effects of the pandemic remain wide ranging and ongoing.

The Directors, having made appropriate enquiries, consider that adequate resources exist for the Group to continue in operational existence for the foreseeable future and that, therefore, it is appropriate to adopt the going concern basis in preparing the condensed consolidated interim financial statements for the period ended 30 Septmeber 2020.

Off-Balance sheet arrangements

We do 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.

Commitments

The Company adopted IFRS 16 on January 1, 2019, which requires the recognition of assets and liabilities for allleases, unless the lease term is less than 12 months or the underlying asset has a low value. It does not hold any material leases.

Related party transactions
The key management personnel of the Company at September 30, 2020 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 2019.

Responsibilities, controls and policies
Evaluation of disclosure controls and procedures
Our Chairman and CEO, and Interim Chief Financial Officer are responsible for establishing and maintaining disclosure controls and procedures for the Company. As such, we maintain a set of disclosure controls and procedures designed to ensure that information required to be disclosed in filings is recorded, processed, summarized and reported within the time periods specified by the Canadian Securities Administrators rules and forms. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management necessarily is required to apply its judgment in evaluating the costbenefit relationship of possible controls and procedures.

Our internal controls over financial reporting are designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS. Because of 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.

Control weakness

As part of a review of the control environment the requirement for some non cash restatements to the interim financial statements were required under IFRS, it also became clear that the Company did not have sufficient accounting resources with relevant technical accounting skills to address issues related to the financial statement close process. Because of the size of the Company and its staff complement, we were not able to sufficiently design internal controls to provide the appropriate level of oversight regarding the financial recordkeeping and review of the Company's financial reporting. This weakness has been identified and is in the process of being address and will continue to be addressed through 2021 with an increase and restructure of the finance function. As the Company continues to improve its internal controls over financial reporting, we have engaged outside consultants, expert in the valuation of complex financial instruments.

Risks and uncertainties
The information presented in the heading "Risk Factors" on pages 41 to 49 of our Annual Information Form for the year ended December 31, 2019 has not changed materially since December 31, 2019.

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 include:

Impairment of exploration and evaluation costs

Exploration and evaluation costs have a carrying value at 30 September 2020 of £6,347,659 (Dec 2019: £7,057,445). Management tests annually whether exploration projects have future economic value in accordance with the accounting policy. 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 Directors have reviewed the estimated value of each project prepared by management and do not consider any impairment is necessary.

Contingent consideration

Contingent consideration has a carrying value of £6,508,174 at 30 September 2020 (Dec 2019: £6,246,071). There are two contingent consideration arrangement in place as at 30 September 2020:

- A contingent consideration arrangement that requires the Group to pay Xstrata Brasil Mineração Ltda the remaining 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 within the Enlarged Project area. As at 30 September 2020 this had a carrying value of £3,018,176.

- A contingent consideration payable to Vale Metais Basicos S.A. comprising US$6,000,000 consideration in cash as at the date of first commercial production from the Vermelho project and was recognised for the first time in December 2019, following the publication of a PFS on the project. As at 30 September 2020 this had a carrying value of £3,489,997.

  The critical assumptions relating to the assessment of both the contingent consideration amounts are presented in further detail in the 2019 audited annual report and MD&A as at 31 December 2019.

Current and deferred taxation

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

Deferred tax liabilities have been recognised on the fair value gains in exploration assets arising on the acquisition of Lontra Empreendimentos e Participações Ltda but no longer on the acquisition of Araguaia Niquel Mineração Ltda (formerly Teck Cominco Brasil S.A). A deferred tax asset was historically recognised on acquisition of Araguaia Niquel Mineração Ltda to the extent that it could be set against the deferred tax liability arising on the fair value gains. In determining whether a deferred tax asset in excess of this amount should be recognised management must make an assessment of the probability that the tax losses will be utilized and a deferred tax asset is only recognised if it is considered probable that the tax losses will be utilised.

Property plant and Equipment

Mine development property

Following determination of the technical feasibility and commercial viability of a mineral resource, the relevant expenditure is transferred from exploration and evaluation assets to mine development property.

Further development costs are capitalised to mine development properties, if and only if, it is probable that future economic benefits associated with the item will flow to the entity and the cost can be measured reliably. Cost is defined as the purchase price and directly attributable costs. Once the asset is considered to be capable of operating in a manner intended by management, commercial production is declared, and the relevant costs are depreciated. Evaluated mineral property is carried at cost less accumulated depreciation and accumulated impairment losses.

Depreciation and amortisation

Mine development property is not depreciated prior to commercial production but is reviewed for impairment annually. Upon commencement of commercial production, mine development property is transferred to a mining property and is depreciated on a units-of-production basis. Only proven and probable reserves are used in the tonnes mined units of production depreciation calculation.

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 treatment of this financing arrangements as a financial liability, calculated using the effective interest rate methodology is a key judgement that has been made by the Company and which has been taken following obtaining independent expert advice. The carrying value of the financing liability is also sensitive to assumptions regarding the royalty rate and future nickel prices. 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.

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.

Borrowing costs

Borrowing costs are expensed except where they relates to the financing of construction or development of qualifying assets. Borrowing costs directly related to financing of qualifying assets in the course of construction are capitalised to the carrying value of the Araguaia mine

development property. Where funds have been borrowed specifically to the finance the Project, the amount capitalised represents the actual borrowing costs incurred net of all interest income earned on the temporary re-investment of these borrowings prior to utilisation. Borrowing costs capitalised include:

- Interest charge on royalty finance
- Adjustments to the carrying value of the royalty finance
- Unwinding of discount on contingent consideration payable for Araguaia

All other borrowing costs are recognized as part of interest expense in the year which they are incurred.

Additional Information

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

Forward Looking Statements

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

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

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

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