

# AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT AND MEDIA RELEASE



29 March 2021

## Jaguar Nickel Sulphide Project Scoping Study

### POSITIVE SCOPING STUDY DEMONSTRATES POTENTIAL TO DEVELOP A SUSTAINABLE, LONG-LIFE & LOW-COST NICKEL SULPHIDE PROJECT AT JAGUAR

#### Cautionary Statements

The Scoping Study referred to in this announcement has been undertaken for the purpose of initial evaluation of a potential development of the **Jaguar Nickel Sulphide Project**. It is a preliminary technical and economic study ( $\pm 40\%$ ) of the potential viability of the Jaguar Nickel Sulphide Project. The Scoping Study outcomes, production target and forecast financial information referred to in this announcement are based on low accuracy level technical and economic assessments that are insufficient to support estimation of Ore Reserves. While each of the modifying factors was considered and applied, there is no certainty of eventual conversion to Ore Reserves or that the production target itself will be realised. Further exploration and evaluation work and appropriate studies are required before Centaurus will be in a position to estimate any Ore Reserves or to provide any assurance of an economic development case.

The JORC compliant Mineral Resource Estimate released on 4 February 2021 and updated in this ASX Release forms the basis for the Scoping Study that is the subject of this announcement. Over the life of mine considered in the Scoping Study, 61% of the Production Target originates from Indicated Mineral Resources and 39% from Inferred Mineral Resources. More than 80% of the Production Target over the first 3 years of the Project will be from Indicated Mineral Resources. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target itself will be realised. Centaurus confirms that the financial viability of the Jaguar Nickel Sulphide Project is not dependent on the inclusion of Inferred Resources in the production schedule.

The Mineral Resources underpinning the production target in the Scoping Study have been prepared by a competent person in accordance with the requirements of the JORC Code (2012). The Competent Person's Statement is found below in this announcement. For full details of the Mineral Resources Estimate, please refer to Centaurus ASX release dated 4 February 2021 and the update of the Mineral Resource set out in this Announcement. Centaurus confirms that it is not aware of any new information or data that materially affects the information included in these releases. All material assumptions and technical parameters underpinning the estimate continue to apply and have not materially changed.

No Ore Reserve has been declared. This announcement has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions, including sufficient progression of all JORC modifying factors, on which the production target and forecast financial information are based have been included in this ASX release.

This Scoping Study was completed to an overall  $\pm 40\%$  accuracy using the key parameters and assumptions outlined elsewhere in this announcement.

Assumptions also include assumptions about the availability of funding. While Centaurus considers that all the material assumptions are based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this study will be achieved. To achieve the range of outcomes indicated in the Scoping Study, pre-production funding in the order of US\$178M will likely be required. There is no certainty that Centaurus will be able to source that amount of funding when required. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Centaurus's shares. It is also possible that Centaurus could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Jaguar Nickel Sulphide Project. This could materially reduce Centaurus's proportionate ownership of the Jaguar Nickel Sulphide Project.

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This announcement contains a series of forward-looking statements. Generally, the words "expect," "potential", "intend," "estimate," "will" and similar expressions identify forward-looking statements. By their very nature forward-looking statements are subject to known and unknown risks and uncertainties that may cause actual results, performance or achievements, to differ materially from those expressed or implied in any forward-looking statements, which are not guarantees of future performance. Statements in this release regarding Centaurus's business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties, such as Mineral Resource estimates, market prices of metals, capital and operating costs, changes in project parameters as plans continue to be evaluated, continued availability of capital and financing and general economic, market or business conditions, and statements that describe Centaurus's future plans, objectives or goals, including words to the effect that Centaurus or management expects a stated condition or result to occur. Forward-looking statements are necessarily based on estimates and assumptions that, while considered reasonable by Centaurus, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date they are made.

Centaurus has concluded it has a reasonable basis for providing these forward-looking statements and believes it has reasonable basis to expect it will be able to fund development of the project. However, a number of factors could cause actual results or expectations to differ materially from the results expressed or implied in the forward-looking statements. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of this study.

The project development schedule assumes the completion of a Pre-Feasibility Study (PFS) by the end of 2021 and a DFS by the end of 2022. Environmental permitting and development approvals are the main time determining factors to first production, scheduled for the second half of 2024. The key document for the environmental approval process is the Environmental Impact Assessment (EIA/RIMA) and this is due to be lodged in Q2 2021. Delays in the environmental approval process or any other development approval could result in a delay to the commencement of construction (planned for mid-2023). This could lead to a delay to first production, planned for the second half of 2024. The Company's stakeholder management and community engagement programs will reduce the risk of project delays. These dates are indicative only.

It is anticipated that finance will be sourced through a combination of equity from existing shareholders, new equity investment and debt providers. In July 2020, the Company completed a A\$25.5 million share placement of which A\$7.0 million was cornerstoned by highly experienced Canadian resource investment house, Dundee Goodman Merchant Partners, who remain very supportive of the Company and development of the Jaguar Nickel Sulphide Project. Further, strong indications of equity support exist from broking groups who have research coverage on the Company. The Board considers that the project cash flows outlined in the Scoping Study are supportive of debt funding of the Project on normal commercial terms.

The Board considers that the Company has sufficient cash on hand to undertake the next stage of planned work programs, including the completion of a Pre-Feasibility Study (PFS), continued metallurgical testing, the commencement of further technical studies and ongoing exploration of the project area.

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Centaurus Metals (ASX Code: **CTM**) is pleased to announce the completion of a positive independent Base Case Scoping Study for the development of its 100%-owned **Jaguar Nickel Sulphide Project** in the Carajás Mineral Province of northern Brazil, establishing a strong foundation for a significant new global nickel sulphide project.

The Scoping Study outcomes demonstrate the potential for Jaguar to become a sustainable, long-term and low-cost producer of Class-1 nickel for global markets, generating strong financial returns while also delivering significant social and economic benefits for the local communities in which the Project is located. The Study was conducted by a group of leading independent consultants including Entech Pty Ltd, Re-Metallica and DRA Global, overseen by in-house Centaurus personnel.

**The Base Case Scoping Study** considers open pit and underground mining over an **initial 10-year mine life**, delivering nickel sulphide feed to a **2.7Mtpa conventional nickel flotation plant** to produce approximately **20,000 tonnes of recovered nickel metal per year at a low life-of-mine (LOM) C1 operating cost of ~US\$2.41/lb**.

The Base Case Study will be followed by a **Value-Added Scoping Study** in 3-4 weeks time that considers the production of nickel metal through the inclusion of a Pressure Oxidation circuit to further value-add the nickel concentrate produced in the flotation plant.

## KEY SCOPING STUDY HIGHLIGHTS

### Base Case

- Production of nickel concentrate via a conventional 2.7Mtpa nickel flotation circuit
- Base Case nickel price assumption of US\$7.50/lb (US\$16,530/tonne)

### Strong Financial Returns<sup>1</sup>

- Post-tax NPV<sub>8</sub> of ~US\$453 million (~A\$604 million)
- Post-tax IRR of ~54%
- Post-tax capital payback of ~1.9 years from first nickel concentrate production
- Net Revenue totalling ~US\$2.42 billion (~A\$3.23 billion)
- EBITDA totalling ~US\$1.23 billion (~A\$1.64 billion)
- Average Annual Free Operating Cash Flow (Pre-tax) of ~US\$109 million (~A\$145 million)

### Physical Parameters

- Production Target of 32.8Mt @ 0.84% Ni for 275,600t of contained nickel
- Production Target comprises 61% Indicated Mineral Resources and 39% Inferred Mineral Resources
- Initial 10-year Mill Feed<sup>2</sup> of 24.0Mt @ 1.08% Ni for 260,300t of contained nickel
- LOM recovered nickel of 203,300t (~20ktpa annual average nickel in concentrate grading 15.8% Ni)
- First production is targeted for the end of 2024, based on current environmental approvals timeline
- Ideally positioned to meet forecast growth in demand for Class 1 nickel from the EV battery market

### Operating Costs & Capital Costs

- Low LOM C1 cash costs of operations of ~US\$2.41/lb
- LOM AISC of ~US\$2.97/lb
- Pre-production CAPEX (including contingency) of ~US\$178 million

### Uniquely Positioned to be a Long-Term Sustainable Nickel Producer

- Power for the Project to be delivered from predominantly renewable sources (hydroelectric and solar generation) through the Brazilian power grid
- Significantly lower carbon footprint from processing of sulphide ore compared to laterites
- Strong social programs implemented within the local municipalities where the Company operates, currently focused on health, sanitation and water quality

<sup>1</sup> The range of results of the study are set out on page 5 of this Scoping Study Release.

<sup>2</sup> Mill Feed includes the Ore-sorter product which has been processed pre-concentrator. Refer Table 9 in the JNP Base Case Scoping Study Executive Summary that forms part of this ASX Release.

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- Strong COVID-19 protocols adopted to protect employees, as well as to make a contribution to local health services to assist in their COVID-19 response
- 80% of exploration and development work awarded to local suppliers and contractors
- Recently completed land possession agreement executed to significantly de-risk future project development activities, with a further two agreements currently being negotiated

## **Significant Upside Potential**

- Value-Added Scoping Study to be delivered in next 3-4 weeks
- Four diamond drill rigs currently operating on double-shift at Jaguar, targeting resource growth
- New RC rig to arrive in next couple of weeks to continue exploration activity on multiple greenfield targets
- Over 65,000m of drilling targeted to be completed in 2021

## **Strong Cash Position**

- Strong cash position of over A\$20.5 million at 28 February 2021 and A\$5.2 million in-the-money options to drive ongoing drilling in parallel with project development work in 2021

Centaurus' Managing Director, Mr Darren Gordon, said the completion of a positive Scoping Study just over 18 months after acquiring the Jaguar Nickel Sulphide Project reflects the project's outstanding fundamentals and its ability to underpin the development of an outstanding new sustainable long-life, low-cost nickel sulphide operation.

*"Our goal is to transform Centaurus into a new-generation nickel sulphide mining company in Brazil, capable of delivering more than 20,000 tonne per annum of Class-1 nickel sulphides to global markets for many years to come. The Scoping Study clearly shows that Jaguar has all the attributes required to achieve this goal, and to do so in a sustainable and responsible manner that ensures we meet the highest possible ESG standards.*

*"The Base Case Scoping Study reveals a project with compelling economics combined with the ability to deliver significant social benefits to the local community in which the Company plans to operate, over a long period of time.*

*"The development of the Project will provide many new job opportunities in and around the local municipalities. With a construction workforce of over 1,000 people, 190 full-time operational personnel and up to 500 mining contractor employees, Jaguar will not only provide direct employment opportunities but will also stimulate the local economy through the creation of a number of indirect employment and business opportunities.*

*"A key attribute of the Jaguar Project's economics lies in the low C1 operating costs of approximately US\$2.41/lb and the associated free cash-flows that are generated over the initial 10-year mine life. As a result, we have a high degree of confidence that Jaguar will be financially viable in any future nickel price environment. The low C1 cash costs reflect both the significant open pit volumes and the low operating cost environment in Brazil, and results in high operating margins that will be resilient to fluctuations in the nickel price and exchange rates.*

*"At a conservative life-of-mine nickel price of US\$7.50/lb, the base case project delivers a post-tax NPV of ~A\$604 million, an IRR of ~54%. This gives us the confidence to push ahead with further feasibility activities, with a Pre-Feasibility Study scheduled to commence immediately and pave the way for a Definitive Feasibility Study next year that will allow us to make a Final Investment Decision on a long-life operation with low capital intensity and low operating costs, capable of generating strong shareholder returns.*

*"The development timeline for the Jaguar Project sees production planned for the second half of 2024. Most major investment bank research suggests that the demand for Class-1 nickel at this time will be strongly outstripping supply – which should be favourable for nickel producers, particularly those like Centaurus that can sustainably produce nickel from sulphide sources at very low operating costs. At a nickel price of US\$9/lb, which is forecast by a number of the investment banks for the middle of this decade when operations at Jaguar are targeted to commence, the Project's post tax NPV would rise to ~A\$1.01 billion, with an IRR of ~80%.*

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*“It’s also important to remember that this Scoping Study provides a snapshot of the Project as it currently stands. We have a high degree of confidence in the ability to grow our Resource base well beyond current levels. As we press ahead with the Pre-Feasibility Study, we are maintaining an aggressive approach to exploration, with four diamond drill rigs operating around the clock and a new RC rig to arrive on site in the coming weeks to grow our Resource inventory and target new discoveries that could deliver a further significant uplift in the Project’s already strong value proposition.”*

The Key Assumptions underpinning the Jaguar Nickel Sulphide Project economics (Table 1) and the key financial results from the Base Case Scoping Study (Table 2) are summarised below:

**Table 1 – Base Case Financial Model Assumptions and Production Target**

Assumptions	Units	Base Case
Average LOM Exchange Rate	USD/BRL	5.00
Average LOM Exchange Rate	AUD/USD	0.75
Ni Price	US\$/tonne	16,530
Ni Price	US\$/lb	7.50
Corporate tax rate	%	15%
Discount Rate - Real	%	8%
Physicals		
Production Target	32.8Mt @ 0.84% Ni for 275,600t Contained Ni	
Mill Feed	24Mt @ 1.08% Ni	
Mill Feed Contained Ni	t	260,300
Average Life-of-mine Recovery to Concentrate	%	78%
Concentrate Grade	%	15.8%
Recovered Nickel	t	203,300

**Table 2 – Base Case Key Project Results**

Key Statistic	Units	Mid-point	Range	
Capital Costs				
Pre-Production Development Capital	US\$M	178	160	195
Sustaining and Deferred Capital	US\$M	138	125	152
Operating Costs (100% payable basis)				
C1 Cash Costs	US\$/lb	2.41	2.17	2.65
Royalties	US\$/lb	0.25	0.22	0.27
<b>Total Operating Costs</b>	<b>US\$/lb</b>	<b>2.66</b>	<b>2.39</b>	<b>2.92</b>
Sustaining and Deferred Capital	US\$/lb	0.31	0.28	0.34
<b>All-in Sustaining Costs (AISC)</b>	<b>US\$/lb</b>	<b>2.97</b>	<b>2.67</b>	<b>3.26</b>
Pre-Production Development Capital	US\$/lb	0.40	0.36	0.44
<b>All-in Costs</b>	<b>US\$/lb</b>	<b>3.37</b>	<b>3.03</b>	<b>3.70</b>
Financial Metrics				
Total Net Revenue	US\$M	2,422	2,180	2,664
Project Cashflow – pre-Tax	US\$M	914	823	1,006
<b>NPV<sub>8</sub> - pre-Tax</b>	<b>US\$M</b>	<b>543</b>	<b>489</b>	<b>597</b>
<b>EBITDA</b>	<b>US\$M</b>	<b>1,230</b>	<b>1,107</b>	<b>1,354</b>
IRR – pre-Tax	%	62%	56%	68%
Tax Paid	US\$M	(137)	(123)	(151)
Project Cashflow – post Tax	US\$M	777	700	855
<b>NPV<sub>8</sub> – post Tax</b>	<b>US\$M</b>	<b>453</b>	<b>407</b>	<b>498</b>
Project Cashflow – post Tax	A\$M	1,036	933	1,140
<b>NPV<sub>8</sub> – post Tax</b>	<b>A\$M</b>	<b>604</b>	<b>543</b>	<b>664</b>
IRR – post Tax	%	54%	48%	59%
<b>Capital Payback Period – post Tax</b>	<b>Years</b>	<b>1.9</b>	<b>1.7</b>	<b>2.1</b>

The results of this Base Case Scoping Study have allowed the Board of Centaurus to commit to proceeding to a Pre-Feasibility Study (PFS) based on the Base Case conventional flotation option.

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The Company is also close to completing a Value-Added Scoping Study option that is evaluating processing the nickel concentrate using a hydrometallurgical process (POx) to produce nickel metal. The results of that Value-Added Scoping Study will determine if the Company proceeds to a PFS on the Value-Added Case in conjunction with the Base Case.

The study of both options in the PFS stage will allow the Company to complete the required trade-off analysis to a level of detail that will allow an informed decision to be made on how to maximise value for the Company at an acceptable risk level and, consequently, move the project forward in the Definitive Feasibility stage.

## Updated Mineral Resource Estimate

Prior to undertaking the Production Target estimate for the Scoping Study, the Mineral Resource announced on 4 February 2021 has been revised and updated. The only change has been a minor correction to the density estimation for the Onça Preta and Onça Rosa deposits. There is no change to the Jaguar deposit density estimations.

The updated JORC 2012 Indicated and Inferred Mineral Resource Estimate (MRE) is **58.9Mt at 0.96% Ni for 562,600 tonnes** of contained nickel. There have been no changes to the interpretation of the mineralisation domains, to the estimation of metals or to the classification from the Mineral Resource announced 4 February 2021.

The Company's JORC 2012 Mineral Resource Estimate (MRE) update has been completed by independent resource specialists Trepanier Pty Ltd. The updated February 2021 Global MRE is based on more than 74,500m of diamond drilling, including 267 diamond drill holes. This includes an additional 49 diamond holes, for 8,150m, of predominantly in-fill drilling that has been completed since the Company's maiden JORC MRE released in June 2020.

As shown in Table 3, 97.5% of the Resource is comprised of fresh sulphides, 2.5% transitional sulphides and all oxide material is considered as waste and therefore not reported as Resources.

**Table 3 – The Jaguar JORC Mineral Resource Estimate (MRE) – March 2021**

Classification	Ore Type	Tonnes		Grade		Contained Metal Tonnes		
		Mt	Ni %	Cu %	Co ppm	Ni	Cu	Co
Indicated	Transition Sulphide	0.7	0.96	0.08	250	6,900	600	200
	Fresh Sulphide	19.4	1.13	0.07	326	218,900	14,200	6,300
	<b>Total Indicated</b>	<b>20.1</b>	<b>1.12</b>	<b>0.07</b>	<b>323</b>	<b>225,800</b>	<b>14,800</b>	<b>6,500</b>
Inferred	Transition Sulphide	0.9	0.79	0.07	239	6,800	600	200
	Fresh Sulphide	37.9	0.87	0.06	230	330,000	23,500	8,700
	<b>Total Inferred</b>	<b>38.8</b>	<b>0.87</b>	<b>0.06</b>	<b>230</b>	<b>336,800</b>	<b>24,100</b>	<b>8,900</b>
<b>Total</b>		<b>58.9</b>	<b>0.96</b>	<b>0.07</b>	<b>262</b>	<b>562,600</b>	<b>38,900</b>	<b>15,400</b>

*\* Within 200m of surface cut-off grade 0.5% Ni; more than 200m from surface cut-off grade 1.0% Ni; Totals are rounded to reflect acceptable precision, subtotals may not reflect global totals.*

The Jaguar MRE at various cut-off grades is shown in Table 4 below, with the reported Jaguar Global MRE and Jaguar High-Grade MRE highlighted in dark grey.

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Table 4 – The Jaguar JORC Indicated and Inferred MRE at various Ni% Cut-Off Grades – March 2021

Ni% Cut-off Grade		Tonnes Mt	Ni %	Grade Cu %	Co ppm	Metal Tonnes		
Surface - 200m	+ 200m					Ni	Cu	Co
<b>0.3</b>	<b>1.0</b>	<b>58.9</b>	<b>0.96</b>	<b>0.07</b>	<b>262</b>	<b>562,600</b>	<b>38,800</b>	<b>15,400</b>
0.4	1.0	56.0	0.99	0.07	270	552,200	38,100	15,100
0.5	1.0	49.9	1.05	0.07	287	524,900	36,300	14,300
0.6	1.0	42.0	1.15	0.08	311	481,200	33,500	13,100
0.7	1.0	34.8	1.25	0.09	339	434,500	30,400	11,800
0.8	1.0	28.6	1.36	0.09	367	388,400	26,900	10,500
0.9	1.0	23.8	1.46	0.10	394	347,700	23,800	9,400
<b>1.0</b>	<b>1.0</b>	<b>20.0</b>	<b>1.56</b>	<b>0.10</b>	<b>419</b>	<b>311,100</b>	<b>20,600</b>	<b>8,400</b>
1.1	1.1	16.1	1.68	0.11	468	270,700	18,400	7,500
1.2	1.2	13.0	1.81	0.13	526	235,300	16,700	6,900
1.3	1.3	10.8	1.92	0.14	581	208,100	15,300	6,300

\* Totals are rounded to reflect acceptable precision, subtotals may not reflect global totals.

Details of the drilling data used for the estimation and the quality control checks completed on the data are documented both in the ASX announcement dated 4 February 2021, the Detailed Technical Discussion and Supporting Information section of this announcement and the JORC Table 1, Sections 1 to 3 attached to this announcement. As outlined above, no new drilling or assay data has been used in the revised March 2021 MRE.

The Company is pleased to present the Executive Summary of the Jaguar Nickel Sulphide Project Base Case Scoping Study in the following booklet, with the booklet forming an integral part of this Base Case Scoping Study announcement.

# The Jaguar Nickel Sulphide Project **BASE CASE SCOPING STUDY**

**EXECUTIVE SUMMARY**

MARCH 2021







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This JNP Base Case Scoping Study has been prepared by Centaurus Metals with assistance from the following advisors:

- Plant Engineering:** DRA Global (Australia)
- Mining & Geotech:** Entech (Australia) & ReMetallica (Brazil)
- Resource Estimation:** Trepanier Pty (Australia)
- Metallurgical Testwork:** ALS Metallurgy (Australia)
- Mineralogy:** McArthur Ore Deposit Assessments (Australia)
- Power:** Malc Engenharia Ltda. & Conexão Energia (Brazil)
- Tailings Storage Facility:** L&MG SPL (Australia)
- Environmental Study:** Bicho do Mato (Brazil)

The Centaurus Jaguar Nickel Sulphide Project team included:

- Managing Director:** Darren Gordon
- Country Manager & Executive Director:** Bruno Scarpelli
- Operations Manager:** Roger Fitzhardinge
- CFO & Company Secretary:** John Westdorp
- Principal Metallurgist:** John Knoblauch
- Principal Geoscientist:** Grant 'Rocky' Osborne
- Exploration Manager:** Gaudius Montresor
- Environmental Manager:** Antonio Kalil
- OHS Manager:** Antonio Campos
- Administration Coordinator (Brazil):** Bianca Peloso Braga

# 1. Executive Summary

## 1.1 INTRODUCTION

Centaurus Metals Ltd has completed a Scoping Study for the development of the Jaguar Nickel Sulphide Project (JNP), located in the State of Pará, Brazil. The Base Case Scoping Study assesses the construction of a Conventional Flotation Concentrator to produce a nickel concentrate from open pit and underground mining operations.

In September 2019, CTM through its subsidiary Aliança Mineração Ltda (Aliança) executed a Sales & Purchase Agreement with Vale Metais Básicos SA (Vale) that transferred 100% of the JNP to Aliança. Drilling at Jaguar commenced in November 2019.

In February 2021, the Company completed a JORC 2012 Indicated and Inferred Mineral Resource Estimate (MRE) update of 58.6Mt at 0.95% Ni for 557,800 tonnes of contained nickel which was further updated during the delivery of the Base Case Scoping Study to a MRE of 58.9Mt at 0.96% Ni for 562,600 tonnes of contained nickel.

Centaurus engaged DRA Pacific Ltd (DRA) and Entech Pty Ltd (Entech) to complete the JNP Scoping Study based on the March 2021 MRE. Resource development and greenfields drilling is ongoing and a further MRE update is planned for Q3 2021. Future Mineral Resource updates will underpin the JNP Pre-Feasibility Study planned for completion in Q4 2021.

The JNP is 100% owned by Aliança, a wholly owned Brazilian subsidiary of Centaurus Metals Ltd (CTM).





## 1.2 PROJECT LOCATION

The JNP is located within a 30km<sup>2</sup> tenement package in the São Félix do Xingú municipality in the western portion of the world-class Carajás Mineral Province in the state of Pará (Figure 1). The Carajás Mineral Province is Brazil's premier mining hub, containing one of the world's largest known concentrations of bulk tonnage IOCG deposits as well as hosting the world's largest high-grade iron ore mine at S11D.

The JNP is ideally located close to existing infrastructure, just 35km north of the regional centre of Tucumã (population +35,000) where a 138kV power sub-station is located.

The commercial airports closest to the project area are in the cities of Marabá and Parauapebas, accessible by paved roads from Tucumã, 380km and 260km respectively. There is a regional airport for smaller flights in Ourilândia do Norte (population +30,000), which is 9km east of Tucumã. The project is located about 640km southwest of Belém, the capital of Pará State. The project is centred at 6°29'15" S latitude and 51°12'10" W longitude.

## 1.3 PROJECT CONCEPT

The development of the JNP Base Case Scoping Study comprises the following project concepts:

- The establishment of a conventional open pit mining operation and underground mining operations (from year 4) to supply 2.7Mtpa of ore to the processing plant for 10 years;
- The establishment of a conventional flotation nickel processing plant based on the treatment of 2.7 Mtpa of ore, to produce a nickel sulphide concentrate;
- Upgrade of a 40km access road from Tucumã to the JNP site;
- Construction of a tailings storage facility utilising the mine waste as the principal construction material;
- Construction of a 39km – 138 kV power line from the Tucumã sub-station to site to supply up to 24MW peak power demand;
- Construction of a village to accommodate 400 workers for the project implementation stage; and
- Construction of office and administration buildings, gate house, warehousing, heavy vehicle workshop, dams, ponds and general facilities and non-process site infrastructure.

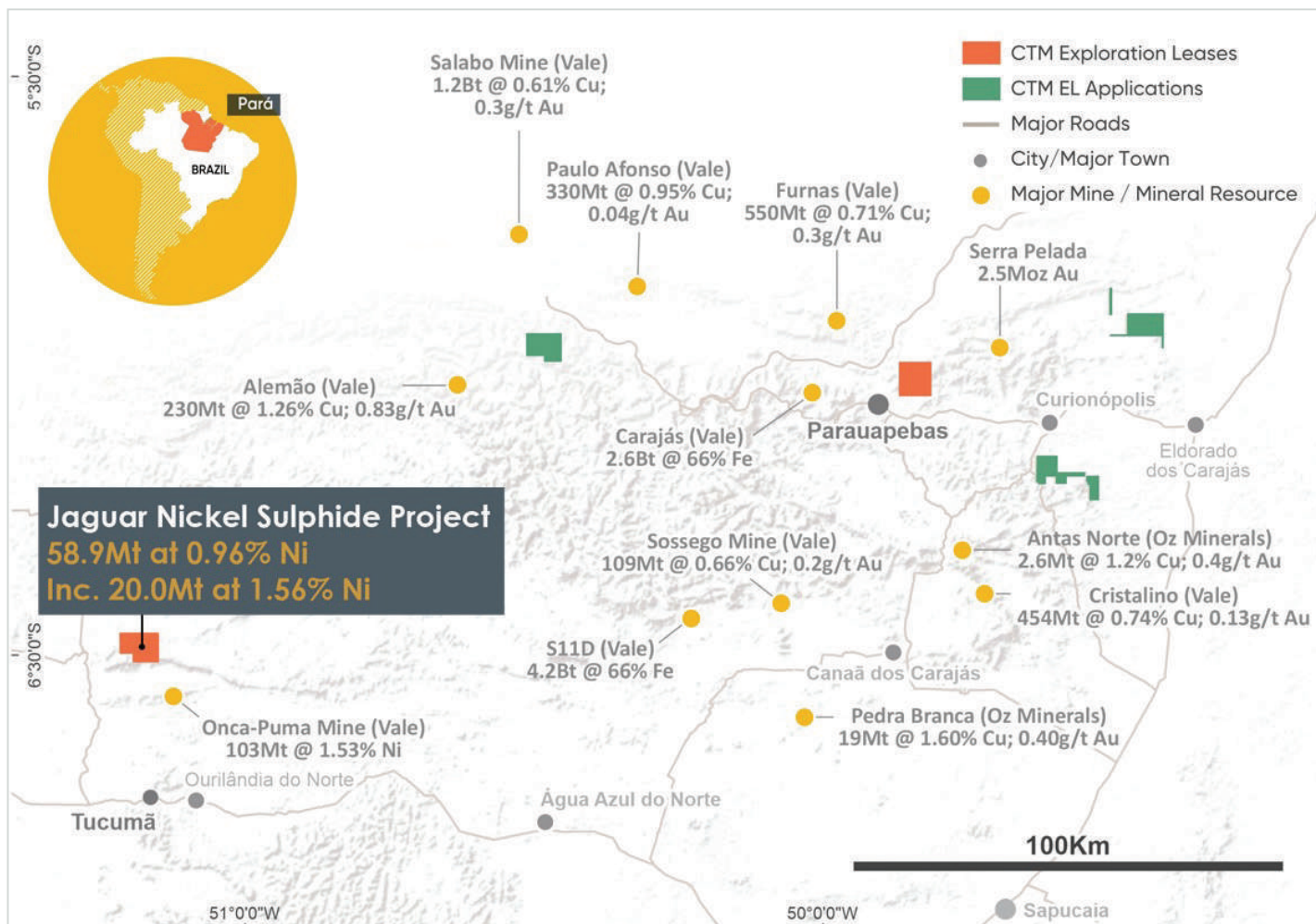


Figure 1 - The Jaguar Nickel Sulphide Project location in the Carajás Mineral Province, Brazil



## 1.4 KEY PROJECT METRICS

Assumption	Units	Base Case
Average LOM Exchange Rate	USD/BRL	5.00
Average LOM Exchange Rate	USD/AUD	0.75
Average LOM Exchange Rate	EUR/BRL	5.80
Ni Price	US\$/t	16,530
Ni Price	US\$/lb	7.50
Corporate tax rate (Amazon Region)	%	15%
Discount Rate - Real	%	8%
Physicals		
Production Target		32.8Mt @ 0.84% Ni for 275,600t Contained Ni
Mill Feed	Mt	24.0
Mill Feed Head Grade	% Ni	1.08%
Contained Ni in Mill Feed	t	260,300
Recovery to Concentrate	%	78%
Concentrate Grade	%	15.8%
Recovered Ni in concentrate	t	203,300

**Table 1 - Financial Model Assumptions**

Table 2 summarises the results of the JNP Base Case Scoping Study. The study confirms that the base case for the JNP is capable of delivering outstanding financial outcomes with an estimated project post tax NPV8 of A\$603.7M, a post tax IRR of 54% and a rapid capital payback of 1.9 years.

C1 cash costs of US\$2.41/lb of nickel metal in concentrate (including by-product credits and on a 100% payability basis) reflect both the significant open pit volumes and the low operating cost environment in Brazil and provide the JNP with a significant competitive advantage over other much deeper underground nickel sulphide projects and nickel laterite projects. A revenue to C1 cost ratio of 2.2 positions the JNP as a high margin operation, resilient to unfavourable movements in nickel price and exchange rates.

Project NPVs are estimated from the assumed Financial Investment Decision (FID) date for the project which for the purposes of the Study, coincides with the commencement of construction activities. C1 cash costs include by-product credits. Project cashflows are on a real, pre finance basis.

## 1.5 CONCLUSIONS AND RECOMMENDATIONS

The JNP Base Case Scoping Study confirms that the development of a 2.7Mtpa mine and flotation concentrator (Base Case) at the JNP is technically and commercially feasible. Given the robust results delivered by the Scoping Study, the Board of Centaurus has approved the Company proceeding to Pre-Feasibility Study (PFS) for the Base Case.

Key Results	Units	Base Case
Capital Costs		
Development Capital	US\$M	178
Sustaining and Deferred Capital	US\$M	138
Operating Costs (100% payable basis)		
C1 Cash Costs	US\$/lb	2.41
Royalties	US\$/lb	0.25
<b>Total Operating Costs</b>	<b>US\$/lb</b>	<b>2.66</b>
Sustaining and Deferred Capital	US\$/lb	0.31
<b>All-in Sustaining Costs (AISC)</b>	<b>US\$/lb</b>	<b>2.97</b>
Development Capital	US\$/lb	0.40
<b>All-in Costs</b>	<b>US\$/lb</b>	<b>3.37</b>
Financial Metrics		
Total Revenue	US\$M	2,422
Project Cashflow - pre-Tax	US\$M	914
<b>NPV<sub>8</sub> - pre-Tax</b>	<b>US\$M</b>	<b>543</b>
<b>EBITDA</b>	<b>US\$M</b>	<b>1,230</b>
IRR - pre-Tax	%	62%
Tax Paid	US\$M	(137)
Project Cashflow - post Tax	US\$M	777
<b>NPV<sub>8</sub> - post Tax</b>	<b>US\$M</b>	<b>453</b>
Project Cashflow - post Tax	A\$M	1,036
<b>NPV<sub>8</sub> - post Tax</b>	<b>A\$M</b>	<b>604</b>
IRR - post Tax	%	54%
<b>Capital Payback Period - post Tax</b>	<b>Years</b>	<b>1.9</b>

**Table 2 - Key Project Results**

Completion of a Scoping Study which considers value-added processing of nickel concentrate via a hydrometallurgical process (POx) to produce nickel metal (Value-Added Case) is due in 3-4 weeks.

The study of both options in the PFS stage will allow the Company to complete the required trade-off analysis to a level that will allow an informed decision on how to maximise value for the Company at acceptable risk levels and consequently move the project forward to the Definitive Feasibility stage.

## 2. Geology & Resources

The various deposits at the JNP differ from most nickel sulphide deposits mined to date globally because it is of hydrothermal origin, with the nickel sulphide mineralisation being of high tenor (tenor referring to the Ni concentration in 100% sulphides) with low Cr and Mg contents and not directly associated with mafic-ultramafic rocks. It is interpreted that the JNP mineralisation represents a hybrid hydrothermal style between magmatic Ni-Cu-PGE sulphide and IOCG mineralisation.

### 2.1 GEOLOGY

The JNP is located in the Carajás Mineral Province (Carajás), which contains one of the world's largest known concentrations of large tonnage IOCG deposits. The Igarapé Bahia Cu-Au deposit was discovered in 1985 and it was recognised that the deposit belonged to the IOCG deposit class. Since then, many IOCG deposits of three principal ages (NeoArchean- 2.72-2.68Ga, 2.6-2.45Ga and PaleoProterozoic 1.8Ga) have been discovered making the Carajás one of the world's premier IOCG regions.

The Carajás also hosts the world's largest source of high-grade iron ore, as well as being a significant source of gold, manganese and lateritic nickel, testament to its mineral endowment.

The JNP is located at the intersection of the WSW-trending Canaã Fault and the ENE-trending McCandless Fault, immediately south of the NeoArchean Puma Layered Mafic-Ultramafic Complex, which is host to the Puma Lateritic Nickel deposit (Figure 2).

The Jaguar mineralised bodies are hosted within sheared sub-volcanic porphyritic dacites of the Serra Arqueada Greenstone belt, adjacent to the boundary with a tonalite intrusive into the Xingu basement gneiss, while Onça Preta and Onça Rosa are tabular mineralised bodies hosted within the tonalite. The hydrothermal alteration and mineralisation form sub-vertical to vertical bodies structurally controlled by regional ductile-brittle mylonitic shear zones.

Sulphide assemblages are similar in both ore types, differing only in modal sulphide composition and structure. The mean sulphide assemblage (in order of abundance) is pyrite, pentlandite, millerite, violarite, pyrrhotite and sphalerite with trace vaesite, nickeliferous pyrite and chalcocopyrite (Figure 3).

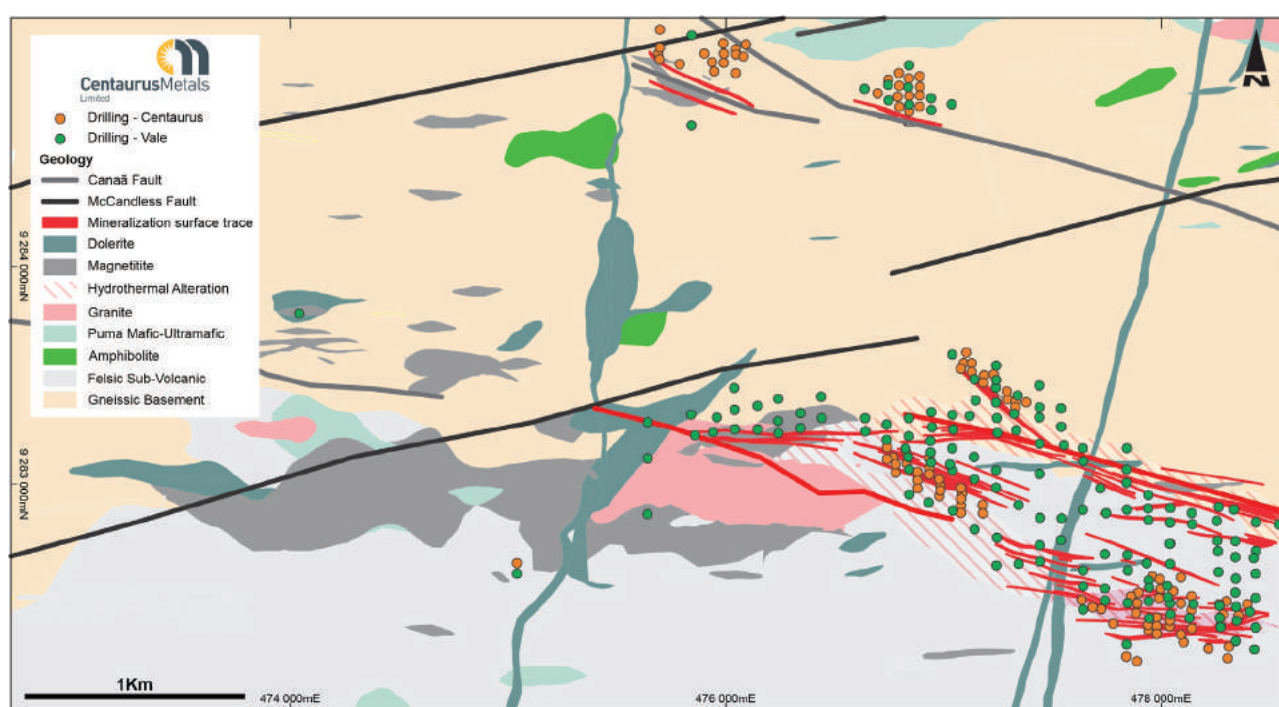
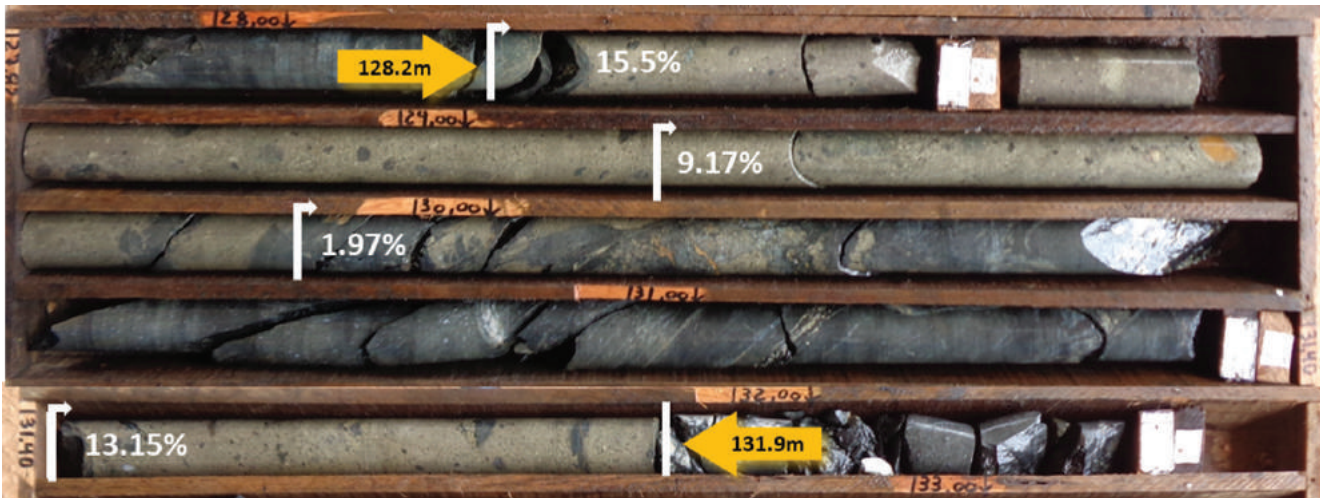


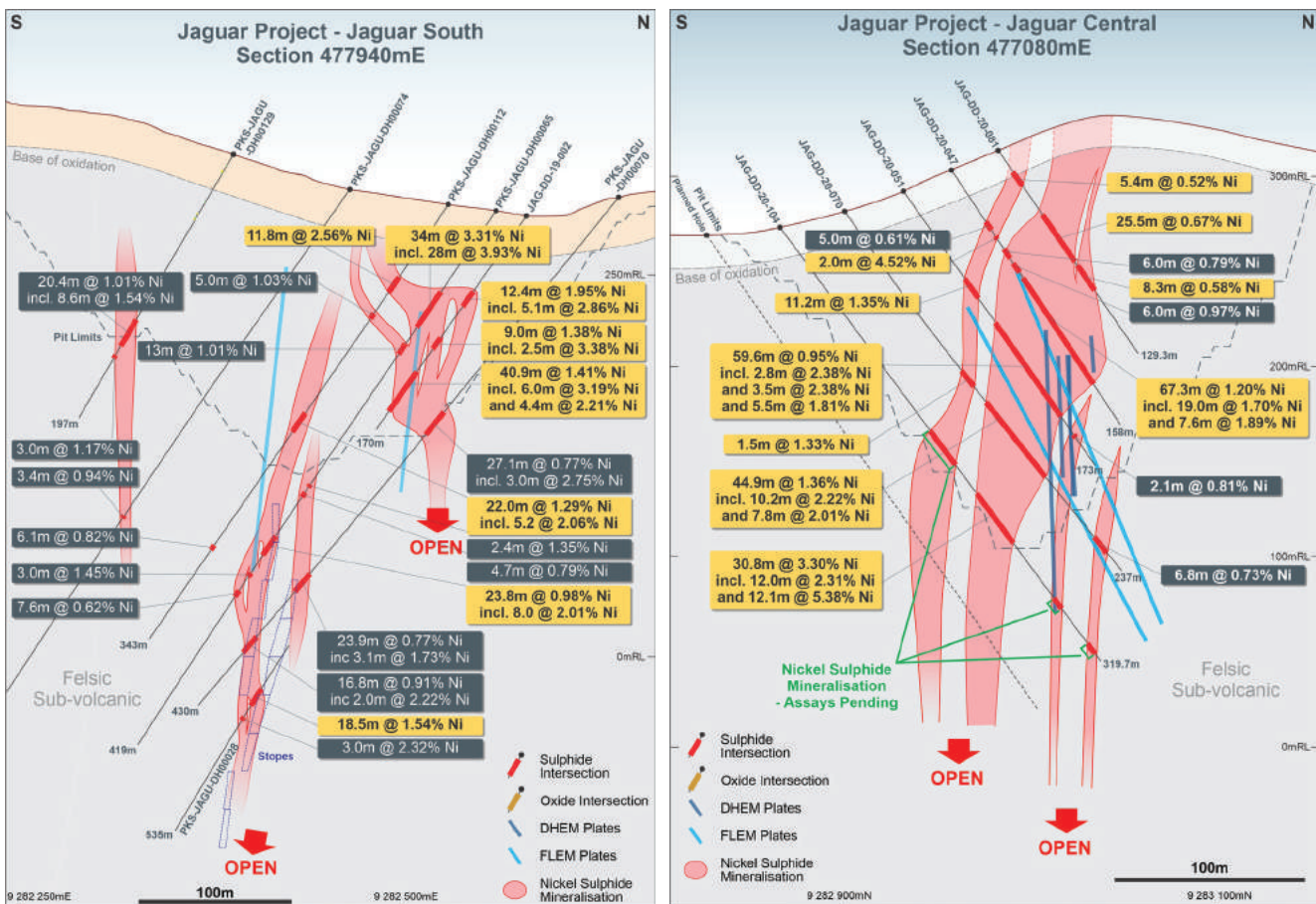
Figure 2 - The Jaguar Nickel Sulphide Project Geology



**Figure 3 - Core photos from drill hole JAG-DD-20-034; 128.2.2 to 131.9m: Semi-massive and massive sulphides** (metallic bronze/yellow) with magnetite (black) mineralisation hosted in altered dacite. Sulphides comprising pyrite, pentlandite, millerite, chalcocopyrite and minor sphalerite. Interval returned 3.7m at 8.55% Ni, 0.43% Cu and 0.12% Co from 128.2m

The most abundant type constitutes low-grade nickel mineralisation, occurring within veins concordant with the foliation, that is associated with the biotite-chlorite alteration. The target high-grade nickel mineralisation is associated with the magnetite-apatite-quartz alteration. It occurs as veins and breccia bodies consisting

of irregular fragments of extensively altered host rocks within a sulphide-magnetite-apatite rich matrix. Mineralised breccias form semi-massive sulphide bodies up to 30m thick parallel to, or crosscutting, biotite-chlorite rich zones (Figure 4).



**Figure 4 - Cross-Sections of the Jaguar South Deposit 477940mE (left) and Jaguar Central Deposit 477080mE (right)** (showing a number of significant drill intersections (in yellow) with DHEM conductor plates in blue)



Mineralisation at the Onça Preta and Onça Rosa deposits is predominantly of the second type, forming tabular semi-continuous to continuous bodies both along strike and down dip (Figure 5).

Regolith at the deposit is in-situ and comprises a thin soil layer overlying a decomposed saprolite transitional zone. The thickness to the base of the transitional zone generally varies from 5m to 25m (max. 34m).

Within the JNP tenement there are also several untested targets characterised by magnetic and/or electromagnetic anomalies located along favourable structures.

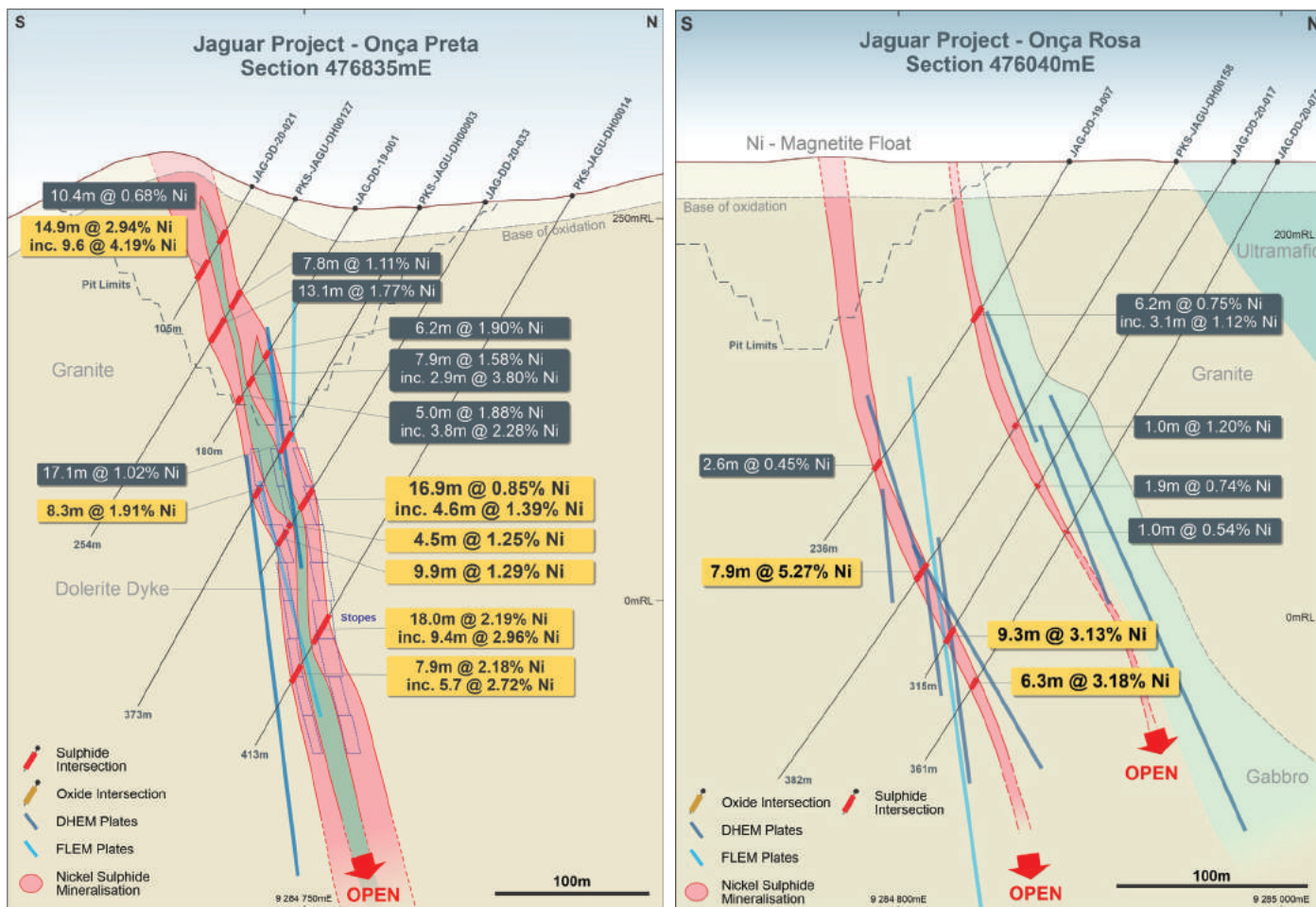


Figure 5 - Cross-Section of the Onça Preta Deposit 476835mE (left) and the Onça Rosa Deposit 476040mE (right) (showing the significant drill intersections (in yellow) with DHEM conductor plates in dark blue and FLEM plates in light blue).

## 2.2 GEOTECHNICAL

Entech completed a geotechnical study for the JNP to determine the pit slope angles to be used for the pit and stope optimisation runs and final design of the mine.

The typical rock mass can be characterised as 'Good' in the near-surface open-pittable environment. Final pit slopes have 10m (oxide) – 20m (fresh) benches and 5-10 m wide berms. The final pit walls of the deepest pit (Jaguar South) reach maximum heights of 290m at the highwall located on the southern side of the pit. Final slopes are expected to have average inter-ramp angles of between 40° - 49° in fresh rock and 33° in oxide material.

For the underground mining environment, the rock mass conditions improve with depth and can be generally classified as 'Good' to 'Very Good'. The orebody geometry and rock mass conditions at the Jaguar deposits favours the use of a top down longhole open stoping method. For the proposed stope heights of 25m, preliminary stope open spans ranging from 30-50m have been recommended, dependent on the deposit.



## 2.3 RESOURCES

The JORC 2012 Mineral Resource Estimate (MRE) update was completed by independent resource specialists Trepanier Pty Ltd in February 2021 and further updated as part of this study (March 2021 MRE). The updated JORC MRE is 58.9Mt at 0.96% Ni for 562,600 tonnes of contained nickel.

The JNP MRE is based on 169 Vale drill holes for a total of 56,592m of drilling and 98 Centaurus drill holes for a total of 17,941m of drilling (total project drilling 74,533m). All drill holes were drilled at 55 -75° towards azimuth of either 180° or 360°.

The JNP is unique in terms of nickel sulphide orebodies as the high-grade nickel sulphide mineralisation comes almost to surface and continues at depth. More than 80% of the nickel metal in the maiden MRE is within 200m of surface, demonstrating the strong open pitable potential of the Project. Over 97% of the Resource is comprised of fresh sulphides, with no oxide material being reported (Table 3).

Potential mining methods include a combination of open pit and underground. As such, a 0.3% Ni cut-off grade has been applied to material less than 200m vertical depth from surface to reflect potential open cut mining opportunities. A Ni cut-off grade of 1.0% Ni was applied below 200m from surface to reflect higher cut-offs expected with potential underground mining. The JNP MRE at various cut-off grades is shown in Table 4, with the reported JNP MRE highlighted in dark grey.

The estimate was resolved into 10m (E) x 2m (N) x 10m (RL) parent cells that had been sub-celled at the domain boundaries for accurate domain volume representation. Indicated Mineral Resources are defined nominally on 50m E x 40m N spaced drilling (predominantly where CTM has completed infill drilling) and Inferred Mineral Resources nominally 100m E x 40m to 100m N with consideration given for the confidence of the continuity of geology and mineralisation. The Jaguar Mineral Resource has therefore been partially classified as Indicated with the remainder being Inferred according to JORC 2012, Figure 6.

		Tonnes		Grade			Contained Metal Tonnes		
Classification	Ore Type	Mt	Ni %	Cu %	Co ppm	Ni	Cu	Co	
<b>Indicated</b>	Transition Sulphide	0.7	0.96	0.08	250	6,900	600	200	
	Fresh Sulphide	19.4	1.13	0.07	326	218,900	14,200	6,300	
	<b>Total Indicated</b>	<b>20.1</b>	<b>1.12</b>	<b>0.07</b>	<b>323</b>	<b>225,800</b>	<b>14,800</b>	<b>6,500</b>	
<b>Inferred</b>	Transition Sulphide	0.9	0.79	0.07	239	6,800	600	200	
	Fresh Sulphide	37.9	0.87	0.06	230	330,000	23,500	8,700	
	<b>Total Inferred</b>	<b>38.8</b>	<b>0.87</b>	<b>0.06</b>	<b>230</b>	<b>336,800</b>	<b>24,100</b>	<b>8,900</b>	
<b>Total</b>		<b>58.9</b>	<b>0.96</b>	<b>0.07</b>	<b>262</b>	<b>562,600</b>	<b>38,800</b>	<b>15,400</b>	

**Table 3 - The Jaguar JORC Mineral Resource Estimate (MRE)**

\* Within 200m of surface cut-off grade 0.3% Ni; more than 200m from surface cut-off grade 1.0% Ni; Totals are rounded to reflect acceptable precision. Subtotals may not reflect global totals.

Ni% Cut-off Grade		Tonnes		Grade			Metal Tonnes		
Surface - 200m	+ 200m	Mt	Ni %	Cu %	Co ppm	Ni	Cu	Co	
<b>0.3</b>	<b>1.0</b>	<b>58.9</b>	<b>0.96</b>	<b>0.07</b>	<b>262</b>	<b>562,600</b>	<b>38,800</b>	<b>15,400</b>	
0.4	1.0	56.0	0.99	0.07	270	552,200	38,100	15,100	
0.5	1.0	49.9	1.05	0.07	287	524,900	36,300	14,300	
0.6	1.0	42.0	1.15	0.08	311	481,200	33,500	13,100	
0.7	1.0	34.8	1.25	0.09	339	434,500	30,400	11,800	
0.8	1.0	28.6	1.36	0.09	367	388,400	26,900	10,500	
0.9	1.0	23.8	1.46	0.10	394	347,700	23,800	9,400	
1.0	1.0	20.0	1.56	0.10	419	311,100	20,600	8,400	
1.1	1.1	16.1	1.68	0.11	468	270,700	18,400	7,500	
1.2	1.2	13.0	1.81	0.13	526	235,300	16,700	6,900	
1.3	1.3	10.8	1.92	0.14	581	208,100	15,300	6,300	

**Table 4 - The Jaguar JORC Indicated and Inferred MRE at various Ni% Cut-Off Grades\***

Totals are rounded to reflect acceptable precision; subtotals may not reflect global totals.



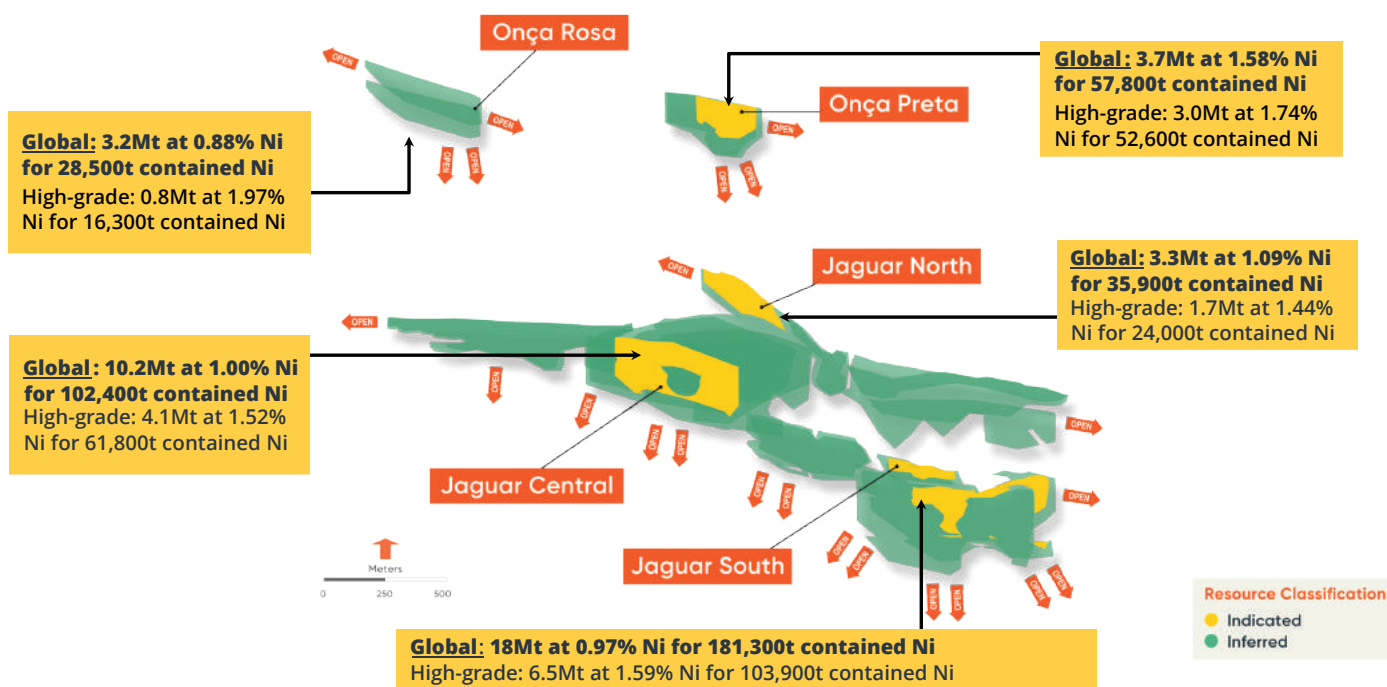


Figure 6 - The Jaguar MRE Block Model

Resource Classification, Indicated Resources in yellow and Inferred Resources in green.





## 2.4 NEAR MINE RESOURCE & EXPLORATION UPSIDE

The JORC MRE for the JNP considers the six Jaguar Deposits and two Onça Deposits. There is significant potential to expand both the shallow and deeper high-grade Resources within the Project via several growth fronts.

### 2.4.1 Mineral Resource Growth

Drilling in 2021 will focus on the following target areas ahead of the next Resource update expected in Q3 2021 to support planned Pre-Feasibility Study activities:

#### → Jaguar Central

- Step-out drilling is planned to test the DHEM conductors and potential down-dip extensions of the high-grade mineralisation shoot; and
- Further drilling is planned along strike and down-plunge to test new DHEM and FLEM conductors to the west and east where drilling on historical sections is wide-spaced (over 100m between holes).

#### → Jaguar South

- Step-out drilling is planned to test the DHEM conductors and potential down-dip extensions of the high-grade mineralisation within the main mineralised zones; and
- Drilling is planned along strike to test an interpreted high-grade plunge to the east-northeast, targeting new DHEM conductors.

#### → Jaguar Central North

- In-fill drilling to upgrade the resource category within the Scoping Study open pit limits; and
- Drill the target 'Z-structure', part of a set of newly identified fold axis and high-grade mineralisation shoots at the intersections of the Jaguar Central North Deposit with the Jaguar Central and Jaguar North Deposits;

#### → Jaguar West & Jaguar North-east

- Maiden in-fill and extensional drilling is planned to target historical high-grade zones and EM conductor plates with a focus on potential in-pit resources.

#### → Jaguar North

- Step-out drilling is planned to test the DHEM conductors and potential down-dip extensions of the high-grade mineralisation; and
- Drilling is planned along strike to test new FLEM conductors coincident with large ground magnetic anomalies to the northwest and southeast (at the 'Z-structure'), both untested areas.

#### → Onça Preta & Onça Rosa

- Step-out drilling is planned to test DHEM conductors and potential down-dip extensions of the high-grade mineralisation. The Onça deposits are less than 250m from the Puma Layered Mafic-Ultramafic Complex which is interpreted to be the potential source of the hydrothermal nickel, and itself representing an outstanding target for more high-grade nickel sulphide mineralisation.

### 2.4.2 Exploration Upside

The JNP sits at the intersection of two of the most important mineralising structures in the Carajás, the Canãa and McCandless Faults. There are multiple prospects and targets that have yet to be drill-tested within the JNP, characterised by magnetic and/or electromagnetic (EM) anomalies coincident with significant soil geochemical support.

Detailed soil sampling and FLEM surveys have identified multiple priority drill targets. The first three priority targets to be tested are (Figure 7):

**The Filhote Prospect** – A 300m Fixed Loop Electromagnetic (FLEM) conductor plate coincident with a broad (+1.1km) ground magnetic signature and PGE-Ni-As-Cr-Cu soil geochemical anomaly. Historical hole PKS-JAGU-DH00075 returned 18.0m @ 0.35g/t Pd and 0.03g/t Pt from 95.0m;

**The Leão Prospect** – more than 2.5km of strike hosted multiple GeoTEM and ground magnetic anomalies coincident with a Ni-Cu-Cr-V-Au soil anomaly. Only three holes have ever been drilled at this Prospect with one hole returning 3.0m at 1.06% Ni and 0.21% Cu; and

**The Tigre Prospect** – a strong discrete (+800m) GeoTEM anomaly coincident with multiple ground magnetic anomalies and supported by a +1.0km continuous Ni-Cr-As-Au geochemical signature. There are no historical drill holes in the Tigre Prospect.

RC drilling of the greenfields targets is set to re-start in April 2021 with results expected to be received before the end of Q2 2021. Any new discoveries will be followed up and included in the Pre-Feasibility resource update expected later in 2021.

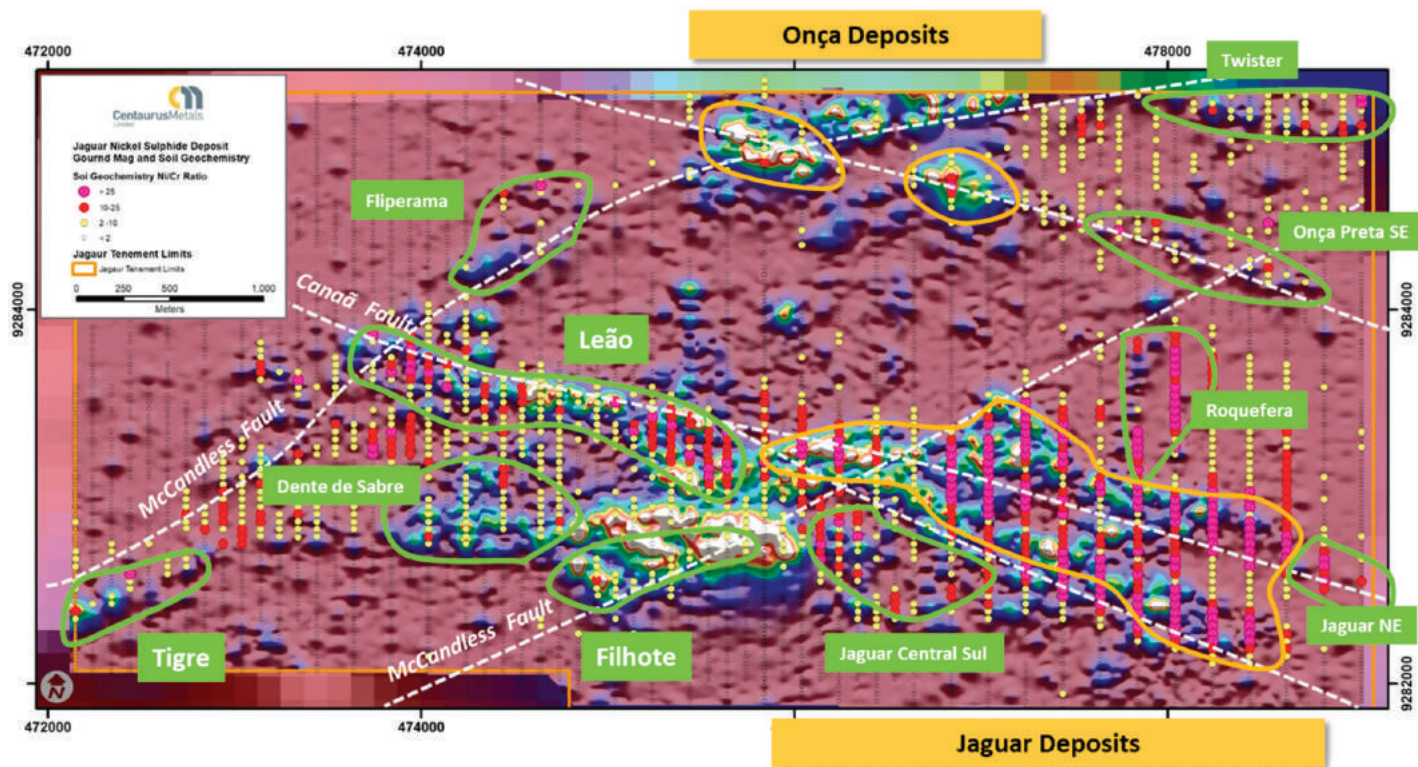


Figure 7 - The Jaguar Nickel Project – Soils Geochemistry (Ni/Cr) over Ground Magnetism (Analytic Signal)





# 3. Mine Operations & Production Target

The Scoping Study for the JNP considers an integrated open pit and underground Production Target estimate of 32.8 Mt at 0.84% Ni for a total of 275,600t of contained nickel metal. The deposits will deliver a Mill Feed of 24.0Mt at 1.08% Ni to a conventional flotation circuit at a nominal rate of 2.7Mtpa for 10 years.

Centaurus engaged Australian mining specialist Entech to undertake the Mining and Geotechnical studies for the Scoping Study. Re-Metallica, a Brazilian mining engineering consultancy firm, was engaged to carry out a peer review and support Entech on local mining productivities and costs.

## 3.1 OPEN PIT

### Pit Optimisations

Pit optimisations were based on the Indicated and Inferred Mineral Resource categories only. The Mineral Resource models for Jaguar and Onça were re-blocked to a Smallest Mining Unit (SMU) dimension of 5 mE x 4 mN x 5 mR. The impact of re-blocking is that the narrow-modelled lodes from the original MRE are diluted out into larger blocks resulting in an ore dilution of 25% and ore loss of 10% for the Jaguar Deposits and ore dilution of 38% and ore loss of 6% for the Onça Deposits.

Various pit optimisations were run, and the pit shells derived at conservative nickel prices of US\$12,450/t (Jaguar – Pit 83) and US\$12,000/t (Onça – Pit 80) were selected. These shells were selected to provide the basis for a robust and conservative pit design. In total there are eight (8) open pit mining areas within the Onça and Jaguar deposits, see Figure 8 and Figure 9 below.

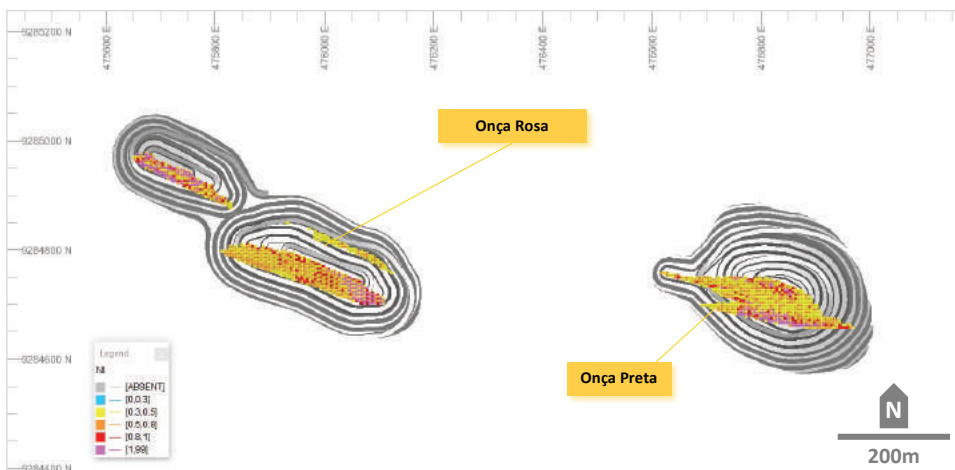


Figure 8 - Selected Optimisation Shells and Proposed Mine Design - Onça Pits

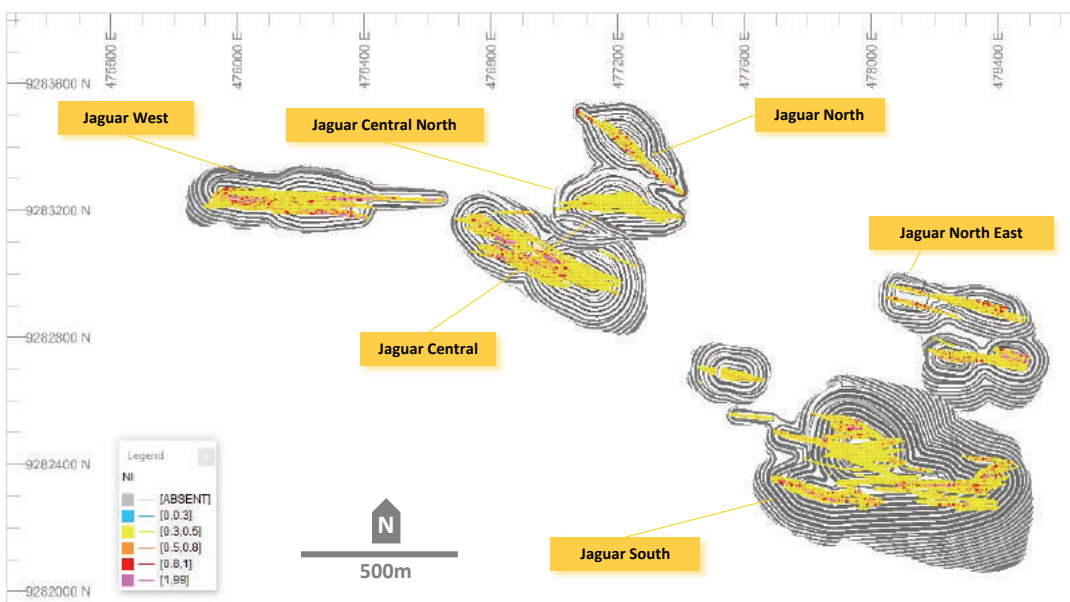


Figure 9 - Selected Optimisation Shells and Proposed Mine Design - Jaguar Pits



### Pre-Operations Preparation

An initial stage of mine development will prepare the site to ensure the continuity of production during operations.

The focus will be to construct the required access roads from the mine to the process plant, waste dumps, low grade ore stockpiles and the Integrated Waste Landform (IWL) tailings facility. The starting IWL requires 3.58M bcm of waste material to be delivered and compacted in place ahead of the start of processing.

Additionally, the removal of the necessary topsoil and preparation of waste dumps and low-grade stockpiles will be completed. The topsoil will be stockpiled in areas that will allow easy access for future rehabilitation of degraded areas. Pre-strip will be completed by the chosen mining contractor.

### Mine Design

A minimum mining width of 20m was used as a guide to open pit design when dealing with small mining areas within the open pit, as well as the pit floor working area and for any "goodbye cut" at the base of pit. A bench height of 20m within all fresh material and 10m within all weathered materials was employed for all open pit stage designs completed for Jaguar and Onça. The haul road width is determined to be 15m wide for a single lane ramp and 25m wide for a dual lane ramp.

Pit exit ramps have been designed to allow access to the ROM-pad area (for high-grade and low-grade material), primary crusher, and the primary waste storage areas including the Integrated Waste Landform (IWL) whilst maintaining a minimum haulage distance. Where possible, ramp development has been restricted to the footwall side of the pit to minimise the strip ratio.

### Mining Operations

All open pit mining operations are proposed to be undertaken by a mining contractor. The mine operations will be run by the mining contractor working from Monday to Sundays (inclusive) in three shifts of eight hours with four operational teams. Results show the best equipment combination to be 45t excavators loading 45t capacity trucks on 5m flitch heights and blasting on a 10m bench height. All the proposed equipment is common in the local Brazilian mining industry.

The mining contractor will also provide all auxiliary service support such as maintenance of roads and accesses, dust control and site drainage. It is expected that the mining contractor will start with approximately 500 employees working on three shifts.

### Waste Dumps and Stockpile Management

Three waste dumps have been planned, all being designed to be as flat as possible, with one of those being part of the Integrated Waste Landform (IWL) tailings storage facility. The lifts are planned to be a maximum of 10m with berms of 6m. Each lift is constructed at an approximate angle of repose of 33°. The maximum waste dump height will be 90m.





### 3.2 UNDERGROUND

#### Stope Optimisations

Stope optimisations were based on the Indicated and Inferred Resource categories only. Cut-off grades (COG) are based on a Net Smelter Return (NSR) and was determined from using NSR revenue, operating costs and processing information provided by CTM, with benchmarked mining costs from the Entech database and publicly available data on mining costs in South America.

Mineable Shape Optimiser (MSO) was used to generate economic stope shapes, based on cut off grades. Three scenarios were run for both the Onça and Jaguar mineral resource models. COGs were rounded to \$50 and \$75. Stope design inputs were from the Entech database and assumed a long-hole open stoping (LHOS) mining method.

Scenarios were run excluding weathered material and value generated from material with an unclassified resource class was removed. A summary of the parameters used to generate the MSO shapes is shown in Table 5.

Although positive MSO optimisations were achieved for five separate deposits, Centaurus decided to focus only on the underground deposits with more than 20,000t of contained nickel metal. Consequently, only the Onça Preta and Jaguar South Deposits were considered for the purpose of the Scoping Study.

#### (A) OPTIMISATION RESULTS - ONÇA DEPOSITS

At the Onça Deposit, the MSO \$75 inventory was adjusted by removing material that will either be depleted through open-pit mining or determined uneconomic when considering access development requirements. The resulting inventory was infilled with stope designs generated on the incremental cut-off grade (NSR \$50), constrained to the fully costed cut-off grade boundaries. The resulting inventory was used as the basis of mine design and evaluation.

Stope Optimiser Parameters	Units	Values
Minimum Mining Width	m	3.0
HW / FW Dilution	m	0.6/0.6
Maximum Footwall Angle	degrees	40
Stope Section Length	m	2.5
Sub-Level Height	m	25
Minimum Interstitial Pillar	m	10
Cut-off Grade	NSR (USD)	50, 75

Table 5 - Stope Optimisation Inputs

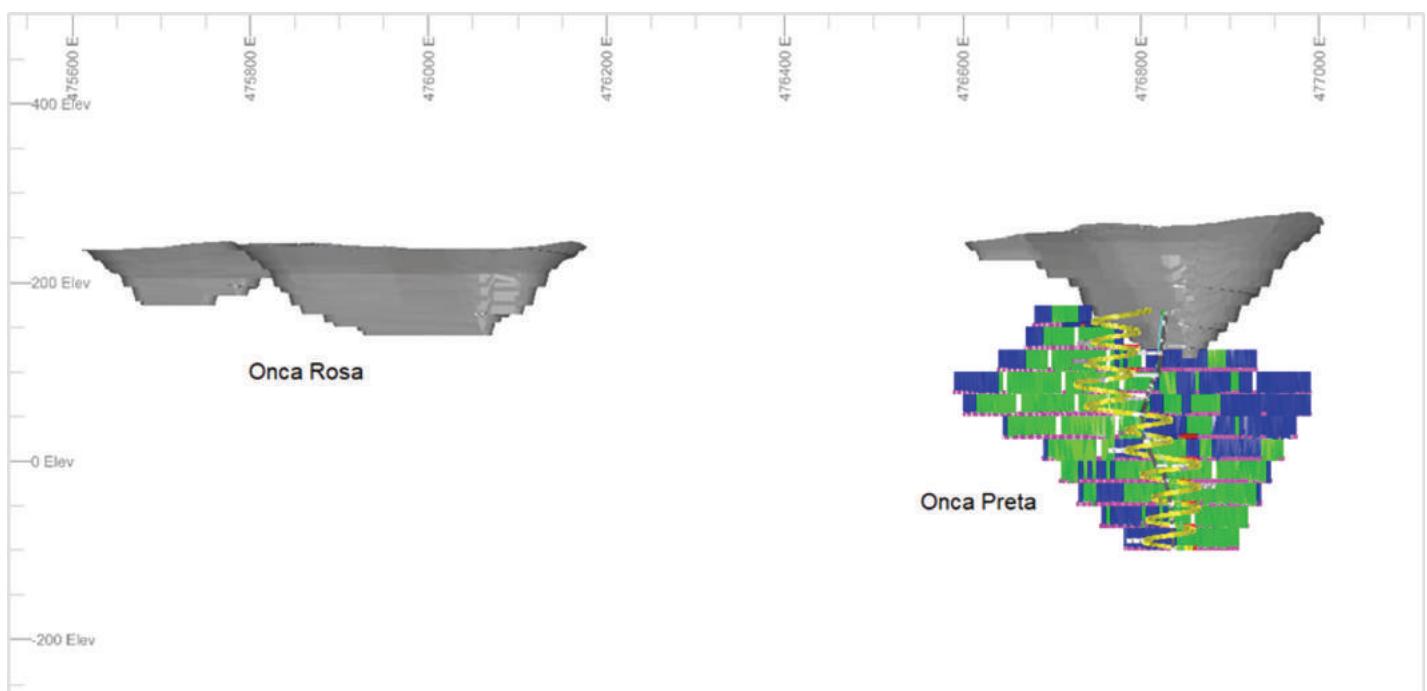


Figure 10 - Section View looking North at the Onça Preta & Onça Rosa Deposits

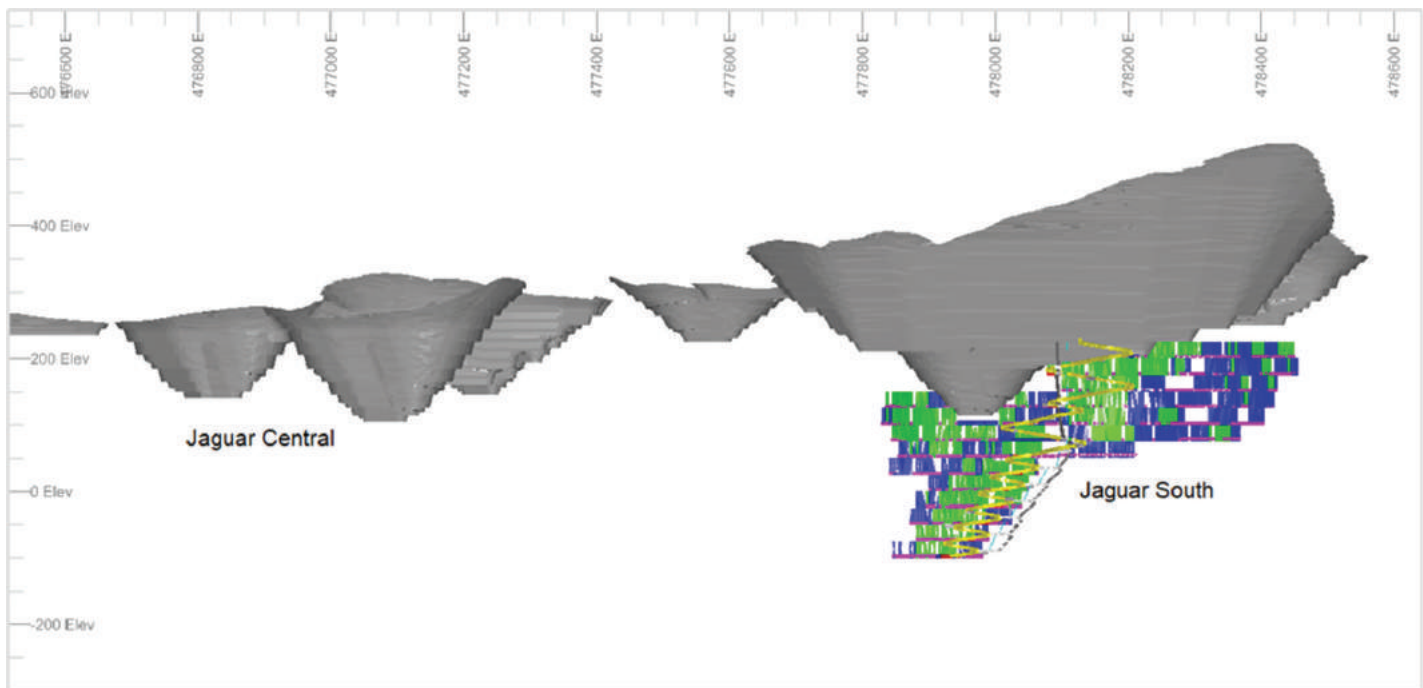


Figure 11 - Section view looking North at the Jaguar Deposits

**(B) OPTIMISATION RESULTS - JAGUAR DEPOSITS**

The Production Target was determined for Jaguar South using MSO optimisation in the same manner as Onça Preta. The resulting inventory was used as the basis of mine design and evaluation, see Figure 11 above.

**Underground Mining Operations**

The proposed mining method is top down longhole open stoping. Stopes are extracted in a longitude mining direction from the orebody with levels to be accessed from the hangingwall. To reduce capital development, portals have been designed close to the bottom of the pits.

Declines have been designed using a 1:7 gradient, on the hanging wall side of the orebody, having a 50m stand off from the orebody, and aiming for central access to the orebody for a more efficient mine. Operating lateral development represents ore drives which are driven along strike. Development design definitions are outlined in Table 6.

Development	Dimension	Profile
Decline	5.5 mW x 5.8 mH	Arched
Escapeway Drive	4.5 mW x 4.5 mH	Arched
Level Access	5.0 mW x 5.0 mH	Arched
Ore Drive	5.0 mW x 5.0 mH	Arched
Escapeway Rise	1.3 m Diameter	Circle
Return Air Rise	4.0 mW x 4.0 mH	Square

Table 6 - Development Profiles and Dimensions

The underground productivities were based on benchmark data for the proposed mining fleet and are sourced from the Entech database of similar equipment and mining methodology. Productivity rates are shown in Table 7 below.

Equipment Description	Max individual Task Rate	Maximum monthly rate
Twin Boom Jumbo	4 m/d	240m/month
50 t Truck	N/A	100,000tkm/month
21 t Loader	1,000 t/d	50,000t/month
Production Drill	200 m/d	5,000m/month
Air Leg Rise	3 m/d	90m/month
Charge-up Unit	N/A	N/A
Raisebore	3 m/d	90m/month

Table 7 - Productivity Rates



### 3.3 INTEGRATED MINE SEQUENCING

The conceptual mine production schedule is illustrated in Figure 12. It has been assumed that mobilisation of the mining fleet will begin in Q2 2023 which is 8 months ahead of first production. This will allow time for the mine contractor to carry out pre-strip and construction of the IWL. The integrated open pit and underground mine scheduling, as set out in Table 8, was carried out targeting the production of approximately 2.7Mt of ROM ore to the crusher per annum.

The underground mines commence once the associated open pit are near completion to allow portals near the pit base, however, no underground mining is scheduled within the first three years of open pit operations. A steady flow of ore is mined and fed to the mill assuming a throughput rate of 2.7Mtpa whilst maintaining ROM stocks of approximately two to four months of feed.

The high-grade material (>0.6% Ni) goes directly to the ROM stockpile whilst low-grade material (0.3-0.6% Ni) goes to the ore-sorter for sorting and stockpiling. High-grade material is fed to the crushed ore stockpile preferentially over the ore sorter product.

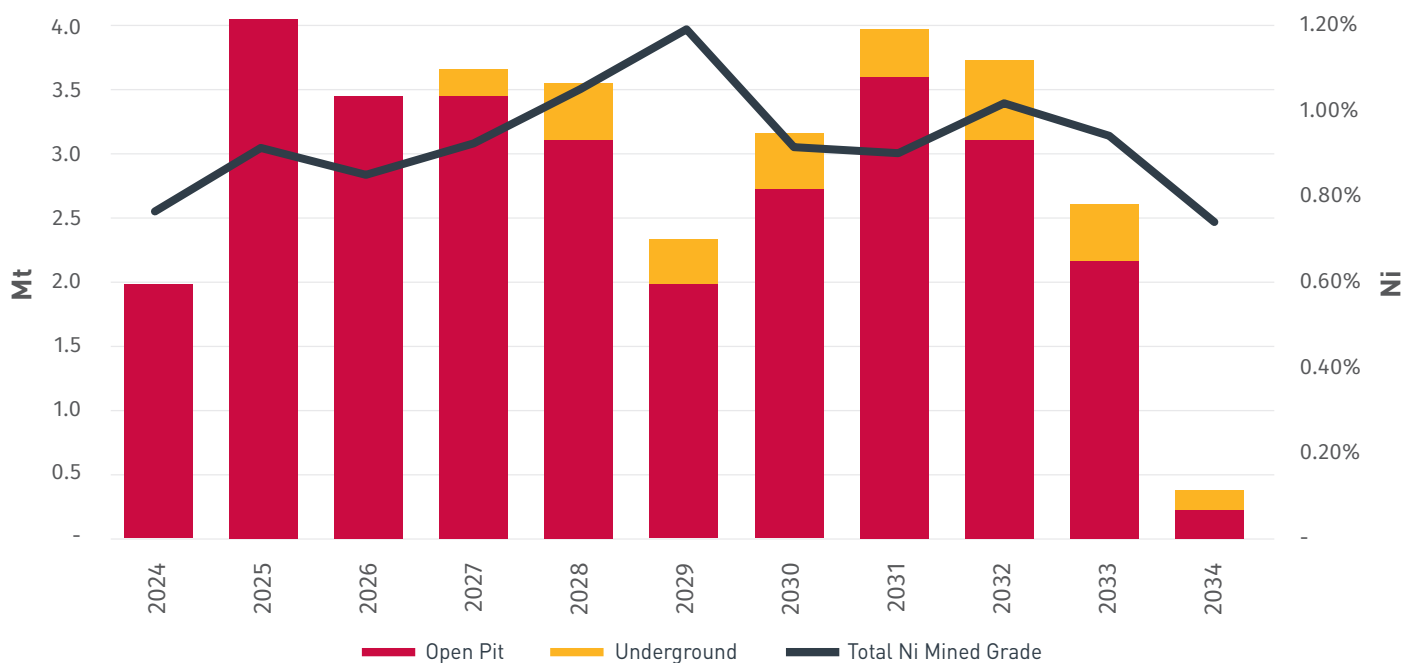


Figure 12 - Integrated Mine Production Schedule

Calendar Year	Units	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<b>Open Pit</b>													
Waste Moved	Mt	178.5	30.6	27.4	15.8	15.4	13.3	12.5	19.2	23.1	13.2	7.2	0.9
Ore Mined	Mt	29.6	2.0	4.1	3.4	3.5	3.1	1.8	2.7	3.6	3.1	2.2	0.2
Nickel Grade	%	0.78%	0.68%	0.82%	0.76%	0.78%	0.87%	0.80%	0.74%	0.74%	0.84%	0.75%	0.87%
<b>Underground</b>													
Ore Mined	Mt	3.2			0.4	0.2	0.4	0.5	0.5	0.4	0.4	0.4	0.1
Nickel Grade	%	1.36%			1.11%	1.34%	1.31%	1.70%	1.45%	1.14%	1.16%	1.34%	1.42%

Table 8 - Integrated Mine Production Schedule Annual Results





### 3.4 PRODUCTION TARGET & MILL FEED

The life of mine Production Target, based on the Jaguar and Onça open pits, is 29.6Mt at 0.78% Ni for a total of 231,800 tonne of contained nickel metal (see Table 9 below). The high-grade ROM (>0.6% Ni cut-off) material component is 17.1 Mt @ 1.05% Ni and the low-grade ore-sorter feed component (0.3-0.6% Ni cut-off) is 12.6 Mt @ 0.42% Ni. The total waste movement from the open pit mining operation is expected to be 178.5Mt at a strip ratio of 6.0:1 during the life of mine (including pre-strip waste material).

Approximately 61% of the contained nickel metal in the Production Target is in the Indicated Resource Category. Importantly, 81% of the first three years of operations are in the Indicated Resource Category.

The low-grade ore-sorter feed will be processed by an ore-sorter at the ROM. The ore-sorter product, estimated at 3.8 Mt @ 0.98% Ni, will be fed to the crushed ore stockpile. The ore-sorter reject will be back-loaded to waste deposits.

The life of mine Production Target for the Jaguar South and Onça Preta underground operations is 3.2Mt at 1.36% Ni for a total of 43,700t of contained nickel metal.

The integrated open pit and underground mill feed for the JNP is 24.0Mt at 1.08% Ni (Table 9) for a total of 260.3kt of contained nickel metal, see Table 9 below.

Mining Method	Material Type	Resource Category	Ore Mt	Ni %	Ni Metal kt
Open Pit	High-grade	IND	11.5	1.11%	127.1
	> 0.6% Ni	INF	5.6	0.93%	52.0
		<b>Mill Feed</b>	<b>17.1</b>	<b>1.05%</b>	<b>179.1</b>
	Low-grade	IND	6.1	0.42%	25.5
	0.3-0.6% Ni	INF	6.5	0.42%	27.3
		<b>Total</b>	<b>12.6</b>	<b>0.42%</b>	<b>52.8</b>
<b>Open Pit Production Target</b>		IND	17.5	0.87%	152.6
		INF	12.1	0.66%	79.2
		<b>Total</b>	<b>29.6</b>	<b>0.78%</b>	<b>231.8</b>
Underground		IND	0.9	1.51%	14.2
		INF	2.3	1.30%	29.5
		<b>Mill Feed</b>	<b>3.2</b>	<b>1.36%</b>	<b>43.7</b>
<b>Total Production Target</b>		IND	18.5	0.90%	166.8
		INF	14.3	0.76%	108.8
		<b>Total</b>	<b>32.8</b>	<b>0.84%</b>	<b>275.6</b>
<b>Ore-sorter Product*</b>		<b>Mill Feed</b>	<b>3.8</b>	<b>0.98%</b>	<b>36.9</b>
<b>LOM Mill Feed</b>		<b>Total</b>	<b>24.0</b>	<b>1.08%</b>	<b>260.3</b>

\*Ore-sorter product has been processed pre-concentrator

Table 9 - Production Target & Mill Feed Estimation



## 4. Metallurgy

### 4.1 ORE CHARACTERISATION

The aim of the Scoping Study from a metallurgical perspective was to investigate and test the viability of producing a single bulk concentrate for sale into the current world nickel concentrate market.

To date 104 mineralogical composites have been selected (55 from Jaguar South, 7 from Onca Preta, 27 from Jaguar Central and 15 from Jaguar North) for testing. The composites are comprised of 1/4 NQ drill core sourced from CTM's drilling campaigns with the samples selected packed and air freighted to Perth. These samples are the basis of the current mineralogical understanding of the JNP and each composite has been analysed with a combination of some or all of the following analytical techniques:

- Comprehensive assaying adopting the same assay protocol as the geological block model with water soluble nickel, non-sulphide nickel, fluorine, chlorine and silica added to the suite conducted by ALS;
- XRD quantitative mineralogy to determine the type and concentrations of minerals present. This was completed by McKnight Mineralogy;
- Microprobing of minerals for trace element determination by University of Tasmania;
- Optical Mineralogy by MODA to understand texture, grain size and mineral associations for metallurgical performance estimations; and
- Comminution testing by ALS (SMC, BWi and Ai) of composites to evaluate the energy requirement the ores will require to achieve optimal recoveries.

The principal ore characteristics and mineralogical findings of the individual deposits are outlined below:

#### Jaguar South

- Grain size of the nickel sulphides (2/3 millerite and 1/3 pentlandite) is coarse suggesting a modest 75µm grind should be targeted.
- The ore in this zone has the most challenging comminution properties and will dictate the sizing of the milling circuit.
- Biotite and chlorite levels are highest in this zone, higher non-sulphide minerals proportion.
- Pyrite is the lowest in this zone and is not significant.
- The majority of the nickel sulphides are millerite, indicating a saleable concentrate grade is achievable.

#### Jaguar Central

- Grain size of the nickel sulphides (mainly millerite) is very coarse suggesting a modest 75µm grind should be targeted.
- The ore in this zone does not influence comminution design.
- Biotite and chlorite are half that of Jaguar South, lower non-sulphide minerals proportion.
- Pyrite is double that of Jaguar South increasing the level of selectivity required to achieve concentrate grades.

#### Jaguar North

- Biotite and chlorite are half that of Jaguar South, lower non-sulphide minerals proportion.
- The ore in this zone does not influence comminution design.
- Biotite and chlorite are half that of Jaguar South, lower non-sulphide minerals proportion.
- Pyrite is double that of Jaguar South increasing the level of selectivity required to achieve concentrate grades.



**Onca Preta**

- Grain size of the nickel sulphides (mainly pentlandite) is the finest analysed suggesting a modest 75µm grind should be targeted.
- The ore in this zone does not influencing comminution design.
- Biotite and chlorite are minor compared with deposits, minimal non-sulphide minerals proportion.
- Pyrite is double that of Jaguar South increasing the level of selectivity required to achieve concentrate grades.

More mineralogy is planned in further studies and will be conducted to build a data set and create an empirical model to estimate the minerals that influence recovery and concentrate marketability.

**4.2 ORE SORTING TESTING**

Ore sorting has been identified as a significant project value-add due to the nature of the Jaguar mineralisation. Within the Jaguar deposits the high-grade mineralised zones are part of a broader mineralised system which contains lenses of narrower equally high-grade mineralisation. When the minimum mining block size estimations are coupled with the mining recovery and dilution adopted for the resource this type of material is consequently diluted resulting in lower block grade values.

Ore sorting has been considered as it is a commercially validated process that can concentrate these lower grade mining blocks resulting in products with similar grades to the high-grade mineralisation. This has significant advantages; the milling capacity can be reduced, the tailings volume produced will be less, significantly less potentially acid forming waste will be created for surface disposal and most importantly, the impact of mining dilution on mill feed grade will be reduced.

Pilot testing of low-grade (0.47% Ni) samples was carried out at Steinert’s ore sorting facility located in Perth, Western Australia. Testing included trialing of different sorting sensors (inductive and x-ray) and programming settings to allow mass recovery to metal recovery relationships to be developed. The results are tabulated below (Table 10).

	Mass (%)	Nickel Grade (%)	Nickel Recovery (%)	Sulphur Grade (%)	Sulphur Recovery (%)
<b>Feed</b>		0.47		3.55	
<b>High Grade Test</b>	25.1	1.23	65.2	10.4	73.5
<b>High Recovery Test</b>	68.3	0.66	95.3	5.1	99.0
<b>High Recovery Tailings</b>	31.7	0.07	4.7	0.11	1.0

Table 10 - Ore Sorting Results

Utilising the data generated, a mass recovery curve was developed. For this study Centaurus has selected a mass recovery of 30% for the low-grade mining blocks providing a total nickel recovery of 70% and a nickel sulphide recovery of 79% for inclusion in the production schedule. Likewise, cobalt recovery has been reviewed with a recovery of 71% applied to the product generated from the ore sorting process. More detailed testing in future studies is planned.

**4.3 FLOTATION TESTING**

Flotation test work has been completed on five composites from the main deposits (adopting a conventional grind and float flowsheet). At this stage of study, rougher testing only has been completed to determine the approximate nickel sulphide recovery. Recoveries are expected to improve with cleaner tests.

Figure 13 illustrates the sulphide nickel responses of the rougher tests of the various composites.

The results indicate that the nickel sulphides are fast floating and high initial grades can be expected, particularly with the Jaguar Central and North composites containing millerite as the dominate nickel sulphide.

The non-sulphide nickel content of the individual orebodies is variable across the deposits and has been estimated from the non-sulphide nickel assays collected in mineralogical work and is shown below in Figure 14. The estimated non-sulphide nickel component for each of the main deposits has been modelled and is used to determine the nickel recovery.

Table 11 summarises the sulphide nickel recoveries. Reviewing the data below it is clear that the reagent regime and the flowsheet achieves high sulphide recoveries in the rougher stage of flotation. For the purposes of this study a final sulphide recovery of 90% is considered, with average total nickel recovery of 77-80% depending on the non-sulphide grades for that particular deposit. A concentrate grade of 15.8% Ni has been assumed. These assumptions are considered conservative and will be validated in the future with further regrinding and cleaning test work.

Deposit	% Ni Feed	% Non-sulphide Ni in Feed	Sulphide Ni Recovery	Total Ni Recovery
<b>Jaguar South</b>	1.08	0.14	90%	78%
<b>Jaguar Central</b>	1.03	0.15	90%	77%
<b>Jaguar North</b>	0.96	0.14	90%	77%
<b>Onça Preta</b>	1.17	0.13	90%	80%

Table 11 - Scoping Study Recovery Estimation Summary

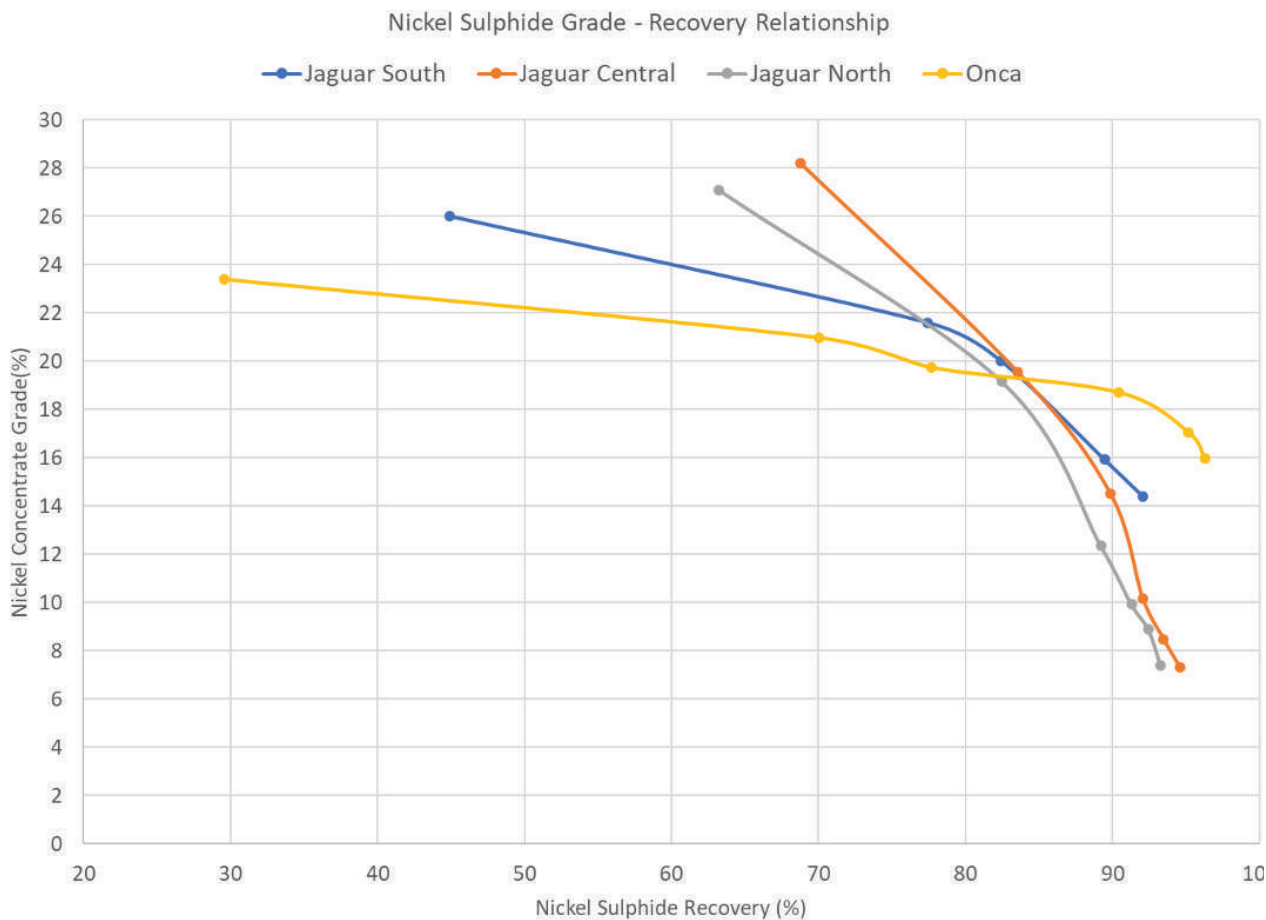


Figure 13 - Rougher Flotation Results

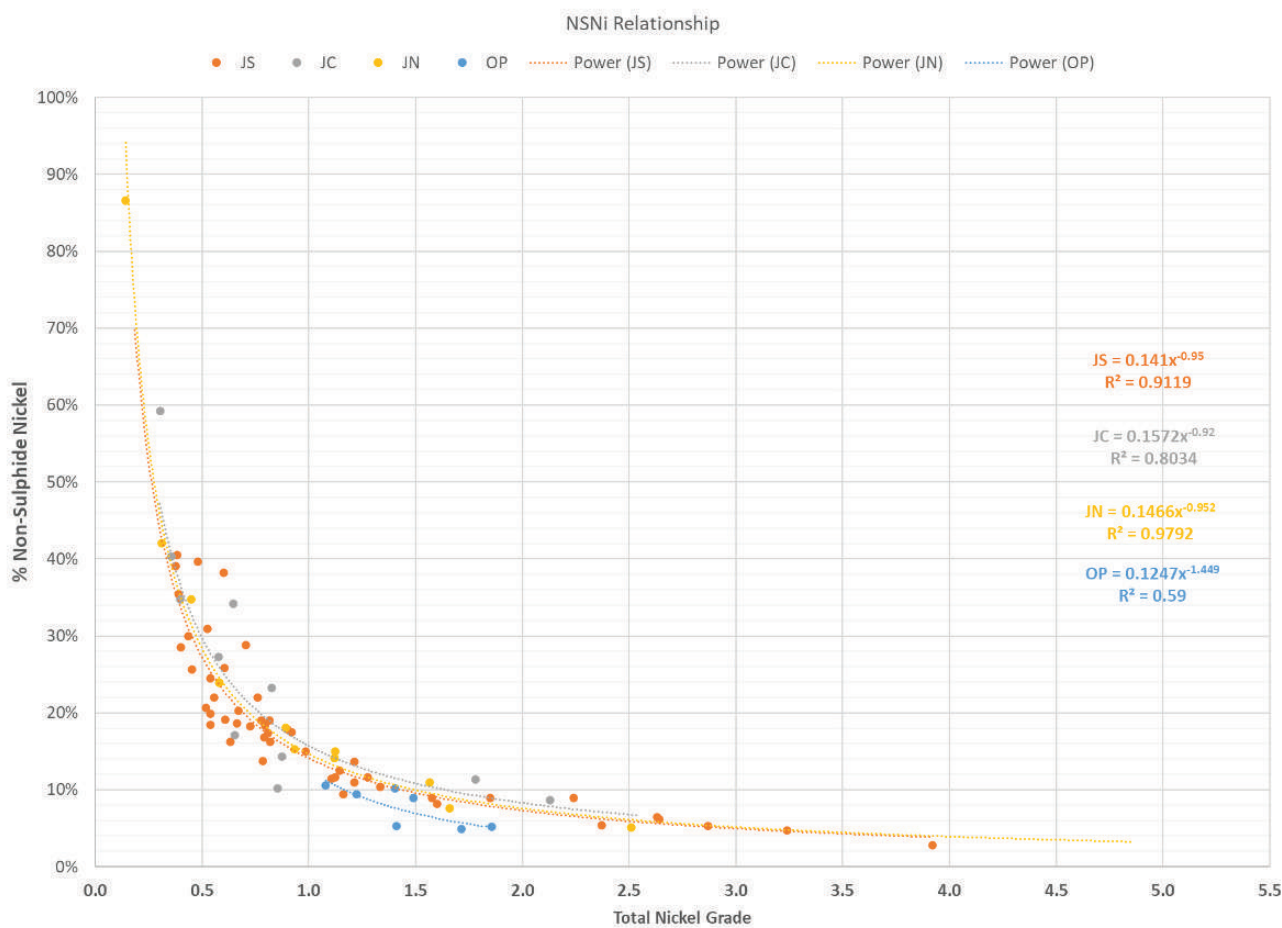


Figure 14 - Non-Sulphide Nickel Estimation



# 5. Process Plant

## 5.1 PLANT DESIGN

The JNP process plant design was based on the treatment of 2.7Mtpa of ore, to recover nickel, copper, cobalt and zinc sulphides. The pre-concentrate stage includes a jaw crusher to the crushed ore stockpile for the High-grade ROM; with the Low-grade ROM going to a jaw crusher ahead of the ore sorter. Sorted ore is stockpiled, with waste from the ore sorter being back loaded to waste domes.

The concentrate flowsheet incorporates feed from the crushed ore stockpile to the SAG and ball mill grinding circuit, recycle pebble crushing circuit, rougher and scavenger flotation, concentrate regrind circuit, cleaner flotation circuit, concentrate dewatering, concentrate load-out and tailings thickening facilities.

The concentrator is based on a conventional nickel sulphide flotation flowsheet using industry standard equipment. The concentrator operation will be monitored using a control system in a centrally located control room. Sampling and stream assay monitoring will be via an automated system linked to this control system.

A simplified flowsheet for the flotation concentrate is shown in Figure 15 and summary of design criteria in Table 12.

Composite		Units	
<b>Ore Throughput</b>		t/y	<b>2,700,000</b>
		dry t/h	337
<b>Plant Availability</b>		%	91.3
<b>Average Feed Grade</b>	<b>Nickel</b>	% Ni	1.08
	<b>Copper</b>	% Cu	0.08
	<b>Cobalt</b>	% Co	0.04
<b>Concentrate Grade</b>	<b>Nickel</b>	% Ni	15.8
	<b>Copper</b>	% Cu	0.91
	<b>Cobalt</b>	% Co	0.22
<b>Concentrate Recovery</b>	<b>Nickel</b>	% Ni	78.1
	<b>Copper</b>	% Cu	92.0
	<b>Cobalt</b>	% Co	40.0
	<b>Sulphur</b>	% S	50.0
Concentrate Production (average)		dry t/h	13.1

Table 12 - Summary Design Criteria

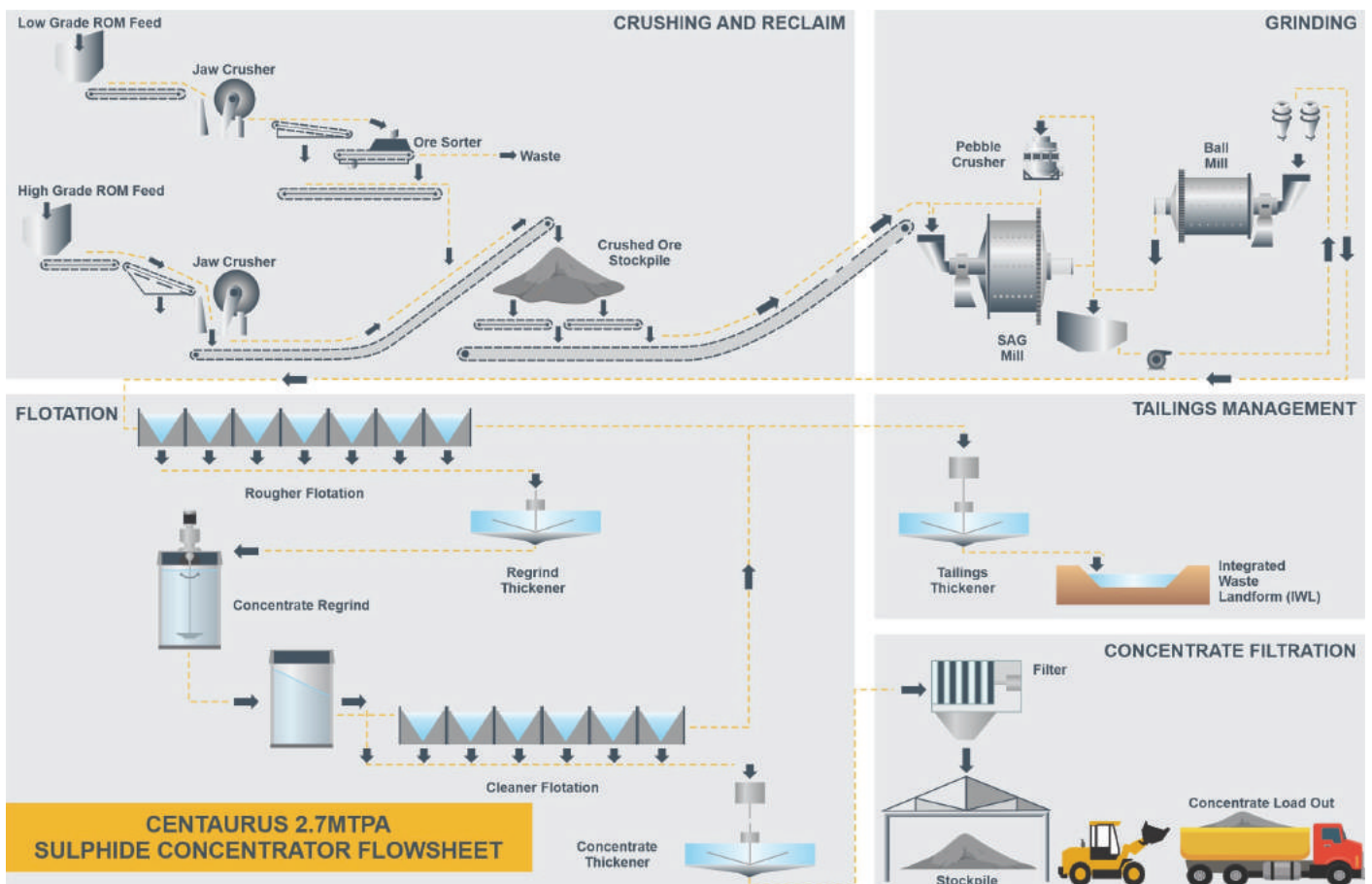


Figure 15 - Base Case - Sulphide Concentrate Flowsheet



## 5.2 PLANT PROCESSING PROFILES

The treatment profile for the Base Case was developed to process 2.7Mtpa ore, equivalent of 225,000t per month (Figure 16). High-grade ROM feed from open pit and underground operations represents 86% of the mill feed and is processed preferentially

before ore-sorter feed. This option creates an operational schedule at a relatively constant feed grade over 10 years, as illustrated in Figure 16.

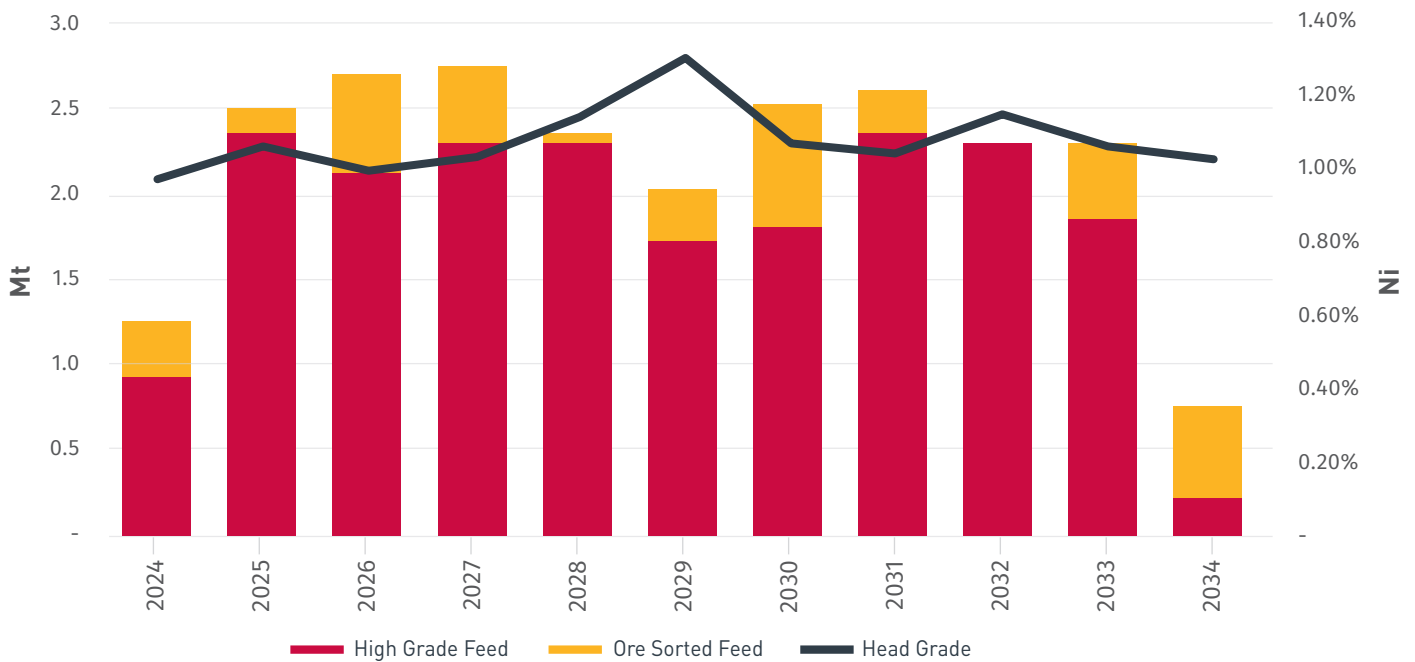


Figure 16 - Mill Feed Treatment Profile



## 6. Mine Site Infrastructure & Services

The JNP process plant location was selected by CTM based on the current pit layout with the aim of minimising earthworks and taking advantage of the local topography. The location of the Tailing Storage Facility (TSF) was selected by CTM to minimise the tailings pumping duty using a single stage of centrifugal pumping, and to ensure natural water flows in the area were not impeded.

### 6.1 TAILINGS STORAGE FACILITY

Tailings expert Chris Lane (L&MG SPL) supported the Company in the completion of the conceptual tailings management study. An Integrated Waste Landform (IWL) was chosen as it meets world best practice, targeting the highest safety factor against embankment failure as well as optimising use of mine waste.

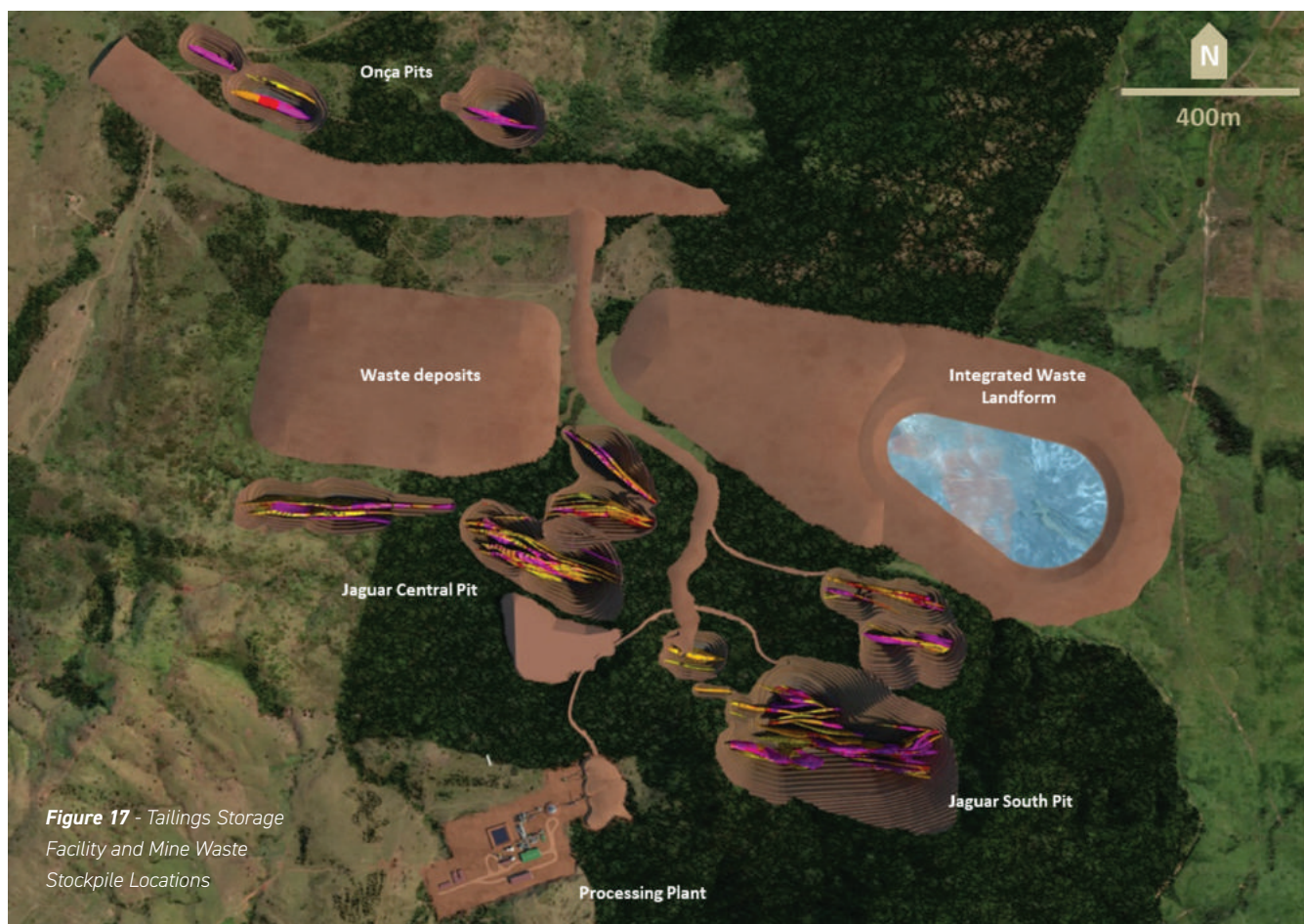
- Up to 29.6 Mt of ore being mined from open-pit mining.
- Up to 3.6 Mt of ore being mined from underground mining.
- 90% of underground stope void will be backfilled with tailings.

Using these inputs and assumed settled density of 80% solids, the volume storage requirement is 8.5Mm<sup>3</sup>. Including a 30% design

factor results in a tailings solids storage volume (design storage facility) of 11.1Mm<sup>3</sup>.

Lyndsay Dynan has completed a preliminary design of an Integrated Waste Landform (IWL) tailing's facility using conservative, Western Australian design principals:

- Upstream wall slope 2V:1H
- Downstream wall slope 3V:1H
- Top of wall 10m of compacted waste (plus a 5m internal clay liner).



**Figure 17** - Tailings Storage Facility and Mine Waste Stockpile Locations



## 6.2 ACCESS ROAD

The 40km access road between Tucumã and the project site needs to be upgraded. The site access road scope will be a combination of upgrading existing municipal roads and a section of new road into the JNP infrastructure area.

These upgrades will improve the road surface and drainage to facilitate reliable transport of consumables, equipment, and personnel to site.

## 6.3 POWER

Power will be supplied to site by a 138kV transmission line from the national energy grid at Tucumã (see Figure 18) to the JNP. The total length of the transmission line route is circa 39km. 138kV power will be reduced to 13.8kV and reticulated to the high voltage sub-station, which in turn reticulates this power directly to high voltage loads (i.e. SAG and Ball Mills) or various medium and low voltage transformers/substations distributed around the JNP. Power will be distributed to the process plant substations and non-process infrastructure via 13.8kV cables, either above ground aerials or direct buried.

## 6.4 NON-PROCESSING INFRASTRUCTURE

Allowance for the following non-processing infrastructure has been included within the study:

- Gatehouse/security facilities;
- Administration building;
- Training buildings;
- Laundry, change house and ablution facilities;
- Control room and communication infrastructure;
- Crib/meal and restaurant facilities;
- Emergency services (firefighting and medical) buildings and equipment;
- Workshops and Warehouse;
- Laboratory;
- Reagent stores; and
- Mining magazines and emulsion plant.

Other allowances include:

- Temporary facilities specific to implementation activities;
- Mobile plant required to support the process plant operations (excluding mining vehicles and earthmoving equipment);
- Water supply for construction and operations. These have been designed to source water from the local river and distribute to all processes and infrastructure areas within the project;
- Solid waste temporary storage; and
- Potable and waste water treatment plants

Figure 18 - 138kV National Grid connection at Tucumã







## 7. Project Implementation

A preliminary construction schedule was developed for the project based on an Engineering, Procurement, Construction, and Management (EPCM) basis for all aspects of the project.

The schedule indicates an overall duration of 22 months from notice of award for the EPCM contract to the project close-out. Lead times for critical long-lead items were confirmed from equipment suppliers. Other equipment package lead times were based on similar previous projects.

The following is to be assumed for the remaining studies required prior to implementation:

- Nine months for the completion of a PFS;

- Twelve months for the DFS including a 'DFS level' metallurgical test work program and finance approval;
- Nine months for early front-end engineering design (FEED) work, incorporated into the EPCM contract tender phase;
- The duration to complete the design and construction of the physical works is estimated at twenty-two calendar months, inclusive of project preliminaries, commissioning (plant ready for introduction of ore)

To deliver the project in the shortest possible timeframe it is critical that early FEED works are completed (including ordering of major equipment with extended lead times as required). Metso/Outotec has completed scoping level budgetary and lead time estimates for the required project equipment based on their recent in-country experience. Equipment delivery times range from twenty-six to forty-eight weeks. The SAG and ball mills have the longest lead times.



## 8. Operations & Human Resources

Once in operation, the Jaguar mine will require a total of 190 direct staff. Most of these staff have been assumed to be relocated to the local towns of Tucumã or Ourilândia do Norte or recruited from them. Training of the unskilled work force will occur during the construction and project implementation phase.

The mine operations will be run by the mining contractor and work from Monday to Sundays (inclusive) in three shifts of 8 hours with 4 operational teams. The mine contractor work force is expected to vary between 300-500 people.

The processing department, the largest direct employer of personnel, will work the industry standard 8 hours shift with 4 operational teams, with a workforce of 110 people. The administrative and technical services workforce is estimated to be 80 people and will work 44 hours per week, according to Brazilian labour laws.



# 9. Environmental & Mining Approvals

The key approvals for the JNP are the Mining Lease Grant from ANM (National Mining Agency) and the Environmental Approvals that are a three (3) stage approval process from the State Environmental Agency (SEMAS). The process to source these licences and approvals is set out below:

## 9.1 MINING LICENCE (PAE - PLAN OF ECONOMIC ASSESSMENT)

The JNP comprises one Exploration Lease (EL), 856.392/1996, that covers an area of 30km<sup>2</sup> which has a valid Mining Lease Application (PAE - Plan of Economic Feasibility). The license is 100% owned by Aliança, a wholly owned Brazilian subsidiary of CTM.

The current PAE, which envisaged a large bulk-tonnage open pit mine and processing plant, was lodged with the Brazilian Mines Department (ANM) in March 2013 and is currently pending approval. The Company will lodge an updated PAE in Q2 2021 based on the findings of the Scoping Study. The ANM can grant the Mining Lease only after the Company has received the Installation Licence (LI) from the State Environmental Agency (SEMAS).

## 9.2 ENVIRONMENTAL LICENCES

### PRELIMINARY LICENCE (LP) APPROVAL

The Preliminary Licence is the key environmental approval required for the Project and takes the most time to secure. The application for the LP comes from the lodgement of an Environmental Impact Assessment (EIA/RIMA).

The lodgement of the EIA/RIMA is planned for Q2 2021. All wet and dry season environmental studies (water, flora, fauna, air quality, noise, archaeology, malaria etc) are completed with lodgement awaiting technical information from this Scoping Study.

Approval of the LP demonstrates that the Pará State considers the overall project definition to be socially and environmentally sound and can go ahead. The LP is also the main license required by project

financiers. It is expected that SEMAS will take ~12 months to approve the EIA/RIMA from the time it is lodged and this approval will grant the Company the LP.

### INSTALLATION LICENCE (LI) APPROVAL

In order to make application for the Installation Licence (LI), the Company is required to lodge an Environmental Control Plan ("RCA/PCA") document with SEMAS and this will be done as soon as the LP is approved. The RCA/PCA report also has more detail of the environmental programs that flow from the plant layout, particularly in relation to emissions and pollution control and also covers how flora/fauna will be managed during the operations phase.

The approval of the RCA/PCA and LI grant allows project construction to commence. It is expected that SEMAS will take ~9 months to approve the RCA/PCA and grant the LI. The LI is therefore expected to be approved by the end of Q1 2023 at which point construction can begin. All pre-strip, mine preparation activities and plant commissioning can also commence under the LI approval.

### OPERATING LICENCE (LO) APPROVAL

Once the project is built, an inspection of the project by SEMAS officers is required to ensure the plant was built in accordance with the specifications advised to SEMAS during the LI Process. It is the final approval to start commercial production. Approval will grant the Company its Operational Licence (LO). Construction is expected to take 12 months from approval of the LI (Q1 2023) and therefore the LO is expected to be approved by the end of Q3 2024. Once the LO is issued commercial production from the plant can occur (expected Q3 2024), as per Figure 19.

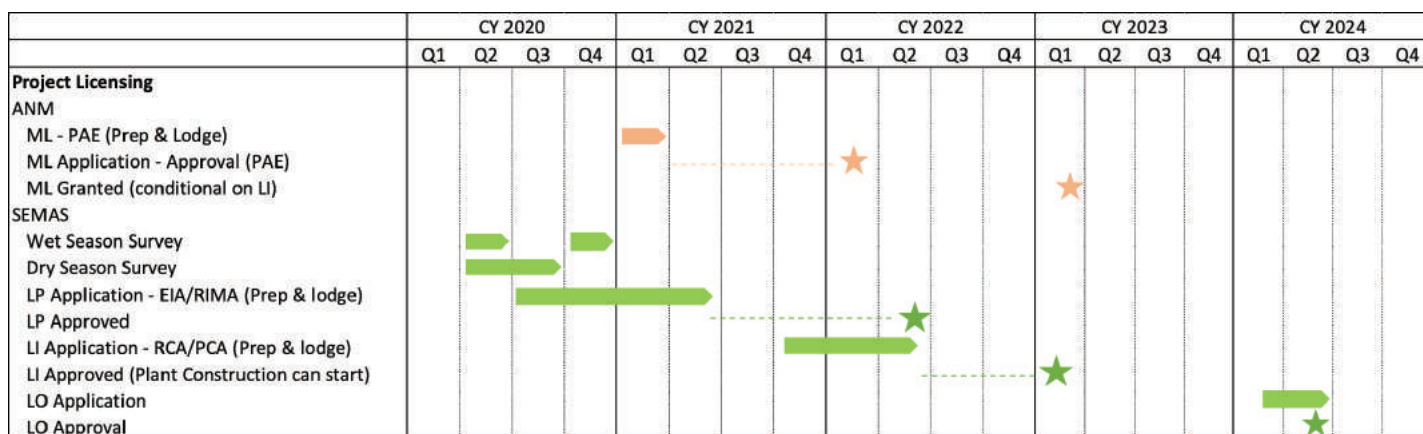


Figure 19 - JNP Project ANM and SEMAS Approvals Schedule



## 10. Social Responsibility & Sustainability

Centaurus has operated in Brazil for more than 13 years and understands the importance of social responsibility. The Company is integrating all the social issues (which have been defined by the industry as Environmental, Social and Governance issues), into an overall risk management strategy across all operations.

### 10.1 LOCAL EMPLOYMENT

The Jaguar Project is located 40km from local towns of Tucumã or Ourilândia do Norte, with a combined population of ~70,000 people. The workforce will be mainly sourced from the local population that reside in these towns, supplemented by experienced external operational and technical staff as required. The project will have a positive social impact by providing additional job opportunities and training in mining skills.

The JNP will create an estimate 1,000 jobs during construction and then maintain a workforce in excess of 190 company employees and up to 500 mining contractor employees during the initial 10-year project life. This will not only provide direct employment, but will also stimulate the local economies creating a number of indirect employment and business opportunities. The project will also generate royalty and tax income for municipal and state governments.

More than 90% of the workforce currently working on the project, including employees and outsourced labour, are from the south eastern region of the State of Pará.

### 10.2 COMMUNITY INITIATIVES

Centaurus has a partnership with the two villages closest to the project site in order to improve their sanitation systems, including waste disposal, water supply and sewage treatment. Furthermore, the Company has carried out the construction of bridges, installation of culverts and the upgrade of the road between Tucumã and the site. The upgrade is planned to continue during the next dry season (May – Nov 2021).

### 10.3 CENTAURUS' COVID RESPONSE

Centaurus has taken a number of important steps to safeguard the health and safety of the Company's workers, their families and the wider community while at the same time maintaining business continuity during the COVID-19 pandemic.

These include the introduction of a number of new protocols, revised working arrangements and social distancing practices as well as making a significant contribution to the local municipal health services of Tucumã and São Félix do Xingu through the purchase of masks, gowns, hand sanitiser and COVID-19 test kits to better equip them for the delivery of health services into their respective communities whilst COVID-19 remains active.

A nurse dedicated to the management of the Company's COVID-19 activities test employees routinely and any personnel who are feeling unwell or showing COVID-19 like symptoms. A dedicated site camp for field employees to stay during the course of the working week has been established, enhancing social distancing measures by limiting employee contact with the broader community during the working week.

To date, COVID-19 has had relatively minimal impact on the Company's operations and the tight protocols adopted by the Company have been highly effective in managing the risk of transmission.

## 11. Concentrate Logistics

Based on the estimated production volumes of nickel bulk concentrate, the logistic alternatives between the JNP and ports have been reviewed. For local haulage transportation there are two port load-out possibilities:

→ Vila do Conde; located 903km from the Project site. This port is a well-organized industrial port, with ample area which can be leased directly from the port authority or from other third parties. Concentrate would have to be trucked the whole distance.

→ Itaqui Port (São Luís); this would require access to Vale's rail infrastructure (Parauapebas, ~250km via road).

For the Scoping Study the Company proposes to transport concentrate from JNP to the Vila do Conde port and unload into the export vessels using a containerised solution that is applicable for use in either port in the future. Access to Vale's rail infrastructure will be explored in future studies.



# 12. Market & Nickel Pricing Assumptions

## 12.1 NICKEL MARKET

Nickel is mainly used in the production of stainless steel and other alloys and can be found in food preparation equipment, mobile phones, medical equipment, transport, buildings, power generation and increasingly in battery usage. The current size of the nickel market size is approximately 2.5Mtpa with overall nickel use growing at an annual rate of 4% over the last decade.

Nickel demand for batteries has grown fourfold in the 6-year period from 2012 to 2018, with the growth occurring from a low base of approximately 33,000tpa or 2% of the market. Scenarios for the increased rate of adoption of electric vehicles (EVs) conservatively forecast required additional nickel volumes of between 750,000 tonnes and 2 million tonnes per annum.

Nickel demand from EV use will far exceed nickel production from existing operations in any scenario of EV adoption.

EV nickel demand requires Class-1 nickel principally provided by sulphide and laterite projects using HPAL, rather than NPI which targets nickel for stainless steel production.

Importantly, sulphide projects have carbon footprints significantly lower than HPAL and NPI Projects which will drive end users to seek out sulphide nickel where it is available.

The forecast rapid increase in adoption of electric vehicles and the growing importance of battery technology will logically drive increased demand for higher purity nickel. Stated government policy in relation to renewable energy and EVs and strategic targets for EV production set by global automotive manufacturers all support this paradigm.

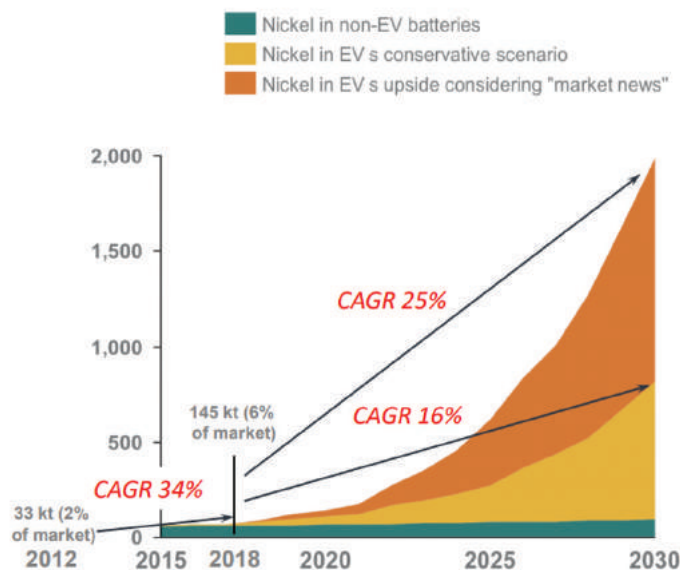


Figure 20 - EV Nickel Demand Scenarios





## 12.2 NICKEL PRICE ASSUMPTION

Figure 21 shows the historical LME nickel price for the 10-year period from 2010 to 2020. The nickel price closed the 2020 year at US\$16,540/tonne and continued to rise during January and February 2021 with the LME settlement price increasing to US\$19,690/tonne on 22 February 2021 before pulling back to a price of US\$16,300/tonne at the time of this Base Case Scoping Study.

Global stimulus spending has resulted in strong demand for stainless-steel, while forecasts of stronger and quicker uptake of electric vehicles in the future continues to firm the view of a positive outlook for Class 1 nickel.

The JNP Base Case Scoping Study assumes a nickel price of US\$16,530/tonne as this is considered a conservative estimate of the nickel price at the time of planned first production from Jaguar in the second half of 2024, especially when referenced against a number of major investment bank nickel price forecasts for the middle of the decade.

## 12.3 JAGUAR PRODUCTION

### CONCENTRATE TERMS

The Jaguar project is forecast to produce 128dktpa of nickel concentrate over the 10-year operational life of the project for a total of 203.3kt of nickel in concentrate at an average annual production rate of just over 20,000t of nickel in concentrate per annum, see Figure 22.

Concentrate Grade	
Nickel	15.8%
Copper	0.9%
Cobalt	0.2%
Fe:MgO Ratio	9:1

Table 13 - Jaguar Average LOM Concentrate Specification



Figure 21 - Historical Nickel Price

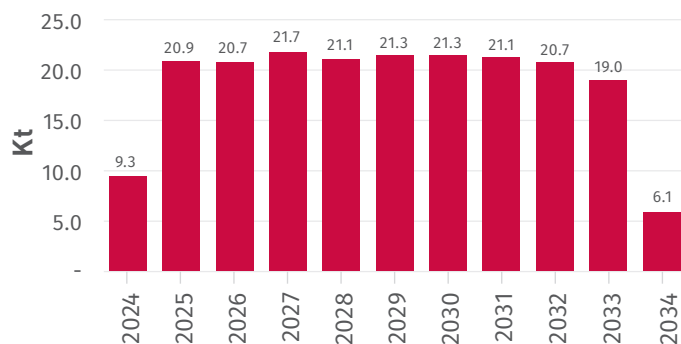


Figure 22 - Nickel in concentrate

The indicative concentrate specifications of Jaguar nickel concentrate are summarised in Table 13. Fe:MgO ratio in the concentrate is approximately 9.0 with impurities below the penalty levels currently assumed. The model treats by-product credits from payable cobalt as an offset against operating costs. Cobalt by-product credits only were considered for the study.

Nickel concentrate revenues have been modelled for typical Asian and Atlantic offtake terms. The study results presented in this report are based on Asian terms where nickel payability is based on an LME price scale. Average payability for the life of mine of the project is estimated at 75%.

Concentrate terms are assumed to be basis CIF delivery with the seller meeting the costs of transport and discharge to the buyers' port and insurance. An allowance of US\$70/tonne of concentrate has been provided for these costs.

### OFFTAKE

Under the terms of the Jaguar Sale and Purchase Agreement (SPA), Vale have a first right to 100% of offtake from the Jaguar project priced on an arm's length basis. This feature of the SPA provides some measure of offtake risk mitigation. Notwithstanding this, the indicative specifications of the Jaguar concentrate indicate that it will be a product that will have strong marketability.



# 13 Capital Cost Estimate

## 13.1 PRE-PRODUCTION CAPITAL

The pre-production capital cost estimate developed for the JNP includes costs associated with the procurement, construction and commissioning required to establish the project facilities prior to achieving commercial production.

The capital cost estimate has been completed by Entech (Mining operations) and DRA (Process plant and infrastructure) with CTM input where necessary. Formal enquiries to several process plant suppliers based on technical and commercial scope of works support the estimate. Table 14 summarises the total project capital costs including direct costs, indirect costs and contingency required prior to the commencement of commercial production.

### Pre-strip, TSF, Waste Dump & Mine Access

No capital has been included for mining fleet as the operation is proposed to be undertaken by a mining contractor. Costs for pre-strip waste removal and development of the TSF are included. The initial lift of the TSF requires 3.58M bcm of waste which will be taken from the pit area pre-strip at a total cost of US\$32.7M. The mining contractor will also establish the pits, waste dumps and site haul roads.

The same mining contractor would be responsible for the pre-operation's infrastructure earthworks including the preparation for the contractor facilities, plant and weighbridge sites.

### Processing and Non-Process Infrastructure

The processing and non-processing capital cost estimate is presented in fourth quarter 2020 United States dollars (US\$) to an accuracy of ±40%. The estimated capital cost for the Jaguar Nickel process plant and process plant infrastructure has been produced using a priced mechanical equipment list as the basis. Earthworks, electrical and instrumentation costs have been developed from material take-offs and validated database rates.

### Access Road & Power Line

Approximately 40km of road between Tucumã and the project site will be upgraded as part of the project. This will be undertaken by a local civil contractor and is presently estimated to cost US\$6.2M.

Power will be supplied to site by a 138kV line connected from site to the national energy grid at Tucumã. The total length of the transmission line route is 39km with an estimated total cost of US\$8.6M, sourced from a local power company proposal.

## 13.2 SUSTAINING AND DEFERRED CAPITAL

Total sustaining and deferred capital costs for the project are US\$138.5M.

The principal deferred capital costs are associated with open pit and underground mining as follows:

- US\$59.3M associated with overburden removal and cut-backs; and
- US\$51.3M for decline development, mine infrastructure and ventilation.

The IWL requires future dam raisings which are estimated to be US\$7.7M. This does not include the costs of delivering and spreading waste material at the TSF site which is included in mine waste movement operating costs. The estimated cost of the paste plant is USD\$9.8M, to be incurred in year 5. The JNP tenement is part of a Sale & Purchase Agreement with Vale, which includes a deferred payment of US\$5.0M million on commencement of commercial production.

The Scoping Study assumes that the salvage value of the plant will offset the mine closure costs estimated to be incurred for environmental rehabilitation, plant removal and disposal and labour retrenchment costs at the completion of mining and processing activities.

Pro Production Capital Cost	Units	Base Case
Mining (IWL & Pre-Strip)	US\$M	32.7
Flotation Circuit Equipment	US\$M	44.5
Electrical	US\$M	12.9
In-Plant Piping	US\$M	5.3
General Site - Earthworks	US\$M	1.8
Contractor Mobilisation Allowance	US\$M	1.2
Engineering Design/Draft Labour	US\$M	7.1
Project & Construction Management	US\$M	7.2
Commissioning	US\$M	0.9
Project Support Infrastructure	US\$M	30.7
Owners Costs	US\$M	9.2
<b>Sub total</b>	<b>US\$M</b>	<b>153.5</b>
Contingency	US\$M	24.1
<b>TOTAL</b>	<b>US\$M</b>	<b>177.6</b>

Table 14 - Pre-Production Capital



# 14. Operational Cost Estimate

Operating costs would vary over the life of the mine as the strip ratio changes. The operating cost estimate has been determined from the mining contractor proposals, supplier quotations and complementary data from recent studies of similar operations and database information.

The larger components of operating costs comprise contract mining, diesel fuel, reagents and grinding media, labour and power. The operating cost estimate is presented in fourth quarter 2020 United States Dollars (USD) to an accuracy of ±40%. The project operating costs are outlined in Table 15 below. Figure 23 provides a further breakdown of costs for each case.

Operating Cost	US\$/t ore	US\$/t metal	US\$/lb
Mining	29.05	3,434	1.56
Processing	11.33	1,340	0.61
Logistics	3.55	420	0.19
General & Administration	2.13	251	0.11
By-product Credit	(1.07)	(127)	(0.06)
<b>Total C1 Costs</b>	<b>44.99</b>	<b>5,318</b>	<b>2.41</b>

Table 15 - Base Case Operating Costs

General & Administration costs include a provision for ongoing rehabilitation expenditure estimated at US\$10.5M over the life of the project.

## 14.1 MINING

The mining contractor will be responsible for all open pit and underground mining and auxiliary operations, the mine operation costs are outlined in Table 16 and 17 below.

Open Pit Mining Operating Cost	LOM US\$M	US\$/t ore mined
Waste Mining	387.6	13.09
Ore Mining	84.7	2.86
Dayworks	10.6	0.36
Grade Control	29.4	0.99
Overheads	23.6	0.80
<b>Total</b>	<b>535.8</b>	<b>18.09</b>

Table 16 - Open Pit Operating Costs

Underground Mining Operating Cost	LOM US\$M	US\$/t ore mined
Ore Drive	23.6	7.35
Stope	89.0	27.71
Op Access	1.3	0.42
Dayworks	2.6	0.81
Grade Control	3.2	1.00
Mine Services	4.6	1.43
Mine Overheads	38.0	11.83
<b>Total</b>	<b>162.4</b>	<b>50.54</b>

Table 17 - Underground Operating Costs

Minor additional mining costs are primarily related to technical staffing and grade control costs. The average mining cost for the complete operation was estimated to be US\$29.05/t of ore mined.

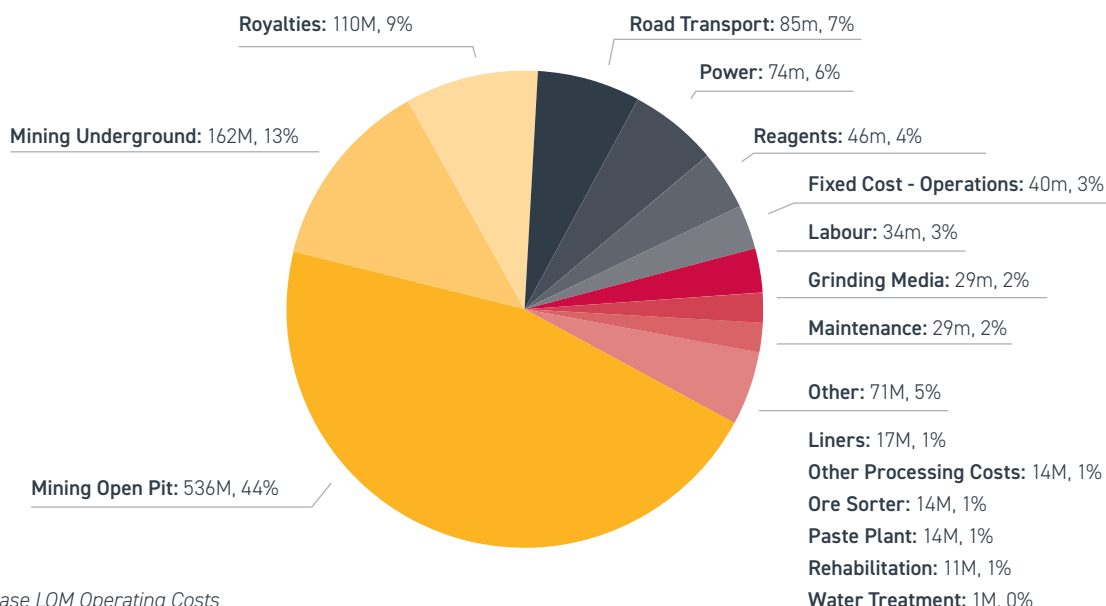


Figure 23 - Base Case LOM Operating Costs



## 14.2 PROCESS

The estimates have been divided into key cost categories, summarising the average annual operating costs for processing ore at 2.7Mtpa for the designed sulphide concentrator. The key cost categories are summarised in Table 18.

Operating Cost	LOM US\$M	US\$/t ore
Labour	33.9	1.41
Power	74.4	3.09
Maintenance	29.0	1.21
Reagents and Consumables	93.2	3.88
Paste Plant	13.6	0.57
Miscellaneous	28.3	1.18
<b>Total</b>	<b>272.5</b>	<b>11.33</b>

Table 18 - Processing Operating Costs

## 14.3 LOGISTICS

The Jaguar concentrate is proposed to be transported 903km from site via the existing road network to the Villa de Conde Port near Belem. Based on benchmarking of similar operations in Brazil the costs of concentrate logistics which include storage at Port and stevedoring are estimated at US\$61.0/tonne of concentrate. Sea freight is estimated to be US\$70/tonne of concentrate to the Asian market.

## 14.4 GENERAL & ADMINISTRATION (G&A)

The cost of direct G&A activities consists of the site G&A team (including HSEC personnel and contractors) and the services provided by them. G&A costs are estimated to be US\$4.0M per year.







# 15. Financial Analysis

## 15.1 KEY ASSUMPTIONS

A comprehensive financial model for the JNP has been created as a key part of the Base Case Scoping Study activities. The financial model incorporates physical, timing, cost and financial assumptions. The timing and financial assumptions are presented below with physical and cost assumptions detailed in the preceding sections of this report.

### Commodity Prices

The key revenue assumption is the Nickel price which is assumed at US\$16,530/tonne. The current spot price is approximately US\$16,300/tonne. Refer to Section 12.2 above for further comment on nickel price assumption.

### Royalties

The government royalty (CFEM) rate for base metals is 2% on the value of concentrate sales revenue, less certain allowable deductions for taxes charged in Brazil. It is assumed for the purpose of the study that there are no landowner royalties.

The tenement on which the JNP is located was acquired under a Sale & Purchase Agreement (SPA) with Vale. The terms of the SPA include a Net Operating Royalty (Gross) of 0.75% payable to Vale. Aliança also assumes the original obligation of Vale to BNDES for a 1.8% Net Operating Revenue royalty.

### Foreign Exchange Rates

The foreign exchange assumptions used in the study are set out in Table 19 below:

	Assumption for SS	Current March 2021
USD/BRL	5.00	5.75
AUD/BRL	3.75	4.38
EUR/BRL	5.80	6.79
AUD/USD	0.75	0.76
USD/CAD	1.33	1.26
EUR/USD	1.16	1.18

Table 19 - Foreign Exchange Rates

Whilst these rates represent conservative assumptions compared to current rates, management considers that these rates are more appropriate long-term assumptions given the significant recent volatility on financial markets.

### Income Tax

The JNP is located in the Amazon region and is expected to be eligible for a 75% taxation concession which would be applied to the 25% corporate income tax rate. The Social Contribution Tax on Profits (CSLL) of 9% results in a total notional tax rate of 15.25%.



### 15.2 FINANCIAL OUTCOMES

Table 20 summarises the key financial results of the Base Case Scoping Study based on the assumptions detailed in this section and throughout this document. Cashflows are discounted using a rate of 8% real with NPVs presented from FID.

Project life cashflows are illustrated in Figure 24 below.

### 15.3 SENSITIVITY ANALYSIS

Sensitivity analysis has been completed for NPV by assuming a 10% movement above and below the value of specified base case assumptions. The variables chosen for analysis and the outcome on project economics are shown in Figure 25 below.

Key Results	Units	Base Case
Pre-Production Capex	US\$M	178
Sustaining & Deferred Capex	US\$M	138
Nominal Production Rate	Mtpa	2.7
Nickel Production	t	203,300
Gross Revenue	US\$M	2,422
LOM Opex (net of by-product credits)	US\$M	1,192
EBITDA	US\$M	1,230
NPV8 – Pre-Tax	US\$M	543
NPV8 – Post-Tax	US\$M	453
NPV8 – Post-Tax	A\$M	604
Internal Rate of Return – Pre-Tax	%	62%
Internal Rate of Return – Post-Tax	%	54%
Payback - Pre-Tax	years	1.7
Payback - Post-Tax	years	1.9

Table 20 - Key Financial Results

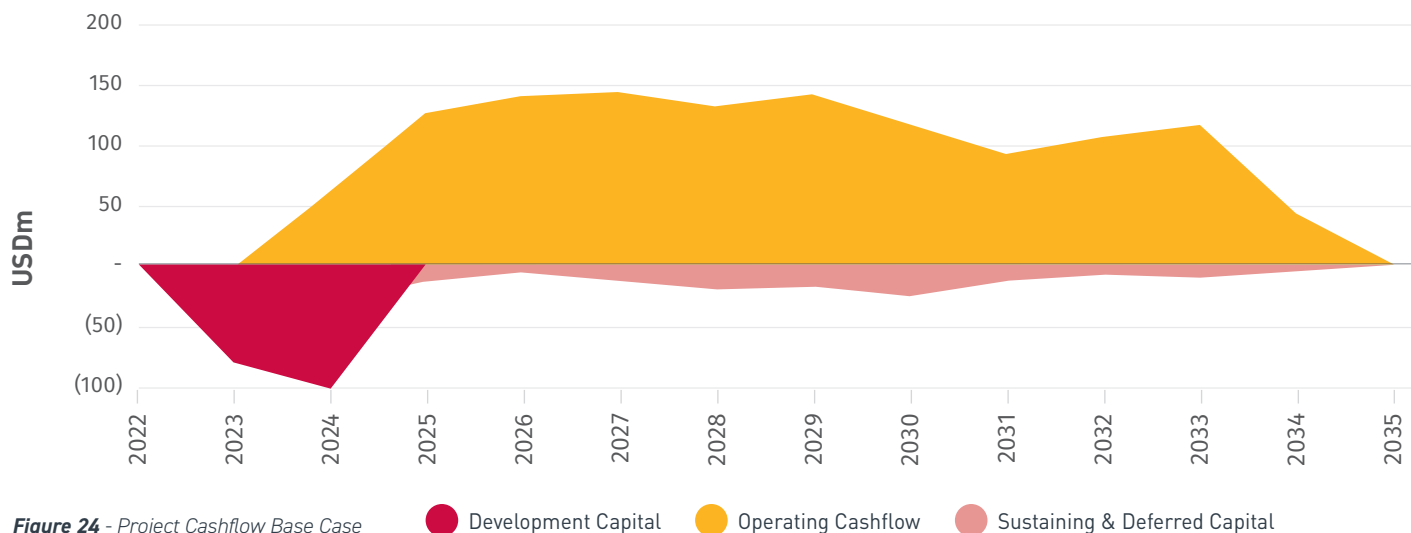


Figure 24 - Project Cashflow Base Case

Variable	Base Case	Sensitivity	NPV <sub>8</sub> after Tax US\$453 M	
Ni Price	US\$16,530/t	+/- 10%	279	626
Ni Recovery	78%	+/- 10%	333	571
Operating Costs	LOM US \$1,192M	+/- 10%	418	488
Exchange Rates	EUR/USD 1.16 EUR/BRL 5.80 USD/BRL 5.00	+/- 10%	436	466
Capital Cost [Development]	US\$178M	+/- 10%	438	468

Figure 25 - Sensitivity Chart - Base Case



## 16. Conclusion & Recommendations

The Base Case Scoping Study confirms that the development of a 2.7Mtpa open pit mine and flotation concentrator at the JNP is technically and commercially feasible. The Company intends to proceed to Pre-Feasibility Study phase, with the objective to study the Base Case option. The Value-Add Scoping Study is expected to be completed in the next 3-4 weeks.

The study of both Options in the PFS stage will allow the Company to complete the required trade-off analysis to a level that will allow an informed decision on how the project should move forward in the Definitive Feasibility stage. Although there will be additional costs involved this should not affect project delivery time and will allow for the maximum project value to be evaluated.

There are a number of work fronts that can bring **opportunities and growth** to the JNP, the primary being resource growth and process development.

The March 2021 JORC Indicated and Inferred MRE of 58.9Mt at 0.96% Ni for 562,600 tonnes of contained nickel metal underpins the Production Target of 32.8Mt at 0.84% Ni for a total of 275,600 tonnes of contained nickel metal, representing a conversion of roughly 50% of resources to Production Target. The Production Target in turn supports a Mill Feed of 24Mt at 1.08% Ni for 260,300 tonnes of contained nickel.

Pit optimisation work demonstrated that the cut-off grade can be lowered under the same technical parameters and cost scenarios that would result in larger conceptual open pits, longer mine life and additional metal tonnes. Further cut-off grade analysis will be carried out in the PFS.

The JNP hosts multiple prospects and targets that have yet to be drill-tested, characterized by magnetic and/or electromagnetic (EM) anomalies coincident with significant soil geochemical support.

The Company will continue with an aggressive drilling plan focusing on resource development (infill) drilling as well as resource extension drilling at the six Jaguar deposits and two Onça deposits. There is significant potential to expand both the shallow and deeper high-grade Resources within these deposits. This will be complemented with greenfields RC drilling to identify new discoveries.

Process development testwork focusing on process flow sheet optimisation will be ongoing, designed to optimise recovery and achieve a high-quality nickel concentrate. Additional ore sorting testwork will be undertaken which may increase the volume of economic nickel as well as further reducing the amount of potentially acid forming (PAF) waste reporting to the mine waste stockpiles thereby reducing environmental risks. These studies will be part of the PFS which will assist in determining the Project's optimal throughput size and economics.





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## **Detailed Technical Discussion and Supporting Information Required Under ASX Listing Rules, Chapter 5**

In accordance with ASX Listing Rules and the 2012 JORC reporting guidelines, a summary of the material information used to estimate the Mineral Resource is detailed below (for more detail please refer to JORC Table 1, Sections 1 to 3 included below).

It is noted that for the reported Mineral Resource in this announcement, there have been no changes to the interpretation of the mineralisation domains, to the estimation of metals or to the classification from the Mineral Resource announced 4 February 2021. The only change has been to adjust a macro in the density estimation for the Onça Preta and Onça Rosa deposits. There is no change to the density estimation for the Jaguar deposit.

### *Geology and Geological Interpretation*

The Jaguar Nickel Deposit differs from most nickel sulphide deposits mined to date because it is of hydrothermal origin, with the nickel sulphide mineralisation being of high tenor (tenor referring to the Ni concentration in 100% sulphides) with low Cr and Mg contents, and not directly associated with mafic-ultramafic rocks. It is understood that the Jaguar mineralisation represents a hybrid hydrothermal style between magmatic Ni-Cu-PGE sulphide and IOCG mineralisation.

The Project is located in the Carajás Mineral Province (CMP), which contains one of the world's largest known concentrations of large tonnage IOCG deposits. The CMP also hosts the world's largest source of high-grade iron ore, as well as a significant source of gold, manganese, and lateritic nickel.

Jaguar is located at the intersection of the WSW-trending Canaã Fault and the ENE-trending McCandless Fault, immediately south of the NeoArchean Puma Layered Mafic-Ultramafic Complex, which is host to the Puma Lateritic Nickel deposit (see Figure 2). The Jaguar mineralised bodies are hosted within sheared Sub-Volcanic Dacitic Porphyries of the Serra Arqueada Greenstone belt, adjacent to the boundary with a tonalite intrusive into the Xingu basement gneiss, while Onça Preta and Onça Rosa are tabular mineralised bodies hosted within the tonalite. The hydrothermal alteration and mineralisation form sub-vertical to vertical bodies structurally controlled by the regional ductile-brittle mylonitic shear zone. The hydrothermal alteration appears to be synchronous with, or post-date, deformation.

Three main types of alteration assemblages are recognised in the Jaguar deposit: biotite-chlorite, amphibole-biotite and magnetite-apatite-quartz. These hydrothermal mineral assemblages are variably developed around the mineralised bodies being influenced by the composition of the host rocks.

The Jaguar deposits are hosted within a subvertical mylonite zone trending EW which is interpreted to represent one strand of the regional Canaã Fault. Bedding has been transposed by the main foliation which dips 88°/177°, with subsidiary foliations dipping 90°/143° and 56°/282°. Both the Onça Preta and Onça Rosa deposits are hosted within tonalite along the contacts where it has been intruded by the older dolerite suggesting the mineralisation was emplaced during a stage of dilation. The mean orientation of the Onça Preta mineralisation is 78°/008° and 72°/013° at Onça Rosa.

Two types of nickel sulphide mineralisation occur in the Jaguar deposit. Sulphide assemblages are similar in both ore types, differing only in modal sulphide composition and structure. The mean sulphide assemblage (in order of abundance) is pyrite, pentlandite, millerite, violarite, pyrrhotite and sphalerite with trace vaesite, nickeliferous pyrite and chalcopyrite.

The most abundant type constitutes low-grade nickel mineralisation and is associated with the biotite-chlorite alteration as well as amphibole, magnetite, quartz, apatite and talc, and occurs as veins and stringer sulphides. Sulphides usually occur within veins concordant with the foliation but may also infill discordant fractures or occur as disseminated grains in alteration zones.

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At Jaguar, the target high-grade nickel mineralisation is associated with the magnetite-apatite-quartz alteration. It occurs as veins and breccia bodies consisting of irregular fragments of extensively altered host rocks within a sulphide-magnetite-apatite rich matrix. Mineralised breccias form semi-massive sulphide bodies up to 30m thick parallel to, or crosscutting, biotite-chlorite rich zones. The breccias are predominantly clast-supported, but matrix-supported sulphide breccias are also recognised. Mineralisation at the Onça Preta and Onça Rosa deposits is predominantly of the second type, forming tabular semi-continuous to continuous bodies both along strike and down dip.

Regolith at the deposit is in-situ and comprises a thin soil layer overlying a decomposed saprolite transitional zone. The thickness to the base of the transitional zone generally varies from 5m to 25m (max. 34m).

## *Drilling Techniques*

All Jaguar mineralisation to-date was sampled using diamond drill holes (HQ/NQ). The Resource uses 169 Vale drill holes for a total of 56,592m and 98 Centaurus drill holes for a total of 17,941m of drilling on the project. All drill holes were drilled at 55°-75° towards either 180° or 360°. Core recoveries were logged and recorded in the database for all historical and current diamond holes. To date, overall recoveries are >98% and there are no core loss issues or significant sample recovery problems.

## *Sampling and Sub-sampling Techniques*

Diamond core was cut using a core saw, ¼ core was sampled. Sample length along core varies between 0.3m to 4.0m, with an overall average of 1.5m. Within the modelled mineralised domains, the average is 1.0m. Sampling was done according to lithological contacts and generally by 1m intervals within the alteration zones and 1.5m to 2m intervals along the unaltered rock.

QAQC Standards (multiple standards are used on a rotating basis) are inserted every 20 samples. Blanks have been inserted for every 20 samples. Field duplicates are completed every 30 samples. Additionally, there are laboratory standards and duplicates that have been inserted. Centaurus has adopted the same sampling QAQC procedures which are in line with industry standards and Centaurus' current operating procedures.

## *Sample Analysis Method*

Current samples are sent to independent laboratories where they are dried, crushed and pulverised to 85% passing 75µm and split further to 250g aliquots for chemical analysis. Samples are then analysed for 48 elements by multi element using ME-MS61 (multi-acid digestion); ore grade analysis was completed with ICP-AES (multi-acid digestion); sulphur analysis was completed with Leco, and Au and PGEs completed via Fire Assay.

Historical samples were dried, crushed and pulverised to 90% passing 4mm and reduced to 400g. The samples were pulverised to 95% passing 150µm and split further to 50g aliquots for chemical analysis. Multi element analysis using ICP-AES (multi-acid digestion) was complete; ore grade analysis was completed with Atomic Absorption (multi-acid digestion); sulphur analysis was completed with Leco, and Au and PGEs completed via Fire Assay. Given the grain size and mineralogy of the samples, the methods are considered total and appropriate.

## *Estimation Methodology*

Mineralized domains and oxidation surfaces were modelled using Leapfrog™ software's vein and geological modelling tools. Grade estimation was by Ordinary Kriging for Ni, Cu, Co, Fe, Mg, Zn and As using GEOVIA Surpac™ software. Samples were composited to 1m within each estimation domain, using fixed length option and a low percentage inclusion threshold to include all samples. Top-cuts were decided by completing an outlier analysis using a combination of methods including grade histograms, log probability plots and other statistical tools. Based on this statistical analysis of the data population, no top-cuts were applied.

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Estimation parameters were based on the variogram models, data geometry and kriging estimation statistics. Variogram calculations were carried out on the 1m composites from domains with significant numbers of samples and then the parameters applied to other domains that had too few samples for variography. The estimate was resolved into 10m (E) x 2m (N) x 10m (RL) parent cells that had been sub-celled at the domain boundaries for accurate domain volume representation. Elements were estimated in three passes with the first pass using optimum search distance of 75m and the second run was set at 150m. A final pass used a large search distance in order to populate all remaining blocks.

## *Resource Classification Criteria*

The Mineral Resource has been classified on the basis of confidence in the geological model, continuity of mineralized zones, drilling density, confidence in the underlying database, a combination of search volume and number of data used for the estimation plus availability of bulk density information.

Indicated Mineral Resources are defined nominally on 50m E x 40m N spaced drilling (predominantly where Centaurus has completed infill drilling) and Inferred Mineral Resources nominally 100m E x 40m to 100m N with consideration given for the confidence of the continuity of geology and mineralisation. The Jaguar Mineral Resource in part has been classified as Indicated with the remainder as Inferred according to JORC 2012.

## *Cut-off Grade(s), Including the Basis for the Selected Cut-off Grade(s)*

Potential mining methods include a combination of open pit and underground. A 0.3% Ni cut-off grade has been applied to material less than 200m vertical depth from surface in the estimation of the Global MRE with this being consistent with mineralisation domain modelling and reported significant intersection cut-off grades. A 1.0% Ni cut-off grade has been maintained for resources below 200m from surface to reflect the need for this mineralisation to be mined via underground mining methods.

## *Mining and Metallurgical Methods and Parameters (and other material modifying factors considered to date).*

It is assumed that the Jaguar deposits will be mined by a combination of open pit and underground mining methods. Conceptual pit optimisation studies have been completed by independent mining consultants Entech. The results demonstrate that there are reasonable prospects for the eventual economic extraction of the mineralisation by open pit mining methods. Input parameters were benchmarked from similar base-metal operations in Brazil and Australia.

Metallurgical test work has been undertaken on multiple composite samples sourced from the Jaguar South and Onça Preta deposits. Material selection for test work was focused on providing a good spatial representation of mineralisation for the deposits to date. Bench scale test work to date has demonstrated that a conventional crushing, grinding and flotation circuit will produce good concentrate grades (16% Ni) and nickel recoveries (+80%)<sup>3</sup>. Metallurgical test work remains ongoing.

This announcement includes the Executive Summary of the Jaguar Nickel Sulphide Project Scoping Study that included information on mining parameters by consultants Entech Pty Ltd and metallurgical testwork completed by ALS Metallurgy.

## **Base Case Scoping Study Material Assumptions**

In accordance with ASX Listing Rules, the following is a summary of all material assumptions and associated financial information related to the JNP Base Case Scoping Study, including consideration of the modifying factors under the JORC 2012 code. Additional detail on the material assumptions can be found in the JNP Base Case Scoping Study Executive Summary document, part of this release.

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<sup>3</sup> Refer ASX Announcements of 18 February 2020, 17 March 2020 and 31 March 2020 for metallurgical test results

# AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT & MEDIA RELEASE



## *Mineral Resource estimate for conversion to Production Targets*

The Production Target estimates are based on the Mineral Resource released on the 4 February 2021 and updated in this release, by Centaurus Metals' competent persons: Mr Roger Fitzhardinge (Operations Manager – Centaurus Metals) and Mr Lauritz Barnes (Resource Consultant - Trepanier Pty Ltd).

Entech completed an audit of the geological block model ahead of mine planning work to estimate the Production Target. Entech provided open pit and underground engineering services. The work included open pit and underground optimization studies final mine designs and integrated mine schedule. Re-Metallica, a Brazilian mining engineering consultancy firm, was engaged to review and advise Entech on local mining productivities and costs.

## *Site visits*

No site visit was conducted by Entech due to travel restrictions. A site visit was conducted by Re-Metallica competent person Ruy Lacourt Rodrigues in December 2020. In the course of preparing this estimate the Competent Persons ensured the data and analysis used in this estimate is appropriate for the proposed operating conditions for the project.

## *Study status*

The Production Target estimates are based on a Scoping Study level study. The study, including capital estimates and operating cost estimates was completed to an accuracy of  $\pm 40\%$ , which is considered appropriate for a Scoping Study. As the study is based on low-level technical and economic assessments it is insufficient to support the estimation of an Ore Reserve.

*Cut-off parameters - refer to Chapter 3 of the JNP Base Case Scoping Study for additional information.*

The Mineral Resource is a geologically domained resource model that used a nominal 0.30% Ni as a lower grade cut-off. The resource model was re-blocked and modified for ore loss and dilution and evaluated to determine which mineralized blocks produced a cash surplus when treated as ore. The Production Target was estimated using the Net Smelter Return (NSR) method. The marginal economic cut-offs were estimated to be between 0.3% Ni grade (open pit) and NSR \$75 per tonne (underground). NSR \$50 blocks were used to infill the stopes. The cut-off grade contemplates all pre-tax costs associated with the mining, processing and transport of nickel concentrate.

The metal recoveries are deposit specific life of mine forecasts based on metallurgical test work results received to date, for which the average nickel recovery was 78%. A conservative Nickel price of \$15,000/t (payability 75%) and Cobalt price of \$30,000/t (payability 30%) was used for the pit optimisations that generated a series of nested pit shells. Pit shells with revenue factors equivalent to nickel prices of US\$12,450/t (Jaguar - Pit83) and US\$12,000/t (Onça – Pit80) were selected for scheduling.

*Mining factors or assumptions - refer to Chapter 3 of the JNP Base Case Scoping Study for additional information.*

The Scoping Study assesses both open pit and underground mining operations using conventional drill and blast, load and haul to the ROM and waste deposit to be undertaken by local experienced mining contractors. The pre-concentrate stage includes a jaw crusher to the crushed ore stockpile for the high-grade ROM; and the low-grade ROM goes to a jaw crusher ahead of ore sorters with product going to the crushed ore stockpile, and ore-sorted waste back loaded to waste deposits. The JNP process plant design is based on the treatment of 2.7Mtpa of ore.



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Geotechnical logging and testwork was completed as part of the studies. The typical rock mass can be characterised as 'Good' in the near-surface open-pit environment. Final pit slopes have 10m (oxide) – 20m (fresh) benches and 5-10 m wide berms. Average inter-ramp angles of between 40° - 49° in fresh rock and 33° in oxide material. The rock mass conditions improve with depth and can be generally classified as 'Good' to 'Very Good'. The orebody geometry and rock mass conditions at the Jaguar deposits favours the use of a top down longhole open stoping method.

The Mineral Resource model was re-blocked to a Smallest Mining Unit (SMU) dimension of 5mE x 4mN x 5mR. The impact of re-blocking is that the narrow-modelled lodes from the original MRE are diluted out into larger blocks resulting in an ore dilution of 25% and ore loss of 9% for Jaguar, and ore dilution of 38% and ore loss of 6% for Onça. For the underground, a 90% mining recovery factor was applied to the stoping tonnage to account for the pillars and ore losses (2%).

For pit optimisations average LOM mining costs of US\$2.50 per tonne of material moved and processing and G&A costs of US\$12.15 per tonne of ore processed were used. Concentrate transport costs of US\$131.0 per tonne of concentrate were applied.

The proposed open pit mining methods are assumed to be on 5m benches, with 2.5m pitches in ore, using 45t trucks, 45t excavators and associated ancillary fleet. Mining costs are based on contract mining, include clearing, topsoil removal, drill, blast, load, haul, dewatering and rehabilitation. The proposed underground mining method is top down longhole open stoping. Stopes are extracted in a longitude mining direction from the orebody with levels to be accessed from the hangingwall. Declines have been designed using a 1:7 gradient, on the hanging wall side of the orebody, having a 50m stand off from the orebody.

Open pit grade control will be based on sampling from surface RC drilling. Underground grade control definition is assumed to consist of underground diamond drilling and geological development mapping. Drilling is assumed to be completed approximately 3-6 months ahead of scheduled mining and is costed in the financial analysis.

High-level infrastructure designs were completed together with the mine design to address the required mine access, mine and waste deposit drainage, mine ventilation, mine dewatering, power supply, controls, and communication requirements for the proposed open pit and underground operations.

Inferred Resources have been included for scoping study assessment with the LOM plan. No Ore Reserves are currently declared for the Jaguar Nickel Sulphide Project. The proportion of Inferred Mineral Resources material accounts for 39% of the Production Target over the life of the presently defined project whilst 19% of the Production Target during the payback period will be from Inferred Mineral Resources. Only fresh and transitional materials are processed, with mineralised oxide material considered to be waste.

*Metallurgical factors or assumptions - refer to Chapter 4 of the JNP Base Case Scoping Study for additional information.*

The Jaguar mineralisation is understood to be a hybrid hydrothermal style between magmatic Ni-Cu-PGE sulphide and IOCG mineralisation, the nickel assemblage contains pentlandite and millerite nickel bearing sulphides amongst others. Extensive mineralogy and flotation test work has demonstrated that the deposit is amenable for the production of nickel concentrates via conventional and well-established flotation routes.

To date 104 mineralogical composites have been selected (55 from Jaguar South, 7 from Onça Preta, 27 from Jaguar Central and 15 from Jaguar North) for testing. Flotation testing has been completed on five composites from Jaguar South, Jaguar Central, Jaguar North and one composite from Onça Preta. From the test work completed, the sulphide nickel recovery of the composites tested average 90%, with the total nickel recovery in the range of 74-82% depending upon nickel head grade and non-sulphide nickel grades. For the purposes of this study the non-sulphide nickel was individually estimated for each deposit with a 90% recovery assumed for the nickel sulphide component.

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Ore sorting has been included as a pre-concentrate step for the low-grade mineralisation (0.3-0.6% Ni) which makes up 14% of the Mill Feed. A low-grade (0.47% Ni) diamond core sample was pilot tested at Steinert's Perth Laboratory using a dual sensor (X-ray transmission and Electromagnetic) ore sorter. A grade recovery curve has been generated and an estimated 30% mass recovery at 70% nickel recovery has been applied to the ore sorter feed.

Additional analysis relating to concentration quality is ongoing to confirm current assumptions of low deleterious elements. No bulk sample or pilot scale flotation test work completed to date.

*Infrastructure - refer to Chapter 6 of the JNP Base Case Scoping Study for additional information.*

The Project is located in the Carajás mineral district in Brazil where the government and Vale have invested heavily in infrastructure. Large iron ore and base metals mines are operated in the region, which has access to water, power, transport, accommodation and communications as well as to a number of services and goods suppliers who are well established. The JNP is ideally located close to existing infrastructure, just 35km north of the regional centre of Tucumã (population +35,000) where a 138 kV power sub-station is located.

*Environmental - refer to Chapter 9 of the JNP Base Case Scoping Study for additional information.*

The Preliminary Licence (LP) is the key environmental approval required for the Project. The application for the LP comes from the lodgement of an Environmental Impact Assessment (EIA/RIMA), with lodgement of the EIA/RIMA planned for Q2 2021. All wet and dry season environmental studies (water, flora, fauna, air quality, noise, archaeology, malaria etc) are completed with lodgement awaiting technical information from the JNP Base Case Scoping Study.

Three waste deposits will be established in Jaguar, one being part of the Integrated Waste Landform (IWL) tailings storage facility. Waste rock and flotation tailings composites have been tested for Environmental Characterization and Waste Classification, results have shown samples are non-corrosive, low-acid generating, and non-reactive.

*Social - refer to Chapter 10 of the JNP Base Case Scoping Study for additional information.*

The Jaguar Project is located 35km from the local towns of Tucumã or Ourilândia do Norte, with a combined population of 70,000 people. The workforce will be mainly sourced from the local population that reside in these towns, supplemented by experienced external operational and technical staff as required. The social impact of the project will be positive in providing additional job opportunities and training in mining skills. With a construction workforce of over 1,000, full-time operational personnel of 190 and more than 500 mining contractor employees, the Project will not only provide direct employment but will also stimulate the local economies, creating a number of indirect employment and business opportunities.

Centaurus has secured possession rights to one of the properties over the Jaguar Project with two other agreements currently being negotiated. The Company has land access agreement in place with all other landowners. No further licences other than those indicated under the Environmental section are believed to be contingent to project implementation.

*Revenue factors - refer to Chapter 12 and 15 of the JNP Base Case Scoping Study for additional information.*

Plant feed grades and metal recoveries are derived from the mine plan. Financial assumptions, metal prices, exchange rates and concentrate playabilities assumptions have been made by Centaurus with the assistance of industry consultants with relevant industry experience such as analyst forecasts and commercial terms for similar products.

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*Market assessment - refer to Chapter 12 of the JNP Base Case Scoping Study for additional information.*

Global stimulus spending has resulted in strong demand for stainless-steel, while forecasts of stronger and quicker uptake of electric vehicles in the future continues to firm the view of a positive outlook for Class 1 nickel. The nickel price closed the 2020 year at US\$16,823/tonne and continued to rise during January and February 2021 with the LME settlement price increasing to US\$19,690/tonne on 22 February 2021. The Jaguar Scoping Study assumes a nickel price of US\$16,530/tonne.

*Costs - refer to Chapters 13 and 14 of the JNP Base Case Scoping Study for additional information.*

The capital cost estimate has been completed to Scoping Study level by Entech (Mining operations) and DRA (Process plant and infrastructure) with CTM input where necessary. Formal enquiries to several process plant suppliers based on technical and commercial scopes of work were delivered. Processing and non-processing capital cost estimates are presented in fourth quarter 2020 United States dollars (US\$) to an accuracy of  $\pm 40\%$ . A 20% capital contingency allowance has been applied to the cost estimate.

The operating cost estimate has been completed to Scoping Study level by Entech and Re-Metallica (Mining operations) and DRA (Process plant and infrastructure) with CTM input where necessary. The operating cost estimate has been determined from the mining contractor proposals, supplier quotations and complementary data from recent costing of similar operations and database information. Exchange rates were based on forward projections and transportation charges were based on benchmarked operations. Costs include all appropriate government and third-party royalties.

*Project Economics - refer to Chapter 15 of the JNP Base Case Scoping Study for additional information.*

A comprehensive financial model for the JNP has been created as a key part of the Base Case Scoping Study activities. Cashflows are discounted using a rate of 8% real. The estimates are presented in USD with exchange rates outlined in Chapter 15 of the Executive Summary. The project financial outcomes are impacted by tax benefits (SUDAM incentive). There is a risk related to application timing and granting of these benefits. The project Net Present Value (NPV) is mostly sensitive (at  $\pm 10\%$ ) to the nickel price and metallurgical recoveries. The project is less sensitive to variations in operational and capital costs.

## *Funding*

To achieve the range of outcomes indicated in the Scoping Study, pre-production funding of approximately US\$178M will likely be required. There is no certainty that Centaurus will be able to source that amount of funding when required. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Centaurus's shares. It is also possible that Centaurus could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Jaguar Nickel Sulphide Project. This could materially reduce Centaurus's proportionate ownership of the Jaguar Nickel Sulphide Project.

It is anticipated that finance will be sourced through a combination of equity from existing shareholders, new equity investment and debt providers. In July 2020, the Company completed a A\$25.5 million share placement of which A\$7.0 million was cornerstoned by highly experienced Canadian resource investment house, Dundee Goodman Merchant Partners, who remain very supportive of the Company and development of the Jaguar Nickel Sulphide Project. Further, strong indications of equity support exist from broking groups who have research coverage on the Company.

The Board considers that the project cash flows outlined in the Scoping Study are supportive of debt funding of the Project on normal commercial terms.

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## *Other*

There are no known impediments to the granting of the environmental and mining approvals with the timeframes anticipated in Chapter 9 of the JNP Base Case Scoping Study. Under the terms of the Jaguar Sale and Purchase Agreement (SPA), the project vendor (Vale) have a first right to 100% of offtake from the Jaguar project priced on an arm's length market-based price basis. This feature of the SPA provides some measure of offtake risk mitigation for the Company.

## *Audits or reviews*

The Scoping Study was internally reviewed by Centaurus. No material issues were identified by the reviewers. All study inputs were prepared by Competent Persons identified in this announcement.

**-ENDS-**

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## **Competent Persons Statement**

*The information in this report that relates to Exploration Results is based on information compiled by Mr Roger Fitzhardinge who is a Member of the Australasia Institute of Mining and Metallurgy. Mr Fitzhardinge is a permanent employee and shareholder of Centaurus Metals Limited. Mr Fitzhardinge has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Fitzhardinge consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The information in this report that relates to the new March 2021 Jaguar Mineral Resource is based on information compiled by Mr Lauritz Barnes (consultant with Trepanier Pty Ltd) and Mr Roger Fitzhardinge (a permanent employee and shareholder of Centaurus Metals Limited). Mr Barnes and Mr Fitzhardinge are both members of the Australasian Institute of Mining and Metallurgy. Mr Barnes and Mr Fitzhardinge have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Specifically, Mr Fitzhardinge is the Competent Person for the database (including all drilling information), the geological and mineralisation models plus completed the site visits. Mr Barnes is the Competent Person for the construction of the 3-D geology / mineralisation model plus the estimation. Mr Barnes and Mr Fitzhardinge consent to the inclusion in this report of the matters based on their information in the form and context in which they appear.*

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## APPENDIX A – Compliance Statements for the Jaguar Project

The following Tables are provided for compliance with the JORC Code (2012 Edition) requirements for the reporting of Exploration Results and Mineral Resources at the Jaguar Project.

### SECTION 1 - SAMPLING TECHNIQUES AND DATA

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

Criteria	Commentary
<b><i>Sampling techniques</i></b>	<ul style="list-style-type: none"> <li>Historical soil sampling was completed by Vale. Samples were taken at 50m intervals along 200m spaced north-south grid lines.</li> <li>Surface material was first removed, and sample holes were dug to roughly 20cm depth. A 5kg sample was taken from the subsoil. The sample was placed in a plastic sample bag with a sample tag before being sent to the lab.</li> <li>Surface rock chip/soil samples were collected from in situ outcrops and rolled boulders and submitted for chemical analysis.</li> <li>The historical drilling is all diamond drilling. Drill sections are spaced 100m apart and generally there is 50 to 100m spacing between drill holes on sections.</li> <li>Core was cut and ¼ core sampled and sent to commercial laboratories for physical preparation and chemical assay.</li> <li>At the laboratories, samples were dried (up to 105°C), crushed to 95% less than 4mm, homogenized, split and pulverized to 0.105mm. A pulverized aliquot was separated for analytical procedure.</li> <li>Sample length along core varies between 0.3 to 4.0m, with an average of 1.48m; sampling was done according to lithological contacts and generally by 1m intervals within the alteration zones and 2m intervals along waste rock.</li> <li>Current drilling is being completed on spacing of 100m x 50m or 50m x 50m. Sample length along core varies between 0.5 to 1.5m</li> <li>Core is cut and ¼ core sampled and sent to accredited independent laboratory (ALS).</li> <li>For metallurgical test work continuous downhole composites are selected to represent the metallurgical domain and ¼ core is sampled and sent to ALS Metallurgy, Balcatta, Perth.</li> </ul>
<b><i>Drilling techniques</i></b>	<ul style="list-style-type: none"> <li>Historical drilling was carried out between 2006 to 2010 by multiple drilling companies (Rede and Geosol), using wire-line hydraulic diamond rigs, drilling NQ and HQ core.</li> <li>Vale drilled 169 drill holes for a total of 56,592m of drilling in the resource area. All drill holes were drilled at 55°-60° towards either 180° or 360°. The resource considers 49 drill holes completed by Centaurus for a total of 17,941m of drilling. All drill holes were drilled at 55°-75° towards either 180° or 360°.</li> <li>Current drilling is a combination of HQ and NQ core (Servdrill).</li> </ul>
<b><i>Drill sample recovery</i></b>	<ul style="list-style-type: none"> <li>Diamond Drilling recovery rates are being calculated at each drilling run.</li> <li>For all diamond drilling, core recoveries were logged and recorded in the database for all historical and current diamond holes. To date overall recoveries are &gt;98% and there are no core loss issues or significant sample recovery problems.</li> <li>To ensure adequate sample recovery and representativity a Centaurus geologist or field technician is present during drilling and monitors the sampling process.</li> <li>No relationship between sample recovery and grade has been demonstrated. No bias to material size has been demonstrated.</li> </ul>
<b><i>Logging</i></b>	<ul style="list-style-type: none"> <li>Historical outcrop and soil sample points were registered and logged in the Vale geological mapping point database.</li> <li>All drill holes have been logged geologically and geotechnically by Vale or Centaurus geologists.</li> <li>Drill samples are logged for lithology, weathering, structure, mineralisation and alteration among other features. Logging is carried out to industry standard and is audited by Centaurus CP.</li> <li>Logging for drilling is qualitative and quantitative in nature.</li> <li>All historical and new diamond core has been photographed.</li> </ul>
<b><i>Sub-sampling techniques and sample preparation</i></b>	<ul style="list-style-type: none"> <li>Diamond Core (HQ/NQ) was cut using a core saw, ¼ core was sampled. Sample length along core varies between 0.3 to 4.0m, with an average of 1.48m; sampling was done according to lithological contacts and generally by 1m intervals within the alteration zones and 2m intervals along the waste rock.</li> <li>There is no non-core sample within the historical drill database.</li> <li>QAQC: Standards (multiple standards are used on a rotating basis) are inserted every 20 samples. Blanks have been inserted every 20 samples. Field duplicates are completed every 30 samples. Additionally, there are laboratory standards and duplicates that have been inserted.</li> <li>Centaurus has adopted the same sampling QAQC procedures which are in line with industry standards and Centaurus's current operating procedures.</li> <li>Sample sizes are appropriate for the nature of the mineralisation.</li> </ul>

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Criteria	Commentary
	<ul style="list-style-type: none"> <li>All historical geological samples were received and prepared by SGS Geosol or ALS Laboratories as 0.5-5.0kg samples. They were dried at 105°C until the sample was completely dry (6-12hrs), crushed to 90% passing 4mm and reduced to 400g. The samples were pulverised to 95% passing 150µm and split further to 50g aliquots for chemical analysis.</li> <li>New samples are being sent to ALS Laboratories. The samples are dried, crushed and pulverised to 85% passing 75µm and split further to 250g aliquots for chemical analysis.</li> <li>During the preparation process grain size control was completed by the laboratories (1 per 20 samples).</li> <li>Metallurgical samples are crushed to 3.35mm and homogenised. Samples are then split to 1kg sub-samples. Sub-samples are ground to specific sizes fractions (53-106µm) for flotation testwork.</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>Chemical analysis for drill core and soil samples was completed by multi element using Inductively Coupled Plasma ICPAES (multi-acid digestion); ore grade analysis was completed with Atomic Absorption (multi-acid digestion); sulphur analysis was completed with Leco, and Au and PGEs completed via Fire Assay.</li> <li>New samples are being analysed for 48 elements by multi element using ME-MS61 (multi-acid digestion) at ALS Laboratories; ore grade analysis was completed with ICP-AES (multi-acid digestion); sulphur analysis was completed with Leco, and Au and PGEs completed via Fire Assay.</li> <li>ALS Laboratories insert their own standards at set frequencies and monitor the precision of the analysis. The results reported are well within the specified standard deviations of the mean grades for the main elements. Additionally, ALS perform repeat analyses of sample pulps at a rate of 1:20 (5% of all samples). These compare very closely with the original analysis for all elements.</li> <li>Vale inserted standard samples every 20 samples (representing 5%). Mean grades of the standard samples are well within the specified 2 standard deviations.</li> <li>All laboratory procedures are in line with industry standards. Analysis of field duplicates and lab pulp duplicates have returned an average correlation coefficient of over 0.98 confirming that the precision of the samples is within acceptable limits.</li> <li>Vale QAQC procedures and results are to industry standard and are of acceptable quality.</li> <li>All metallurgical chemical analysis is completed by ALS laboratories</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>All historical samples were collected by Vale field geologists. All assay results were verified by alternative Vale personnel. The Centaurus CP has verified the historical significant intersections.</li> <li>Centaurus Exploration Manager and Senior Geologist verify all new results and visually confirm significant intersections.</li> <li>No twin holes have been completed.</li> <li>All primary data is now stored in the Centaurus Exploration office in Brazil. All new data is collected on Excel Spreadsheet, validated and then sent to independent database administrator (MRG) for storage (DataShed).</li> <li>No adjustments have been made to the assay data.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li>All historical collars were picked up using DGPS or Total Station units. Centaurus has checked multiple collars in the field and has confirmed their location. All field sample and mapping points were collected using a Garmin handheld GPS.</li> <li>An aerial survey was completed by Esteio Topografia and has produced a detailed surface DTM at (1:1000 scale).</li> <li>The survey grid system used is SAD-69 22S. This is in line with Brazilian Mines Department requirements.</li> <li>New drill holes are sighted with handheld GPS and after completion picked-up by an independent survey consultant periodically. Downhole survey for all the historical drill holes and Centaurus hole up to JAG-DD-19-012 used Maxibor equipment. All new drill holes are being downhole surveyed using Reflex digital down-hole tool, with readings every metre.</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>Soil samples were collected on 40m spacing on section with distance between sections of 200m and 400m depending on location.</li> <li>Sample spacing was deemed appropriate for geochemical studies.</li> <li>The historical drilling is all diamond drilling. Drill sections are spaced 100m apart and generally there is 50 to 100m spacing between drill holes on sections. Centaurus is in the process of closing the drill spacing to 100m x 50m or 50m x 50m.</li> <li>No sample compositing was applied to the drilling.</li> <li>Metallurgical samples to date have been taken from Jaguar South, Jaguar Central, Jaguar North and Onça Preta.</li> </ul>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>Historical drilling was oriented at 55°-60° to either 180° or 360°. This orientation is generally perpendicular to the main geological sequence along which broad scale mineralisation exists.</li> <li>Mineralisation is sub-vertical; the majority of the drilling is at low angle (55-60°) in order to achieve intersections at the most optimal angle.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>All historical and current samples are placed in pre-numbered plastic sample bags and then a sample ticket was placed within the bag as a check. Bags are sealed and then transported by courier</li> </ul>

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Criteria	Commentary
	<p>to the ALS laboratories in Vespasiano, MG.</p> <ul style="list-style-type: none"> <li>All remnant Vale diamond core has now been relocated to the Company's own core storage facility in Tucumã, PA.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The Company is not aware of any audit or review that has been conducted on the project to date.</li> </ul>

## SECTION 2 - REPORTING OF EXPLORATION RESULTS

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

Criteria	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>The Jaguar project includes one exploration licence (856392/1996) for a total of circa 30km<sup>2</sup>. A Mining Lease Application has been lodged that allows for ongoing exploration and project development ahead of project implementation.</li> <li>The tenement is part of a Sale &amp; Purchase Agreement (SPA) with Vale SA. Two deferred consideration payments totalling US\$6.75M (US\$1.75 million on commencement of BFS or 3 years and US\$5 million on commencement of commercial production) and a production royalty of 0.75% are to follow. Centaurus has taken on the original obligation of Vale to BNDES for 1.8% Net Operating Revenue royalty.</li> <li>Mining projects in Brazil are subject to a CFEM royalty, a government royalty of 2% on base metal revenue.</li> <li>Landowner royalty is 50% of the CFEM royalty.</li> <li>Centaurus has secured possession rights to one of the properties over the Jaguar Project with two other agreements currently being negotiated. This first agreement will remove exposure to the landowner royalty over the property secured.</li> <li>The project is covered by a mix of cleared farmland and natural vegetation.</li> <li>The project is not located within any environmental protection zones and exploration and mining is permitted with appropriate environmental licences.</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Historically the Jaguar Project was explored for nickel sulphides by Vale from 2005 to 2010.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Jaguar Nickel Sulphide is a hydrothermal nickel sulphide deposit located near Tucumã in the Carajás Mineral Province of Brazil.</li> <li>Jaguar is located at the intersection of the WSW-trending Canaã Fault and the ENE-trending McCandless Fault, immediately south of the NeoArchean Puma Layered Mafic-Ultramafic Complex.</li> <li>Iron rich fluids were drawn up the mylonite zone causing alteration of the host felsic volcanic and granite units and generating hydrothermal mineral assemblage. Late-stage brittle-ductile conditions triggered renewed hydrothermal fluid ingress and resulted in local formation of high-grade nickel sulphide zones within the mylonite and as tabular bodies within the granite.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>Refer to previous ASX Announcements for significant intersections from Centaurus drilling.</li> <li>Refer to ASX Announcement of 6 August 2019 for all significant intersections from historical drilling.</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>Continuous sample intervals are calculated via weighted average using a 0.3 % Ni cut-off grade with 3m minimum intercept width.</li> <li>There are no metal equivalents reported.</li> </ul>
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>Mineralisation is sub-vertical; the majority of the drilling is at low angle (55-60°) in order to achieve intersections at the most optimal angle.</li> <li>The results in ASX Announcement 6 August 2019 reflect individual down hole sample intervals and no mineralised widths were assumed or stated.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>Refer to Figures 1 to 25 in the Jaguar Nickel Sulphide Project Base Case Scoping Study Executive Summary Booklet that forms part of this Scoping Study announcement.</li> <li>Refer to previous ASX Announcements for maps and sections from Centaurus drilling included in the resource estimate.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>All exploration results received by the Company to date are included in this or previous releases to the ASX.</li> <li>For the current resource, a revised 0.3% Ni cut-off grade has been applied to material less than 200m vertical depth from surface in the estimation of the Global MRE with this being consistent with mineralisation domain modelling and reported significant intersection cut-off grades.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>The Company has received geophysical data from Vale that is being processed by an independent consultant Southern Geoscience. Refer to ASX Announcements for geophysical information.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>Electro-magnetic (EM) geophysical surveys (DHEM and FLEM) are ongoing.</li> </ul>

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Criteria	Commentary
	<ul style="list-style-type: none"> <li>• In-fill and extensional drilling within the known deposits to test the continuity of high-grade zones is ongoing. Resource samples are continuously being sent in batches of 150-300 samples and will be reported once the batches are completed.</li> <li>• Metallurgical testwork is ongoing.</li> <li>• Geotechnical and hydrological studies for the proposed tailings facility and waste deposits is being commissioned.</li> </ul>

## SECTION 3 - ESTIMATION AND REPORTING OF MINERAL RESOURCES

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

Criteria	Commentary
<b>Database integrity</b>	<ul style="list-style-type: none"> <li>• The drilling database was originally held by Vale and received from them as csv exports.</li> <li>• The drilling data have been imported into a relational SQL server database using Datashed™ (Industry standard drill hole database management software) by Mitchell River Group.</li> <li>• All of the available drilling data has been imported into 3D mining and modelling software packages (Surpac™ and Leapfrog™), which allow visual interrogation of the data integrity and continuity. All of the resource interpretations have been carried out using these software packages. During the interpretation process it is possible to highlight drilling data that does not conform to the geological interpretation for further validation.</li> <li>• Data validation checks were completed on import to the SQL database.</li> <li>• Data validation has been carried out by visually checking the positions and orientations of drill holes.</li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <li>• The Competent Person responsible for Sampling Techniques and Data and Exploration Results, Mr Roger Fitzhardinge, has visited the site multiple times and overseen exploration activity and assumes responsibility for the sampling and data management procedures.</li> <li>• No visits to the Jaguar site have been undertaken by the Competent Person responsible for the Mineral Resource Estimate (MRE), Mr Lauritz Barnes, due to travel restrictions (COVID-19).</li> </ul>
<b>Geological interpretation</b>	<ul style="list-style-type: none"> <li>• Sufficient drilling has been conducted to reasonably interpret the geology and the mineralisation. The mineralisation is traceable between multiple drill holes and drill sections.</li> <li>• Interpretation of the deposit was based on the current understanding of the deposit geology. Centaurus field geologist supplied an interpretation that was validated and revised by the independent resource geologist.</li> <li>• Drill hole data, including assays, geological logging, structural logging, lithochemistry, core photos and geophysics have been used to guide the geological interpretation.</li> <li>• Extrapolation of mineralisation beyond the deepest drilling has been assumed up to a maximum of 100m where the mineralisation is open.</li> <li>• Alternative interpretations could materially impact on the Mineral Resource estimate on a local, but not global basis. No alternative interpretations were adopted at this stage of the project.</li> <li>• Geological logging in conjunction with assays has been used to interpret the mineralisation. The interpretation honoured modelled fault planes and interpretation of the main geological structures.</li> <li>• Mineralization at Jaguar occurs as veins and breccia bodies set in extensively altered and sheared host rocks. Continuity of the alteration and sulphide mineralisation zones is good, continuity of local zones of semi-massive to massive sulphide is not always apparent.</li> <li>• Mineralization at the Onça Preta and Onça Rosa deposits predominantly forms tabular semi-continuous to continuous bodies both along strike and down dip.</li> <li>• Post-mineralisation faulting may offset mineralisation at a smaller scale than that which can be reliably modelled using the current drill hole data.</li> </ul>
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• Jaguar South (primary mineralisation) covers an area of 1,200m strike length by 400m wide by 500m deep in strike length trending ESE-WNW. Individual domains dip sub-vertically with widths up to 20-30m.</li> <li>• Jaguar Central (primary mineralisation) covers an area of 800m strike length by 250m wide by 420m deep trending ESE-WNW. Individual domains dip sub-vertically with widths up to 20-30m.</li> <li>• Jaguar North (primary mineralisation) has a strike length of 600m by up to 25m wide by 300m deep, trending SE-NW.</li> <li>• Jaguar Central North (primary mineralisation) covers an area of 700m strike length by 100m wide by 500m deep, trending E-W. Individual domains dip sub-vertically with widths up to 20-30m.</li> <li>• Jaguar Northeast (primary mineralisation) covers an area of 1,000m strike length by 300m wide by 420m deep, trending ESE-WNW. Individual domains dip sub-vertically with widths up to 10-15m.</li> <li>• Jaguar West (primary mineralisation) has a strike length of 1,000m by up to 80m wide by 350m deep, trending E-W. Individual domains dip sub-vertically with widths up to 10m.</li> </ul>



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Criteria	Commentary
	<ul style="list-style-type: none"> <li>Onça Preta (primary mineralisation) has a strike length of 400m by up to 15m wide by 375m deep, trending E-W.</li> <li>Onça Rosa (primary mineralisation) has a strike length of 500m by up to 10m wide by 250m deep, trending ESE-WNW</li> </ul>
<b>Estimation and modelling techniques</b>	<ul style="list-style-type: none"> <li>Grade estimation using Ordinary Kriging (OK) was completed using Geovia Surpac™ software for Ni, Cu, Co, Fe, Mg, Zn and As.</li> <li>Drill hole samples were flagged with wire framed domain codes. Sample data were composited to 1m using a using fixed length option and a low percentage inclusion threshold to include all samples. Most samples (80%) are around 1m intervals in the raw assay data.</li> <li>Top-cuts were decided by completing an outlier analysis using a combination of methods including grade histograms, log probability plots and other statistical tools. Based on this statistical analysis of the data population, no top-cuts were applied.</li> <li>Directional variograms were modelled by domain using traditional variograms. Nugget values are low to moderate (around 15-25%) and structure ranges up to 200 in the primary zones. Variograms for domains with lesser numbers of samples were poorly formed and hence variography was applied from the higher sampled domains.</li> <li>Block model was constructed with parent blocks for 10m (E) by 2m (N) by 10m (RL). All estimation was completed to the parent cell size.</li> <li>Three estimation passes were used. The first pass had a limit of 75m, the second pass 150m and the third pass searching a large distance to fill the blocks within the wire framed zones. Each pass used a maximum of 12 samples, a minimum of 6 samples and maximum per hole of 4 samples.</li> <li>Search ellipse sizes were based primarily on a combination of the variography and the trends of the wire framed mineralized zones. Hard boundaries were applied between all estimation domains.</li> <li>Validation of the block model included a volumetric comparison of the resource wireframes to the block model volumes. Validation of the grade estimate included comparison of block model grades to the declustered input composite grades plus swath plot comparison by easting and elevation. Visual comparisons of input composite grades vs. block model grades were also completed.</li> </ul>
<b>Moisture</b>	<ul style="list-style-type: none"> <li>The tonnages were estimated on an in-situ dry bulk density basis which includes natural moisture. Moisture content was not estimated but is assumed to be low as the core is not visibly porous.</li> </ul>
<b>Cut-off parameters</b>	<ul style="list-style-type: none"> <li>Potential mining methods include a combination of open pit and underground. A revised 0.3% Ni cut-off grade has been applied to material less than 200m vertical depth from surface in the estimation of the Global MRE with this being consistent with mineralisation domain modelling and reported significant intersection cut-off grades. A Ni cut-off grade of 1.0% Ni was maintained below 200m from surface to reflect higher cut-offs expected with potential underground mining.</li> </ul>
<b>Mining factors or assumptions</b>	<ul style="list-style-type: none"> <li>It is assumed that the Jaguar deposits will be mined by a combination of open pit and underground mining methods.</li> <li>Conceptual pit optimisation studies have been completed by Entech to ensure that there are reasonable prospects for the eventual economic extraction of the mineralisation by these methods.</li> <li>Input parameters were benchmarked from similar base-metal operations in Brazil and Australia.</li> </ul>
<b>Metallurgical factors or assumptions</b>	<ul style="list-style-type: none"> <li>Metallurgical test work has been undertaken on multiple composite samples sourced from the Jaguar South and Onça Preta deposits. Material selection for test work was focused on providing a good spatial representation of mineralisation for the deposits.</li> <li>Bench scale test work to date has demonstrated that a conventional crushing, grinding and flotation circuit will produce good concentrate grades and metal recoveries, see ASX Announcements of 18 February 2020 and 31 March 2020 for more detail.</li> </ul>
<b>Environmental factors or assumptions</b>	<ul style="list-style-type: none"> <li>Tailings analysis and acid drainages tests have been completed which underpin the preliminary tailing storage facility design (TSF), which is in progress.</li> <li>Waste rock will be stockpiled into waste dumps adjacent to the mining operation.</li> <li>The TSF and waste dumps will include containment requirements for the management of contaminated waters and sediment generation in line with Brazilian environmental regulations.</li> </ul>
<b>Bulk density</b>	<ul style="list-style-type: none"> <li>On the new drilling, bulk densities were determined on 15 to 30 cm drill core pieces every 1m in ore and every 10m in waste. On the historical drilling the bulk densities were determined on drill core at each sample submitted for chemical analysis.</li> <li>Bulk density determinations adopted the weight in air /weight in water method using a suspended or hanging scale.</li> <li>The mineralized material is not significantly porous, nor is the waste rock.</li> <li>A total of 39,313 bulk density measurements have been completed.</li> <li>Of these, 4,040 were included in the analysis and are within the defined mineralised domains – and 4,031 are from fresh or transitional material leaving only 9 measurements from saprolite or oxide</li> </ul>

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Criteria	Commentary
	<p>material.</p> <ul style="list-style-type: none"> <li>• Oxide and saprolite material are excluded from the reported resource.</li> <li>• Fresh and transitional measurements from within the mineralised domains we analysed statistically by domain and depth from surface and compared to Ni, Fe and S. A reasonable correlation was defined against Fe due to the magnetite in the system.</li> <li>• The bulk density values assigned the mineralised domains by oxidation were as follows: <ul style="list-style-type: none"> <li>• Oxide: 2.0</li> <li>• Saprolite: 2.3</li> <li>• Transition: 2.6</li> <li>• Fresh: by regression against estimated Fe using: <math>BD = (fe\_ok * (0.0323)) + 2.6276</math></li> </ul> </li> </ul>
<b>Classification</b>	<ul style="list-style-type: none"> <li>• The Mineral Resource has been classified on the basis of confidence in the geological model, continuity of mineralised zones, drilling density, confidence in the underlying database, a combination of search volume and number of data used for the estimation plus availability of bulk density information.</li> <li>• Indicated Mineral Resources are defined nominally on 50mE x 40mN spaced drilling and Inferred Mineral Resources nominally 100mE x 100mN with consideration given for the confidence of the continuity of geology and mineralisation.</li> <li>• Oxide and saprolite material are excluded from the Mineral Resource.</li> <li>• The Jaguar Mineral Resource in part has been classified as Indicated with the remainder as Inferred according to JORC 2012.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>• This is the second Mineral Resource estimate completed by the Company. The current model was reviewed by Entech as part of their independent mining study.</li> </ul>
<b>Discussion of relative accuracy/ confidence</b>	<ul style="list-style-type: none"> <li>• The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code.</li> <li>• The statement relates to global estimates of tonnes and grade.</li> </ul>