

31 March 2020

# JAGUAR NICKEL PROJECT – FURTHER STRONG METALLURGICAL TEST WORK RESULTS, OPERATIONS AND COVID-19 UPDATE

New test work from the Onça Preta Deposit confirms nickel recoveries in excess of 80%; Drilling continues with strict protocols implemented in response to the COVID-19 situation

- Flotation test work on the first Onça Preta composite has returned a <u>16.0% nickel concentrate grade</u> at <u>81.8% nickel recovery</u>.
- New test work on the previously tested<sup>1</sup> Jaguar South composite, using the same reagents and flowsheet developed for the Onça Preta composite, has maintained a 16.0% nickel concentrate grade at a nickel recovery of 81.6%.
- This systematic, continual back-testing of previously tested composites is essential to ensure that a single flowsheet can be developed for all mineralised material, providing future flexibility in co-treating material from the various deposits at the Project.
- > Metallurgical and flowsheet development is continuing.
- In response to the COVID-19 virus situation, multiple controls have been implemented to help protect the health and safety of Centaurus' in-country workforce, their families and the local community, as well as to help maintain business continuity.
- Centaurus has made a strong 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 any future ramp-up in the delivery of health services in these communities.
- > Drilling is presently ongoing at the Onça Preta and Jaguar South Deposits, as well as the Onça Rosa discovery.

Centaurus Metals (ASX Code: **CTM**) is pleased to advise that it has received further encouraging metallurgical test work results from the Jaguar Nickel Sulphide Project in northern Brazil, building on the strong initial results reported last month (see ASX announcements, 18 February and 17 March 2020).

Test work on a new composite of ore sampled from the Onça Preta Deposit has returned a 16.0% nickel concentrate grade with a nickel recovery of 81.8%. The composite had a head grade of 1.53% nickel and was taken from four drill holes across the Onça Preta Deposit, which is located in the north of the Project area.

Centaurus' Managing Director, Mr Darren Gordon, said the metallurgical test work program was progressing very positively with recent results complementing the design concepts developed by Centaurus for the Project, based on a smaller, high-grade project (when compared to the original Project design concepts of Vale) using industry-standard flotation techniques.

<sup>1</sup> See ASX Announcements of 18 February and 17 March 2020

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"The continued strong recoveries we are achieving in developing a processing route for the Project remain around 25% better than those previously delivered in other studies<sup>2</sup>. If we are able to maintain this excellent trajectory, it will ultimately have a significant positive impact on future project economics. These results – coupled with the continued success of our high-grade in-fill and extensional drilling program – are key to developing a robust high-grade nickel operation at Jaguar, leveraging off the Project's other competitive advantages in terms of the shallow, high-grade nature of the mineralisation and its proximity to low-cost power and an engaged labour force and infrastructure in a premier mining jurisdiction.

"With the continuing escalation of the COVID-19 pandemic we have taken a number of important steps over the past two weeks to safeguard the health and safety of our workers, their families and the wider community while at the same time maintaining business continuity. These include the introduction of a number of new protocols, revised working arrangements and social distancing practices as well as making a strong 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 any future ramp-up in the delivery of health services in these communities.

"I've been really impressed by how our staff, contractors and stakeholders have adapted to this new working environment and would like to acknowledge their commitment at this difficult time.

"We may see some impact on our drill program in the coming weeks as a result of COVID-19, and we have already seen a slowing down of assay turn-around times over the last couple of weeks. Notwithstanding this, thanks to the 8,000m of drilling already completed during the wet season and the existing 55,000m of historical drilling completed by Vale, we remain on track to deliver our maiden high-grade JORC Mineral Resource Estimate by mid-2020."

#### **Flotation Results**

As reported previously, the Company commenced its metallurgical test work on a composite from the Jaguar South Deposit based on a focused, high-grade project rather than a bulk tonnage, low-grade operation as previously studied by Vale.

New flotation testing on a composite of ore from the Onça Preta Deposit (OP001) has advanced the initial test work from the Jaguar South mineralised zone (JAG001), reported most recently on 17 March 2020. The new Onça Preta composite has been extensively tested and optimised, with any changes to the initial flotation conditions back-tested on the JAG001 composite.

This systematic, continual back testing of previously tested composites is essential to ensure that a single flowsheet for all mineralised material can be developed, providing future flexibility in co-treating material from various deposits on the Project.

The Onça Preta composite has been constructed from four individual drill holes from the Onça Preta deposit, located in the north of the project area, and resulted in a composite with a head grade of 1.53% nickel. The source of both the Onça Preta and Jaguar composites are shown in Table 1.



#### Table 1 – Jaguar Nickel Sulphide Composites Drill Location and Intervals.

									Matallu	gical Sample	Internels	
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Composite	Hole ID	Target	Easting	Northing	mRL	Azi	Dip	EOH Depth	From (m)	To (m)	Interval (m)	% Nickel
	JAG-DD-19-002	Jaguar South	477952	9282579	289	180	-55	192.3	70.0	84.8	14.8	
JAG001									112.0	119.0	7.0	1.63
									131.0	173.2	42.2	
	JAG-DD-19-001	Onça Preta	476836	9284782	256	180	-60	179.7	125.0	135.0	10.0	
								141.0	141.0	147.0	6.0	
OP001	JAG-DD-19-003	Onça Preta	476782	9284781	255	180	-55	143.1	83.0	94.7	11.7	4 50
	JAG-DD-19-004	Onça Preta	476788	9284833	258	180	-55	236.1	147.0	152.8	5.8	1.53
	JAG-DD-20-010	Onça Preta	476885	9284828	254	180	-55	231.3	175.6	181.8	6.2	
									192.0	196.6	4.6	

The ongoing metallurgical test work is being undertaken at ALS Metallurgy (based in Balcatta, Perth) with results indicating that the best recoveries are achieved at 80% passing ( $P_{80}$ ) a primary grind of 53µm (Figure 1). At 53µm, the recovery on the Onça Preta composite is 81.8% producing an excellent quality concentrate at 16.0% nickel.

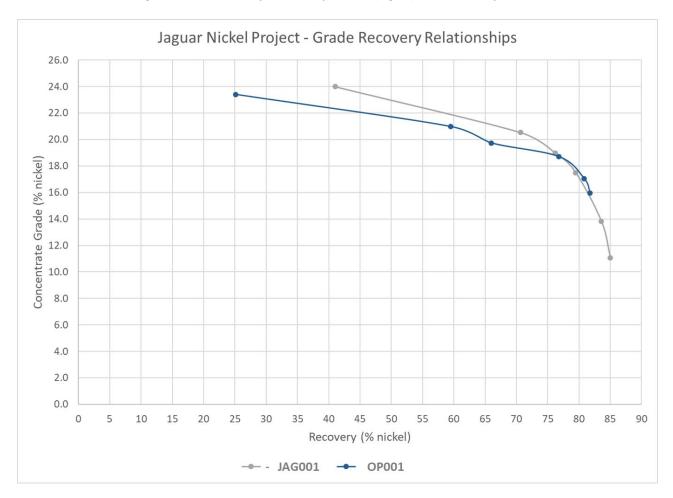


Figure 1: Grade/Recovery Relationship; JAG001 (Jaguar) and OP001 (Onça Preta)

The results outlined above are from rougher flotation testing. The composite sample is fed into bench scale flotation machines which represent the first stage of flotation (roughing) and results in the production of a rougher concentrate. Further flowsheet development is ongoing and is expected to further improve the recoveries of nickel metal in the final product.



#### <u>Mineralogy</u>

Mineralogical investigations of both the Jaguar South (JAG001) and Onça Preta (OP001) composites are continuing and the mineralogy analysis is supporting the laboratory results well. Preliminary analysis of the data indicates that the deposits have the same mineral assemblages in differing proportions, confirming that a single process route is likely.

Each of these composites has only one characteristic that influences the process flow sheet:

- The Jaguar South composite has a finer texture than the Onça Preta composite, which determines the primary grind size for flotation.
- the Onça Preta composite has proportionally more floatable non-sulphide gangue, which influences concentrate specification and the non-sulphide gangue depressants used.

Review of current and historical core logging, mineralogy and drilling data (over 5,500m of +0.5% nickel within the mineralised zones currently targeted), indicates the only other potentially significant factor that may influence the final process flow sheet are areas of proportionally high zinc.

The Company has therefore normalised all the relevant data (+0.5% Ni) on a nickel-to- zinc ratio basis.

Lot number	1	2	3	4	5	6
% of Samples	3%	17%	30%	30%	17%	3%
Ni/Zn Ratio Range	0.1 - 0.4	0.4 - 1.1	1.1 - 9.8	9.8 - 43.7	43.7 – 366	366 – 140k
Ni/Zn Ratio Mean	0.3	0.7	4.2	22.5	113	6,221

#### Table 2 – Nickel/Zinc Ratios for ALL Drilling with Nickel >0.5%

The Onça Preta composite (OP001) sits within Lot 3 (30%) with a nickel-to-zinc ratio of 3.2, resulting in a 1.8% zinc in concentrate. The Jaguar South composite (JAG001) sits within Lot 5 (17%) with a nickel-to-zinc ratio of 54.3 with less than 1% zinc in concentrate. These composites are therefore representative of 47% of the current information with the concentrates produced demonstrating low zinc levels, below any potential concentrate penalty levels for this element.

To increase the development base, the Company will compile a new composite that represents a further 30% of the current drilling metres (Lot 4) and, as soon as drilling assays are available, this will be tested.

#### **Comminution**

Based on the flotation results achieved to date, a 53µm primary grind has been selected as the best metallurgical response for the composites tested to date. The composites have been tested to determine comminution parameters, identifying that the mineralised zones are both moderately hard and have low-abrasive properties evidencing that a conventional, low risk, semi-autogenous/ball mill circuit (SABC) will be suitable for the intended project. Table 3 below shows the results of comminution testwork.

Parameter	Units	JAG001	OP001	
Drop Weight Index (DWi)	kWh/m <sup>3</sup>	8.99	5.3	
Comminution Parameter "A"	-	55.1	77.6	
Comminution Parameter "b"	-	0.63	0.96	
SAG Mill Specific Energy (SCSE)	kWh/t	11.57	7.63	
Bond Ball Mill Work Index (BWi)	kWh/t	16.3	12.9	
Bond Abrasion Index (Ai)	-	0.0673	0.0386	
		(Moderately Abrasive)	(Moderately Abrasive)	



A preliminary comminution design will be completed after the new composite (as outlined above) has been tested.

#### -ENDS-

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#### **Competent Persons Statement**

The information in this report that relates to Exploration Results is based on information compiled by Roger Fitzhardinge who is a Member of the Australasian Institute of Mining and Metallurgy. Roger Fitzhardinge is a permanent employee of Centaurus Metals Limited. Roger 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'. Roger Fitzhardinge consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



#### **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 at the Jaguar Project.

### SECTION 1 - SAMPLING TECHNIQUES AND DATA

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

Criteria	Commentary
Sampling techniques	Historical soil sampling was completed by Vale. Samples were taken at 50m intervals along 200m
	spaced north-south grid lines.
	• 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.
	<ul> <li>Surface rock chip/soil samples were collected from in situ outcrops and rolled boulders and submitted for chemical analysis.</li> </ul>
	• 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.
	<ul> <li>Core was cut and ¼ core sampled and sent to commercial laboratories for physical preparation and</li> </ul>
	chemical assay.
	<ul> <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</li> </ul>
	procedure.
	<ul> <li>Sample length along core varies between 0.3 to 4.0m, with an average of 1.48m; sampling was done</li> </ul>
	according to lithological contacts and generally by 1m intervals within the alteration zones and 2m intervals along waste rock.
	<ul> <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> </ul>
	<ul> <li>Core is cut and ¼ core sampled and sent to accredited independent laboratory (ALS).</li> </ul>
	• 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.
Drilling techniques	<ul> <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> </ul>
	• Vale drilled 173 drill holes for a total of 58,024m of drilling on the project. All drill holes were drilled
	at 55°-60° towards either 180° or 360°.
	Current drilling is a combination of HQ and NQ core (Servdrill).
Drill sample recovery	<ul> <li>Diamond Drilling recovery rates are being calculated at each drilling run.</li> </ul>
	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 >98% and there are no core loss issues or
	significant sample recovery problems.
	<ul> <li>To ensure adequate sample recovery and representivity a Centaurus geologist or field technician is present during drilling and monitors the campling process.</li> </ul>
	<ul> <li>present during drilling and monitors the sampling process.</li> <li>No relationship between sample recovery and grade has been demonstrated. No bias to material</li> </ul>
	<ul> <li>No relationship between sample recovery and grade has been demonstrated. No bias to material size has been demonstrated.</li> </ul>
Logging	<ul> <li>Historical outcrop and soil sample points were registered and logged in the Vale geological mapping</li> </ul>
Logging	point database.
	<ul> <li>All drill holes have been logged geologically and geotechnically by Vale or Centaurus geologists.</li> </ul>
	<ul> <li>Drill samples are logged for lithology, weathering, structure, mineralisation and alteration among</li> </ul>
	other features. Logging is carried out to industry standard and is audited by Centaurus CP.
	<ul> <li>Logging for drilling is qualitative and quantitative in nature.</li> </ul>
	<ul> <li>All historical and new diamond core has been photographed.</li> </ul>
Sub-sampling techniques and	<ul> <li>Diamond Core (HQ/NQ) was cut using a core saw, ¼ core was sampled. Sample length along core</li> </ul>
sample preparation	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.
	<ul> <li>There is no non-core sample within the historical drill database.</li> </ul>
	• 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.
	• Centaurus has adopted the same sampling QAQC procedures which are in line with industry
	standards and Centaurus's current operating procedures.
	• Sample sizes are appropriate for the nature of the mineralisation.
	• 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



Criteria	Commentary
Quality of assay data and	<ul> <li>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 subsamples. Sub-samples are ground to specific sizes fractions (53-106μm) for flotation testwork.</li> <li>Chemical analysis for drill core and soil samples was completed by multi element using Inductively</li> </ul>
laboratory tests	<ul> <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 33 elements by multi element using ICP-AES (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 limits.</li> </ul>
Verification of sampling and assaying	<ul> <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> </ul>
Location of data points	<ul> <li>No adjustments have been made to the assay data.</li> <li>All historical collars were picked up using DGPS 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 will be picked-up by an independent survey consultant periodically. Downhole survey is being completed using Reflex digital down-hole tool, with readings every metre.</li> </ul>
Data spacing and distribution	<ul> <li>Soil samples were collected on 50m 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 plans to close the drill spacing to 100m x 50m or 50m x 50m.</li> <li>No sample compositing was applied to the drilling</li> <li>Metallurgical sample to date has been taken from Jaguar South, see Table 1 for sample location. Future samples will be taken from Onça Preta and other prospects as drilling advances.</li> </ul>
Orientation of data in relation to geological structure	<ul> <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>
Sample security	<ul> <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 to the ALS laboratories in Parauapebas, PA.</li> </ul>



Criteria	Commentary			
	• All remnant Vale diamond core has now been relocated to the Company's own core storage facility in Tucumã, PA.			
Audits or reviews	• The Company is not aware of any audit or review that has been conducted on the project to date.			

### SECTION 2 REPORTING OF EXPLORATION RESULTS

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

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <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 purchase agreement with Vale SA. Centaurus has committed to an upfront cash payment of US\$250,000, the transfer of the Salobo West tenements to Vale, two deferred consideration payments totalling US\$6.75M and a production royalty of 0.75%. Completion of the acquisition remains subject to approval by the Brazilian National Bank for Economic and Social Development (BNDES) for the assignment of BNDES' royalty interest in the Project.</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>The project is covered by a mix of cleared farm land 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>
Exploration done by other parties	Historically the Jaguar Project was explored for nickel sulphides by Vale from 2005 to 2010.
Geology	<ul> <li>Jaguar Nickel Sulphide is a hydrothermal nickel sulphide deposit located near Tucumã in the Carajás Mineral Province of Brazil.</li> <li>The deposit setting is interpreted as an extensional fault with the Itacaiúnas Supergroup down thrust southwards over the Xingu basement resulting in the development of a ductile mylonite zone along the Canãa Fault.</li> <li>Iron rich fluids were drawn up the mylonite zone causing alteration of the host felsic volcanic and granite units and generating hydrothermal ironstones. 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>
Drill hole Information	<ul> <li>Refer to previous ASX Announcements for significant intersections from Centaurus drilling.</li> <li>Refer to ASX Announcement 6 August 2019 for all significant intersections from historical drilling.</li> </ul>
Data aggregation methods	<ul> <li>Continuous sample intervals are calculated via weighted average using a 0.5 % Ni cut-off grade with 3m minimum intercept width.</li> <li>There are no metal equivalents reported.</li> </ul>
Relationship between mineralisation widths and intercept lengths Diagrams	<ul> <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> <li>Refer to Figure 1 and Tables 1-3.</li> </ul>
Balanced reporting	All exploration results received by the Company to date are included in this or previous releases to the ASX.
Other substantive exploration data	• 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.
Further work	<ul> <li>The Company's Electro-magnetic (EM) geophysical surveys ongoing.</li> <li>In-fill and extensional drilling within the known deposits to test the continuity of high-grade zones is ongoing. There are currently three drill rigs at the Project working double shifts. Resource samples are being sent in batches of 150-300 sample and will be reported once the batches are completed.</li> </ul>