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# MULTIPLE NEW NICKEL SULPHIDE TARGETS REVEALED AT JAGUAR FOLLOWING SUCCESSFUL PROCESSING OF HISTORICAL EM DATA

Prospectivity of entire project further enhanced | Down-hole Electromagnetic (DHEM) and Fixed Loop Electromagnetic (FLEM) equipment en-route to Brazil | 3rd diamond rig to mobilize early January

#### **Highlights:**

- > A further thirty-one (31) new DHEM conductor plates have been modelled at the Jaguar North-east, Jaguar North, Jaguar Central and Jaguar Central South Deposits.
- > Processing of historical Vale Airborne Electromagnetic (GeoTEM) Survey data has also identified multiple new greenfields prospects.
- > Centaurus' maiden drilling has already confirmed that the high-grade zones of semi-massive to massive nickel sulphide mineralisation correlate very well with the DHEM and FLEM conductor plates.
- > DHEM and FLEM equipment is currently en-route to Brazil and a geophysicist from Southern Geoscience will visit site in January 2020 to train a dedicated Centaurus EM survey team.
- Diamond drilling continues at the Jaguar South and Onça-Preta Deposits focused on extending known mineralisation and identifying new high-grade zones, with the next batch of results due in mid-January 2020.
- Two diamond drill rigs are operating on double-shift with a third diamond rig to arrive on site in early January given the extensive number of high-grade nickel targets that need to be drilled over the next 4-5 months.

Centaurus Metals (ASX Code: **CTM**) is pleased to advise that it has identified several new priority walk-up high-grade nickel sulphide drill targets at the **Jaguar Nickel Sulphide Project** ("Jaguar or the "Project") in north-eastern Brazil, after receiving more outstanding results from ongoing re-processing of historical geophysical survey data obtained as part of the project acquisition from Vale.

Results to date<sup>1</sup> from the Company's maiden drill program have already demonstrated that the high-grade zones of semi-massive to massive nickel sulphide mineralisation intersected at both the **Jaguar South and Onça-Preta Deposits** correlate well with the DHEM and FLEM conductor plates modelled by Southern Geoscience as part of the new processing work on Vale's historical EM survey data.

A further thirty-one (31) new conductor plates have been now modelled from DHEM surveys that correlate with existing high-grade semi-massive to massive nickel sulphide intersections at the Jaguar North-east, Jaguar North, Jaguar Central and Jaguar Central South Deposits (see Figures 1 and 3 below).

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<sup>&</sup>lt;sup>1</sup> Refer to ASX Announcement – "High-Grade Nickel Sulphides Intersected at Jaguar" on 3 December 2019 for maiden drill results.



The Company has also now received and processed Vale's **airborne GeoTEM** survey data. GeoTEM is an airborne Electromagnetic survey technique that collects high data density per line and is a very effective first-pass exploration tool – as demonstrated by the presence of **strong GeoTEM anomalies over the known high-grade nickel occurrences** at the Jaguar Deposits (see Figure 1 below).





Centaurus' Managing Director, Mr Darren Gordon, said the new information being generated by the ongoing re-processing of historical geophysical data at Jaguar represented a significant "real-time" value-add for the Project in parallel with the ongoing diamond drilling program.

"Our first drill results have already clearly shown how well EM works at honing in on the semi-massive and massive nickel sulphide zones," he said. "This helps validate the historical datasets and demonstrates the enormous value of the overall package which we acquired from Vale. As a result of the work undertaken in recent weeks, we now we have many more targets in and around the Jaguar Deposits to drill in the New Year.

"And to see the first results from the historical airborne GeoTEM survey data is also very encouraging, with the prospects at Onça-Rosa and Tigre looking particularly interesting. With the Southern Geoscience geophysicist scheduled to be on site with the DHEM and FLEM equipment in January 2020, we will look to quickly work up these high-grade nickel sulphide prospects.

"Drilling at the Jaguar South and Onça-Preta Deposits continues to progress well and we expect to have the next batch of results available for release early in the New Year. The drillers will take a well-earned break over Christmas and New Year, but will return with the third drill rig in early January to help push towards our goal of delivering a maiden high-grade JORC Resource estimate by mid-2020."



#### Down-hole Electromagnetic (DHEM) Processing

Conductors modelled from the low-frequency (3Hz) DHEM data over the **Jaguar North, Jaguar Central** and **Jaguar Central South Deposits** shows the conductor plates aligning into three trends (Figure 1). As with the Jaguar South, modelling has indicated that the newly identified conductor plates dip almost vertical with a slight bias to north.

The plates are generally around 200m in dimension, which is related to the detection limit of DHEM under the ground conditions and mineralisation conductance observed at the Jaguar deposit. Often there are multiple plates that may represent continuous semi-massive to massive mineralised zones over longer strike lengths.

The **Jaguar North-east** area is interpreted to consist of moderate conductors, consisting of at least two parallel trends striking approximately WNW (Figure 1). Modelling has indicated that conductors in this area dip close to vertical.

The newly modelled conductor plates at all of the Jaguar Deposit areas have correlated extremely well with the high-grade nickel sulphide zones intersected in historical drilling. This provides an outstanding data platform for the Company to continue to extend the known high-grade nickel sulphide intersections and, furthermore, to identify new high-grade nickel sulphide zones.

Drilling at the Jaguar North, Jaguar Central and Jaguar Central South Deposits will start in the New Year with the arrival of a **third diamond drill rig.** 

#### **Airborne GeoTEM Processing**

Airborne electromagnetic (EM) methods (GeoTEM, HeliTEM, VTEM) have been successfully applied in Brazil when exploring for sulphide deposits in the Carajás Mineral Province using relatively high operating frequencies (25Hz - 30Hz). The high frequency nature of the airborne systems such as GeoTEM does not provide detailed depth resolution of the anomalies and, as such, follow-up ground EM surveys are usually undertaken to support the GeoTEM work.

Importantly, the first results from the re-processing of the high-frequency airborne GeoTEM survey data (400m line spacing) is showing the good correlation between the GeoTEM results and the high-frequency (30Hz) FLEM, as well as the low-frequency (3Hz) DHEM conductor plates where there is known high-grade nickel sulphide mineralisation (see Figures 1 and 2).

The GeoTEM results shows the prospectivity of the Jaguar and Onça-Preta Deposits but more importantly has identified multiple new greenfields prospects along with confirming the scale of known Prospects (Onça-Rosa).

Following is a brief discretion of the greenfields prospects identified with the GeoTEM results (see Figures 1-3):



Figure 2 – The Jaguar Nickel Sulphide Project: showing all the Deposits and Prospects with DHEM (red) and FLEM Plates (blue) overlaid on the GeoTEM Survey (CH16); and the Ni/Cr Geochem (Nickel Sulphide indicator)



### Onça-Rosa Prospect

The Onça-Rosa Prospect, located 500m west of the Onça-Preta Deposit, is one of the strongest GeoTEM conductors on the project. Southern Geoscience has also modelled a 600m long FLEM conductor plate, which is coincident with a magnetic anomaly and high Ni/Cr soil geochemical ratios (indicative of nickel sulphides).

The Onça-Rosa Prospect was tested by Vale with the best result coming from PKS-JAGU-DH00158, which returned an outstanding intercept of **7.9m at 5.27% Ni**, **0.26% Cu and 1,096ppm Co** from 247m down-hole.

When the Southern Geoscience EM Equipment arrives on site in January, the Company will start its new ground EM (DHEM and FLEM) survey work at the Onça-Rosa Prospect. Drilling of the Onça-Rosa Prospect is a high priority for the Company given the high-grade nature of the mineralisation seen in PKS-JAGU-DH00158.

#### Tigre Prospect

Located at the south-western limit of the tenement area, the Tigre Prospect sits on a Ni/Cr and copper-insoil anomaly coincident with a 1.1km long GeoTEM conductor and a Ground Magnetic anomaly. The Tigre GeoTEM anomaly is as strong as those seen at the Onça-Rosa Prospect and Jaguar Deposits.

The structural and geological settings at Tigre are also very favourable as it is set on a regional structural feature at the contact of the felsic sub-volcanic and the granite, similar to the setting of the Jaguar Deposits.



The Company plans to carry out FLEM surveys over the area ahead of drilling at the Tigre Prospect in H1 2020.

#### Leão Prospect

The Leão Prospect hosts a 3.5km long Ni/Cr and copper-in-soil anomaly coincident with multiple Ground Magnetics anomalies and a moderate GeoTEM conductor. The Leão Prospect is located along the same prospective structural corridor as the Jaguar Deposits at the contact of the felsic sub-volcanic and the granite.

Only one historical drill hole was completed in the 3.5km long Prospect area. In-fill ground magnetics and FLEM surveys will be conducted over the area ahead of drilling.

#### Fliperama Prospect

The Fliperama Prospect hosts a 500m long Ni/Cr and copper-in-soil anomaly coincident with a discrete moderate-weak GeoTEM conductor set in a broader ground magnetics anomaly. The geological setting is the same as what is seen at the Onça-Rosa Prospect and Onça-Preta Deposit, where a magnetite body has been mapped within the granite basement.

In-fill ground magnetics and FLEM surveys will be conducted over the area ahead of drilling.

#### Filhote Prospect

The Filhote Prospect is a 2km long PGE soil anomaly that is coincident with a discrete strong 400m GeoTEM conductor set within a broader ground magnetic anomaly. Two drill holes are located within the area which returned intersections up to 1.1g/t PGEs, but did not intersect the main GeoTEM anomaly (see Figure 2),

The Company plans to carry out FLEM surveys over the area ahead of drilling at the Filhote Prospect.

It should be noted that the extremely strong GeoTEM conductor immediately north of the Onça-Preta Deposit is associated with the Puma Ultramafic Intrusion. This anomaly is not thought to be associated with massive sulphides and is not considered a priority, although it will be investigated in time.

#### New Ground Magnetics and Electromagnetic (EM) Surveys

An in-fill ground magnetics survey is already underway. The historical ground magnetics survey was completed on 200m lines spacing but, given the importance of iron oxides (magnetite) in the mineralisation assemblage, a tighter ground magnetic survey will greatly assist with drill hole planning.

The survey is being completed by a local geophysical consultancy with Southern Geoscience completing QAQC of the survey data and undertaking all of the required processing work. Around 90km of lines have been completed to date with the results of the survey work expected in January 2020.

The Company is also working with Southern Geoscience on the import of ground EM equipment, both Downhole (DHEM) and Fixed Loop (FLEM). The equipment left Perth this week and is expected to clear Brazilian customs in mid-January 2020.

A Southern Geoscience geophysicist will be on site during January completing DHEM and FLEM surveys for the Company and also attending to operator training of the equipment by the Centaurus EM team. Centaurus will have a dedicated EM survey team that will carry out DHEM surveys of new and historical drill holes as well as greenfields FLEM surveys.



-ENDS-

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#### **Competent Persons Statement**

The information in this report that relates to new Exploration Results is based on information compiled by Roger Fitzhardinge who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Roger Fitzhardinge confirms that the historical information in this market announcement that relates to the Exploration Results and Mineral Resource provided under ASX Listing Rules 5.12.2 to 5.12.7 is an accurate representation of the available data and studies supplied to Centaurus as a foreign estimate.

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.



Figure 3 – The Jaguar Nickel Sulphide Project: showing the Jaguar and Onça-Preta Deposits and Onça-Rosa Prospect with DHEM (red) and FLEM Plates (blue) over the Ground Magnetics Image (AS); DHEM survey hole collars are shown as black triangles



### **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	<ul> <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> </ul>
	<ul> <li>Core is cut and ¼ core sampled and sent to accredited independent laboratory (ALS).</li> </ul>
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> <li>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°.</li> <li>Current drilling is a combination of HQ and NQ core (Servdrill). Drill orientations can be found in the drill collar Table 1</li> </ul>
Drill sample recovery	<ul> <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 representivity 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</li> </ul>
	size has been demonstrated.
Logging	<ul> <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>
Sub-sampling techniques and sample preparation	<ul> <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> </ul>
	<ul> <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> <li>All historical geological samples were received and prepared by SGS Geosol or ALS Laboratories as</li> </ul>



Criteria	Commentary
	<ul> <li>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 will be sent to the ALS Laboratory. 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> </ul>
Quality of assay data and 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 will be analysed for 33 elements by multi element using ICP-AES (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.</li> <li>SGS Geosol and ALS Laboratories insert their own standards at set frequencies and monitor the precision of the analysis. These results reported well within the specified standard deviations of the mean grades for the main elements. Additionally, the labs 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> </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 (+20 year) and Senior Geologist (+20 years) 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>
Location of data points	<ul> <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-69 225. 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 Maxibore digital down-hole tool, with readings every 3m.</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> </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 SGS Geosol or ALS laboratories in Parauapebas, PA.</li> <li>All remnant diamond core is currently stored at the Vale core shed in Parauapebas, PA and is to be transported to Centaurus core shed in the near term.</li> </ul>



Criteria	Commentary
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	<ul> <li>Historically the Jaguar Project was explored for nickel sulphides by Vale from 2005 to 2010.</li> </ul>
parties	
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	Refer to Figures 1 to 3.
2 millione injermation	<ul> <li>Refer to ASX Announcement 3 December 2019 for all significant intersections from current 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 is sub-vertical; the majority of the drilling is at low angle (55-60°) in order to achieve
mineralisation widths and	intersections at the most optimal angle.
intercept lengths	• The results in ASX Announcement 6 August 2019 reflect individual down hole sample intervals and no mineralised widths were assumed or stated.
Diagrams	Refer to Figures 1-3
Balanced reporting	All exploration results received by the Company to date are included in this report.
Other substantive exploration data	• The Company has received geophysical data from Vale that is being processed by an independent consultant Southern Geoscience. Preliminary results were released to the market on 29 August and 2 October 2019. This release includes the last of the processing of the historical data.
Further work	<ul> <li>The Company is undertaking re-logging and re-interpretation of the historical data with focus on the structural controls and plunge of the high-grade zones.</li> <li>A Ground Magnetic survey is currently underway and Electro-magnetic (EM) geophysical surveys are planned to start in January.</li> <li>In-fill and extensional drilling within the known deposits to test the continuity of high-grade zones is ongoing. There are currently two 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>