

23 May 2023

## ASSAY RESULTS CONFIRM HIGH-QUALITY BATTERY-GRADE NICKEL SULPHATE FROM JAGUAR

**Final results from pilot plant testwork program confirm Jaguar's ability to supply the fast-growing EV market**

Further to its ASX announcement of 4 May 2023, Centaurus Metals (ASX Code: CTM, OTCQX: CTTZF) is pleased to report assay results from the nickel sulphate produced from Jaguar Nickel Sulphide Project refinery pilot plant testwork program. The results confirm the ability of the Jaguar Project to deliver a high-quality battery-grade nickel sulphate product with key impurities well below the low end of the target range.

This important result reinforces the positive outcomes of the refinery pilot plant testwork program, which saw Centaurus produce its first nickel sulphate product from the Jaguar Project (Figure 1), confirming its ability to supply the fast-growing EV/lithium-ion battery markets. The pilot plant testwork program also successfully produced valuable by-products of zinc hydroxide and cobalt hydroxide.

The pilot work targeted a sulphate specification in the range aligned with the indicative requirements for a premium battery-grade nickel sulphate product from potential off-takers. The target range for the nickel sulphate and the assay result achieved is set out in Table 1. Further, outside of the key elements set out in Table 1, all other impurity elements assayed were reporting in parts per billion (ppb).

The result delivers a premium '4 Nines' product with an expectation that this could be refined further if off-take terms incentivised it.

**Table 1: Target Nickel Sulphate Specification for Jaguar with Assay Result Achieved**

	Element	Measure	Target Specification	Assay Result
Nickel	Ni	%	22.0 - 22.3	>22.2
Cobalt	Co	ppm	10 - 20	0.6
Copper	Co	ppm	5 - 10	0.1
Zinc	Zn	ppm	5 - 10	2.7
Iron	Fe	ppm	5 - 10	4.4
Manganese	Mn	ppm	10 - 20	0.3
Calcium	Ca	ppm	10 - 20	2.7
Magnesium	Mg	ppm	10 - 50	2.9
Potassium	K	ppm	10 - 100	1.0
Sodium	Na	ppm	10 - 100	6.4

Centaurus' piloting program for the Jaguar Project was developed to provide detailed chemistry and process engineering data for the DFS and future front-end engineering design (FEED) requirements, as well as to ensure a high-quality nickel product is achieved for marketing and strategic off-take discussions. The assay results reported today confirm that all objectives of the refinery pilot plant program have been achieved.

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# AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT & MEDIA RELEASE



As previously outlined in the 4 May 2023 ASX Release, approximately 96% of the nickel contained in the nickel concentrate feed to the pilot plant was recovered to nickel sulphate, meaning an overall recovery of nickel from ore to sulphate of 75% (at the average head grade of the Mineral Resource Estimate (MRE) of 0.87% Ni).



Figure 1: First nickel sulphate from Jaguar Pilot Plant Program.

Centaurus Metals' Managing Director, Darren Gordon, said the Jaguar refinery pilot plant testwork program was a success in every respect, with all objectives of the work achieved to a high level.

*"To produce a high-quality, '4 Nines' battery-grade nickel sulphate product from the first refinery test work undertaken is extremely pleasing and bodes well for off-take discussions as there simply aren't many options globally for a long-life supply of nickel sulphate with a low-carbon footprint, well located to key western hemisphere markets.*

*"As the EV market evolves, high-quality battery grade nickel sulphate supply from projects like Jaguar will become increasingly sought-after."*

The assay work on the zinc hydroxide and cobalt hydroxide products is still being undertaken.

For further information on the Company please visit [www.centaurus.com.au](http://www.centaurus.com.au) to view our latest corporate presentation or contact:

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## Competent Person's Statements

*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.*



**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
<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. ¼ core samples have been taken from 187 resource drill holes across all deposits as well as hole core samples from 34 designated metallurgical drill holes (twins of resource holes).</li> <li>• Samples from RC drilling are split to make 3-5kg samples. The sample is placed in a plastic sample bag with a sample tag before being sent to the laboratory.</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 229 drill holes completed by Centaurus for a total of 47,917m 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> <li>• The current RC drilling is completed by Geosenda Sondagem using a face sampling hammer (4.5”). Sample is collected from the sample cyclone in large plastic sample bags. Samples are then split either by riffle splitters or manually (fish bone method) where there is high moisture content.</li> <li>• All RC holes were sampled on 1m intervals. Sample size, sample recovery estimate and conditions were recorded.</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> <li>• RC sample weights are taken for all samples and a recovery estimate are made where the sample is not wet. Where the sample is wet a visual estimate of the sample recovery is made. The estimated recovery is approximately 90%, which is considered acceptable for the deposit type.</li> <li>• To ensure the representative nature of the sample, the cyclone and sample hoses are cleaned after each metre of drilling, the rig has two cyclones to facilitate the process. Additionally, extra care is taken when drilling through the water table or other zones of difficult ground conditions.</li> <li>• No quantitative twinned drilling analysis has been undertaken at the project to date.</li> </ul>

# AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT & MEDIA RELEASE



Criteria	Commentary
<b>Logging</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> <li>Geologists complete a visual log of the RC samples on 1m intervals at the time of drilling. Logging captures colour, rock-type, mineralogy, alteration, and mineralisation style. Logging is both qualitative and quantitative.</li> <li>Chip trays have been collected, photographed, and stored for all drill holes to-date.</li> </ul>
<b>Sub-sampling techniques and sample preparation</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>For RC sampling 1m samples are taken from the cyclone and then split by rifle splitter (if dry) or manually (if wet) using the fish-bone technique. Sample weight is between 3-5kg.</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> <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 ICP-AES (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>

# AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT & MEDIA RELEASE



Criteria	Commentary
<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, Jaguar West, Jaguar Northeast and Onça Preta and Onça Rosa.</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°) 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 to the ALS laboratories in Vespasiano, MG.</li> <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. One final deferred consideration payment totalling US\$5.0M (on commencement of commercial production) and a production royalty (0.75% on a nickel concentrate product or 0.55% on a nickel sulphate product) 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 three properties over the Jaguar Project. The agreements remove exposure to the landowner royalty over the properties 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> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</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> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</li> </ul>

# AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT & MEDIA RELEASE



Criteria	Commentary
<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> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>Refer to ASX Announcement of 6 August 2019 for all significant intersections from historical drilling.</li> <li>Refer to previous ASX Announcements for significant intersections from Centaurus drilling.</li> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</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 2m minimum intercept width.</li> <li>There are no metal equivalents reported.</li> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</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°) to achieve intersections at the most optimal angle.</li> <li>The historical drilling results in ASX Announcement 6 August 2019 reflect individual down hole sample intervals and no mineralised widths were assumed or stated.</li> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>Refer to previous ASX Announcements for maps and sections from Centaurus drilling included in the resource estimate.</li> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</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> <li>The above information has been previously reported in relation to Exploration Results. There is no new information in relation to this criterion specifically applicable to the metallurgical testwork reported in this announcement.</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> <li>The above information has been previously reported in relation to Exploration Results.</li> <li>The Exploration Results referred to in the announcement report the assay of the nickel sulphate produced from the Jaguar refinery pilot plant testwork (first reported to the ASX on 4/05/23). Refer to today's announcement and to the announcements of 4/5/23 and 15/3/23.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>Electro-magnetic (EM) geophysical surveys (DHEM and FLEM) are ongoing.</li> <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 have started.</li> <li>The above information has been previously reported in relation to Exploration Results.</li> <li>Assays are pending for cobalt and zinc hydroxide by-products.</li> </ul>