AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT



5 May 2023

FIRST NICKEL SULPHATE PRODUCED FROM JAGUAR ORE AS PILOT PLANT PROGRAM - AMENDED

Centaurus Metals Limited (ASX: CTM) amends the announcement released to the market on 04/05/23 to include a revised Section 2 of JORC Table 1. No other changes have been made to the previous announcement.

-ENDS-

For further enquiries please contact:

John Westdorp Company Secretary Centaurus Metals Ltd T: +61 8 6424 8420 Authorised for release by:

Darren Gordon Managing Director Centaurus Metals Ltd T: +61 8 6424 8420

Australian Office

Centaurus Metals Limited Level 2, 1 Ord Street West Perth WA 6005 AUSTRALIA

Brazilian Office

Centaurus Niquel Ltda Edificio Century Tower Rua Maria Luiza Santiago, 200 Santa Lúcia, 17º Andar - Sala 1703 Belo Horizonte - MG - CEP: 30360-740 BRAZIL

ASX: CTM

ACN 009 468 099 office@centaurus.com.au T: +61 8 6424 8420



4 May 2023

FIRST NICKEL SULPHATE PRODUCED FROM JAGUAR ORE AS PILOT PLANT PROGRAM SUCCESSFULLY CONCLUDES

Pilot Program confirms Jaguar's ability to produce a high-quality nickel sulphate product for the fast-growing EV market

- > Key results from the final phases of the Jaguar Nickel Sulphide Project refinery pilot testwork include:
 - Nickel sulphate successfully produced from Jaguar for the first time.
 - Very efficient cobalt recovery in the solvent extraction (SX) circuit. Over 99% of cobalt extracted from the Phase 2 raffinate with minimal loss of nickel (0.3-0.7% nickel).
 - A high-purity cobalt hydroxide by-product has been produced, to benefit overall project economics.
- > These key results build on the previous positive results from Phase 1 & 2 of the refinery pilot plant program.
- The pilot testwork program has been very successful in either meeting or exceeding the pre-testwork goals and delivering a robust data package for use in the DFS refinery process design, which is currently underway with the Company's engineering partner Ausenco.
- > Samples of Jaguar nickel sulphate product are now available for marketing and strategic off-take discussions.
- > Work to date confirms the quality of the Jaguar Project and its potential to produce a battery-grade nickel sulphate product for the rapidly growing EV market.
- > Centaurus remains well-funded with approximately \$23 million in cash at the end of the March Quarter.

Centaurus Metals (ASX Code: CTM, OTCQX: CTTZF) is pleased to announce that it has successfully produced the first-ever nickel sulphate from its flagship Jaguar Nickel Project in Brazil as part of the final phase of work undertaken as part of the Jaguar Pilot Plant testwork program.

The successful production of nickel sulphate, cobalt hydroxide and zinc hydroxide concludes the pilot program with only analytical assay work on the products and thickening and filtration vendor testing on the cobalt and zinc hydroxide products to be completed over the next month.



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

Australian Office Centaurus Metals Limited Level 2, 1 Ord Street West Perth WA 6005 AUSTRALIA

Brazilian Office

Centaurus Niquel Ltda Edificio Century Tower Rua Maria Luiza Santiago, 200 Santa Lúcia, 17º Andar - Sala 1703 Belo Horizonte – MG, BRAZIL ASX: CTM ACN 009 468 099 office@centaurus.com.au T: +61 8 6424 8420



Centaurus' piloting program for the Jaguar Project has been 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.

Centaurus Metals Managing Director, Darren Gordon, said the completion of the Pilot Plant Testwork Program marked another pivotal step in the development of the Jaguar Project as a major new green nickel sulphide project capable of delivering battery-grade products to the fast-growing electric vehicle market.

"The nickel industry is experiencing transformational demand for nickel sulphate as a critical product that is essential in the new generation of high-performance lithium-ion batteries required for EV's and other renewable energy applications.

"The successful delivery of a high-quality nickel sulphate product is a huge milestone for the Company and the Jaguar Project, and I would like to thank the technical team for their hard work in achieving this fantastic result. This shows that Jaguar is ready to produce a product that is perfectly tailored for the new wave of nickel demand over the coming decade and beyond. The high-quality data from this program also feeds into the ongoing DFS and will allow us to complete the critical process flowsheet design work required to finalise the refinery plant design."

Pilot Plant Testwork

As noted in the metallurgical update from 15 March 2023, the bulk concentrate used as feed for piloting of the refinery had the following product specification (Table 1).

Ni (%)	Cu (%)	Co (%)	Zn (%)	AI (%)
11.2	0.72	0.31	3.07	0.44
Cl (%)	As (%)	F (%)	Fe (%)	K (%)
<0.01	< 0.01	<0.01	30.3	0.13
MgO (%)	Fe/MgO	Pb (%)	S (%)	P (%)
2.56	11.9	0.05	36.7	0.42

Table 1: Pilot Bulk Concentrate Sample Analysis

The scope of the refinery piloting was split into four phases of work as follows:

- Phase 1: Concentrate feed preparation, pressure leaching, and copper solvent extraction.
- Phase 2: Calcium and zinc removal via solvent extraction.
- Phase 3: Cobalt and nickel solvent extraction circuits.
- Phase 4: Nickel sulphate crystallisation plus zinc and cobalt hydroxide precipitate production.

Phase 1 and Phase 2 were completed previously, with results reported on 15 March 2023.

Phase 3 Results

Phase 3 was designed to extract cobalt (for a by-product revenue stream), with minimal nickel loss, followed by the purification of the nickel solution to allow Phase 4 to be undertaken, being the production of nickel sulphate and the production of zinc hydroxide and cobalt hydroxide by-products.

From the Phase 3 solvent extraction work, two product streams were produced:

- 1. A high-purity nickel strip solution for nickel sulphate production; and
- 2. A cobalt strip solution to produce a cobalt hydroxide by-product.

These are in addition to the zinc strip solution, for a zinc hydroxide by-product, produced in Phase 2. These three solutions were submitted to Strategic Metallurgy Pty Ltd in Perth to facilitate the Phase 4 work program.



The Phase 3 piloting of cobalt solvent extraction has been completed using a C272 extractant and a solvent extraction circuit that was successful in extracting over 99% of the cobalt while only losing less than 0.7% of the nickel (Table 2).

Table 2: Phase 3 Product Average Solution Concentrations

Solution	Co (mg/L)	Mg (mg/L)	Mn (mg/L)	Ni (mg/L)	Zn (mg/L)
Nickel Strip Solution	< 0.5	3.0	< 0.5	91,170	1.5
Cobalt Strip Solution	8,071	28,357	570	1,935	13.0

The Phase 3 test work shows that a high-purity cobalt hydroxide by-product can be generated which will provide another revenue stream not considered in prior economic assessments of the project.

Phase 4

As noted above, Phase 4 (the final stage of the pilot work program) involved the production nickel sulphate as well as the production of zinc hydroxide and cobalt hydroxide as by-products of the Project.

The Company has now successfully produced nickel sulphate as shown in Table 3, with the product awaiting final assay.

The pilot work targeted a sulphate specification in the range outlined in Table 3 below, as this range specification aligns with the indicative requirements for a premium battery-grade nickel sulphate product from potential offtakers.

The final assays, due in approximately four weeks' time, are expected to confirm the Jaguar nickel sulphate product specification sits comfortably within the target range.

Approximately 96% of the nickel contained in the nickel concentrate feed to the pilot plant (based on daily pilot data) 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).

	Element	Measure	Target Specification
Nickel	Ni	%	22.0 - 22.3
Cobalt	Со	ppm	10 - 20
Copper	Со	ppm	5 - 10
Zinc	Zn	ppm	5 - 10
Iron	Fe	ppm	5 - 10
Manganese	Mn	ppm	10 - 20
Calcium	Са	ppm	10 - 20
Magnesium	Mg	ppm	10 - 50
Potassium	К	ppm	10 - 100
Sodium	Na	ppm	10 - 100

Table 3:Target Nickel Sulphate Specification for Jaguar



In addition to the nickel sulphate production, the Company has been able to successfully produce zinc hydroxide and cobalt hydroxide by-products (Figure 2), the final specification of which will also be delivered in the next four weeks. The by-products will be an additional source of revenue in the DFS economics which were not considered in prior economic assessments of the Project.





For further information on the Company please visit <u>www.centaurus.com.au</u> to view our latest corporate presentation or contact:

-ENDS-

For further enquiries please contact: **Nicholas Read** Read Corporate M: +61 419 929 046 T: +61 8 9388 1474 info@readcorporate.com.au Authorised for release by: Darren Gordon Managing Director Centaurus Metals Ltd T: +61 8 6424 8420 office@centaurus.com.au

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		
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. Surface rock chip/soil samples were collected from in situ outcrops and rolled boulders and submitted for chemical analysis. 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. Core was cut and ½ core sampled and sent to commercial laboratories for physical preparation and chemical assay. 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. 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. 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 Core is cut and ¼ core sampled and sent to accredited independent laboratory (ALS). 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). Samples from C 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. 		
Drilling techniques	 Geosol), using wire-line hydraulic diamond rigs, drilling NQ and HQ core. 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°. Current drilling is a combination of HQ and NQ core (Servdrill). 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. All RC holes were sampled on 1m intervals. Sample size, sample recovery estimate and conditions were recorded. 		
Drill sample recovery	 Diamond Drilling recovery rates are being calculated at each drilling run. 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. To ensure adequate sample recovery and representativity a Centaurus geologist or field technician is present during drilling and monitors the sampling process. No relationship between sample recovery and grade has been demonstrated. No bias to material size has been demonstrated. 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. 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. No quantitative twinned drilling analysis has been undertaken at the project to date. 		



Criteria	Commentary	
Logging	 Historical outcrop and soil sample points were registered and logged in the Vale geological mapping point database. All drill holes have been logged geologically and geotechnically by Vale or Centaurus geologists. 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. Logging for drilling is qualitative and quantitative in nature. All historical and new diamond core has been photographed. 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. Chip trays have been collected, photographed, and stored for all drill holes to-date. 	
Sub-sampling techniques and sample preparation	 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. There is no non-core sample within the historical drill database. 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. 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 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. 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. During the preparation process grain size control was completed by the laboratories (1 per 20 samples). Metallurgical samples are crushed to 3.35mm and homogenised. Samples are then split to 1kg subcamples. 	
Quality of assay data and laboratory tests	 samples. Sub-samples are ground to specific sizes fractions (53-106μm) for flotation testwork. 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. 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. 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. Vale inserted standard samples every 20 samples (representing 5%). Mean grades of the standard samples are well within the specified 2 standard deviations. 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. Vale QAQC procedures and results are to industry standard and are of acceptable quality. All metallurgical chemical analysis is completed by ALS laboratories 	
Verification of sampling and assaying	 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. Centaurus Exploration Manager and Senior Geologist verify all new results and visually confirm significant intersections. No twin holes have been completed. 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). No adjustments have been made to the assay data. 	



Criteria	Commentary	
Location of data points	 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. An aerial survey was completed by Esteio Topografia and has produced a detailed surface DTM at (1:1000 scale). The survey grid system used is SAD-69 22S. This is in line with Brazilian Mines Department requirements. 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. 	
Data spacing and distribution	 Soil samples were collected on 40m spacing on section with distance between sections of 200m and 400m depending on location. Sample spacing was deemed appropriate for geochemical studies. 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. No sample compositing was applied to the drilling. Metallurgical samples to date have been taken from Jaguar South, Jaguar Central, Jaguar North, Jaguar West, Jaguar Northeast and Onça Preta and Onça Rosa. 	
Orientation of data in relation to geological structure	 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. Mineralisation is sub-vertical; the majority of the drilling is at low angle (55-60°) to achieve intersections at the most optimal angle. 	
Sample security	 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. 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	 The Jaguar project includes one exploration licence (856392/1996) for a total of circa 30km². A Mining Lease Application has been lodged that allows for ongoing exploration and project development ahead of project implementation. The tenement is part of a Sale & 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. Mining projects in Brazil are subject to a CFEM royalty, a government royalty of 2% on base metal revenue. Landowner royalty is 50% of the CFEM royalty. Centaurus has secured possession rights to three properties over the Jaguar Project. The agreements remove exposure to the landowner royalty over the properties secured. The project is not located within any environmental protection zones and exploration and mining is permitted with appropriate environmental licences. 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. 			
Exploration done by other parties	 Historically the Jaguar Project was explored for nickel sulphides by Vale from 2005 to 2010. 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. 			
Geology	 Jaguar Nickel Sulphide is a hydrothermal nickel sulphide deposit located near Tucumã in the Carajás Mineral Province of Brazil. 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. 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. 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. 			
Drill hole Information	 Refer to ASX Announcement of 6 August 2019 for all significant intersections from historical drilling. Refer to previous ASX Announcements for significant intersections from Centaurus drilling. 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. 			
Data aggregation methods	 Continuous sample intervals are calculated via weighted average using a 0.3 % Ni cut-off grade with 2m minimum intercept width. There are no metal equivalents reported. 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. 			
Relationship between mineralisation widths and intercept lengths	 Mineralisation is sub-vertical; the majority of the drilling is at low angle (55-60°) to achieve intersections at the most optimal angle. The historical drilling results in ASX Announcement 6 August 2019 reflect individual down hole sample intervals and no mineralised widths were assumed or stated. 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. 			
Diagrams	 Refer to previous ASX Announcements for maps and sections from Centaurus drilling included in the resource estimate. 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. 			



AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT
& MEDIA RELEASE

_

Criteria	Commentary	
Balanced reporting	 All exploration results received by the Company to date are included in this or previous releases to the ASX. 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. 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. 	
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. The above information has been previously reported in relation to Exploration Results. The Exploration Results referred to in the announcement report the production of nickel sulphate, zinc hydroxide and cobalt hydroxide from bulk concentrate feed (refer to ASX announcement date 15/03/23) processed via the pilot plant testing facility as also described in the announcement. Refer to today's announcement and to the announcement of 15/03/23. 	
Further work	 Electro-magnetic (EM) geophysical surveys (DHEM and FLEM) are ongoing. 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. Metallurgical testwork is ongoing. Geotechnical and hydrological studies for the proposed tailings facility and waste deposits have started. The above information has been previously reported in relation to Exploration Results. Assays are pending for nickel sulphate and cobalt and zinc hydroxides. 	